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BRITISH INTELLIGENCE IN THE SECOND WORLD WAR

ABRIDGED VERSION

by

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Preface

This book is an abridgement of the official history, *British Intelligence in the Second World War*, which was published by HMSO in five volumes between 1979 and 1990. Although the emphasis was placed in those volumes on the use made of intelligence, considerable space was devoted to technical and administrative matters, notably the problems associated with the procurement of intelligence and the relations between the many authorities engaged in procuring, assessing and applying it. This abbreviated account concentrates as far as possible on analysing the influence exerted by intelligence on strategy and operations. Readers interested in learning more about the procurement and the organisation of intelligence in the Second World War are referred to the official history.

F.H. HINSLEY
Abbreviations

ADI (Sc) Assistant Director of Intelligence (Science), Air Ministry
AFHQ Allied Force Headquarters
AFV Armoured Fighting Vehicle
AI Air Intelligence (Branch of the Air Ministry)
ANCXF Allied Naval Commander Expeditionary Force (Overlord)
ASV Anti-Surface Vessel Radar
‘C’ also CSS: Head of the Secret Service
CAS Chief of the Air Staff
CBME Combined Bureau Middle East
CCS Combined Chiefs of Staff (Anglo-US)
CIC Combined Intelligence Committee
CID Committee of Imperial Defence
CIGS Chief of the Imperial General Staff
CIU Central Interpretation Unit
COHQ Combined Operations Headquarters
COS Chiefs of Staff (British)
COSSAC Chief of Staff to the Supreme Commander (Designate)
CSDIC Combined Services Detailed Interrogation Centre
CSS Chief of the Secret Service, also ‘C’
DCAS Deputy Chief of Air Staff
DF Direction Finding
DMI Director of Military Intelligence
DNI Director of Naval Intelligence
FHW Fremde Heere West (intelligence branch of OKH)
GAF German Air Force
GC and CS Government Code and Cypher School
GCI Ground Controlled Interception
HDU Home Defence Unit
IAF Italian Air Force
IFF Identification Friend or Foe
IIC Industrial Intelligence Centre
ISTD Inter-Service Topographical Department
JIC Joint Intelligence Sub-Committee (of the COS)
JIS Joint Intelligence Staff
JK Jagdkorps (GAF fighter corps)
MEIC Middle East Intelligence Centre
MEW Ministry of Economic Warfare
MI Military Intelligence (Branch of the War Office)
MIRS Military Intelligence Research Section
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PART I
CHAPTER ONE

Before the War

Intelligence is an activity which has to perform three functions. Information has to be acquired: it has to be analysed and interpreted: and it has to be put into the hands of those who use it. At the outbreak of the Second World War the bodies which carried out these functions for the British government were not so well organised, either individually or in terms of the co-ordination of their work, that they constituted an efficient system. They had been handicapped by financial stringency and by the lack of priority given to intelligence in the inter-war years, disadvantages which were reflected less in the small size than in the indifferent quality of their staff. But they were handicapped, also, by problems which could be brought into focus, for clarification and solution, only under the pressure of war-time conditions and with help from war-time opportunities.

Some of the problems were organizational in character. They arose from the insularity and the rivalry that may bedevil relations whenever several bodies share responsibility in a single field. They were all the more intractable, however, for another reason. In the inter-war years increasing professionalism, or at least a decline in amateurism, was separating the different functions and requiring that they should be undertaken by specialized inter-departmental bodies which conflicted with the established division of responsibility among individual departments. The achievements of British intelligence during the war were to owe much to the fact that the essential inter-departmental bodies had been created in the inter-war years - the Special or Secret Intelligence Service, the Government Code and Cypher School and the Security Service at the level of acquiring information; the Industrial Intelligence Centre at the level of analysing and interpreting it; and the Joint Intelligence Committee and the Middle East Intelligence Centre for the purpose of co-ordinating analysed information from the different sources and ensuring that it was effectively used. Before the outbreak of war the development of these bodies was either resisted or at best neglected by the departments most involved. The departments each had direct and onerous responsibilities to the Central Government and to other authorities at home and abroad: their intelligence branches were naturally reluctant to exchange reliance on inter-departmental bodies for their own control of the acquisition, assessment and use of whatever information might bear on their work.

This was all the more true of the Service departments for two reasons. After the First World War they suffered most from retrenchment. And partly on this account but also with the intention of ensuring that intelligence would be better integrated with the work of their other sub-departments, they reduced the independence of their intelligence branches. The War Office incorporated it in a Combined Directorate of Operations and Intelligence. The Air Ministry followed suit. In the Admiralty the branch survived as an independent Naval Intelligence Division, but the seniority of its director was reduced. In practice the change encouraged the tendency of each branch to confine its interest to intelligence which immediately related to the operational responsibility of its
Department, and thus to work in isolation from the others. Nor was this tendency reversed when, from 1935, in response to Germany’s creation of an air force, her introduction of conscription and her occupation of the Rhineland, the Services up-graded the status and increased the size of their intelligence branches in a process which culminated in 1939 in the appointment of a Director of Intelligence in the War Office and the Air Ministry and the establishment of an Operational Intelligence Centre by the Director of Naval Intelligence.

If the Service branches were disinclined to collaborate in the field of military intelligence, they were even less disposed to relate military information with political analysis. This was the preserve of the Foreign Office. In the shape of the reports it regularly received from the diplomatic missions overseas, the Foreign Office monopolised by far the most continuous and comprehensive source of information about foreign countries. It had long held it to be a matter of principle that the Service attachés must be attached to the missions and report officially only to itself. For most attaché reports it acted as a post box, forwarding them to the Service departments without comment. But it did not feel constrained from putting its own assessment on them or any other information it might receive on military matters, without consulting those departments. On the contrary, it assumed that it had the right to do so in view of its responsibility for advising the Foreign Secretary and the Cabinet on problems and choices in foreign policy. At the same time, it made no distinction between the process of assessing information and its other work. The information was the stuff of diplomacy and was not called intelligence: its officials both assessed and advised on it; it had no separate intelligence branch which might have compared and collated their appreciations with those of other government departments. Among those departments, however, the Services fully accepted that they should have no say in time of peace in the area of the Foreign Office’s responsibility except through their representatives at the level of the Cabinet and its committees.

Down to the outbreak of war the Foreign Office displayed no inclination to change this system in which it was only at this level that military and political appreciations were considered together.

* * *

Despite the fact that powerful arguments and strong traditions thus ensured that responsibility for intelligence continued to be distributed among the separate departments, equally powerful forces, the pressure for retrenchment and an increase in the technical complexity of the intelligence functions, pointed to the need for inter-departmental arrangements. If only in relation to one of those functions indeed – the acquisition of intelligence – these forces were already sufficient by the end of the First World War to secure the formation of the Special or Secret Intelligence Service and the Government Code and Cypher School.

The Secret Intelligence Service (SIS) was initially set up before 1914 to acquire intelligence abroad by means of espionage. But it had remained under the control of a single department (usually the War Office; hence its other title, MI6, which it retains for reasons of custom and convenience) and during the
First World War other departments had continued to dabble in espionage. Only in 1921 was it made exclusively responsible for espionage on behalf of all government departments. Even then it still housed separate sections representing the intelligence branch of each of the three Service ministries, which competed to supply its Chief (known as C or CSS); and while the Foreign Office assumed financial and constitutional responsibility for it, it did so on two conditions. The first was that, in so far as the SIS obtained political intelligence, it should do so solely for the Foreign Office; the Service branches must not extend their interest beyond military matters to the political field. The second was that the SIS’s activities should be kept strictly apart from the staff and the attaches at the embassies and legations which supplied the Foreign Office’s overt intelligence.

Although it was ultimately responsible for the SIS, the Foreign Office thus refrained from taking any interest in its organisation, let alone its day-to-day activities and its operational methods. This accentuated the main defect of the 1921 arrangements. The SIS was not strong enough to settle priorities as between the competing requests of the user departments, or to resist requests that were beyond its resources. When these demands became urgent and conflicting, as they did in the 1930’s, it was both constantly over-stretched and subjected to constant criticism especially from the Service departments. The arrangements nevertheless had some merits. The fact that the Service departments were represented in the SIS and had the opportunity to influence its activities, together with the fact that it reported its findings without attempting to interpret their significance, reassured them that intelligence could at least be acquired on an inter-departmental basis without infringing their individual control of its assessment and its use. For all their complaints, they made no attempt after 1921 to operate agents for themselves.

The Service intelligence branches were less easily reconciled to the development of the Government Code and Cypher School (GC and CS), the inter-departmental body responsible for acquiring intelligence by means of cryptanalysis. GC and CS was set up in 1919 with remnants of the separate cryptanalytical sections that had served the Admiralty (Room 40) and the War Office (MIIb) in the First World War. No doubt because foreign armed forces were then ceasing to use wireless for cyphered communications, the Services objected neither to its establishment under the constitutional and the administrative control of the Foreign Office nor to the fact that in 1923 the Foreign Office placed it under the authority of the head of the SIS, who was re-named Chief of the Secret Service and Director of GC and CS. But they made two reservations. The first was that at their discretion, and certainly in the event of the outbreak of war, the exploitation of readable codes and cyphers would be transferred to the Service intelligence branches and to the HQs of the operational commands, GC and CS remaining responsible only for work on unsolved cyphers. The second was that the staff which they would meanwhile attach to GC and CS should consist only of cryptanalysts exploiting or being trained to exploit cyphers that concerned their own Service; the Service departments themselves would retain total responsibility for the other processes associated with the production of intelligence from signals.

These reservations arose out of their experience during the First World War. As a result of the development of wireless since the beginning of the century, signals intelligence had then for the first time proved to be the most valuable of all the sources of intelligence, and cryptanalysis had proved to be
only one of several stages in its production. Before signals could be decyphered they had to be intercepted (the process later generally known as Y). As well as providing material for cryptanalysis, their place of origin could be located by direction-finding (DF) and they could be studied (by the process later generally known as Traffic Analysis or TA) as the output of communications networks whose behaviour, procedures and techniques could yield further information. Finally, in the event of being decrypted their contents had to be translated and evaluated by experts: the immediate or operational significance of individual signals might well depend on long-range research based on the analysis of many. The First World War had shown, moreover, that if maximum use was to be made of these processes (together constituting what later became known as Sigint) they must be carried out in close proximity both to each other and to the operational staffs who acted on the results. Only if the cryptanalysts were in close touch with those responsible for interception and Traffic Analysis could cyphers be solved with the minimum of delay. And those responsible for evaluating the findings obtained from Traffic Analysis and decrypts, and marrying them with intelligence from sources other than Sigint, could be fully efficient only if they were aware of the needs and intentions of the operational authorities, and thus in close contact with them.

As late as the end of 1938, following the decision to move GC and CS out of London on the outbreak of war, the feeling that its ‘dress-rehearsal’ transfer to Bletchley during the Munich crisis had not worked well revived the wish of the Service ministries to reorganise Service Sigint on a single-Service basis if war was declared. By then, on the other hand, the early decision to carry out all cryptanalysis at one place in peace-time had combined with other developments to persuade them that GC and CS must remain an inter-departmental organisation in time of war to a greater extent than they had originally planned. Each of the Services had maintained its own intercept stations, but they had conceded that their stations should participate with those of the Foreign Office, the Post Office and the Police in a single interception programme in which the priorities were laid down on the advice of GC and CS by an inter-departmental Y Committee. They had recognised that, in the employment of the cryptanalysts they seconded to GC and CS, Service affiliations must take second place to the technical demands and possibilities of the cryptanalystical situation. In these circumstances they agreed in the eighteen months before the outbreak of war that, while as much work as possible on easily exploitable codes and cyphers would be transferred to Service intercept stations and intelligence centres at home and abroad, on the pattern which had long operated between GC and CS and the main Sigint stations in the Middle East and the Far East, GC and CS would remain in over-all charge of the cryptanalystical programme. And while they continued to insist on retaining responsibility for Traffic Analysis and the evaluation of decrypted material, they allowed that, as Sigint was a continuum of processes which could not be separated, GC and CS might undertake as much duplication in these fields as it needed for cryptanalystical purposes, the Foreign Office providing the additional staff required.

It proved to be the case that in making these compromises and accepting this duplication they had struck a good balance between the impracticability of total centralisation and the drawbacks of sub-division in the organisation of Sigint. The arrangements made by 1939 were to produce during the war a flexible collaboration between GC and CS and its clients which permitted the
effective fusion of all the Sigint processes and made Sigint the most valuable of all the sources of intelligence.

Whereas the establishment of inter-departmental bodies for the acquisition of intelligence was not unduly delayed - the SIS and GC and CS emerging, indeed, from the commendably rapid application of experience gained in the First World War - no such bodies were created for the analysis and assessment of intelligence before 1934. The movement towards the coordination or centralisation of assessments before that date was restricted to Security or Counter-intelligence.

Together with MI6, a Security Service had first been set up under the War Office before 1914. During the First World War it had become responsible, as MI5, for assessing and advising the government on all information relating to the defence of the national interest in the United Kingdom and British overseas territories against espionage, sabotage and political subversion. After 1919 it had reverted to being a small section of the War Office charged only with Security on behalf of the armed forces, and the Special Branch of the Metropolitan Police had been made responsible for Security as it affected the civilian population. This change was made in response to ministerial, public and police distrust of the development of a domestic Secret Service at a time when the increasing prominence of labour organisations, pacifist groups and Communist activists was blurring the distinction between subversion and legitimate dissent - and when espionage had ceased to be an obvious threat. By 1931, however, duplication and friction between MI5 and the Special Branch had persuaded the Home Office that MI5 should be responsible for advising government departments on all intelligence relating to subversion (other than that relating to well-known groups and to the maintenance of public order, which remained in the province of the Special Branch) and espionage. Its name was changed from MI5 to the Security Service (though like MI6 it also kept the old title for reasons of custom and convenience) and it was made accountable to the Home Secretary in view of his constitutional responsibility both for the safety of the State and for the liberty of the subject and the rights of minorities.

The Security Service was a hybrid organisation. Just as it served all government departments but was not inter-departmental in its composition, so it was not debarred from acquiring information by sensitive means of its own by the fact that it was primarily concerned with assessing information provided by the main intelligence-gathering agencies. It was also peripheral to the assessment of intelligence on international and strategic issues - the more so as its responsibility did not extend beyond the three-mile limits of the United Kingdom and British territories overseas, where the SIS remained the authority for advising on counter-intelligence as well as for collecting intelligence.

To the extent that any attempt was made to co-ordinate the assessment of intelligence on international issues before the mid-1930's, it was carried out by the Committee of Imperial Defence (CID). Set up in the early 1900's to ensure that the assessments of the Foreign Office and the Service departments were as far as possible reconciled in the policy and strategic appreciations which
formed the basis of Cabinet decisions, the CID may have been adequate for its purpose at the time, and it was certainly an innovation that was overdue. But consisting as it did of meetings between Cabinet Ministers and the Chiefs of Staff, and being provided with a permanent secretariat which did little more than prepare its agenda and follow up its enquiries, it could absorb the increase in the amount and complexity of data that took place in the interwar years only by creating specialised inter-departmental sub-committees. Even with this device, however, it confined itself before 1936 to the establishment of a cluster of sub-committees charged with advising it on economic data relating initially to the country’s obligation to apply economic sanctions under the Covenant of the League of Nations. The most important of these sub-committees, for Industrial Intelligence in Foreign Countries (FCI), was established in 1929. In 1931 it acquired a small research centre, the Industrial Intelligence Centre (IIC), which was authorised from 1934 to collect, interpret and distribute industrial intelligence to the War Office, the Admiralty, the Air Ministry and other departments.

To begin with, the Service departments still insisted that the IIC must submit its reports to their intelligence branches before they were circulated. By the end of 1935, however, they were recognising ‘the increasing tendency for certain specific aspects of intelligence to develop in which two or more separate departments are equally interested, with the result that the danger of uneconomical duplication in the collation and recording of such intelligence is tending to increase’. And it was on their initiative that in 1936 the CID set up for the first time an organisation in which the three Services could jointly discuss the management and the assessment of all military intelligence. Initially called the Inter-Service Intelligence Committee, but soon renamed the Joint Intelligence Sub-Committee of the Chiefs of Staff (JIC), it consisted of the heads of the three Service intelligence branches: they co-opted the head of the IIC.

In that it met regularly from July 1936, the JIC at once established itself as part of the intelligence system. Until the summer of 1939, however, it remained a peripheral body which, far from being active in co-ordinating intelligence assessments and still less in analysing their implications, played the essentially routine and administrative role of providing factual data about British defences and the armed forces of foreign states for British delegations to staff talks with foreign and Commonwealth governments, or for inclusion in the strategic appreciations and defence reviews that were drawn up regularly by the Joint Planning Staff for the Chiefs of Staff and the Cabinet. If, as was rarely the case, it ventured further, its reports were criticised by the Service branches for duplicating their own or for being inaccurate. On matters of central concern, notably the progress of Germany’s rearmament, the Service branches continued to make their own individual assessments, as did IIC and the Foreign Office. The Foreign Office continued to evaluate political intelligence without consultation with the Joint Planning Staff. The Joint Planning Staff continued to prepare strategic assessments for the Chiefs of Staff with the help only of periodic summaries from the Foreign Office and perfunctory consultation with the JIC or the intelligence branches in the Service departments. The one point at which political and military intelligence assessments were considered together was the Foreign Policy Committee of the Cabinet, a small body of prominent ministers which was established in 1936 to advise the Government on its major decisions. When so little co-ordination of assess-
Before the War

ments was being undertaken at lower levels, it is perhaps not surprising that the Committee met only at irregular intervals and rarely considered intelligence estimates in its pre-occupation with British defence short-comings and strategic difficulties.

From the autumn of 1938 the Service departments sought to remedy, if only in the Middle East, the defect which the creation of the JIC had failed to remedy in Whitehall. They agreed on the urgent need for a single centre in Cairo to co-ordinate the assessment of the information produced by the widely scattered army, navy and air intelligence groups in that theatre; and they pressed that it should cover political as well as military intelligence and have Foreign Office as well as Service staff. The Foreign Office objected to a political/military centre, and in June 1939 the CID authorised the immediate formation of the Middle East Intelligence Centre (MEIC) for the three Services.

By that time the Foreign Office had been forced to accept that it must collaborate more closely with the Service departments in Whitehall. In April 1939, when the Foreign Office’s attendance at meetings of the JIC was still unusual, when it continued to issue its own intelligence bulletins, and when its bulletins were regurgitating embassy rumours and foreign misinformation that were increasingly military in content and alarmist in tone, the Chiefs of Staff insisted that before any intelligence that seemed to call for quick decisions was distributed, whether it was political or military, it should be pooled and processed at a Situation Report Centre, at which a Foreign Office representative met daily with the heads of the three Service intelligence branches.

Two months later the Centre proposed its own amalgamation with the JIC. In one respect, the composition of the two bodies being otherwise identical, the re-organisation which took place in the summer of 1939 involved only the formal inclusion in the JIC of a Foreign Office representative; the Foreign Office, indeed, provided the chairman despite the fact that the JIC remained responsible to the Chiefs of Staff. But the JIC was given new terms of reference. These laid it down that it should continue to issue the daily reports and the weekly commentaries which the Centre had instituted, but should also be charged with the following duties:

‘(i) The assessment and co-ordination of intelligence ... with the object of ensuring that any Government action ... should be based on the most suitable and carefully co-ordinated information obtainable.

(ii) The co-ordination of any intelligence data which might be required by the Chiefs of Staff or the Joint Planning Sub-Committee for them.

(iii) The consideration of any further measures which might be thought necessary in order to improve the efficient working of the intelligence organisation of the Country as a whole.’

With this step the principle that intelligence of inter-departmental significance must be assessed and brought to the notice of its recipients on an inter-departmental basis was finally established, just in time for the outbreak of war, even if, as was to be amply demonstrated thereafter, Whitehall had still to learn how to translate the principle into practice.
Organisational obstacles mainly accounted for the delay in establishing inter-departmental machinery for assessing intelligence and bringing it to the attention of its users – and not least the fact that the reluctance of individual departments to yield any of their responsibility was so strong that it was overcome only by the threat of imminent war. But this reluctance was not the sole obstacle to efficiency in the intelligence system. It had the effect that information existed which was not put to good use, but this was less serious than the fact that before the outbreak of war reliable information was in short supply.

In the case of the most extensive and largely overt source of information, the reports of the diplomatic missions to the Foreign Office, the inadequacy reflected the uncertainty and the steady deterioration of the international situation. When the deterioration was so closely associated with the activities of Germany, Soviet Russia, Italy and Japan, closed or totalitarian states where intense security precautions and drastic police measures added to the normal difficulties of obtaining good information, the diplomatic reporting system was rarely able to give estimates or warnings of new developments with the reliability and the precision that were increasingly called for. And when the diplomatic missions were unable to meet the needs of the time the clandestine sources were in no position to fill the gap.

The deficiencies of these sources, those produced by the SIS and GC and CS, were due in some measure to financial stringency. In 1935, at the height of the Abyssinian crisis, the CSS warned the government that lack of money had long ago forced the SIS to abandon its activities in several countries which would have yielded intelligence on Italy; and he complained that the SIS’s total budget had been so reduced that it equalled only the cost of maintaining one destroyer in Home Waters. After the German occupation of the Rhineland in the spring of 1936 he attempted to get more funds but met with little success, so that the SIS became largely dependent on France for intelligence on Germany. In 1938, following Germany’s take-over of Austria, he secured some increase; but it was not sufficient to offset the severe blows from which the SIS suffered as the international scene became more bleak. The head of its Vienna station was arrested when Germany entered Austria. The German seizure of Prague in the Spring of 1939 brought about the collapse of its network in Czechoslovakia. Earlier still – though it remained unaware of this until its representatives at The Hague were kidnapped at Venlo in November 1939 – its organisation in the Netherlands had been penetrated by the German security service since 1935. From GC and CS, in the same way, there were frequent complaints from 1932 that its work was being impeded by shortage of intercept receivers. But shortage of funds was not the sole problem. Technical difficulties which were associated with the nature of the clandestine sources, and which could not be solved by merely providing more resources, limited their ability to produce intelligence in peace-time.

In terms of the extent to which it was feasible to produce Sigint, the staff at GC and CS and the interception facilities provided for it were not inadequate. Until the mid-1930’s the armed forces of foreign states made little use of wireless: and they used medium frequencies which were not easily intercepted over long distances. Before 1935 GC and CS judged that none of the military traffic it could decrypt was worth circulating to Whitehall. From the mid-1930’s, on the other hand, with the resumption of military operations and the introduction of high frequencies, it did not fail to solve the main army and navy
cyphers of Japan and most of the highgrade cyphers used by Italy’s armed forces and colonial authorities - and this despite the fact that by then the cyphers used by the important states were far more sophisticated than those of the First World War. Though Japan introduced new cyphers from 1937, and though GC and CS was unable to solve them even with an increase of staff until September 1939, there was thus a good deal of information about the composition, the state of readiness and the movements of the Japanese and Italian armed forces. But this stood in sharp contrast to the fact that Germany and Soviet Russia, states which in so far as they were engaged in military operations were working within interior lines of communication, were still making so little use of wireless that their high-grade cyphers remained impregnable and (except for those of the burgeoning German Air Force) even their tactical codes and cyphers were either unreadable or unilluminating. Against the diplomatic and attaché cyphers of the major states progress was equally impossible. Those of Italy were largely readable from 1935, but Germany’s, Soviet Russia’s and Japan’s remained insoluble.

Had Sigint been more easily obtainable it might well have failed to illuminate the darkening international scene. At least in peace-time, governments are neither inclined nor forced to refer to the highest secrets of state even in cyphered communications. Nor are they disposed to divulge them to the accredited representatives of foreign powers. The diplomatic missions, like the press, the radio and other overt sources, were thus alive with conflicting rumours and warnings, and the SIS was driven to devote its limited resources to collecting political intelligence in an attempt to reduce the confusion. In vain: in the absence of any check from Sigint it was difficult to distinguish what was reliable from what was dubious in the SIS’s own reports. As well as casting doubts on the credibility of its agents, this pre-occupation led to complaints that the SIS was failing to meet the need for factual intelligence about foreign military capacities, equipment, preparations and movements, or that what little it was providing was inferior even to that supplied by the attachés.

In 1938 the SIS made an invaluable contribution to the future increase of factual intelligence on such matters by helping to develop aerial photographic reconnaissance. But though this was to become an important source, second only to Sigint, it made no practical contribution to knowledge until, from the summer of 1940, it began to overcome the consequences of pre-war neglect. During the First World War photographic reconnaissance (PR) had been restricted by the technical limitations of aircraft and camera performance to short-range operations at low heights, and it had come to be regarded as capable of producing only tactical intelligence in association with actual or imminent operations. The Air Ministry did not resort to it again until 1935, when the RAF photographed Eritrea, Abyssinia, Cyrenaica and Sicily at the time of the Abyssinian crisis. From 1936 it spent heavily in an attempt to improve equipment, techniques and training. It did so to little effect. This was partly because a long period of financial stringency had bred in the RAF an almost doctrinal opposition to specialisation - a pride in the all-round flying man - and partly because it had still not fully realised the value of PR for other than tactical purposes. But PR was also being held up by the further consideration that if it was to be developed in peace-time it had to become a clandestine activity.

The flights of 1935-36 had used the technique of oblique photography, looking in from beyond the six-mile limit rather than over-flying the areas
under scrutiny; but aside from the fact that vertical photographs were more revealing, photography over Germany necessitated the penetration of German air space. The French undertook this on a limited scale, near the frontier, in 1936, but the Air Ministry felt unable to do so for international political reasons. The SIS, however, obtained copies of the French material and it took the initiative in providing protection for clandestine PR. While the RAF continued to accept the limitation of oblique photography when covering Pantellaria, the Red Sea, the Dodecanese and Italian North Africa between 1937 and 1939, it supplied an aircraft and cameras when the SIS engaged an Australian, F.S. Cotton, to establish an ostensibly civilian firm and carry out clandestine flights from a French base on behalf of the British and French authorities.

Cotton began work in 1938 and made his first operational flights from March 1939 with a single Lockheed aircraft giving high altitude, high speed, long range and low chance of detection. By the end of April he and a single assistant had photographed large areas of Germany and the Mediterranean. Between June and August they made further sorties over Germany, the Mediterranean and Italian east Africa. The photographs surpassed all earlier ones because Cotton paid as much attention to improving the performance of his cameras as to choosing his aircraft. But he still had only two planes at the outbreak of war, when the Air Ministry took over his unit.

Meanwhile, information about Germany from the SIS’s espionage service improved considerably from the spring of 1938. Perhaps as a result of the stepping-up of Germany’s peace-time offensive, the SIS succeeded in recruiting a few agents of the best and perhaps the only valuable kind – those in positions of responsibility who volunteer their services from opposition to some policies or principles of government, or from devotion to others, rather than for cash. One of them, who had however first offered information in 1935 in return for cash, was employed in the German Air Ministry; he supplied photostats of pages from a handbook listing new Flying Schools and Fighter Squadrons. A second, Paul Thummel, a high-ranking officer in the Abwehr, the German military intelligence agency, had originally offered his services to the Czechs, who referred to him as A-54. He supplied not only good information about the equipment, the order of battle and the mobilisation plans of the German Army and Air Force, but also advance notice of the German plans for action against Czechoslovakia from the spring of 1938, for the seizure of Prague in the spring of 1939 and, from that spring, for the attack on Poland. From another such contact, a minor German diplomat, Whitehall obtained during the Munich crisis the schedules for Germany’s mobilisation and, as they arose, the alterations made to them. Reliable as it was, however, the intelligence provided by these informants, and by men in similar positions who turned to the French intelligence authorities, had little bearing on the main problem facing the British government.

Since the approach of the Munich crisis its over-riding concern had ceased to be the difficulty of discovering what Germany would do next, and had become the difficulty of deciding whether and in what way Great Britain should act to check her, and thus of calculating how Hitler and other governments would respond to whatever the British government might do. No more than any other source could agents, however well placed, assist with such calculations. Nor could they be believed if they professed to be able to do so: the other governments, not excluding Hitler’s, did not know themselves what their response would be.
CHAPTER TWO

From the Outbreak of War to the Fall of France

As was to be expected, the amount and the variety of intelligence increased when, after the outbreak of war, direct and indirect contacts made it possible to observe Germany’s military machine in action. At the same time the existing intelligence organisations benefited from an immediate increase in the size and quality of their staffs, with the enrolment of ‘hostilities only’ recruits, and new organisations were set up for acquiring intelligence from new sources. These were in departmental from the outset: the Combined Services Detailed Interrogation Centre (CSDIC) for the interrogation of prisoners of war; the Censorship, which monitored postal and telegraphic communications for all departments; the body which eventually became the Political Warfare Executive (PWE) for scrutinising the foreign press and radio and analysing enemy propaganda. Until the spring of 1940, however, the increase in the bulk and the range of information was not accompanied by any marked increase of reliable and timely intelligence; and in the performance of those bodies responsible for evaluating intelligence there was correspondingly little improvement. The JIC and the intelligence branches in the Service departments and the Ministry of Economic Warfare – a new department which had absorbed the FCI and the IIC on the outbreak of war – were not only impeded by the continuing shortage of reliable information. Their staffs, expanding fast but still inexperienced, were also too preoccupied with their day-to-day concerns to notice such scattered items of intelligence as might have pointed to enemy intentions, or to engage in the closer consultation which would eventually go far to eliminate their mistakes.

For the bodies charged with producing intelligence the outbreak of war nevertheless presented the opportunity, hitherto lacking, to lay the foundations for their eventual success in providing decisive intelligence on a scale undreamed of in the first months of the war; and this was especially the case with GC and CS and the photographic reconnaissance (PR) organisation. GC and CS had established before the war began that, unlike their Italian and Japanese counterparts, the German Army, Navy and Air Force used for all except their tactical wireless traffic different versions of the same electromechanical cypher machine – the Enigma. As late as July 1939, however, it could hold out little hope of mastering the machine. Nor was this an unduly gloomy judgment. The Enigma, which had appeared on the commercial market in the early 1920’s, had been modified before being adopted by the German armed forces at different dates between 1926 and 1935, and had thereafter been subjected to further modifications. By 1939 the Germans believed that they had made it secure against all but local and temporary compromise in the event of capture; and they had indeed made it the basis of a set of related but different cyphers which presented formidable obstacles to the cryptanalyst.

Each of the services had different keys for the machine, that is different
arrangements of its wheels and interconnecting plugs. Each of them also used different keys for different purposes or in different areas: GC and CS was eventually to identify nearly 200 keys, and at some stages in the war as many as 50 different keys were to be in force concurrently. Most elements of each key were changed regularly to give a different setting, and from the beginning of the war most settings were changed daily. Permutation of the elements – of the choice and order of the wheels and of the arrangements of the plugs – allowed millions of different settings for each key each day. But the Germans were unaware, as was GC and CS until 1939, that the Poles had reconstituted the Enigma as early as the end of 1932 and had solved Army settings regularly, and other settings from time to time, between 1933 and 1938.

The Poles had achieved this success with brilliant mathematical ingenuity, but by methods they would have been unable to devise but for the fact that the French Secret Service had supplied them with material obtained from Hans-Thilo Schmidt, a German employee of the cypher branch of the German Army: it consisted of two instructional manuals for the Enigma in 1931 and, during 1932, copies of several monthly lists giving daily settings for the Army key. The Polish methods had surmounted all the changes made to the machine by the Germans up to the end of 1938, but from that date two further and more drastic modifications – a new indicator procedure and an increase from 3 to 5 in the number of wheels from which the 3 in use were selected – had put the continued exploitation of the Enigma beyond the resources of the Polish cryptanalysts.

In this situation and also, no doubt, because they were anxious about the approach of war, the Polish authorities, at meetings held in January and July 1939, divulged their results and described their methods to French and British delegations: and GC and CS received from them essential documents and, in August, a replica of the Enigma machine with its five wheels, the wiring of which had been reconstituted by the Poles. GC and CS had received from the French in 1931 a copy of the documents then given to the Poles. It had attached little importance to them, in all probability because little or no Enigma traffic was intercepted in the United Kingdom until German warships operated in Spanish waters during the Spanish civil war. Thereafter, while it had realized the possibility of solving keys by methods not dissimilar from those developed by the Poles, it had made no practical progress. But it immediately recognized what steps were necessary to apply the Polish data to the latest state of the Enigma. As soon as it received the wheel wirings it started work on developing the Polish methods.

These methods were two-fold, a hand method involving the preparation of perforated sheets and a method using a cryptanalytical machine, the ‘Bombe’, of which the Poles had constructed half a dozen by the end of 1938. The preparation of an improved version of the sheets, an onerous task, was not completed till November 1939 and a second copy of them was not ready for despatch to the Poles, who had moved to a base near Paris when the Germans invaded Poland, until January 1940. With this copy, however, the Poles obtained the first solution of any war-time Enigma setting on 17 January, and by 23 January GC and CS had solved settings for three further days. These four settings were those that had been in force on dates between 25 October 1939 and 17 January 1940. It was with similar considerable delays that the Poles and GC and CS, working in co-operation, solved by the end of March 1940 some fifty further settings for three keys – an Army administrative key, a GAF
practice key and the general purpose operational key of the GAF. But GC and CS soon consolidated this first cryptanalytical advance of the war.

From a week after the outset of the German invasion of Denmark and Norway until the middle of May 1940 it solved continuously and almost always currently the daily settings of a key brought into force for that campaign (the Yellow key). The reasons for this success were that the key carried heavy traffic, the first to do so, and that the Enigma staff at GC and CS was increasing in size and experience. It was for the same reasons that, beginning on 22 May, GC and CS mastered the general purpose key of the GAF (the Red), which was solved daily and generally with little delay from that date till the end of the war. This success was achieved despite the fact that on 1 May the Germans had again changed the indicator system for all keys except the Yellow in such a way as to render the perforated sheets unusable: GC and CS had devised new hand-methods which overcame this set-back and enabled it to keep its grip on the Red key until the first electro-mechanical cryptanalytical machine became available in September 1940.

The Polish Bombe, like the perforated sheets, had been developed to attack the Enigma through its indicator systems. GC and CS, foreseeing that these systems would change, had from the time it received the Polish material set out to devise a more versatile machine. The first effective model, which had the power of at least 12 Polish Bombes, began working from early in August 1940. Thereafter, though their number increased only slowly, the machines, with their ability to produce faster solutions, gradually superseded the hand methods and were to be the mainstay of GC and CS’s success in extending its mastery of the Red key to an ever increasing number of Enigma keys.

The regular reading of the Yellow key from mid-April and of the Red key from the end of May opened up to British eyes for the first time an intimate view of the organisation and methods of the German Air Force and, to a smaller extent, of the Army. But while the decrypts were from the outset invaluable for research purposes, they could not quickly be turned to account as a source of operational intelligence. They were full of code-names, pro-formas, and bewildering references to units and commands of which the intelligence authorities had acquired no previous knowledge. Not less important, they had become available so suddenly, not to say unexpectedly, that no provision had been made for the dissemination of their contents to British Commands with the degree of security that was essential when handling such a sensitive source. For these reasons no use could be made of them during the Norwegian campaign and they were of little operational value during the campaign in France.

The same was true of aerial photographic reconnaissance. The allocation of Spitfires for this work and the beginning of research on the interpretation of photographs had laid the foundations of future expansion by the autumn of 1939, but little was achieved before the following summer. To begin with, the PR sorties were flown by Blenheims of Bomber Command, and the high rate of casualties, the consequence of using operational aircraft for PR purposes, made regular cover impossible. From the middle of November 1939, as soon as it had modified two Spitfires, the special SIS Flight, which had been taken over by the RAF and named the Photographic Development Unit (PDU), began operating over the Siegfried line and Belgium. But bad weather restricted its flights and the photographs were too discontinuous to produce meaningful intelligence; and it could not reach the German naval bases as far away as Kiel until a
longer-range Spitfire became available in April 1940. The unit was making
much needed improvements in the difficult work of photographic interpreta­
tion, using a machine which could calculate the dimensions of even small
vessels and other targets from vertical photographs, but progress was slow in
the absence of frequent sorties. Not until July 1940 did the Air Ministry set up
an interpretation branch of the PDU, subsequently named the Photographic
Interpretation Unit (PIU), to interpret photographs for all three services.

* * *

Until Sigint and PR began to yield results of operational value the service
intelligence branches were dependent on the SIS, the British diplomatic
missions, neutral attache’s in Germany, the German press and radio, and such
information as came from the French authorities.

Together with reports from the British Military Mission in Poland until
Poland collapsed, these enabled the Military Intelligence Directorate in the War
Office (MI) to draw up full accounts of the fighting in Poland and to highlight
its main features, the German use of armour and of the air force for close
support of the army. It also detected accurately enough the return of German
divisions from Poland to the western front: it calculated that the number in the
west was 42 on 21 September 1939, when the actual figure was 46 or 47, and its
estimate had risen to 77 by the end of October, when the true figure was about
80. It could not be sure, however, that the Germans would use the same
fighting methods against the French and British armies, and it could only
guess at what Germany’s next move would be, and when it would be launched.

MI assumed that she would take the offensive in the west and might do so
at any time from the end of October. The German concentration on the
western front had by then reached such proportions that this move seemed
imminent, and when the SIS received from the agent A-54 the warning that it
was planned to begin on 12 November, Allied forces were brought to battle
stations. Hitler had indeed ordered a state of readiness for a western offensive
on 5 November, but had cancelled the order two days later. He subsequently
repeated it from time to time, but no evidence of this reached the Allies until
A-54 reported at the end of November that the offensive was set for the second
half of December and a member of the US embassy in Moscow learned in Berlin
that it was timed for 13 January. A second Allied alert was called when, on 10
January 1940, from a German aircraft which had force-landed in Belgium, the
Allies retrieved a copy of GAF instructions relating to an offensive across the
central Belgium plain to the North Sea. But Hitler again postponed after 3 days
the orders he had issued on 10 January for the offensive to start on 17 January.

For the rest of the winter, while bad weather ruled out an early attack, the
SIS helped MI to build up some knowledge of the order of battle of the
Germany army - that is, of the identification, subordination, location and
composition of its formations - and of its manpower resources and call-up
policies. It remained impossible, however, to foresee where and when it would
attack. Nor was intelligence about the GAF sufficient to throw light on these
problems. On the contrary, the intelligence branch in the Air Ministry (AI),
convinced that Hitler’s first aim was to subdue Great Britain, and that he would
seek to do this by a knock-out air attack on London, believed that his land
offensive would be limited to seizing Holland as a base for the air offensive. It
seriously over-estimated, moreover, the size of the GAF, calculating that its
reserve strength, less than 1,000 aircraft at the time, was five times that figure,
and that its strength in front-line long-range bombers was 1,750 when it stood
at just over 1,000.

The product of the GAF’s tactical codes, as yet the only Sigint available,
did, however, enable AI to identify and locate a large number of the GAF’s
formations. From the end of 1939 the tactical Sigint was helpful to Fighter
Command by sometimes giving notice of the take-off and direction of GAF
attacks in advance of their detection by the radar chain. These indications were
too infrequent to be more than a marginal asset in the defence against the
GAF’s operations, which were limited during the winter months to mine-laying
and bombing attacks directed against the east coast convoys and the Home
Fleet. But they served to emphasise that there was even less intelligence about
the German navy — as did the fact that it was only in November 1939, when the
GAF had begun to lay magnetic mines, that a specimen dropped close inshore
enabled the Admiralty to take counter-measures against this new weapon with
which the German navy had been causing increasing damage to coastal
shipping since the outbreak of war.

The navy was not the most formidable part of Germany’s military machine.
But British shipping and the Royal Navy were so dispersed that the opportuni­
ties open to her few surface ships and small U-boat fleet were still very wide if
the Admiralty’s Operational Intelligence Centre (OIC) could give no warning of
their sorties or operational areas. But when there was thus a heavy premium
on obtaining advance or early information, none was forthcoming. PR was too
restricted in its range and too infrequent to be of operational value. The naval
Enigma was impregnable, and was to remain so for all practical purposes till
the spring of 1941. Except for routine signalling within or close to its harbours
and bases, the navy made no use of medium and low-grade codes and cyphers;
and as it had abandoned the use of call-signs at the outbreak of war, GC and
CS’s understanding of the functioning of its wireless system remained
elementary till early in 1940. As against the dearth of intelligence on the
British side, moreover, the Germans were well supplied with Sigint on British
naval and merchant shipping movements. They had begun to read one of the
main cyphers of the Royal Navy on a limited scale by the end of 1938 and,
following a temporary black-out after the outbreak of war, they read over 30
per cent of the traffic intercepted in the North Sea and the Norwegian area
from the beginning of the Norwegian campaign until the end of August 1940.

The Admiralty thus had no warning before U47 penetrated Scapa Flow and
sank the *Royal Oak* in October 1939; or of the return of the pocket-battleship
*Deutschland* to Germany in November from the first raid by German heavy
units in the Atlantic; or of the sortie of the battle-cruisers *Gneisenau* and
*Schamborst* in the same month, when they sank the *Rawalpindi*; or of the next
sortie of these ships with the cruiser *Hipper* in February 1940. The engagement
which led to the destruction of the pocket-battleship *Graf Spee* in December
1939 came about without any assistance from intelligence; it was a piece of
good fortune that she steamed into the area where Commodore Harwood had
concentrated his squadron in the hope that she would be attracted by the rich
pickings of the shipping lanes off South America. The Admiralty received from
United States broadcasts the first news that she had entered Montevideo after
the engagement, and also the news that she had scuttled after sailing from
there.
In February 1940 intelligence made some contribution to the interception of the *Altmark* the *Graf Spee*'s supply ship, and the rescue of her prisoners. When she was nearing the end of her long journey from the South Atlantic she was sighted by Coastal Command and intercepted by the Royal Navy after the Naval Control Service at Bergen, part of the organisation the Admiralty kept in foreign ports to provide friendly shipping with convoy instructions, had reported that she had passed there at noon on 15 February, news which was confirmed by the French naval attaché, who had established a network of agents along the Norwegian coast. Her interception was an isolated intelligence success, offset by the fact that since the outbreak of war the OIC, forced in the absence of reliable information to act on rumour and out of anxiety, had often sent ships of the Home Fleet on fruitless errands.

When the Service intelligence branches were so pre-occupied with their immediate problems, and when they in any case had so little information to exchange with each other, it is understandable that the weekly Resume’s prepared for the Chiefs of Staff on enemy and Allied developments consisted of separate summaries from each branch, with no attempt to correlate them in a general assessment. Nor is it surprising that the JIC, still over-burdened with administrative matters and dependent for assessments on the Service branches and on the intelligence branch in the MEW, rarely issued reports of its own - or that those it did issue either dealt with matters on which intelligence about the enemy had little bearing or contained no intelligence.

Its report in October 1939 on what resources in the Low Countries it was desirable to deny to Germany if she seized them might just as well have been compiled by the Foreign Office or the operational authorities. On the other hand, its investigation into Hitler’s ‘Secret Weapon’ speech of 15 September 1939, while suggesting, correctly, that it had referred only to the German Air Force, could not exclude the existence of some unknown new weapon; and its first assessment of the action Germany might take in the spring, issued in January 1940, could only canvass a variety of alternatives and conclude that ‘which of these courses Germany will select will depend less upon logical deduction than upon the personal and unpredictable decision of the Fuhrer’. In February 1940 it considered the possibility that Germany might take action against Sweden in the spring, but confessed that this was pure speculation.

Understandable as it was, however, and difficult as it was to rectify it, the combination of circumstances that marked the first nine months of the war - the combination of shortage of intelligence from reliable sources with the absence of any adequate mechanism for correlating such scarce items of intelligence as were significant - accounts for the fact that Whitehall’s mishandling of the evidence that Germany was preparing to invade Norway and Denmark will always remain an outstanding example of the failure of a government machine to organise, think and report effectively.

Admiral Raeder first advocated the seizure of Norway in October 1939. In December Hitler authorised the preparation of a plan for defensive reasons, following rumours that a British occupation was contemplated. His decision to implement the plan was influenced by the *Altmark* incident and his order that
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preparations should be completed by 20 March 1940 was signed on 1 March. On 3 March he finally decided that the operation should precede the attack on France, and approved a speeding up of the preparations so that from 10 March the invasion could be launched at four days’ notice. Given the length of time over which the project was discussed, and because it was delayed for a month after 10 March, warnings did not fail to reach London. But the Germans achieved the complete surprise which largely accounted for the rapid success.

That the warnings were over-looked or misinterpreted sprang in large measure from the climate of opinion in Whitehall at the time. Everyone, from Churchill downwards, believed that a German expedition could not reach the west coast of Norway in face of Britain’s naval supremacy. Whitehall’s attention during the weeks before the invasion was, in any case, largely taken up by the planned British initiative to lay mines in Norwegian waters to disrupt the supply of iron ore that was so important for Germany’s war industry. One of Whitehall’s strong preconceptions was that Germany might, in reply to this initiative, attempt a limited operation against British forces off southern Norway. A second was that, as a diversion, the Germans might attempt to pass surface raiders into the Atlantic, as they had done several times since the outbreak of war.

Between December and late March 1940 the separate intelligence staffs in Whitehall received, mainly from the SIS and diplomatic sources, reports of amphibious exercises in the western Baltic and of the assembly there of para-troops, transport aircraft and ships fitted to carry troops and tanks. Also received were several reports, some of them from German sources, to the effect that the Germans intended early action against Denmark and Norway. One of the German reports from General Oster, a high-ranking Abwehr officer whose reliability was, however, as yet untested, warned that Germany would attack on 9th April.

Around the end of March reports began to arrive thick and fast: troops were being concentrated and, with tanks, being embarked in troopships at German Baltic and North Sea ports; aircraft were being concentrated nearby; Danish-speaking Germans were being called-up; and German army leave was being stopped. Meanwhile, and most unusually, German sea minelaying and U-boat activity against the trade routes had ceased altogether in the middle of March and the GAF had for the first time bombed Hatston in the Orkneys, the air base nearest to Bergen and Trondheim. At the end of March signals were intercepted from a German spy ship carrying out observations in Norwegian waters and reporting in a simple Abwehr code.

These indications were not studied at any central point and the connection between them was over-looked. It might have been otherwise if they had been supported by evidence a reliable source — from Sigint or PR. As it was, with neither of these sources available, the Foreign Office and the three Service Intelligence branches each assessed such of the reports as it received and pronounced them inconclusive. Nor could the JIC supply this deficiency. It had been set up to ensure that the assessments made in the separate departments were collated and compared, but the procedures by which the departments were to keep it regularly informed were no longer being observed.

Within the departments the body which came closest to filling the gap was the German section of MI. In February it considered the possibility of a threat to Scandinavia and conceded that the seizure of naval bases in Norway could bring strategic advantages to Germany. But it believed that she would need
between 25 and 30 divisions for an invasion of Scandinavia and, since it could trace only 6 in north-west Germany, it concluded that the military preparations reported to be taking place in the Baltic might well have some other purpose. As late as 3 April it still held this view: an invasion of Scandinavia could not be ruled out, but the reports it had received did not suggest that any early German move was probable. In the light of this assessment, in which the other departments concurred, the Chiefs of Staff finally formulated the plans approved by the Cabinet for early British action in Norway. On 3 April they decided that mining of Norwegian waters should take place on 7 April, but that the implementation of the supplementary plan to send forces to seize Narvik, Trondheim, Bergen and Stavanger should await firm intelligence of German retaliation, which might take the form of a landing in Norway.

It was in these circumstances, the authorities in Whitehall half doubting and half hoping that German action would justify the expansion of their own mining project into a larger undertaking, that the next developments took place. At 0025 on 6 April the British Minister in Copenhagen reported that his American colleague had been told by a well-placed source that Hitler had given ‘definite orders to send one division in ten ships ... to land at Narvik on 8 April occupying Jutland on the very same day, but leaving Sweden [alone]’. At 1417 on 6 April the Minister passed on a report that troops had actually been embarked on 4 April. Though the watchers in Whitehall had been on the look out for a German move they were incredulous, not having expected the Germans to make the first move nor believing that she would take such daring action. Their disbelief was not dispelled when early on the following day German ships, at first thought to be a cruiser force, were sighted moving towards Norway.

The sighting prompted the Admiralty to pass the substance of the Copenhagen messages to the Home Fleet during the afternoon on 7 April: but the DNI added the comment that “all these reports are of doubtful value and may well be only a further move in the war of nerves.” In doing so he was unaware of some of the evidence that had already been accumulated by other departments. Aircraft of Bomber Command on leaflet raids had observed intense activity in north west German ports and on the roads leading to them. The Military Attaché in Copenhagen had estimated that German strength in the area was now 12 divisions. The first photographic reconnaissance to reach Kiel, made on 7 April, had reported a heavy concentration of shipping there. In the Admiralty itself, the OIC had reported on 6 April that a German flight, believed to be photographic reconnaissance, over the west coast of Norway – a unique event – had been made on 4 April. The battle-cruisers *Gneisenau* and *Scharnhorst* had been seen in Wilhelmshaven and exceptional naval wireless activity had been noted. Taken by themselves, however, the indications available to the Admiralty could be interpreted as meaning that the Germans intended to do no more than pass the battle-cruisers into the Atlantic, and it is clear that, although a few officers in the Admiralty were coming to believe by 7 April that the Copenhagen messages were reliable, they had not marshalled the wider evidence in such a way as to enable them to feel sure, or to present a convincing case to those who took the decisions.

When the Admiralty’s signal of 7 April was received at Scapa, with DNI’s comment on it, the Home Fleet was brought to one hour’s notice. It sailed at 2015, and might have done so earlier but for the DNF’s comment and a failure in air to ground communication which delayed the receipt of a second and
fuller sighting report indicating that the German force included a ship of the Schambhorst class and 10 destroyers. Early in the afternoon of 7 April a Bomber Command aircraft reported the German ships to be two cruisers, one battle cruiser and 10 destroyers. The report did not reach the Home Fleet until 1727. What was still more unfortunate, the Fleet sailed on the north-easterly course which would enable it to intercept ships attempting to break out into the Atlantic, but which left the central North Sea uncovered. Nor was this decision questioned by the Admiralty during 8 April, when a redisposition might still have frustrated the German plans. Although it informed the C-in-C at 1115 that the Copenhagen reports might be true, it did not firmly conclude that an invasion of Norway was in progress until, early on 9 April, reports came in of the German landings — and this despite the fact that the northward passage of German warships from the Kattegat was reported during the afternoon on 8 April by HM submarines, as well as by the Naval Attaché at Copenhagen and by the SIS, and despite the receipt in the Admiralty, also in the early afternoon of 8 April, of information from survivors of a German transport, sunk by the submarine Orzel, to the effect that they had been on their way to Bergen “to protect it from the British”.

During 8 April, indeed, the Naval Staff, which had earlier been charged with ordering the despatch of British troops to Norway if it received any information indicating that Germany was moving troops in response to the British minelaying, took two operational decisions in the conviction that the intelligence still pointed to an attempt by German warships to break out into the Atlantic. The first withdrew from Vestfjord the destroyers which had laid mines there the previous day, with the unhappy consequence that the approaches to Narvik were opened when the German ships arrived. The second abandoned that part of the plan for moving British troops — and it was the larger part of it — which had involved the use of cruisers of the Home Fleet. This had a further unfortunate outcome. The forces which might otherwise have been in position to counter German landings at crucial places like Bergen and Stavanger remained on the wrong side of the North Sea. But the preconceptions underlying these decisions — that against Norway Germany would act only in response to British mining and that, since she could not hope to seize and retain Norway in the face of British supremacy at sea, the action she took would be something less ambitious — were not confined to the Admiralty, with its concern for the trade routes, or even to operational staffs with their reluctance to be converted by intelligence reports which were unconfirmed and, individually, inconclusive. Also on 8 April, MI issued another appreciation entitled ‘The Possibilities of German Action against Scandinavia’. Except that it had none of OIC’s naval operational intelligence, this surveyed the information that had recently accumulated in the Service departments and the Foreign Office. It still claimed that the dispositions of German forces did not then ‘support any probability of a Scandinavian invasion’. But it based its conclusion — that Germany was ready to carry out ‘limited operations’ on the Norwegian coast, but that it was ‘by no means certain’ that she would undertake such action ‘except to counter a similar expedition by the Allies’ — not so much on the information as on general assumptions. One of these was that little advantage was to be gained by Germany from occupying Denmark. As for the advantage she would derive from forestalling the British by occupying Norwegian ports, these were grudgingly admitted and considerably qualified.

It was a conclusion which reflected the outlook of the whole of Whitehall
at this time when, in the absence of incontestable intelligence, from Sigint and from regular photographic reconnaissance, there was also no adequate machinery, within the departments or between them, for confronting prevailing opinions and lazy assumptions with rigorous and authoritative assessments of the massive but miscellaneous information about the enemy that was nevertheless available.

* * *

It may be doubted whether any sudden improvement in the supply of intelligence, however considerable, could have altered the outcome of the Norwegian campaign. Once Germany had secured footholds in the main ports, the outcome was decided by operational and logistic considerations - above all by her superiority in the availability and the use of air power. In the event, there was no improvement during the first week, so that the British authorities took their earlier and most crucial decisions on information that was 'little better than that of the newspaper reader'. The reports which flooded in from diplomatic sources and the SIS were too imprecise and too conflicting to provide a clear picture of Germany's movements and intentions. Thereafter GC and CS produced a dramatic addition to the intelligence sources. But little or no use could be made of it for operational purposes before the campaign came to an end.

On 10 April the Germans introduced a new Enigma key (the Yellow) for use by the GAF and the Army during the Norwegian operations. GC and CS broke this as early as 15 April, the day after Allied forces began to go ashore, and continued to read it daily until the traffic ceased on 14 May. The traffic was voluminous and highly operational and, as well as carrying GAF and Army communications, it contained information about such naval movements as concerned the other two German Services. It was normally decrypted within a few hours - and sometimes within an hour of its transmission by the German stations - so that it not only reported the operational situation of the German forces, and the state of their organisation and supplies, but also gave notice of their intentions. It had not been foreseen, however, that the Germans would make use of wireless at high-echelon levels for operational purposes. There had been no high-echelon operational Sigint in the First World War, when operational traffic had been confined to field units and operational intelligence had been derived from field cyphers and other local sources of information. As late as 1939 GC and CS had feared that the outbreak of war might be followed, not by an increase in the use of wireless by enemy states but by the imposition of wireless silence on their armed forces for all except tactical signalling. Since January 1940 GC and CS had broken the GAF general Enigma key with some regularity, though also with some delay; but as was only to be expected in the absence of operations the decrypts had dealt only with administrative and organisational questions. For the enormous volume of the operational decrypts it yielded, no less than for the speed at which it was possible to find the daily settings, the breaking of the Norwegian Enigma thus came as a complete surprise, and neither GC and CS nor the Whitehall departments were equipped to handle the decrypts efficiently.

At GC & CS, quite apart from the fact that it had as yet little experience
with the many textual difficulties that impeded the elucidation of the decrypts, the staff was quite inadequate either in numbers or in its understanding of military matters, and the same was true of the communications between Bletchley and Whitehall. Emergency arrangements were made to recruit military advisers and other additional staff and to install additional teleprinters; nor was it long before the most urgent decrypts were being teleprinted to Whitehall without great delay. But these were not problems that could be completely solved before the end of the short-lived Norwegian campaign. In Whitehall the intelligence branches were similarly overwhelmed by the volume of intelligence, and handicapped by their unfamiliarity with it. Moreover, delay and confusion were imposed by the internal security arrangements which were in force for safe-guarding the confidentiality of the Enigma material.

Before the invasion of Norway only about 30 people in Whitehall - the Prime Minister; the Chiefs of Staff and their deputies, a few members of the War Cabinet and its supporting officials, the three Directors of Intelligence and a few officers in the Admiralty’s OIC - had been indoctrinated, that is made privy to the Enigma secret. From January 1940, when translations of GAF decrypts began to be circulated, the intelligence staffs in the War Office and the Air Ministry had received them via the SIS disguised as spy reports - initially from a fictitious agent named Boniface - and this disguise was retained when the Yellow Key was broken and they began to receive them direct from GC and CS. This had the effect that these staffs gave the decrypts the sceptical reception they habitually applied to espionage reports. The Admiralty had refused to accept this system, insisting that the translations should be sent direct from GC and CS in undisguised form to a few selected officers in the OIC, but it did not wholly escape the difficulties imposed by the security precautions. While the OIC received the undisguised decrypts, the geographic sections of the Naval Intelligence Divisions did not receive them at all; the briefing of senior operational staffs thus suffered as much in the Admiralty as it did in the other Service departments.

The Admiralty did avoid a further consequence of the unexpectedness of the Enigma windfall. In January 1940 it had alerted the C-in-C Home Fleet and selected senior officers at other naval commands to the possibility that they might receive intelligence derived from Sigint in special cypher messages prefixed ‘Hydro’. But the other two services had not taken the precaution of making such arrangements with even selected commanders, and while they no doubt made the Sigint from Norway available to the appropriate commanders in the United Kingdom - General Massy, who controlled the land forces in Norway, and the C-in-C of Bomber and Coastal Commands, who were responsible for most of the air operations - the short-lived Norwegian campaign afforded them no opportunity for indoctrinating the commanders in the field. Orders prompted by the decrypts could be sent to them, but the intelligence had to be disguised, often as ‘information from our own forces’.

The British forces in Norway were poorly served by intelligence in other ways. They were not equipped to intercept the enemy’s field wireless transmissions. If they had been so equipped they would still have been unfamiliar with
the field codes and cyphers used by the German Army: GC and CS had broken two of these by the end of 1939, but given the virtually total lack of intercepts it remained uncertain whether these systems were still being used. Some GAF tactical traffic from Norway was intercepted in the United Kingdom, both in readable low-grade codes and in plain language, and the resulting intelligence was of some use to the operational authorities in London. But no arrangements had been made for passing it to Norway as it was received. With the Norwegian forces and population, contacts had to be improvised during the fighting. The SIS had no organisation ready when the campaign began, though it now began to develop a stay-behind network in the main Norwegian towns. No less unfortunate was the shortage of topographical intelligence. Since the end of 1939, when British intervention in Norway was first considered, MI and NID had assembled information on such matters as terrain, roads and railways, harbour works, airfields, fixed defences and weather conditions. But the work had been done hastily, and the results had been so poor that the DNI had advised against a campaign in Norway in the belief that the topographical intelligence was inadequate. In any case, the work had concentrated on areas selected for British intervention, whereas the German initiative forced the fighting elsewhere. We can see why Whitehall was at last shocked into improving the topographical intelligence service when we learn that the topographical summaries prepared by MI did not reach the fighting units owing to mistakes in loading, or that Baedeker’s *Scandinavia* (revised 1912) was all that was available to Bomber Command for their raids on airfields in southern Norway, or that the naval pilots from HMS *Furious* who attacked Narvik had to rely on Admiralty charts which showed no land features.

At sea the Navy was in one respect more fortunate. At an early stage of the operations, on 14 April, U-49 was sunk near Narvik. As well as providing details of the total number of U-boats in commission, she yielded up a chart marking the dispositions of the U-boats which had been concentrated in the North Sea for the protection of the German expedition, and this was of some assistance in enabling the Home Fleet to avoid them. Otherwise, however, the Home Fleet was no better served than the Army and the RAF. For information about the whereabouts of the German surface forces it was dependent on sighting reports and, as a result of the weather, the distances involved and the lack of suitable aircraft, air sighting reports were unreliable. Nor was the Admiralty able to do much to supplement this inadequate source. At the outset of the campaign the Admiralty’s own ignorance was complete. When it intervened to give the orders which resulted in the first battle of Narvik on April, it did so in the belief, based on press reports, that one German ship had arrived there, whereas the German expedition to Narvik had reached the port in ten destroyers. On the other hand, its orders incorporated information on coastal defences which, as it transpired, did not exist. From 15 April the Enigma traffic produced some intelligence about German naval movements. Although none of the messages has survived, the OIC sent this intelligence to the C-in-C Home Fleet in ‘Hydro’ signals. But it was of no operational value, as may be judged from the fact that at the end of the campaign the C-in-C Home Fleet complained that ‘it is most

however, before launching his attack Captain Warburton-Lee learned from a pilot station in the Narvik approaches that six ships larger than his own had passed in. This was a method used by Nelson for obtaining intelligence of the enemy.
galling that the enemy should know just where our ships ... always are, whereas we generally learn where his major forces are when they sink one or more of our ships’. Whether or not he suspected it – and it seems unlikely, for exceptional measures for safeguarding the security of British naval cyphers were not to be adopted till much later – the German navy was, as already noted, reading a good proportion of the signals of the Royal Navy during the campaign.

Towards the end of the campaign, when the British evacuation was in full swing and operations in Norway were drawing to a close, matters had in no way improved. This was demonstrated by the circumstances in which the *Gneisenau* and the *Scharnhorst*, leaving Kiel on 4 June, sank the aircraft carrier HMS *Glorious*, homeward bound as part of the evacuation of Narvik, on 8 June. By that time the OIC had lost the assistance, such as it was, of the Norwegian Enigma, which had faded out in the middle of May, but GC and CS, assisted by the geographical extension of the German naval signal system to Norway, had devised techniques known as Traffic Analysis for making inferences about German naval movements from the external behaviour of the wireless traffic. From the end of May it began reporting that this behaviour indicated preparations for the movement of German warships from the Baltic to Norwegian waters. The *Glorious* was capable of making a limited torpedo strike and could have flown defensive patrols if she had received even a qualified warning. But the OIC, for all that it included these indications in its daily bulletin, resisted GS & CS’s suggestion that such a warning should be sent to ships at sea. It was not prepared to accept inferences drawn from an untried technique by civilians as yet unknown to its staff.

To make matters more difficult, the fact that the evacuation of Narvik was in progress was being kept extremely secret. Not only was GC & CS, then as for a long time later, uninformed of British movements. Coastal Command had not been alerted, and did not in consequence carry out reconnaissance of the area through which the evacuation convoys and the *Glorious* were to pass. Even in the OIC only the senior staff was aware that important British movements from Norway were taking place. Shortly after the *Glorious* was sunk, with no chance to make a signal herself, a German ship transmitted four signals, one of them marked ‘Immediate’, from a position which poor DF fixes placed off the Norwegian coast. The Duty Officer in the OIC saw no significance in them and took no action. A day or two later, when it became clear that these signals had been reporting the sinking, an enquiry revealed that the Duty Officer had not known of the British naval movements from Norway.

As a result of this disaster, steps were taken not only to improve the working relations between the operational and the intelligence staffs in the Admiralty, but also to bring the OIC and the Naval Section at GC and CS closer together. It was as a direct result of the loss of the *Glorious* that regular visits between the two groups were instituted and that the OIC recognised that it had to rely on the Naval Section’s greater familiarity with the German naval wireless system and to co-operate with the Naval Section in relating this knowledge to other operational information. It did so with a will – even to the extent of sending a representative of the Naval Section to Scapa to explain the Section’s work to the Home Fleet. In the meantime, the Admiralty and the C-in-C Home Fleet received the first news of the loss of the *Glorious* and of the identity of her attackers from a German radio broadcast. To the poverty of naval intelligence during the Norwegian campaign – to the failure indeed of the
entire intelligence system up to this point – perhaps no testimony could be more eloquent.

* * *

For her attack on France Germany could not hope to achieve the total surprise, both strategic and tactical, that she had obtained in Norway. The Allies were aware that the bulk of her army and air force, backed by extensive logistic preparations, was deployed on the western frontiers. Soon after the beginning of the invasion of Norway, which absorbed relatively small German forces, MI warned that a major offensive in the west could still be expected to take place at any time and with little warning. Till the attack began, however, she succeeded in concealing when it would take place and, above all, the direction from which it would come.

Aware of the loss of the document retrieved from a German aircraft on 10 January, Germany had re-cast her plans. From late in February she transferred 20 divisions (including 7 armoured) from Army Group B, which was originally to have been responsible for the thrust in the north, to Army Group A which, further south, faced the weak French forces defending the Meuse crossings. The new plan was to launch the main thrust through the Ardennes with the aim of cutting off the Allied armies north of the Somme; thrusts into the Low Countries were retained but reduced in strength. It was devised with the assistance of excellent intelligence. From documents captured in Norway, from thorough photographic reconnaissance and above all from the fact that they were reading some of the high-grade cyphers of the French army, the Germans had sufficiently comprehensive and accurate knowledge of the plans, dispositions and quality of the Allied forces to be able to infer that France would be unable to launch an effective counter-attack against their main thrust.

The Allies, in contrast, acquired no evidence that was strong enough to dislodge their basic preconceptions. For the French it was axiomatic that the Ardennes were impassable. The British deferred to this conviction, which determined the course and the outcome of the subsequent campaign: it conformed to Whitehall’s own belief that Germany, needing a quick victory on account of her economic weakness and lacking the military superiority needed for a quick defeat of France, would direct her offensive against Belgium and Holland in order to establish positions for an all-out air attack on the United Kingdom and its supply lines. This assumption, which was initially supported by what was known about the disposition of the German divisions, was buttressed by the capture of the document in January, which revealed that the Low Countries were then the German objective. It was not thereafter seriously questioned by the intelligence authorities. As late as 19 April the JIC and MI still believed that the offensive, now expected daily, would be against Holland and Belgium. Early in May the Chiefs of Staff endorsed this assessment, though they qualified their approval by noting that in their personal view a major attack on France was possible.

*See p 16 above.*
Given Germany’s massive security precautions and the still poor state of British Intelligence, it is perhaps not surprising that the intelligence authorities thus received no sign of Germany’s change of plan - or, rather, none that they judged to be worthy of notice. Of the two reliable sources of information, Sigint was all but totally lacking. The decrypts from Norway threw no light on the western front and the few that were obtained from the GAF Red key were silent about German preparations there. On 1 May, moreover, as one of the precautions they took in advance of the offensive, the Germans changed the Enigma procedures and the Red key became unreadable. The Allies were unable to read the field codes and cyphers of the German Army and were unfamiliar with the Army’s complex wireless procedure: in any case, the redistribution of the German divisions was carried out under strict security precautions with complete wireless silence. From March, it is true, MI5’s Radio Security Service intercepted signals in an easily readable hand-cypher on a German Secret Service radio link connecting Wiesbaden with agents in Luxembourg, France and Belgium, and the decrypts, originally Gestapo-type enquiries about individuals, began to contain enquiries about defences, road blocks and troop dispositions in the area through which the Germans made their attack. But their significance was not recognised in MI5 and they were not circulated to the intelligence branches. Nor did photographic reconnaissance, the other trustworthy source, make up for the lack of Sigint.

The main responsibility for this lay with the French. But partly because of bad weather, which did not, however, deter the Germans, and partly from lack of resources, they mounted only a limited effort. The British effort was divided between Blenheims of the RAF’s operational squadrons and a Spitfire squadron (212 Squadron) of the PDU. But the Spitfires, under orders to make most of their flights over Belgium and the Ruhr, made only infrequent sorties west of the Rhine, while photographs from the Blenheims, which suffered heavy losses, were too patchy and irregular to throw any light on the German movements.

There was no lack of reports from SIS agents, the diplomatic missions and neutral observers as to Germany’s intentions. As always, however, MI found it impossible to judge which were accurate, which were mere speculation and which were inspired by the enemy. It noted on 1 May that of eight recently received, three had given Holland as the German objective, two England, and one Belgium and Luxembourg, while two had referred only to the western front in general. It added that all might be true - or all false, planted to deter the Allies from reinforcing Norway - and naturally declined to be deflected from its view that the Low Countries were the probable target. On their evidence from these sources the French counter-espionage authorities had reached the same conclusion as to the direction of the attack by 20 April. If, as was claimed after the event - in some cases after the war - the French had by then learned from a German defector and also from a double agent that Germany was preparing to attack through Luxembourg, and A-54, a tested and trustworthy source, had warned Paris and London in March that the main German attack would come through the Ardennes, no particular importance was attached to these items.

In the end the French intelligence authorities advised General Gamelin, the Chief of the French General Staff, that from what was known about German dispositions he could at least rule out an attack against the Maginot Line or through Switzerland, two of the options which were generally held to
be possible Gamelin, however, ignored this advice and distributed his reserves evenly behind his entire front. He was presumably influenced not only by the lack of decisive evidence but also by the fact that his intelligence advisers weakened their advice by greatly over-estimating Germany’s strength in armoured formations. The French and British authorities reached agreement on a tolerably accurate estimate of the total number of German divisions available in the west, setting it at 120–125 when the actual number was 134. But the French put the total of tanks at 7,000–7,500, whereas the actual figure was 2,445. The British estimate was 5,800.

As for the timing of the offensive, the Allies were expecting from the month of April that it could come at any time. But such a general expectation was of no assistance against tactical surprise. Allied troops could not be kept on permanent alert. The Allies were probably misled, moreover, by the fact that at the time of the alerts in November 1939 and January 1940 the Germans had allowed six days for the approach march to their take-off points, and that their final moves had been detected. But the Germans had observed this, and in May they made these moves gradually and only by night, and did so to such effect that when they made their sudden advance on 10 May a number of key British personnel were away on leave.

Since the war it had been claimed that A-54 reported on 1 May that the offensive would come on 10 May and that on 3 May Oster warned that an invasion of the Low Countries would come in the following week, a warning that he repeated on the eve of the attack. It is also recorded that two reports were made by 212 Squadron Spitfires of the sighting of strong concentrations of German armour along the Luxembourg border adjoining the Ardennes on 6 and 7 May. The wartime head of French counter-intelligence also claimed that his intercepts showed the German army, on 7 and 8 May, to be ready and waiting for its final orders. But to the obvious truth that no action was taken on these particular warnings we can only add the suggestion that in view of the great number of such warnings received over recent months, they were perhaps less outstanding at the time than they can be made to seem after the event – if, indeed, they were received where they could be acted on. In Whitehall – whatever the French authorities may have thought of them – none of them was singled out for special comment by the intelligence authorities, who were at least expecting the Germans to move at any time. The War Office’s Daily Intelligence Summary for the twenty-four hours to 1100 on 8 May stated that there was still no sign that an invasion of France or Belgium was imminent, but it went on to say that various reports indicated that some action was to be expected in the immediate future and to warn that Germany’s dispositions would enable her to move against Holland at any moment with a minimum of notice.

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From the intelligence point of view the experiences of the Norwegian campaign were repeated during the campaign in France. The German success in obtaining complete tactical surprise was again followed by a first phase in which Whitehall was in the dark. For a fortnight ignorance of what the enemy was up to was so great that in the records of the Cabinet and the Chiefs of Staff...
discussions of the fighting continued to be headed 'The Netherlands and Belgium'. Thereafter, again, there was a dramatic improvement in the supply of intelligence: but because events had by then gone so far, and were still moving so fast, it was an improvement from which neither Whitehall nor the commands could derive any immediate advantage.

Few records survive from this period. But it is clear that there was no intelligence to speak of until 25 May, when two highly secret documents were captured from the staff car of the liaison officer of the C-in-C of the German Army with Army Group B. This piece of good fortune influenced, perhaps decisively, what has been called C-in-C BEF's 'most fateful action during the whole campaign'. The retirement of the Belgian Army had left a gap between Menin and Ypres. One of the captured documents revealed that the Germans planned to attack in this gap with two corps. On this evidence Lord Gort poured into the gap two divisions which were preparing to attack elsewhere. 'By doing so', writes the official historian of the campaign, 'he saved the British Expeditionary Force'.

The most important reason for the lack of intelligence during the first fortnight lay in the fact that on 1 May, in preparation for the attack on France, the Germans had made changes to the Enigma machine. Except in Norway, where they did not apply, these changes affected all the Enigma keys and made it impossible for GC and CS to read the traffic in the GAF general key (the Red) which it had broken on and off since January. Correspondingly, what chiefly transformed the situation from the last week of May was the fact that GC and CS succeeded in breaking the new Red key for 20 May on 22 May, from which date it broke it virtually every day until the end of the war with little delay.

During the remainder of the campaign in France this cypher, which before the German offensive had been used lightly, and mainly for administrative purposes, produced a flood of operational intelligence. GC and CS decrypted, translated, amended and interpreted the messages at the rate of 1,000 a day. With unimportant exceptions it despatched all of them by teleprinter or courier to Whitehall and, as a result of its experience in handling similar material during the Norwegian fighting, did so more promptly than had then been possible. In Whitehall, moreover, arrangements were made to forward the intelligence to commanders in the field. Between 24 May and 16 June the most important Enigma items were passed direct from GC and CS to GHQ BEF and Air HQ, and to the French Army HQ, in special cypher on special signals links via SIS mobile units which assisted in the interpretation of the material and advised as to the handling of it.

Despite these measures, and despite the operational character of the Enigma signals, it still proved impossible to make much use of the intelligence for immediate - as opposed to longer-term strategic - purposes. Delays inevitably attended the process by which the intercepts had to be got to GC and CS, to be decyphered, translated and sorted there, and then passed to Whitehall and the HQs in France. And despite GC and CS's growing experience, these delays were added to by the difficulties it still encountered in elucidating the decrypts. Apart from their sheer bulk, the texts teemed with obscurities - abbreviations for units and equipment, map and grid references, geographical and personal code names, pro-formas, Service jargon and other arcane references. One example is furnished by the fact that the Germans made frequent use of map references based on the CSGS 1:50,000 series of France. This series had been withdrawn from use in the British Army. Unable to obtain
a copy of it, GC and CS was obliged to reconstruct it from the German references. Transmitted in the heat of battle, and having to be re-transmitted after interception to GC and CS, the texts were also frequently imperfect or corrupt. Nor were these the only difficulties.

Some loss of operational efficiency continued to be accepted in the interest of security. In Whitehall the system for disguising decrypts as spy reports was beginning to break down, many beyond the 30 or so indoctrinated individuals now suspecting the true source of such abundant material. This was not the case with the intelligence officers in the field, who received only selections and regarded them with the scepticism which agents’ reports normally attracted. This and the limited circulation accorded to the material meant that the staffs at GHQ BEF and AHQ were unable to coordinate the Enigma with the low-grade Sigint and other field intelligence. These severe restrictions were to be subsequently, though also cautiously relaxed. The decision to abide by them during the German offensive against France was, it can scarcely be doubted, doubly justified. On the other hand, the fact that the Enigma was rarely of operational value to the British forces during the campaign was due far less to the security precautions than to two other considerations. Of these the first was the fact that when the Enigma became available the BEF’s intelligence organisation was already so seriously disrupted that it was in no position to ensure that intelligence would be acted on. The second was still more serious. The BEF itself was already in full retreat in circumstances in which no intelligence service, however good, could have done much to help it.

The BEF’s intelligence organisation had been mobilised at very short notice. During the winter of 1939-40 it had been built up to comprise 1 major general, 80 officers and 120 other ranks. But within days of the beginning of the German offensive it was overwhelmed. Its Y unit could make little of the German field army’s complex signals network and could not exploit its low and medium-grade codes. Neither the network nor the codes had been much used before the campaign, and the difficult task of building up familiarity with them was not one that could be undertaken while the fighting lasted. The intercept stations in France were in any case kept at full stretch exploiting the considerable traffic in plain language, in plain language thinly disguised, or in GAF codes which had either been captured or broken by GC and CS. The intelligence obtained from these messages was “ample and easily deduced”, and it gave a clear idea of the course of the battle on the entire front. Although the call-signs and frequency systems of the GAF had not been fully established at this stage, the messages were initially of considerable operational value. Thus the GAF broadcasts of bombing safety lines enabled GHQ to determine the rate and extent of the German advance, while signals from aircraft enabled some of the advancing divisions to be followed and identified, and indicated some of the areas in which French resistance was crumbling. But little of the material dealt with the comparatively small sector of the front covered by the BEF, and before

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1 It should be added that the French and Polish Intelligence officers who cooperated with GC and CS in work on the Enigma up to the middle of June never divulged any information to the Germans.
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long even that lost its operational value as communications between the intercept stations and the intelligence staffs at GHQ and AHQ and at the Army’s two corps HQ, and, also, communications between the HQs and the intelligence staffs and the forward operational formations, proved to be quite inadequate for the war of movement which had been unleashed.

As early as 18 May, on account of the advance of the German forces south of the BEF, GHQ’s intelligence organisation was ordered back to Hazebrouck, and ‘all effective work’ on its own account came to an end. With the BEF in full retreat, the intelligence staffs attached to the British formations were also unable to function. Thus the task of providing even tactical intelligence to the BEF was, like the control of operations, already moving from France to London by the time the Enigma began to reach GHQ from 24 May. It was the RAF Y organisation in the United Kingdom which, during the withdrawal of the British forces and their evacuation from Dunkirk, jammed the communications of the German dive-bombers with decisive effect and supplied from GAF intercepts the intelligence which helped the naval authorities at Dover to control the shipping off the beaches.

Y also provided a solitary reference to Hitler’s decision to halt Kleist’s Panzer forces on the canal line outside Dunkirk on 24 May – the decision which gave respite to the British forces and made the evacuation possible. At 1142 on that day a plain language message announced that the attack on the line Dunkirk–Hazebrouck–Merville was to be ‘discontinued for the present’. From the surviving records it is impossible to say whether this message was intercepted in the United Kingdom, or only in France, or even whether its operational significance was recognised at the time. But the records contain no evidence that other intelligence was received about the German decision, and they establish that the Enigma made no reference to it. The first Enigma decrypts containing intelligence of operational value were obtained on 26 May when they gave eight hours’ notice of the time and place of a meeting between the Chiefs of Staff of four GAF Fliegerkorps – and there was much disappointment at GC and CS that the meeting was not attacked.

Photographic reconnaissance, the only important source of intelligence for the BEF apart from field Sigint and the disguised Enigma, continued to function from French bases after field Sigint had closed down. During the withdrawal the Air Component’s Blenheims flew many sorties and incurred severe losses; but little intelligence of operational use was produced. By 20 May they were back in England attempting to continue reconnaissance from there. The PDU, which still had only 8 Spitfires, remained in France till mid–June. It flew more tactical sorties than ever before, and also continued photographing targets in the Ruhr for Bomber Command, whose strategic offensive against German industry began on 15 May; it also photographed Turin and Genoa, which were attacked for the first time by Bomber Command on 12 June. In its 36 days in France the squadron flew 52 sorties without loss. Most were successful. Its performance greatly influenced the future shape of British photographic reconnaissance (PR).

*  *  *

Two British operations against French forces followed the campaign in France
and completed the tragedy of France's collapse - the bombardment of the French Fleet m the harbour of Mers-el-Kebir near Oran on 3 July, and the ill-fated attempt to make an opposed landing at Dakar in the last week of September.

During the last week of June the Cabinet were beset by anxiety lest the enemy get his hands on the French fleet. At first it seemed that this anxiety was misplaced. British liaison officers with French forces at various Mediterranean bases on several occasions reported that Admiral Darlan, the C-in-C French Navy, had ordered the fleet to fight on and on no account to surrender any ship to the enemy. They had seen personally some of Darlan's signals. The liaison officers gave their opinion that the fleet was minded to follow these instructions. But the Admiralty was not reassured. By 26 June, while believing that Darlan was genuinely determined to let no ship fall into enemy hands, it doubted whether he would be able to prevent this. Its anxiety was strengthened when on 26 June it obtained a copy of a further signal from Darlan which enjoined the fleet to pay no attention to British demands and, on 27 June, Darlan protested against the British decision to prevent the French squadron in Alexandria from leaving harbour. It was known that on 23 June he had urged this squadron to fight on, but he had since become Minister of Marine in the new French government. By the end of the month the JIC reported that French morale was 'deteriorating everywhere and though diminishing minorities may wish to fight on, it is clear that senior officers will no longer do so', and a former Naval Attaché in Paris, who knew the French admirals well, was advising that it was not possible to rely on their assurances that they would scuttle their ships if need be.

Whitehall's anxiety was not allayed by the terms of the French armistice, itself a bitter blow. As originally announced, this stipulated that the ships of the French Fleet should be recalled to their home ports there to be reduced under German and Italian supervision. To the Admiralty this meant the virtual certainty that they would come under enemy control. On 1st July the decrypt of a signal from Darlan dated 30 June disclosed that this stipulation had been somewhat toned down, the Italians now having authorised the stationing of the French ships 'à demi effectif at Toulon and ports in north Africa, an arrangement the Italians firmly expected the Germans to accept. But the British government were in no mood for fine distinctions. The Italian fleet had just entered the war: the Bismark was expected soon to be commissioned, and all the resources of the Royal Navy might soon be needed to repel invasion of England. Neither in north Africa nor in Toulon could the French Fleet be regarded as beyond the enemy's reach, and the government was convinced that its seizure would affect the course of the whole war. Furthermore, the Prime Minister was bent on showing the world that Britain was ruthlessly determined to continue the struggle.

On the evening of 1 July the Cabinet made the final decision that Force H should sail at once from Gibraltar to Mers-el-Kebir, and laid down the final options that were to be presented to the commander of the powerful French naval units stationed there. These options were that he should adopt one of various courses for putting his ships irretrievably beyond the reach of the enemy, or be sunk.

The available German and Italian decrypts had not mentioned the French Fleet, nor were they to do so, and Darlan's message of 30 June was the first signal to be decrypted at GC and CS, the French naval cypher having been
handed over by a defecting French warship a few days earlier. GC and CS decrypted the next French signal of any importance on 3 July. The signal, timed 1250 and sent out from the French Admiralty, recapitulated the British conditions, as these had been reported to Paris by Admiral Gensoul from Mers-el-Kebir after his negotiations with Force H earlier in the day, announced their rejection and ordered all French naval forces in the Mediterranean to proceed to Oran and place themselves at Gensoul’s disposal. The decrypt showed that Gensoul had represented the conditions as an ultimatum to join the British fleet or scuttle by omitting the other alternatives offered to him – notably the option of sailing to the United States. GC and CS teleprinted it to the Admiralty at 1809, 15 minutes after Force H had begun its bombardment of the French ships.

Had this decrypt reached the Admiralty sooner or had Gensoul’s signals to Paris been intercepted in the United Kingdom – they were not – it is remotely possible that the London authorities would have delayed the bombardment while Force H tried to clarify the British terms. But it is most unlikely. For one thing, the French Admiralty had told Gensoul in a plain-language signal at 1300 to inform the British force that French naval forces had been ordered to Oran; and, in the hope that the French would make last-minute concessions, Force H had already delayed opening fire until the Admiralty had repeated this intelligence to it at 1613. Furthermore, the parleying on board the Dunkerque at Mers-el-Kebir can have left the British negotiators in little doubt about the French attitude to their conditions.

After Force H’s bombardment GC and CS’s French decrypts were briefly of some importance. They included on 3 July the text of an order that all submarines and aircraft in the vicinity were to attack Force H and of an order to all naval forces to attack any British warships they encountered and seize merchant ships. By 5 July, however, further decrypts had shown that the danger had passed: new orders had instructed French ships to adopt a defensive attitude. Another decrypt of 3 July ordered ships in British ports to sail at once for France, using force if necessary. Those in the United Kingdom were taken over that morning, most of them without offering resistance, but during 4 and 5 July signals from the Alexandria squadron announced that it was unable to comply, and would scuttle. On 6 July the squadron reported that it had reached an understanding with C-in-C Mediterranean which avoided the use of force. But no messages were decrypted from the ships at Mers-el-Kebir, presumably because they were not intercepted in the United Kingdom. Sigint thus played no part in the decision of Force H’s commander to carry out on 6 July a second attack on the battleship Dunkerque, and gave no warning of the departure of the Strasbourg, the one ship that escaped.

Although GC and CS continued to decipher Vichy naval signals down to the Allied landings in north-west Africa in November 1942, the decrypts threw no light on the purpose of the French authorities in sending cruisers from Toulon through the Straits of Gibraltar on 11 September, a movement which complicated the British attempt to land a Free French expedition at Dakar, and they contributed nothing of value to the planning and execution of that ill-fated undertaking.

After the bombardment at Mers-el-Kebir and attacks on the battleships Richelieu at Dakar and Jean Bart at Casablanca, which also took place early in July, the Chiefs of Staff wished to take no further action which might risk hostilities with the French. But de Gaulle won over the Prime Minister to the
idea that an unopposed landing at Dakar would be feasible, and the Prime
Minister, with greater difficulty, won over the Cabinet. That this modest
project then evolved into operation *Menace*, the plan for an opposed landing
which the Cabinet finally approved on 27 August, was due to the fact that the
planners immediately recognised that there was no reliable evidence as to the
probable reactions to a landing by the garrisons, the naval force and the local
population, and that none was likely to be forthcoming. At the same time,
however, working on out-of-date information, they gravely underestimated the
scale of the defences: the troops available in the area were about three times
what was assumed, the Coastal artillery twice as strong and the main
armament of the *Richelieu*, which contributed decisively to the failure of the
operation, was wrongly reported to be incomplete. On the other hand, they
knew that their topographical data were woefully inadequate and the expedi­
tion had to be delayed while information was gathered about searchlights,
booms, the state of the beaches, surf conditions and other matters on which
accuracy was essential if the landings were to escape detection and achieve
surprise.

The delay, and no doubt the efforts to obtain this information, threatened
the prospects of achieving surprise, and these were totally destroyed, after the
expedition had sailed, when the Vichy government announced on 10 Septem­
ber that it was despatching a cruiser force to west Africa. In the absence of any
intelligence as to the purpose of this move, Whitehall jumped to the conclusion
that the squadron was taking reinforcements to Dakar, and decided – but too
late – that it must be intercepted at Gibraltar. In fact they were under orders to
make for Gabon in the hope that their presence would deter other French
territories from following the lead of Chad and transferring their allegiance to
the Free French: but the subsequent unsuccessful chase for them, though
driving them into Dakar, confirmed Vichy’s suspicions that a Free French force
was at sea and that Dakar was its destination.

Notwithstanding Whitehall’s assumption that the cruisers had taken
reinforcements to Dakar, operation *Menace* went into effect on 23 September.
It was called off, a total failure, on 25 September.
CHAPTER THREE

The Threat of Invasion, the Battle of Britain and the Blitz

The interval between the fall of France and the failure of the Dakar expedition was dominated by the threat of a German cross-Channel invasion and the Battle of Britain. That Germany lost that battle and was forced to abandon the attempt to land in England – this outcome, contrasting with her hitherto unbroken series of military successes, owed less to the fact that British intelligence was beginning to improve than to the difficulty of the German undertaking.

On two occasions Germany had now struck against the West with ambitious and well-prepared plans, but the extent and rapidity of her victories had so surprised her High Command that it was unprepared for the next move. On the other hand, her successes had been so dramatic that she hoped that Great Britain would decide not to continue the struggle. On both accounts it was not until 2 July 1940 that Hitler ordered the three Services to prepare plans for an invasion. A fortnight later, still unconvinced that the plans would have to be implemented, he also remained uncertain whether the operation could succeed: he set early September as the earliest date for the attempt, but laid it down that no crossing would be made until the RAF had been robbed of the power to give effective cover to the Royal Navy.

Long before these orders were issued the British Chiefs of Staff (COS) had taken the first precaution against an invasion attempt. On 10 May, the day on which Germany struck against France, they set up the Home Defence Executive to co-ordinate the anti-invasion preparations of all the Service and civilian departments. They were then assuming that Germany’s main object was the seizure of the Low Countries as a base for an all-out assault on the United Kingdom, and they continued to believe, as they had believed since the autumn of 1939, that she would seek to establish air superiority before attempting to cross the Channel. Increased GAF activity over the United Kingdom would thus give prior warning of invasion. But they also stressed that she had revealed in Norway ‘an unexpected ability to carry out large-scale overseas operations’; and before the end of the month, confronted by the rapid advance of the enemy to the Channel ports and by the depletion of the RAF and the absence in France of the Army’s main fighting strength, they had come to fear that an invasion might be attempted without warning at any minute. On 29 May they warned the War Cabinet that an imminent full-scale attack on the United Kingdom was highly probable.

It was perhaps inevitable, if also ironical, that at this juncture when Germany was forced to delay and reduced to improvising, the British authorities should conclude that she was poised to strike again at once. In the light of the enemy’s recent performance, and in the absence of reliable intelligence, the COS had no choice but to make the ‘worst case’ assumption, and the intelligence authorities would not risk repeating the mistake of under-estimating the enemy’s capacities. On 24 May, indeed, the JIC had noted
some of the difficulties that Germany would be faced with. The only small craft at her disposal were slow-moving tugs, barges and ferries: assembly ports in France and the Low Countries were either destroyed or not yet captured; it would take a fortnight to prepare airfields for the necessary air support. No more than the COS, however, did it question that Germany was fully prepared with plans for an invasion. On 26 May it had warned the COS that it was unlikely to be able to give advance notice of a landing.

Soon after the COS had issued their warning, Sigint, contradicting the flood of diplomatic and SIS reports which were claiming that invasion was imminent, provided some temporary respite. By the end of May the Enigma decrypts enabled MI to conclude that Germany would probably complete the over-running of France before turning against England, and on 3 June the COS approved the despatch of ground reinforcements to assist the French despite the fact that the UK was ‘dangerously exposed to the risk of decisive air attack and/or invasion’. From 5 June, however, by confirming that the Allies could not hold the German advance, the decrypts were a factor in the Cabinet’s rejection of French requests for the despatch of further RAF contingents: the two squadrons that were sent were intended primarily to cover the evacuation of the British army.

Meanwhile, if Whitehall was now over-estimating the enemy’s capacities instead of under-estimating them, it had at least learned another lesson from the failures of intelligence before the invasion of Norway and the attack on France. One of Churchill’s first actions on becoming Prime Minister had been to request the COS to review in the light of these failures the system by which intelligence was related to the government’s procedure for taking operational and strategic decisions. The response of the COS in the middle of May had been to insist that the JIC, as the sole authority for assessing intelligence on strategic developments for the central authorities, and for the ensuring that those authorities did not act on information that had not been properly assessed, must receive any intelligence from the Foreign Office and the Service departments that called for urgent attention and issue considered appreciations to it, any hour of the day or night, to the Prime Minister, the other members of the War Cabinet and the COS themselves. At the end of May the JIC, still heavily burdened with administrative work and recognising that its limited staff was quite inadequate for this purpose, set up an inter-departmental group of desk officers in the Admiralty’s OIC with the task of ensuring that any evidence bearing on the threat of invasion was pooled in one place, whatever its source, and constantly assessed. This group, the Combined Intelligence Committee (CIC), met daily from 31 May until the end of 1940, when the immediate danger of invasion had passed: it continued to meet, though less and less frequently, until 1943.

Its creation was followed by an overdue improvement in the organisation of air reconnaissance, the only source offering any immediate hope of guarding against surprise landings. Hitherto, the Service departments and the home operational commands had failed to lay down a procedure for deciding the priorities between their competing demands for reconnaissance or for co-ordinating the interpretation of the evidence it obtained. By the middle of June the CIC had been made the sole authority for requesting reconnaissance, for setting the priorities and for collating invasion intelligence from air reconnaissance with information from other sources. At the same time, the Air Staff made Coastal Command responsible for reconnaissance over enemy ports and
coasts, as well as over the open sea, and placed the PDU (now renamed the PRU) under its control. Until the end of July, however, the reliability of the PRU was restricted by the fact that the PRU had only eleven Spitfires and that their range was so limited that they could barely reach south-west Norway, Kiel and the Gironde estuary, let alone cover them with any regularity. A Spitfire with longer range, able to reach Baltic ports as far east as Stettin, did not become operational until the end of October. With support from other Coastal Command units the PRU was covering the Channel and North Sea ports regularly from the middle of June. By the middle of July the CIC felt able to offer the reassurance that a mass departure of barges from the coasts opposite England would be detected. But it continued to emphasise that an expedition might be lying ready in the Baltic or (until the PRU finally succeeded in photographing the Bordeaux area on 24 July) in the Gironde.

The JIC was not convinced by even this partial reassurance from the CIC. During June the War Office had warned the CIC not to overlook the possibility that an invasion would be made on a wide front by tanks carried in fast motorboats. Early in July the Naval Staff advised the Prime Minister that ‘we cannot... assume either that special craft will not have been provided or that past military rules as to what is practicable ... will be allowed to govern the action undertaken’; the enemy might get as many as 100,000 men ashore with little or no warning by making widely dispersed diversionary landings from Biscay and Norway, assembling hundreds of fast motorboats undetected in the Channel and following up with tank-landing craft and larger vessels from beyond the range of air reconnaissance. As late as 23 July the JIC, as well as warning that in thick weather an expedition from the Baltic might arrive undetected, feared that an expedition could be assembled and despatched from the Channel ports at such short notice that it would not guarantee ‘any substantial amount of warning’. It was on this account that, although it had previously discounted several false alarms from the CIC, most of them prompted by SIS reports of shipping concentrations in Norway and the Baltic, the JIC issued its first alert on 5 July.

This alert, to the effect that while full-scale invasion was not expected before mid-July, large-scale raids might be imminent, was precipitated by Sigint. The volume of GAF Enigma decrypts had slumped since the collapse of France, the more so as the GAF had reverted to land-lines for its higher echelon communications at the end of active operations. But in the last week of June they had disclosed that GAF units were refitting in preparation for operations against the UK from airfields in the Low Countries, where PR had detected runway extensions, and that most of the bomber units would complete refitting by 8 July. In view of the fact that PR had detected no invasion shipping in the Channel ports, the JIC allowed, as the Air Ministry believed, that this evidence might point only to the onset of major air attacks. But other decrypts had revealed that the Germans were postponing a ceremonial parade in Paris and setting up long-range guns opposite Dover; and the absence of invasion shipping was countered by the argument that Germany might resort to unorthodox craft and ingenious means of assembling them.

The operational authorities did not order an invasion alarm on the strength of the JIC’s warning. They doubted whether an effective invasion force could be assembled without being detected by PR, finding it difficult, as Churchill said, ‘to visualise ... invasion all along the coast by troops carried in small craft’. Moreover, although the Admiralty insisted on retaining on the
south and east coasts large numbers of destroyers and other ships which would otherwise have been available for escorting convoys, and did so with Churchill’s support on the ground that one had to allow for the worst, the Chiefs of Staff as a whole had returned to their earlier view that the Germans would not attempt to invade before seeing the outcome of a major battle for air supremacy.

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By British reckoning the Battle of Britain began on 10 July when, after a month of scattered night raids, the GAF embarked on a concentrated daylight attack on ports, coastal convoys and aircraft factories with the object of wearing down the RAF’s fighter defences in the South-east. By mid-August, when it had not succeeded in this objective, it could not defer the decision to increase the scale of its attack and seek the destruction of the RAF on and over its airfields. Unless this was achieved without delay, the landings in England could not take place, as planned, early in September. Within a fortnight this larger effort — operation Adler — was beginning to fail. The last big daylight raids for several weeks came between 26 and 31 August, and from the night of 24–25 August the GAF went over to widespread night bombing. On 1 September the diversion of part of the remaining daylight raids from airfields to docks at Tilbury heralded the opening of a further phase in which, from 7 September, in a final attempt to break British morale, the Germans switched their main attack to London and made it mainly at night.

The decrypts obtained in the last week of June had enabled the Air Intelligence (AI) branch of the Air Ministry to foresee the opening of the offensive. Before the offensive began, the fact that the Enigma had for some months been throwing light on the organisations, the order of battle and the equipment of the GAF had been of great value in assisting AI and GC and CS to derive important strategic intelligence from the tactical signals, transmitted in low-grade codes, of the main GAF users of radio, the operational units. The analysis of these signals, together with an investigation by Professor Linde- mann, the Prime Minister’s adviser on scientific matters, into discrepancies between Air Ministry estimates of the size of the GAF and the lower estimates by the Ministry of Economic Warfare of the rate of aircraft production, persuaded the Air Ministry to accept a major reduction in its estimate of the number of bombers available for the battle. In June it had believed the first-line strength to be 2,500, with the capacity to deliver 4,800 tons of bombs per day — alarming figures which had led to the preparation of drastic evacuation and hospitalisation measures. By 6 July it had scaled down these figures to 1,250 bombers (the actual number was between 1,500 and 1,700) and 1,800 tons; and because the new estimates were guided by Sigint, which it described as ‘heaven-sent’, it felt able to ‘view the situation much more confidently than was possible a month ago’.

Valuable as it was in producing this revision, Sigint was of no assistance to AI in its attempts to answer the supreme question: could the RAF outlast the GAF? The revision was based on the calculation that only 50 per cent of the first-line establishment of the GAF would be operationally available, rather than the 80 per cent previously assumed, but the intelligence sources threw no
light on the size of the German first-line establishment or of the German strength in reserve aircraft, both of which AI continued to exaggerate. This over-estimation was too great to be off-set by the over-estimation by Fighter and AA Commands of the losses inflicted on the enemy. AI was suspicious of their claims, but they were even more exaggerated than AI allowed for. The Commands claimed 1,112 aircraft destroyed and 400 probably destroyed between 9 August and 2 October, but the actual losses totalled 635. Throughout the battle AI was accordingly extremely cautious in its forecasts. At the beginning of September, for example, it calculated that if German fighter losses were to continue at the August rate the enemy’s fighter strength would be ineffective in 6 weeks and Germany would have to abandon the escorted daylight raids. At a time when it was feared that Fighter Command could hold out only for 3 weeks, this was not a consoling forecast. In fact the GAF switched its main effort to the bombing of London, partly by night, within a week.

Sigint also gave no advance information about the shifts that occurred during the battle in the GAF’s methods and objectives. Communications between Berlin and the GAF formations in France went by land-lines, so that strategic decisions were rarely spelled out in W/T signals. From time to time it could be deduced from the Enigma decrypts that a change in the GAF’s intentions was to be expected, but the deductions were of no operational value. For one thing, there was no knowing how widely they applied - for not all the forward GAF formations used W/T. For another, they were too vague. Thus the decrypts made several references to ‘Adlertag’ between 9 and 13 August, and it was obvious that some new development must be expected, but neither GC and CS nor AI could unravel what the code word ‘Adlertag’ stood for. For all his major decisions C-in-C Fighter Command accordingly depended on his own strategic judgment, with no direct assistance from the Enigma. This may be illustrated by the events of 15 August, the day on which the GAF sustained the defeat which is sometimes taken as marking the turning point in the Battle of Britain. The GAF attempted on that day to throw Fighter Command off balance by combining diversionary attacks north of the Humber with the main attack against southern England. But there is no evidence in the surviving records that Fighter Command got advance warning of the GAF’s intention either from Enigma or from the GAF’s low-grade transmissions: brief forewarning of the two attacks was received, it seems, only from radar.

In the day-to-day fighting, by giving notice of the time, the targets and the forces committed to individual raids, the Enigma provided an increasing amount of intelligence as the GAF moved into its all-out effort. But this intelligence was sometimes obtained too late to be of operational value. Moreover, the GAF made last-minute alterations of plan which were not disclosed in the decrypts, or were not disclosed in good time. As an example of this difficulty, which sometimes undermined confidence in the source, the decrypts revealed on 14 September that a big raid on London was to take place that day, and gave an indication of the forces that would take part in it; but they had previously announced that the raid was scheduled for 13 September, and in the event the raid was made on the morning of 15 September without any further Enigma warning.

The Enigma’s tactical intelligence could have been put to better use if prior arrangements had been made to co-ordinate it with the low-grade Sigint provided by the RAF ‘Y’ organisation. In the absence of such arrangements before the end of 1940, RAF ‘Y’ worked without access to the Enigma and
reported to Fighter Commander independently. Based at Cheadle in Staffordshire, it intercepted and decrypted the messages in low-grade cypher which passed intermittently during operations between the German bombers and their control, studied call-signs and W/T networks, and carried out D/F. During the first phase of the battle it continued its earlier – and now more important – work of giving warning of enemy sightings of coastal convoys and of the imminence of attacks. Apart from that, it could only warn that operations (unspecified) were afoot, identify bomber units when airborne and locate their bases (useful for Bomber Command attacks) and, less often, foretell their intended target area. Before mid-August this added little of operational use to what was being regularly and reliably reported by radar, but by that date Cheadle’s techniques had so improved that it could supply such information earlier and more frequently, and it had increased its efficiency by setting up subsidiary stations at the HQs of Fighter and Coastal Commands.

From the outset of the battle Cheadle’s work was supplemented by another form of low-grade Sigint. This was the interception of plain-language radio-telephony (R/T) carried out at a chain of stations centred on Kingsdown in Kent and staffed by German-speaking WAAF and WRNS. Their intercepts went to local RAF HQs and to the Operations Room at Fighter Command, where they were mated with reports from the radar chain, Cheadle and the Observer Corps. During the crucial phase of the Battle of Britain, while Cheadle provided information about the height, course, speed, targets, methods of attack and sortie rates of the bomber units, which it could now identify soon after take-off, the R/T intercepts were even more useful in supplementing the radar. They could, on occasion, determine where enemy aircraft were forming up outside radar range, report the altitude of approaching aircraft, indicate which incoming groups were fighters and which bombers, and intercept the orders that were being passed to fighter escorts – orders which sometimes specified the areas for main and diversionary attack, the enemy appreciation of RAF intentions, rendezvous areas for the return flight and the course to be taken.

The reports of both types of low-grade Sigint were passed by telephone and no records survive of their precise impact on operations. But it is reasonable to conclude that it made an important contribution to the effectiveness of Fighter Command during the crucial weeks of August and September when the fighter strength of the RAF was limited and greatly outnumbered.

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The onset of the air battle enabled the intelligence bodies to put their fears of invasion into better perspective. By early August they had swung back to the view, which they had held before the panic of May and June, that a German decision to invade would depend on the result of the struggle for air superiority.

*The stations were known as Home Defence Units (HDU’s) because the Germans were expected to make great use of R/T during an invasion. The HDU’s were in touch with local naval HQs passing to them intercepts of German E-boat traffic as well as air intelligence.
From the middle of August, on the other hand, when the result remained in the balance, the most trusted sources at last confirmed that Germany was indeed making preparations for an invasion. On 12 August the agent A-54 reported that there would be no invasion for at least a fortnight and that it might be three weeks before expeditionary forces assembled in Paris, Brussels and The Hague could be dispersed to their ports and airfields. On 11 and 12 August the Enigma decrypts revealed that GAF units earmarked for a special undertaking, and including 30 men with a perfect command of English, were being transferred to a Fliegerkorps Commander who had been associated with close-support operations during the French campaign. Early in September it emerged from other decrypts that dive-bombers were about to assemble at airfields near the Straits and that long-range bombers had instructions to transfer from Norway to France. And from the first day of September PR, which had hitherto found no evidence of unusual assemblies of shipping in or near the Channel ports, detected a striking increase of barges in the Ostend area, and their gradual movement westward. At Ostend the number increased from 18 on 31 August to 270 on 7 September. In the course of that week barges, motorboats and larger vessels were seen or photographed on passage from the North Sea to the Channel ports. Between 1 and 4 September about 100 arrived at Flushing; at Dunkirk and Calais substantial numbers arrived in the next two days. At the same time, as the CIC noted on 2 September, photographic reconnaissance revealed that work on the long-range batteries at Griz Nez was proceeding at a great pace.

The JIC were not convinced that these shipping movements were in preparation for an invasion. Even so, as the CIC was suggesting on 7 September, the purpose of the activity in the Channel might be to supply or in other ways support a main assault delivered from north-west Germany, where presumed invasion preparations were now noted, or from the eastern Baltic. With this possibility in mind, the JIC warned the Chiefs of Staff on 5 September that seaborne raids must be expected at any moment, though it added that the Germans would probably renew their attempt to win air superiority before risking a major seaborne invasion. And on 7 September, asked to be more precise, it abandoned its hesitations in the light of further evidence. On 5 September the PRU had recorded another increase of barges in Ostend, and a report had been received that German army leave had been stopped from 8 September. On 6 September Sigint had revealed that the transfers recently ordered by the GAF had taken place. On 7 September itself the PRU warned that a large-scale and disciplined movement of barges was taking place to forward bases in the Channel. Judging that the enemy would not bring the barges within range of RAF attack unless invasion was imminent, observing that conditions of moon and tide on the south-east coast would be particularly favourable for landings between 8 and 10 September, and bearing in mind also that these dates were being mentioned in the increasing number of invasion warnings that were being received from diplomatic and SIS sources, the JIC advised the Chiefs of Staff that a full-scale invasion might be attempted at any moment. And 'as if to clinch the matter', as it added in its report, four Germans caught landing from rowing boats on the south-east coast had confessed that they were spies whose task had been to be ready at any time in the next fortnight to report the movement of British reserve formations in the quadrilateral Oxford–Ipswich–London–Reading.

The Chiefs of Staff and GHQ Home Forces accepted this assessment. At
seven minutes past eight in the evening of 7 September the GHQ issued
codeword Cromwell, bringing all home defence forces to ‘immediate action’.

At that point the Germans remained uncertain when, indeed whether, to
attempt a landing. As long ago as the end of July Hitler had set the middle of
September as the date of the completion of all preparations, but had not
decided when he would order the preparatory 10-day countdown. On 11
September he abandoned any intention of giving this order before the 14th. On
13 September he informed the commands that, in view of the fact that the state
of the air battle, though hopeful, was still uncertain, the moment for the order
had not yet arrived. On 14 September he postponed the warning date for three
more days, thereby renouncing the prospect of invasion before 27 September,
the last day until 8 October when moon and tide would favour a landing. On 17
September he postponed it again, and also ordered a partial dispersal of the
invasion shipping, which had been battered by the RAF since 5 September. But
he maintained other preparations against a possible decision to invade in
October. On 12 October he put off the operation until the following spring but
instructed that the threat of invasion should be kept in being as a means of
exerting military and political pressure on Great Britain.

Of these delays and deliberations some hints began to reach Whitehall
from as early as 15 September, as we shall see. Until well into October,
however, these hints were less powerful than were the indications that
preparations for invasion were at an advanced stage, if not actually complete.
The liners *Bremen* and *Europa* were sighted, camouflaged, in Bremen on 10
September. The PRU detected the extension of assemblies of shipping to Le
Havre and Cherbourg, and its evidence at last contained numerous reports of
specially converted invasion craft. The Enigma supplied plentiful details of the
enemy’s administrative preparations. On 13 September GC and CS judged by
Traffic Analysis, from its study of the behaviour of the new naval wireless
network set up by Germany for the Channel area during the summer, that
‘everything was ready’. But during the whole of the period in which invasion
remained a serious possibility neither the Enigma nor any other sources gave
any precise indication as to when an assault would be made.

As to where and in what strength the assault would come, intelligence was
equally unable to help. The size of the German transport aircraft fleet was
known from call-sign evidence. This enabled the JIC to put a ceiling on the
scale of airborne attack. But although the whereabouts of some of this fleet was
identified from PR and Sigint, it was not possible to say how much of the force
would be committed. In the same way, although the maximum size of at least
the first wave of the seaborne assault across the Channel could be judged once
the shipping had begun to assemble and to be photographed, such calculations
were of little value in the light of the assumption that a large part of the
expedition would come from the Baltic. In its turn, this assumption influenced
pre-suppositions as to where the expedition would be delivered. In its final
form the German plan was in fact to put the whole force ashore within a fairly
restricted area in Kent and Sussex. But the British planners assumed from the
first that the main assault would be made on East Anglia, the best direction
from which to envelop London, with only diversionary raids and landings
farther north, on the south coast and against Eire. Even after the invasion
shipping had moved to its forward embarkation ports in France, they
continued to allow for a main landing on the east coast and a secondary assault
in the south. As late as 28 October, the day before the PRU was at last able to
reach the east Baltic ports, GHQ Home Forces was still working on this assumption and disposing its formations accordingly, and intelligence had still produced no evidence which cast doubt on it. A-54 had given two warning that the landings would be in the south. In August he had reported that they would be around Brighton and Ramsgate and on 21 September had given Dover as the main point of attack. By that time, however, Sigint had begun to reveal the existence of a large-scale German administrative organisation for invasion in the Scheldt which countered these reports by tending to confirm British operational assumptions.

In their effort to discover the date of the invasion the intelligence authorities resorted after 7 September to every conceivable source, and to some devices that are barely conceivable. As well as arranging to have cages of carrier-pigeons (with instructions for use) dropped on the other side of the Channel, they consulted Channel tunnel experts, listened to a water diviner who claimed to be able to forecast the enemy’s movements and, aware of Hitler’s interest in astrology, paid some attention to his horoscope. Though the views of an astrologer on Hitler’s horoscope were quoted to the Chiefs of Staff, the Vice Chief of the Naval Staff was surely being sarcastic when he suggested on 1 October that the NID should set up an astrological section, and it may be allowed that the more recondite of these enquiries were not seriously pursued. But the fact that they were considered at all reveals the absence of reliable information. Of the many diplomatic and SIS reports a few came close to the mark. As was usual, however, they encountered the problem that, the more accurate they were, the less could they be precise. On 22 September, to illustrate their mixture of inaccuracy and precision, the CIC announced that, according to a report from the British embassy in Washington, invasion had been ordered for 1500 on that day. On 27 September, to illustrate the imprecision of the more accurate few, the CIC reproduced an SIS report to the effect that preparations for the invasion had been completed on 10 September, but that no date had been fixed as the decision was to be reached in the light of circumstances. Further to complicate matters, it was just between the middle of September and the middle of October, when Hitler was gradually abandon­ing the attempt to invade, that evidence from the most trusted sources emerged to sustain the belief that invasion might be attempted at any moment.

The PRU’s photographs of the Channel area were at last revealing the existence of invasion devices that had so far gone undetected - embarkation and disembarkation ramps; twin-barges of novel design. The Enigma decrypts, consisting as they did of the signals of subordinate formations, were silent about the enemy’s strategic thinking but were providing more details than before of the complex invasion organisation, involving all three Services, which the Germans had brought into existence, and there was no lack of evidence that the organisation remained at a high state of readiness. On 21 September the Enigma vouchsafed the code word *Sealion* for the first time; and other Enigma decrypts of 24, 25 and 27 September referred to first, second and third crossings. As late as the middle of October, indeed, Sigint about the invasion preparations convinced MI and AI that the enemy remained fully ready and determined to attempt a large-scale invasion if conditions turned favourable. And on 18 October the Chiefs of Staff, who had previously permitted some slight relaxation, ordered a return to the highest state of readiness.

In the light of this evidence indications that Hitler had decided against invasion, at least in the immediate future, were treated with caution. The first
such indication was provided by Traffic Analysis. On the morning of 15 September an identical signal was transmitted on every German naval frequency, an unprecedented occurrence; it presumably conveyed the postponement ordered by Hitler on 14 September. This signal was followed, not by an increase of wireless traffic on the Channel area frequencies, but by a marked decline in it. Later on 15 September, somewhat prematurely as it turned out, GC and CS reported to the OIC in the Admiralty that this unusual German naval wireless behaviour was probably in some way associated with the postponement of the German initiative. By 20 September this inference, which the Admiralty did not forward to the CIC, was being supported by photographic reconnaissance. The PRU noticed on that day that 5 destroyers and a torpedo-boat had withdrawn from Cherbourg and that the assemblies of barges had begun to disperse. By the end of the month the total of barges photographed in the five main ports between Flushing and Boulogne had declined from 1,004 on 18 September to 691. But even this evidence was judged to be inconclusive: the withdrawal might be only a tactical move to avoid losses from RAF bombing, which was clearly taking its toll.1 Not until 28 October did the CIC, reporting that photographic reconnaissance had detected the first considerable movement of shipping eastward out of the Channel, risk the comment that this movement, ‘if maintained, could reduce the risk of invasion’. By then, on 25 October, it had received the first firm indication from the Enigma — the disclosure that the GAF had disbanded one of the special administrative units attached to the invasion forces.

During October the CIC was equally reserved towards the increasingly frequent diplomatic and SIS reports that invasion had been postponed. A report from A–54 on 30 September, to the effect that invasion had been deferred until early October, was not mentioned by the CIC. On 13 October, the day after Hitler had so decided, SIS circulated another report from the same source, dated 9 October, which said that the invasion had been put off until 1941. But it graded the information as being of only B3 quality — possibly correct from a usually reliable source — and this was noted when the report was reproduced by the CIC on 17 October. By that time the Foreign Office had learned that Hitler had told Mussolini at their Brenner meeting on 4 October that Sealion was postponed until the spring; and as early as 9 October, on the strength of a report from the Madrid embassy, the Cabinet had called for a study of the possibility that Germany would advance through the Balkans into the Middle East. But the CIC did not comment on these diplomatic reports.

Despite the conflict of evidence and the absence of what alone could have resolved it — an unambiguous indication from Sigint that the invasion had been abandoned — a sense of relaxation gained ground slowly in Whitehall from the beginning of October. It was then that the CIC changed the formula used in its report that ‘invasion could come any time’ to ‘situation unchanged: no indication that a decision to invade has been taken’. On 10 October the CIC’s assessments came close to depicting the actual situation: as well as keeping everything ready in case conditions favoured a landing, the enemy was probably continuing his administrative preparations in order to contain British forces and to avoid the fall in German morale that would follow if the operation

1 Mt later transpired that more than one–tenth of the transports and barges had been sunk or damaged in or en route to their assembly points by 21 September.
were abandoned. On the same day the CIC concluded that, while the danger of invasion would remain so long as Germany had numerical superiority in the air, the enemy's failure to win the air battle, the shortening days, the worsening weather and the growing strength of British defences were now combining to make invasion a "hazardous" undertaking. These assessment were based on operational considerations, rather than on intelligence indications, and the operational authorities were not so confident. On 21 October, three days after the last of the readiness alerts, the Chiefs of Staff, and especially the CIGS, were perturbed about the widespread feeling that danger had passed. But on the last day of October the Defence Committee agreed with the Prime Minister that the danger was now 'relatively remote' and adjusted the dispositions and state of readiness of British forces to what it judged would remain a diminished threat throughout the winter.

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The GAF had by then transferred its effort from day to night bombing and changed its targets from airfields and aircraft factories to the big cities. In the first phase of the Blitz, from early in September, night bombing increasingly replaced daylight raids and London bore the brunt of both. By the middle of November, when declining serviceability had forced it to bomb almost wholly by night, the GAF had failed to bring about the collapse of morale by dislocating the capital, and in a second phase lasting till May 1941 it extended its attack to the chief industrial and communications centres with the double aim of preventing Britain from repairing her losses and of checking the growth of her war production.

From the beginning of the night raids the interception of the GAF's W/T and R/T tactical traffic produced a steady increase in intelligence on its order of battle and not only on the number and whereabouts of its units but also on the number of bombers each unit had available for operations. The chief reason for the improvement was not any greater success in reading the tactical codes and cyphers, which had never been difficult to decode, but Cheadle's growing ability to detect the frequencies in use - they changed every 24 hours - and identify the unit of the transmitting aircraft from the operational call-signs. These call-signs, which also changed daily, were selected according to a system which could be solved only by correlating them with the open call-signs used when the aircraft were working with the navigational beacons of the Safety Service. With some assistance from captured documents, Cheadle began to solve them in September. With these advances, and with its growing knowledge of the GAF's order of battle, it was able to detect the bases from which raids were to be expected, to identify the units involved soon after the start of a raid, in advance of the early-warning radar, and to provide current information on the numbers of aircraft, on their targets and alternative targets, and on the bases to which they would be returning. Together with R/T intercepts of their reports on their attacks and their engagements with RAF fighters, this intelligence assisted not only the defences in Fighter and AA Commands, but also Bomber Command's attacks on the bases and, from December 1940, Fighter Command's intruder operations against the returning raiders.

From its knowledge of the location and the operating procedure of the
beacons used in the enemy’s Safety Service – a system designed to give aircraft general navigational aid on their way to and from their targets – Cheadle also contributed to the development of the first radio counter-measures. They required the development of masking beacons, or meacons, which re-radiated the beacon signals so as to render them useless or misleading. The first meacons were installed in August 1940, and as their number expanded, POW frequently complained of their effectiveness and, from time to time, enemy aircraft landed or crashed in England when the crews thought they were near their bases. At the beginning of December 1940 the GAF was forced to take the evasive action of introducing an elaborate system for changing the call–signs and frequencies for its beacons: further such systems, each more complex than the previous one, were introduced during 1941, but Cheadle was able to solve them without great delay.

Before the Blitz began other sources of intelligence had made it possible to understand the method of operation of the first of three GAF devices which, unlike the radio beacons, were designed as aids to precise navigation and accurate bomb-dropping by relying on beams. By the end of June, by collating POW interrogations, captured documents, PR, the examination of crashed aircraft, an isolated Enigma decrypt and flights by a research aircraft, it had been established that in the Knickebein system a beam transmitted by a ground station, aimed at given co-ordinates, was intercepted by the aircraft on its blind-landing receiver while a second, transverse beam indicated the target’s position. After this discovery, made within days of the first known use of Knickebein in operations, there was some delay before high-powered jamming transmitters could be developed in sufficient numbers. By the end of September, however, the early attempts to interfere with it were already having some effect.

Knickebein was designed to locate the point of bomb-release with good accuracy and could be used by all bombers in a large force: but it was subject to errors on account of uncertainty about the velocity of the aircraft at the point of release. The second blind-bombing aid, X-Gerät, sought to overcome this limitation by directing a main beam to the target and intersecting it with transverse beams: by recording transit time between the cross beams, equipment in the bomber determined the true ground speed and bombed automatically. But it required specialised equipment in the bomber, and specialised training, and was thus restricted to a specialist unit and used in major raids on industrial cities in which pathfinder aircraft using the system made an incendiary attack and the following bombers bombed on the fires.

In mid-September 1940, while the unit equipped with X-Gerät was still experimenting with it, GC and CS broke the Enigma key (the Brown key) used between the Signals Experimental Regiment that was developing the system and the unit, KG100, which, based in Britain, was still relying on radio for its HQ communications when most of the GAF in north-west Europe had reverted to land-lines. Between then and May 1941 the key was read currently almost every day, and though documents and equipment taken from crashed aircraft also played a part, it was mainly due to these decrypts, which included equipment returns and information about the frequencies used and the location of some of the ground transmitters, that the counter–measures authorities acquired an almost complete understanding of X-Gerät during October.

In the course of developing the necessary jamming transmitters, No. 80
Wing RAF, newly established to take charge of radio counter-measures, discovered that the beam transmissions could be intercepted by the HDU’s of the Kingsdown network, and that KG100’s targets could be located in advance at the points where the beams intersected. Of still greater operational value, the Brown decrypts frequently divulged during the afternoon the beam settings to be used during the coming evening. With this intelligence it was possible to predict with growing accuracy, though not always with sufficient notice for operational purposes, where the next attack would come. New jamming transmitters were not perfected, however, in time for deployment against the first use of X-Gerät against an industrial target, the raid on Coventry on 14 November. Although the interception of beams gave some hours’ notice that Coventry was the target, there is no substance in the claim, still frequently made, that Air Ministry knew the target two days in advance but took no counter-measures for fear of compromising the security of Ultra.

On 11 November an Engima decrypt disclosed that KG100 was to lead an unusually important raid, monitored from Goering’s HQ, which appeared from its code-name (‘Moonlight Sonata’) to be planned to take place in some fashion in three stages at or near full moon. The decrypt gave no date and no information about targets beyond a list of four target numbers and a reference to the procedure for switching to ‘alternative targets’ should that become necessary. On the evidence of a captured map AI located the four listed targets in London and the Home Counties. Only after the event did it emerge that these were all alternative targets and that the decrypt had denoted the target by an unidentifiable code-word, ‘Korn’. The next day a young pilot POW, shot down on 9 November, was heard to say that the GAF planned one or more raids with every available long-range bomber between 15 and 20 November against Coventry and Birmingham. As those dates coincided with a full moon, and as the POW had mentioned Goering’s interest, it was clear that he was referring to ‘Moonlight Sonata’; but AI set aside his evidence about the targets, preferring the interpretation it had put on the decrypt. It also set aside a second decrypt, received early the same day, 12 November, in which the HQ of KG 100 issued for three targets X-Gerät beam settings which intersected at Wolverhampton, Birmingham and Coventry. This second decrypt was not seen to be associated with ‘Moonlight Sonata’ – an over-sight for which the only excuse is that similar signals had often been decrypted since September in connection with KG100’s X-Gerät trials and that several of them had given beam settings which intersected at these and other towns in the industrial Midlands.

On 13 November AI was given another opportunity to revise its conclusion about the ‘Moonlight Sonata’ targets. Under interrogation, the POW then stated that there were to be three separate attacks on consecutive nights, of which the second bore the code-name ‘Moonshine Serenade’, and repeated that the targets were to be in ‘the industrial district of England’. His first claim clashed with the operational judgement of the Air Staff, which believed that the entire undertaking would take place in three waves on a single night: but the Air Ministry took account of it by mentioning both alternatives in the operational instructions it issued to the defence forces and the counter-measures authorities in the early hours of 14 November. His evidence about the targets was not included in the instructions: but later on the morning of 14 November, in a memorandum alerting the Prime Minister, the Air Staff advised him that while the target areas would probably be in the vicinity of London, ‘if further information indicates Coventry, Birmingham or elsewhere, we hope to
get instructions out in time’.

It is ironical that the operational instructions relied on the POW for the date of the raid — “the night of the full moon (15/11) or the most suitable night subsequent to that date” — when the full moon period in fact began on 14 November. But the Air Ministry had good reason to expect further information as to both the time and the target. The ‘Moonlight Sonata’ decrypt had made it clear that the night of the attack would be indicated by beam tunings from 1300 hours and it was known that the interception of the beam transmission would indicate the enemy’s approach routes and targets. And so it turned out. At about 1300 on 14 November the beam tunings were intercepted and by 1500 80 Wing had reported that the beams were intersecting over Coventry. The order bringing the operational instructions into effect was issued from the Air Ministry at 1615.

It is possible that if it had known the target by 12 November, as it might have done but for the unfortunate conflict between the POW’s evidence and its interpretation of the decrypts, the counter-measures would have been more effective. But since the main counter-measures — pre-emptive bombing attacks on the enemy’s bases and beam transmitters, and the operation of the maximum number of fighters against the approach routes and over the target when these were disclosed by the interception of the beams — would have been the same whatever the target, it is probable that the failure of the defences was chiefly due to shortage of resources, especially of night fighters, and continuing defects in the arrangements made for exploiting the tactical intelligence against night raids. The GAF despatched 509 bombers against Coventry, of which 449 reached the target and only one was certainly destroyed.

From the time of the raid, on the other hand, tactical intelligence rapidly improved, as did the operation of the radio counter-measures, in the Coventry raid, as compared with 509 aircraft despatched, AI estimated that some 330 had been engaged. A month later, on 13 December, it estimated that 95 bombers were active over the United Kingdom and a captured document established that the number had been 97. Studies of the accuracy of bombing in raids relying on X-Gerat showed a serious deterioration by February 1941, when not more than one-fifth of German bombs fell within the target areas. In March POW confirmed that the deterioration was due to the spoiling of the beams: they testified that since the previous November, as more jamming transmitters were brought into use, this had become increasingly serious. By the end of March KG100 had ceased to rely on X-Gerat and the GAF was making its raids only by moonlight.

Since January 1941 it had been experimenting with yet another navigational aid, Y-Gerdt. This used a single beam to give the aircraft its direction, while the order to bomb was given by a ground station which determined the exact position of the aircraft on its bearing by the time taken for the station’s signals to be re-radiated from the bomber. From Enigma decrypts, PR and POW interrogation, however, the counter-measures authorities knew enough about it to be able to deploy an effective jamming programme by February, before the system was fully operational. In April and May the GAF used Y-Gerdt in an increasing number of raids, in only two of them, however, did more than 25 per cent of the bombers receive the dropping signal, and from the beginning of May the interrogation of POW showed that the jamming was destroying the confidence of the air crews in the system.

The German offensive, which had meanwhile been declining in scale and
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becoming more costly since February, began to collapse in the middle of April. It then became clear that, in order to maintain even its lower level of activity, the GAF was having to send bombers on second sorties during the same night. On 16–17 April Cheadle established that about 60 aircraft made double sorties. On 10–11 May, during the last big raid on London, a large number again made two sorties and some made three.

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While the Blitz was at its height the Air Ministry had been forced to accept a further revision of its basis for estimating the strength of the GAF – a revision that was more fundamental than that adopted in July 1940 and that was to introduce realism and accuracy into all its subsequent calculations.

The revision of July had reduced the GAF’s first-line bomber strength to 1,250 by reducing the level of unit serviceability. It had not affected AI’s estimate of first-line establishment which at 5,350 aircraft, with 7,000 in reserve, had continued to cause anxiety during the Battle of Britain. But this figure was increasingly out of line with MEW’s estimates of aircraft production; by December 1940, when Lindemann called attention to the discrepancy, these were compatible with a first-line strength of no more than 3,000. An enquiry carried out by Mr. Justice Singleton at the Prime Minister’s request in January 1941 found that it was also out of line with Cheadle’s identification from their call-signs of the numbers of bombers operating nightly, and of the units to which they belonged. Further investigation by Lindemann in February uncovered the explanation. He found that if the AFs estimate was correct, then the number of sorties flown by any one bomber during October and November 1940 was one every 10 days, a figure incompatible with either POW evidence or common sense; and he also found from study of the call-signs that whereas AI had believed that the first-line establishment of a German squadron was 12 aircraft, the establishment was in fact 9.

Application of this discovery to the number of squadrons identified showed that the first-line establishment of the GAF’s bomber force was between 1,200 and 1,300 and that if bombers formed one third of the total force, as was generally accepted, the first-line establishment was about 3,900. AI accepted this new basis of calculation with great reluctance in March 1941, when it yielded a total first line establishment of 4,284. The actual figure was then 4,508. At the same time, the figure for reserves was reduced from 7,000 to 4,000, but it was recognised that reserves were not relevant to calculations of immediate operational strength.
CHAPTER FOUR

The War on the Shipping Routes to June 1941

The GAF’s contribution to the war against British shipping declined from the summer of 1940. Its attacks on east coast shipping, suspended during the battle of Britain, were abandoned after the middle of November as the GAF concentrated on the night-bombing offensive. At the end of February 1941, when that offensive was beginning to falter, the GAF briefly transferred a night-bombing Geschwader -1, II and III KG27, about 90 aircraft - to Brest for anti-shipping operations. As a result of its inexperience, but also because its tactical signalling gave good advance intelligence of its raids, this unit suffered heavy losses and achieved poor results in daylight attacks over the southern Irish Sea and the Bristol Channel before being withdrawn after the end of March.

It proved more difficult to bring intelligence to bear against the FW 200 aircraft of KG40, the only remaining threat to shipping from the GAF. This unit, operating well to the westward of the British Isles on weather flights between Bordeaux and Stavanger, attacked independently routed ships from August 1940. Cheadle detected its move to Bordeaux, traced its gradual expansion from 8 to 29 aircraft and was able to keep a close watch on its routines and reconnaissance areas. This knowledge was put to good use when Bomber Command raided KG 40’s base in November, bringing about reduction in its activities for three weeks. But intelligence was of little avail when it came to intercepting the flights. By the end of 1940, when KG 40 was making 3 or 4 sorties daily, it had sunk over 108,000 tons of shipping and damaged over 168,000 tons for the loss of one aircraft. In January and February 1941, with only 15 operational FW 200’s, it sank 47 ships, totaling nearly 200,000 tons, and damaged a further 19. By then, moreover, it was supplementing its depredations with reconnaissance for U-boats and experimenting in homing U-boats on to convoys. In March the Prime Minister ordered that the defeat of KG 40 and the U-boats must take priority over all other tasks.

Before the spring of 1940 the U-boats had presented only a limited threat to the trade routes. The number of boats on patrol at any one time, never more than 10, had often been as low as 2; and from the end of February to the end of May 1940, when they had been withdrawn for the Norwegian campaign, their attacks on shipping had been entirely suspended. Losses of boats, at the high figure of 14, had barely been made up by additions to the operational fleet. Defects in their construction and equipment were not easily overcome. Their commanders and crews were still short of experience and they were hampered by legal and political restrictions on submarine warfare which, notwithstanding the sinking of the *Athenia* and other incidents that led the British authorities to fear the early introduction of unrestricted warfare, the German government only gradually abandoned. Above all, the early introduction of the convoy system for the bulk of British trade proved to be an effective counter-measure. Of the 169 ships sunk by U-boats up to the end of February
1940, only 7 were in convoys escorted by anti-submarine vessels. But between June and October 1940 their monthly sinkings increased steadily from 268,000 tons to 350,000 tons. After October they were somewhat less successful over the winter months, but over the period from June 1940 to February 1941, inclusive, they still sank an average of 260,000 tons of shipping a month, at double the rate they had achieved up to February 1940. During the same period, compared with the figure of over 2 million tons sunk by U-boat, German surface ships sank a total of 609,000 tons and the GAF somewhat less than 500,000 tons.

The better performance of the U-boats was not due to any marked increase in their operational numbers. Practically without replacement, the pre-war fleet still bore the burden. After the fall of France, however, they were able to work from bases in Biscay instead of from Baltic and North Sea ports. This transfer, bringing them several hundred miles nearer to the Atlantic, enabled them to stay longer on patrol, so that the number at sea at any one time now averaged 15, or to patrol wider areas. From August 1940 they were making the first experimental cruises to west Africa. They had acquired another advantage in the middle of August, when Germany finally declared unrestricted submarine warfare. In conjunction with the growing experience of their commanders and crews, the removal of restrictions facilitated their adoption of new tactics. From the end of August, instead of attacking at periscope depth and mainly by day, they adopted night attack on the surface, and did so to such advantage that it was not until four years later, and then reluctantly, as a result of being forced to operate entirely submerged by Allied superiority in radar and intelligence, that they abandoned the new method. By attacking on the surface they could make use of their greater surface speed and mobility and could conserve their batteries. They could also elude the British Asdic, which was devised to detect U-boats when they were submerged. Finally, and not least as a result of the fact that so many of the available British escort vessels were retained in the Channel as part of the anti-invasion measures, the U-boats became bolder in attacking convoys. It was in September 1940 that the proportion of attacks on convoys began to rise. Already in that month 40 of the total 59 U-boat attacks on merchant shipping were attacks on convoys.

Against the mounting threat posed by these developments, there was little improvement in intelligence about U-boat operations. Even before the spring of 1941, when photographic reconnaissance of the building yards first provided intelligence about the rate of construction, the Admiralty’s estimates of the number of operational U-boats had not been far from the truth, thanks to POW and captured documents, and from those sources it had accumulated a considerable amount of accurate information about the tonnage, propulsion and general performance of the different types of U-boat — though less about their armament and listening equipment. But it continued to lack reliable intelligence about U-boat movements. From early in 1941 the Polish intelligence network in France was able to report to the SIS the departure of U-boats from Bordeaux, and by June this service has been extended to Brest and Le Havre. But the service could say nothing about U-boat destinations and patrol areas. The U-boat arm used only the unreadable Enigma for its communications. The U-boats kept wireless silence at sea except on sighting a convoy, when they reported for the benefit of others on patrol, or if reporting a success, when their attacks had already betrayed their positions. Apart from DF fixes on these reports, the U-boat plotting room in the OIC had no information as to
their whereabouts and movements other than the occasional sighting of them by British ships and aircraft. On this evidence it could keep a fairly accurate tally of the number on patrol but it could do little more than guess where to route the convoys in its attempt to steer them clear of the U-boats.

British operational counter-measures were thus wholly responsible for the relative decline in U-boat successes during the winter of 1940–1941. At the end of October, in view of the mounting frequency of attacks on convoys and the decline of the danger of invasion, the Defence Committee ordered the recall to convoy escort duties of more than half of the naval forces that had been retained in Home Waters. At the same time, more of Coastal Command’s aircraft were transferred to anti-submarine work. Until March 1941 these measures sufficed to contain the threat to the flow of British supplies. But at that juncture the U-boat Command, its operational fleet about to enter at last upon a fairly rapid growth and its commanders prepared for the introduction of the additional new tactics of hunting and attacking the convoys in ‘wolf-packs’, was embarking on the next stage of the battle for the Atlantic with every expectation of achieving a decisive victory.

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That it was denied this success was largely, if not wholly, due to the fact that in fits and starts during March, April and May 1941, the German naval Enigma at last yielded to the efforts of GC and CS.

Progress against the naval Enigma had been impossible before then for several reasons. It had been used less heavily than the GAF Enigma. The cypher procedures of the Navy were more disciplined than those of the GAF. Still more serious, the capture of parts of the machine on various occasions during 1940, from U-boats and during the fighting in Norway, had established that while both the naval and the GAF Enigmas used only 3 wheels at a time, the naval Enigma’s wheels were selected from a total of 8 instead of the total of 5 in use by the GAF. Unlike these captures, which were of no immediate assistance to the cryptanalysts, the chance capture of some Enigma settings from a patrol boat (Schiff 26) in Norway in April 1940 had enabled GC and Cs to read the traffic for six April days in May; and the decrypts had thrown valuable light on the German navy’s W/T and cypher organisation. In particular, they had confirmed that though fairly simple hand-cyphers were used for such things as light-ships and dockyards, all naval units, down to the smallest, relied entirely on the Enigma; and that as yet only two keys were in force. The Home Waters key was used both by U-boats and surface ships in the Atlantic as well as nearer home, and only ships operating in more distant waters transferred to the Foreign key. But this advance in knowledge also confirmed GC and CS’s worst fears about the difficulty of breaking even the Home key, in which over 95 per cent of German naval traffic was enciphered, and only five further days’ traffic, for dates in April and May 1940, had been broken by February 1941.

It was on this account that, in advance of the Lofoten raid of 4 March, a special effort to seize the Enigma material was concerted between the Admiralty and GC and CS. It was rewarded by the capture, from the armed trawler Krebs of settings which enabled GC and CS to read part of the traffic for February 1941 at various dates from 10 March. Thus fortified, GC and CS
broke some of the traffic for April by cryptanalytical methods from 22 April, and the decrypts resulting from the capture made in March and GC and CS’s subsequent cryptanalytical progress provided the basis for a series of further advances.

After studying the decrypts GC and CS was able to show that the Germans were keeping weather-reporting trawlers on station in two areas, one north of Iceland and the other mid-Atlantic, and that, though their routine weather reports were different in outward appearance from Enigma signals, the ships carried the Enigma. The upshot was that the Admiralty organised not one, but two, special cutting-out operations. On 7 May 1941 the weather-ship Mmc/zerc was captured, and it was with her settings for June that GC and CS read the June traffic practically currently; she had managed to destroy those for May. On 28 June the weather-ship Lauenburg suffered the same fate. She did so at a carefully chosen time, near the beginning of another month and the entry into force of the next monthly sheet of daily Enigma settings. It was with her settings that GC and CS read the traffic currently throughout July. In between these two operations U-110, captured by chance on 9 May, yielded up cypher material which helped GC and CS to read some of the May traffic with delays of between 3 and 7 days. From U-110 GC and CS also obtained settings used for ‘officer only’ signals, and it was with their assistance that it developed cryptanalytical methods for solving ‘officer only’ settings for much of the war – though not without difficulty and normally with considerable delay.

For the rest of the war captured documents continued to be of great value from time to time to the work on the naval Enigma, as to that on other ciphers, and procedures were laid down to ensure that no opportunity of taking them was missed. After June 1941, however, no further operations were undertaken for the special purpose of capturing naval Enigma material. The need to capture it gave place to apprehension lest even fortuitous capture, by alarming the enemy, should compromise the fact that GC and CS had now mastered the cipher. In the breathing space provided by the captured material between mid-May and the end of July 1941 GC and CS recruited more cryptanalytical staff and obtained more machinery, the cryptanalysts used the mounting experience that came from their daily reading of the Enigma to perfect their methods, and without the assistance of further captures they were able after the first week of August 1941 to decipher all but two days of the Home Waters traffic down to the end of the war. Most of the traffic was read within 36 hours, and a good deal of it with still less delay.

In making this breakthrough GC and CS was assisted not only by the captures and the increase in its staff and machinery. In the spring of 1941 it had made an advance in a third direction. Assisted first by a captured document and then by the discovery that some of the signals were repetitions of decrypted Enigma messages, it broke a dockyards and fairways hand cipher (‘Werft’). From August 1941, as a result of the fact that some of its signals were re-encyphered in the Enigma and re-transmitted, and of GC and CS’s ability to isolate these signals, the ‘Werft’ decrypts made an invaluable contribution to the daily cryptanalytical assault on the naval Enigma settings. At the same time, it was as a result of breaking into the Enigma that GC and CS was able to complete its mastery of the dockyard cipher and to read it, too, for the rest of the war.

From the same date, the spring of 1941, a similar bonus was derived from GC and CS’s work on the systems which most countries had introduced at the
outbreak of war for encoding the reports transmitted by their meteorological stations. As the reading of these cyphers was in any case of operational importance, and indispensable for the weather forecasting of the Meteorological Office, it required careful organisation and absorbed an increasing amount of labour: although the cyphers were relatively simple, large numbers of them existed and they had to be read with next to no delay. But one of them, the German naval meteorological cypher, turned out to be of especial importance. It was first broken in February 1941 and in May of that year GC and CS discovered that it carried weather reports from U-boats in the Atlantic which had been encoded in a short-signal weather book and transmitted in the naval Enigma. Thereafter its decrypts were no less useful than those of the dockyard cypher in helping to break the Enigma keys.

* * *

Of the benefits that followed from solving the naval Enigma the most fundamental were reaped in the struggle against the U-boats during that phase of the battle of the Atlantic which began when Germany launched the first concentrated attacks on the convoy routes in April 1941 and closed in December 1941 with the temporary collapse of her anti-commerce operations. The earliest, and the most dramatic was the sinking of the Bismarck, which brought to an end commerce raiding by Germany’s surface warships.

At the outbreak of the war Germany decided to complete the surface ships which had already been laid down, but to undertake no new construction. She also decided to make bold use of such ships as she had, both to supplement the U-boat assault against British shipping and to achieve that dislocation of British naval dispositions which the presence at sea of even one or two warships brought about. Undeterred by the loss of the Graf Spee in December 1939, she extended operations after the seizure of Norwegian and French bases. The pocket-battleship Scheer, and the battle-cruisers Schamhorst and Gneisnau and the cruiser Hipper all made raids into the north Atlantic during the winter of 1940–41, when the sinkings of British ships by the German surface fleet ran at a higher rate than at any other period of the war.

Whereas the raiders benefited from Sigint - the Germans were still reading about a third of British naval signals and a higher proportion of the traffic in the convoy codes - the Admiralty received no advance warning of their sorties and, except by the ships they attacked, they were not sighted during their cruises. The behaviour of the German W/T network occasionally indicated that some unusual movement was afoot but Traffic Analysis was rarely precise enough to justify sending the Home Fleet to sea. Before April 1941 PR cover of the more distant bases in Norway and the Baltic was difficult to obtain, and less distant reconnaissance was too irregular to be reliable for operational purposes. Reports of movements or intended movements from agents in the Baltic entrances, or from Brest after the Schamhorst and the Gneisnau had gone there at the end of March 1941, were too imprecise or were received too late. But before the Bismarck left the Baltic Enigma decrypts gave advance notice of her departure and enabled the Admiralty to mobilise the other intelligence sources.

When she sailed from Kiel on 19 May with a new cruiser, the Prinz Eugen,
nothing had been seen or heard of her since she had moved to the eastern
Baltic at the end of September 1940, following her completion in Hamburg and
a short stay in Kiel. But the Admiralty had assumed that she would soon
complete her working-up and had been on the alert for any sign that she might
be leaving the Baltic. From the end of the second week of May, after rumours
had led to a false alarm in April, it noticed that German reconnaissance aircraft
were paying more than usual attention to Scapa Flow, and GAF Enigma
decrypts revealed that FW200 aircraft were carrying out unusual reconnais-
sance of the ice conditions between Jan Mayen and Greenland. On 18 May the
C-in-C Home Fleet had taken the first steps to counter the possibility that
German ships were intending to break through to the Atlantic by ordering
heightened vigilance on the part of the Denmark Strait patrol, with particular
reference to the ice-edge.

On the night of 20 May the Naval Attaché Stockholm informed the
Admiralty that he had learned from a usually reliable source — it was in fact the
Norwegian Military Attaché in Stockholm reporting information provided by
his Swedish contacts — that two large German warships had been sighted in the
Kattegat that afternoon on a north-westerly course. Two PR Spitfires were sent
out on the receipt of this news and one of them photographed a battleship and
a cruiser at 1300 on 21 May off Bergen. The
Bismarck
and the
Prinz Eugen
had arrived there less than two hours earlier, at 1115.

Thus far the naval Enigma had played no part. Some of the traffic for April
and May was being read with delays of between a month and several days but it
had as yet contained no information about current or future operations. But
during the morning of 21 May, just before the German ships were sighted at
Bergen, decrypts for some April days came to hand which put it beyond doubt
that the
Bismarck
intended to raid the trade routes. They showed that she was
carrying out exercises with the
Prinz Eugen
and had embarked prize crews and
appropriate charts. At 1828 on 21 May the OIC issued this information to all
the naval commands, adding this comment: ‘One
Bismarck
and one
Prinz
Eugen
class reported by reconnaissance at Bergen on 21 May. it is evident that
these ships intend to carry out a raid on trade routes’. The C-in-C Home Fleet
made further dispositions on the strength of this signal and on the assumption
that the
Bismarck
might proceed from Bergen immediately after fuelling — an
assumption that was strengthened by the news that the GAF had made an
attack on the Fleet W/T station in the Faroes.

During the next twenty-four hours intelligence threw no light on the
remaining uncertainties: when would the enemy ships leave the Norwegian
coast? what route would they take? As throughout the
Bismarck’s cruise, the
naval Enigma was of no assistance, the delay in reading the May settings being
between three and seven days. From first light on 22 May aircraft of Coastal
Command tried to establish whether the ships had left the Bergen area, but
failed on account of fog and low cloud. It was not until 2200 on 22 May that a
torpedo-trainer aircraft of RN Air Station, Hatston, despatched on the initiative
of the Commanding Officer and flown by the station’s executive officer,
penetrated the fog belt by flying almost at surface level and established that
Bergen and its approaches were clear of warships. The
Bismarck
and the
Prinz
Eugen
had in fact left at 1945 on 21 May, six hours after the PRU had sighted
them there and about an hour after the Home Fleet had received the naval
Enigma evidence about their intentions.

The next development was a further sighting. On the evening of 23 May
the C-in-C’s dispositions bore fruit when HMS *Suffolk* made contact with the *Bismarck* in the Denmark Strait. Together with HMS *Norfolk* she kept contact throughout the following night. At that time there was no intelligence to add to the vital evidence provided by visual contact and radar observations. This remained the case during the engagements which followed on 24 May, when the *Bismarck* sank the *Hood* and damaged the *Prince of Wales* and was herself damaged by the *Prince of Wales* and hit by torpedo by an aircraft from the *Victorious*, and for so long as she was then shadowed by HMS *Suffolk*. In the early hours of 25 May, moreover, the *Suffolk* lost touch and there followed a crucial period during which, uncertain whether and how far the *Bismarck* had been damaged and what her movements and intentions might be, the British authorities depended entirely on such information as they could derive from studying her unreadable signals.

She made 22 signals to Germany while British ships had been in contact with her, some announcing her change of plans. These signals were not readable at GC and CS until 28 May, after she had been sunk. But the positions indicated by DF bearings on them had been compared in the OIC with her positions as reported by the British ships, and the errors of the DF readings had been tabulated and analysed. These precautions proved valuable when the *Bismarck* transmitted three further signals during the forenoon of 25 May. It was the DF bearings on these signals that enabled the British authorities to decide correctly, though not without considerable delay, which option of the three available to her the *Bismarck* had adopted.

When she threw off HMS *Suffolk* it was obvious what the *Bismarck’s* choices were. She might go on with her operation, or double back to Norway north or south of Iceland, or make for Brest. For long hours during 25 May it remained uncertain which course she had taken, and the uncertainty was prolonged by misunderstanding between the OIC and the C-in-C Home Fleet. Most of the air and sea searches ordered that morning were made to the east of her last known positions. At 1023, however, the Admiralty ordered Force H to move up from Gibraltar on the assumption that the *Bismarck* was making for Brest, and instructed other ships to act on that assumption. It did so on the strength of the DF plot obtained on the first signal made by the *Bismarck* after she had shaken off the Suffolk — she made it at 0854 — but the C-in-C made for the Iceland—Faroes gap because the bearings of the signal were wrongly plotted in the flagship when they were received from the OIC. At this time — apparently at the C-in-C’s request — the Admiralty supplied the Fleet with the DF readings of enemy transmissions, not with the positions worked out from the bearings by the OIC, and while the OIC placed the signal at 55° 30’ N and 30° to 32° W, the flagship placed it at 57° N and 30° W. The Admiralty, though noting the discrepancy between its own fix and the more northerly position broadcast to the Fleet by the C-in-C at 1047, did not draw his attention to it. It was deterred from doing so by uncertainty about the accuracy of its own fix and by the possibility that one of the flagship’s destroyers had been able to take a closer and hence more accurate bearing. Nor did the confusion end there. It was prolonged by the C-in-C’s extreme reluctance to break wireless silence — and help the *Bismarck* — by asking questions of the Admiralty, and also by further hesitation on the part of the Admiralty.

The Admiralty learned of the discrepancy at 1116, when it received the C-in-C’s signal of 1047. By then it had obtained on a second and third transmission, made at 0948 and 1054 on the frequency being used by the
Bismarck fixes indicating positions slightly south and east of that of 0854. On the strength of these it repeated at 1100 its earlier instructions to Force H. At 1158 it also ordered HMS Rodney to act on the assumption that the enemy was proceeding to a Bay of Biscay port. At 1244 Flag Officer Submarines disposed his force on the same assumption. But at 1428 the Admiralty ordered the Rodney to act on the assumption that the enemy was proceeding to Norway via the passage between Iceland and Scotland. It is no longer possible to reconstruct the reason for this change of mind.

Delay and confusion would have been avoided if the OIC had paid due attention to an item of intelligence supplied by GC and CS. The naval section there advised it that, whereas the normal control station for the Bismarck’s W/T frequency was Wilhelmshafen, control had been transferred to Paris, and that this was a good sign that she was moving south. The advice was sent by telephone at a time which cannot now be established. It was probably during the evening of 24 May: German naval records establish that the Bismarck was informed of the shift to the Paris control at mid-day on 24 May. But it was not till 1805 on 25 May that the Admiralty, which had not conveyed this intelligence to the C-in-C, cancelled its latest instructions to Rodney and ordered her again to assume that the Bismarck was making for Brest. It did so after further representations on the telephone from Bletchley to the effect that the signals to the Bismarck were being transmitted from Paris.

In the flagship, meanwhile, the C-in-C appears to have decided by 1548, after previously steering a middle course which would enable him to turn either north to the Faroes or south to Biscay, that Biscay was the most probable destination — he had, of course, received the bearings on the 0948 and 1054 signals, and the instructions to Force H and the Rodney had been repeated to him — but to have wavered again on receipt of the Admiralty’s signal of 1428 to HMS Rodney. At 1621 he asked the Admiralty, with reference to this signal, whether it considered that the enemy was making for the Faroes. At 1810, before receiving a reply and before getting the Admiralty’s 1805 instructions to the Rodney, he decided independently that the Bismarck was making for Brest and at last made the change of direction that put him on the right course.

Within minutes the correctness of the 1805 and 1810 decisions was confirmed by an Enigma decrypt. In answer to an enquiry from the Chief of Staff of the GAF, who was in Athens in connections with the invasion of Crete and who had a relative serving on the Bismarck, the GAF authorities used the GAF Enigma to inform him that she was making for the west coast of France. At 1812 the Admiralty advised the Home Fleet accordingly, in a signal which the Fleet received within an hour. But even without this confirmation the air searches for the ship would probably have located her. During daylight on 25 May they had been hampered by uncertainty as to her intentions. On 26 May, when they would in any case have been flown on the assumption that she was making for Brest, she was sighted by a Catalina and by aircraft from Force H at 1115 and 130 miles south of the Home Fleet. Her fate then depended on whether her speed could be reduced as to enable British battleships to catch up with her, and it was sealed when aircraft from the Ark Royal secured two hits and jammed her rudder on the evening of 26 May. On the Prim Eugène’s movements no information was obtained, and she evaded detection until she was located at Brest by a PR aircraft on 4 June.

Against the network of tankers and supply ships which the Germany Navy
had prepared for the cruise of the *Bismarck* and *Prinz Eugen* intelligence was, in contrast, plentiful. The naval Enigma for May was building up a comprehensive picture of the movements of these support ships, and from the first day of June it was available currently. By 25 May the OIC knew that 8 ships were in the Atlantic and of 4 of these it knew the precise patrol areas. By 21 June all but one of the 8 were disposed of—6 of them as a direct result of using the Engima information.

Between 21 June and 11 July a further 7 ships were sunk or captured, including the *Lauenburg*. Except in the case of the *Lauenburg*, however, their interception owed nothing to the Enigma. Even when this divulged their whereabouts, which was not always so, the Admiralty decided not to make use of it in case the loss of still more ships, coming on top of the loss of the *Bismarck*, should alert the Germans to the fact that the naval Enigma had been compromised.

Although the German navy did eventually become suspicious on this score, it did not do so at this time, and this may have been because its conviction that the Enigma was impregnable was sustained by reflection on its own intelligence mistakes. On 21 May, the day after the British Naval Attaché in Stockholm had reported the *Bismarck’s* movement out of the Baltic, the head of the Abwehr informed the Naval High Command that he had positive proof that the Admiralty had received such a report, and the High Command also learned that she had been sighted in Bergen. Had it been more attentive, it could have modified its plans, and the opportunity to sink the *Bismarck* might not have arisen. As things were, it could account for her misfortune by referring to its own intelligence, without resorting to fears for the safety of its cypher.
CHAPTER FIVE

The Mediterranean and the Middle East to
the Spring of 1941

For most of the period between September 1939 and Italy’s entry into the war on 11 June 1940 the British authorities were less preoccupied with the danger from Italy than with two other possible threats to the Middle East - a German move through the Balkans and Turkey and a Russian advance against the Anglo-Iranian oil-field. These threats did not materialise, but anxiety in Whitehall was kept alive by the absence of reliable information.

In June 1939, just in time for the outbreak of war in Europe, the C.I.D. had set up an interservice Middle East Intelligence Centre (MEIC) in Cairo to co-ordinate the intelligence summaries that were produced in London and at the several separate intelligence HQs in the area. The need for this may be judged from the fact that over 70 such summaries were being circulated and that the MEIC’s appreciations had some 60 addresses. Despite the wish of the Foreign Office that the Centre should not incorporate political and diplomatic intelligence in the appreciations, and should not cover the Balkan area, it quickly established sections for foreign affairs and for the Balkans, the latter competing with a small intelligence centre set up by the Foreign Office in Istanbul in agreement with Turkey at the end of 1939 to co-ordinate the work of the attachés and the SIS in the Balkan capitals. But because neither Germany nor Russia were yet active there, there was no information about their plans apart from diplomatic and SIS rumours of troop movements. In particular, there was no Sigint. The German Enigma was silent, as yet, about eastern Europe and the Middle East. A small amount of traffic in low-grade army, navy and police cyphers from southern Russia was being read, but it threw no light on Soviet intentions.

While intelligence could only speculate about the intentions of Germany and Russia, it was better placed in relation to Italy’s. For some years before 1939 GC and CS had regularly read a wide range of Italian high-grade cyphers, those used by the diplomatic and the colonial services, and by the secret service in Spain, and those of the army, navy and air force in the Mediterranean, Libya and East Africa. Before the outbreak of hostilities with Germany the detailed information Sigint provided about the state of Italy’s armed forces had enabled Whitehall to conclude that she was unprepared for a long war and would thus be anxious to preserve her neutrality. But it had given no warning of her invasion of Albania in April 1939, and especially after Germany’s success in Norway Whitehall had to assume not only that Mussolini might come in on Hitler’s side, but also that there would be no warning if and when he decided to do so.

In the event, the decrypts gave nearly a month’s notice of Italy’s entry into the war. There was a temporary alarm after the invasion of Norway, which was preceded by the news from Sigint that the Italian army in Libya had been brought close to full war establishment, and that ominous changes were being made to the dispositions of the fleet, and was followed by a spate of diplomatic
rumours that a decision for war was imminent. Although the Admiralty ordered the partial closing of the Mediterranean and the C-in-C Mediterranean moved his HQ and its newly formed operational intelligence centre from Malta to Alexandria, this alarm subsided in the first week of May, by which date a decrypt had disclosed that an earlier order bringing the Italian air force to war readiness had been cancelled and the Foreign Office had learned that Mussolini’s advisers had counselled against war on account of military weakness. But the danger returned with the rapid progress of the German advance in France, and the presumption that Italy would hesitate no longer was supported by Sigint.

Between 19 May and 7 June the Service decrypts carried orders for the immediate and secret mobilisation of the army and air force in east Africa and of the air force in Libya, for the despatch of over 120 bombers to Sicily and for precautionary measures by tankers in the Mediterranean. By 3 June the diplomatic decrypts had disclosed that students in Britain were to be instructed to return to Italy, that other personnel were being called back from abroad for special duties ‘in the first month of war activity’, and that consular officials in British territories had been ordered to destroy their cyphers. By 7 June the Service decrypts had disclosed that 17,000 army reinforcements had reached Libya since the end of May, that 122 bombers had arrived in Sicily and that the Italians had formed a new cruiser squadron. On 7 June the navy ceased to use plain language in its radio communications. By that time reports from the embassies had referred to troop concentrations on Italy’s French and Yugoslav borders, to preparations for evacuation from Rome and to defence measures in the Dodecanese, and some of the reports had been confirmed by PR carried out by two Spitfires from a base in France.

By 29 May, while allowing for the possibility that Italy might only be exploiting the situation by threatening hostilities, the JIC had concluded that she intended to declare war. It was not possible to foresee when she would act, but by 4 June the Admiralty had decided that the next danger period would fall between 10 and 20 June. On the strength of this guess the C-in-C Mediterranean, at 0400 on 10 June, ordered an anti-submarine sweep to leave Alexandria and attack submarines which attempted to leave their declared areas without escort. This was twelve hours before Ciano informed the British and French ambassadors that Italy would be at war from 11 June, and HMS Decoy attacked a submarine two hours before Ciano’s declaration took effect.

Once Italy had entered the war those sources which benefit from physical contact with an enemy produced a considerable amount of intelligence. The interception of mail from Italy’s African territories and from prisoners of war was soon a principal supplier of information about her army and air force order of battle. Before long the censorship was supplemented by the interrogation of prisoners, provision for which was made in good time for the opening of the British offensive in Libya in December 1940, and by the capture of documents. But even though these sources profited from the low regard the Italians paid to security, they could not compensate for the lack of SIS contacts in Italian territories, the failure to provide for PR in the Mediterranean theatre and,
above all, for the fact that Italy introduced new Service cyphers at or soon after the beginning of hostilities.

The SIS's activities in Italy and her colonies had been severely limited before the war for lack of funds, and the SIS's last-minute attempts to infiltrate agents and set up stay-behind networks had been unsuccessful. No aircraft suitable for PR could be spared for the Mediterranean until September 1940, when a few Maryland were based at Malta, and while a special PR unit (No. 2 PRU) was formed in October to operate from Egypt and Malta, it received no aircraft reinforcements until the summer of 1941. Until then the theatre commanders had to make do with unsuitable and insufficient aircraft for PR in Libya and coverage of Italy's naval bases and the movements of her Mediterranean shipping. And they were all the more critical of these limited resources, as also of the lack of skilled PR interpreters before the beginning of 1941, because they were deprived of Sigint when the Italians changed their main army and air force cyphers on 10 June and their main naval cyphers in the middle of July, and introduced new cyphers for the army and air force in east Africa in November. To make matters worse, new lower-grade codes and cyphers were brought into force for all the Italian armed forces; though these were soon solved, they were for some time read with some delay. GC and CS continued to read the Italian diplomatic cypher, which would occasionally throw light on Axis strategy throughout the war; but most of its traffic dealt with commercial and espionage activity and none of it was of value for operational purposes.

Of the three British Services, the Navy suffered most from these Sigint setbacks. Unlike those of the army and air force, the main Italian high-grade naval cyphers were never solved after July 1940 except for a few brief intervals as a result of captures after the middle of 1941. In September 1940 GC and CS broke an Italian naval version of the Engima machine and its decrypts were briefly invaluable before the battle of Matapan in March 1941; but it rarely carried more than two messages a day, and it went out of use in the summer of 1941.

By the middle of July, when the main cyphers changed, the Navy had with their assistance sunk or captured no less than 13 of Italy's fleet of 100 submarines. In the first encounter with the Italian Fleet, which took place off the Calabrian coast in the second week of July, decrypts enabled the C-in-C Mediterranean to make contact and alerted him to his opponent's plan to expose the British ships to submarine and air attack while avoiding battle himself. The next naval engagement, however, which was equally inconclusive, was also entirely fortuitous. Force H, on a sweep from Gibraltar at the end of November, had no evidence that the enemy was at sea until he was sighted by aircraft off Cape Spartivento. Nor was this unusual. Up to the end of October the Mediterranean Fleet had made 16 sweeps in search of the enemy and had sighted his ships only three times. The Italians, on the other hand, made an unsuccessful attack with midget submarines on Gibraltar without warning on 30 October which provided the first evidence that they had developed this weapon. Moreover, assisted by Sigint and extensive air reconnaissance as well as by the great distances which separated the main British bases at Alexandria and Gibraltar from the central Mediterranean, they succeeded not only in evading naval encounters but also in passing 690,000 tons of shipping in fast convoy to Libya with less than two per cent losses between June 1940 and the end of the year.

The few PR aircraft based in Malta made an indispensable contribution,
however, to the success of the aircraft-carrier attack on the Italian fleet units in Taranto 11 November. Their last-minute photographs guided the attack by revealing that the anchorage was protected by a balloon barrage and the battleships protected by nets, and enabled the British aircraft to avoid the air defences. Hardly less important, by correcting the many inaccurate SIS and diplomatic reports of the damage done, PR alone enabled the Admiralty to reap full benefit from the raid by re-deploying some of the Mediterranean Fleet.

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While the Navy derived some assistance from it against the constant danger of air attacks, the RAF and the army were the chief beneficiaries of the fact that air and army intelligence quickly recovered. Within a month of the outbreak of war GC and CS was making progress against the new Italian air force and army high-grade cyphers. By the middle of August the traffic, a good deal of which could be intercepted only at stations in the Middle East, was again being exploited regularly in Cairo as well as at Bletchley. At that time GC and CS increased the number of cryptanalysts in Cairo to ensure that as much of the traffic as possible was exploited there, and by the beginning of November the cryptanalytical sections of the separate Service intelligence staffs in Egypt had merged into a single Combined Bureau Middle East (CBME) in the interests of economy and efficiency. GC and CS remained responsible for research and initial attack on high-grade cyphers while the Bureau was made responsible for all work on lesser cyphers as well as for exploiting readable high-grade intercepts.

Before the end of August the decrypts had confirmed that the strength of Italy’s forces on the Egyptian border was such that she could attack at any time. On 23 August Whitehall advised Wavell, the C-in-C Middle East, to be ready for ‘a major invasion’. Despite further evidence of increasing Italian preparations – the despatch of air reinforcements to Libya; the eastward movement of an additional division – the intelligence bodies in Cairo and Whitehall were unable to give precise notice of the Italian advance, which began on 13 September. This was partly due to the steps the Italians took to conceal their final movements – a factor which would frequently throughout the war make it impossible to rely even on plentiful Sigint for tactical warning, as distinct from strategic notice, of the enemy’s decisions. But the uncertainty was all the greater as a result of hesitation on the part of Graziani, the Italian C-in-C: throughout August he had dragged out his preparations, and he remained reluctant to move even when Mussolini ordered him to attack on 9 September.

Although Sigint disclosed nothing about Graziani’s doubts or Mussolini’s order, the intelligence staffs in Cairo had concluded that the Italian attack would be a limited one. This proved to be correct: the advance stopped when it reached Sidi Barrani on 16 September. Uncertainty as to whether and when it would be resumed was thereafter compounded by increasing evidence of Italian preparations for an attack on Greece from Albania. Such a move had been expected to coincide with the thrust from Libya, perhaps even to precede it, but there had been no positive intelligence of the despatch of reinforcements to Albania before early September. By the end of September, on the other hand,
the Greeks had reported troop reinforcements amounting to three divisions, and from mid-October, when Sigint disclosed the arrival of air reinforcements, the attack was assumed to be imminent. Except for a report from the embassy in Washington that, according to information from Rome, it was due to begin on 25 October, no precise notice was received. But the Chiefs of Staff had already, on 22 October, instructed the C-in-C Middle East to be ready to help Greece by transferring troops to Crete and establishing an RAF Command on the mainland. The Italians attacked in the early hours of 28 October.

It had to be assumed that an offensive from Sidi Barrani would precede or accompany the attack on Greece, Mussolini was indeed demanding this. But Graziani made no move. Wavell, on the other hand, was already preparing the counter-offensive (Operation *Compass*) which opened on 9 December. *Compass* achieved complete tactical surprise and was overwhelmingly successful. Because it was planned in conditions of deep secrecy, and because care was taken to confine the use of Sigint during the campaign to the telephone and to written orders which had to be destroyed, it is impossible to reconstruct in detail the contribution made by intelligence to this outcome. It is clear, however, that the planning and execution of the British operations, as also of the British deception measures, derived much of their effectiveness from a wealth of information about the Italian forces, and that while this was obtained from many sources - prisoners of war, captured documents, censorship and PR as well as Sigint - the value of the other sources was greatly enhanced by the availability of decrypts.

The IAF high-grade cypher had been changed again on 20 September, but was quickly recovered. Until the end of December, when it was changed again, and then from the third week of January 1941, when it was again broken, about 80 per cent of its traffic was currently readable. It provided an accurate knowledge of the order of battle of the IAF, and also of its actual strength. Until October the actual strength had been overestimated because the Italian level of serviceability had been exaggerated; well before *Compass* opened, the intelligence staffs had eliminated this error by learning to co-ordinate the decrypt evidence of the location of units with the results of PR. During the campaign they made it possible to keep a close watch on the enemy’s air effort - to see that this had reached its peak after the first week; that a serious repair situation had developed before the end of December; and that by the beginning of February 1941 the IAF had only 43 serviceable aircraft in Cyrenaica.

Intelligence from the Italian army cyphers was no less valuable. Until the Italians made further changes to the high-grade cypher following their discovery that its books and keys had been captured at Bardia early in January, it yielded a good deal of information about the enemy’s order of battle and his movements, as did a new group of field cyphers, introduced for tactical communication down to brigade level, which were solved in Cairo in October. The resulting comprehensive knowledge of where the Italian army was weak and where it was strong determined the final shape of British plans for the offensive. During the campaign, the decrypts included the situation reports from the Italian Commander in Bardia during the Australian attack on that strong-point, a full strength return of the Italian garrison before the attack on Tobruk and early warning of the enemy’s decision to retreat from Bengazi. This last information played a part in General O’Connor’s decision to thrust south-westward across the desert to Msus, which brought on the battle of Beda Fomm on 5-7 February 1941 and the ejection of the Italians from Cyrenaica.
The decision to thrust through largely unknown territory also depended heavily, however, on the work of low-flying aircraft, which had reported that the going was possible, and of the Long Range Desert Group which, manned by experts in desert exploration and reporting by radio only in carefully pre-arranged contingencies, carried out vital reconnaissance patrols south of the main theatre of operations.

Especially because there were sometimes considerable delays in reading the high-grade cypher, and periods in which its decrypts had to be forwarded to Cairo from GC and CS, a large proportion of the Army Sigint that was operationally valuable was obtained from the field cyphers. It was all the more timely because those cyphers were exploited by a British Army field Sigint section attached to the Western Desert HQ as well as in Cairo. But no provision had been made for the interception and decryption at the RAF’s advanced HQs of the tactical codes of the IAF which carried the data about airfield serviceability, aircraft movements and combat sorties. It was one of the lessons of the campaign that while the product of these codes, as also of plain language signals on the operational frequencies, was of value in Cairo for the light it threw on the enemy’s organisation and resources, Cairo could not forward it to the commanders in time for them to benefit from it. Another lesson was that no provision had been made for the exploitation of R/T, which could not even be intercepted at the nearest intercept stations, in Malta and Cairo.

These lessons might have been learned in the summer of 1940 during the Italian bombing offensive against Malta, where the intercept station had been unable to assist the defences. But they may have been over-looked as a result of the fact that during the Italian attack on Greece operational orders for the IAF were, exceptionally, transmitted in the high-grade cypher: nightly reports from No. 4 Air Corps in southern Italy to Air HQ Albania, giving bombing targets for the following day, were decrypted and passed to RAF HQ in Greece in time to play a large part in the interception - often with heavy losses to them - of the enemy bombers and fighters. As it was, no RAF field Sigint unit was set up in the desert until August 1941.

From this first unit a whole chain of forward RAF stations, employing over 1,000 men, was eventually to develop. But meanwhile, as in Greece, it proved to be unnecessary to attach either army or air-force Sigint units to the commanders who undertook the re-conquest of British Somaliland and the clearance of the Italians out of East Africa. By January 1941, when Germany had begun to expand into the Balkans and it became imperative to remove the Italian threat to the British rear and to the Red Sea Route for Allied and American shipping, intelligence had more than recovered from the black-out following Italy’s introduction of new high-grade cyphers for the area in November 1940. By the end of that month GC and CS and the CBME in Cairo had begun to recover the new army and air cyphers, and by the end of the year Cairo had solved so many new lower-grade cyphers - those used by the colonial authorities and the Carabineri as well as by the Services - that the Middle East Commands had a thorough knowledge of the enemy’s order of battle and of his supply position when they launched the offensive on 19 January. Assisted by the fact that the Italians had to communicate entirely by radio in cyphers which, isolated from metropolitan Italy, they could not change and on frequencies which British stations were well sited to intercept, they turned the ensuing campaign into what has been called a ‘perfect (if rather miniature) example of the cryptographers’ war.’
The Mediterranean and the Middle East to the Spring of 1941

The flood of decrypts covered the entire area of operations and the whole of the enemy’s chain of command, from the Viceroy’s daily situation report down to the arrangements made for the evacuation of wives and families; and it included regular pre-views of the operations planned by the air force and the army’s appreciations made in advance of its successive withdrawals during the one hard-fought engagement, the battle of Keren. As well as containing so much advance information the material was read with so little delay that it was sometimes forwarded to the British field Commander from Cairo or Nairobi, where staff trained in Cairo shared in the exploitation, while the Italian W/T operators were still asking for signals to be repeated. The DDMI Middle East, who presided over GS Int. HQ in Cairo, reported after the Italian surrender that he ‘could not believe that any army commander in the field had [ever] been better served by his intelligence . . .’

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Italy’s reverses in Greece, at Taranto and in the western desert had meanwhile precipitated the despatch of German forces to the Mediterranean. Having put off Sealion in October 1940, and having previously resisted the wish of his Army and Navy to prepare for a thrust through Turkey and Syria to seize Suez, send a Panzer force to north Africa and seek Spanish connivance in an attack on Gibraltar as alternatives both to Sealion and to his own preferred alternative, an attack on Russia, Hitler had decided by the middle of November to limit his immediate moves to strengthening the air and army missions he had already sent to Romania and to sending sizeable air forces to Italian bases. The object was to defend the Romanian oil against RAF attacks from Greek bases and to reduce the British fleet before he seized Greece down to the Aegean littoral as a further source of protection for the invasion of Russia. Early in February, however, to prevent an Italian collapse in Libya, he reluctantly agreed to send a small armoured force to North Africa, the German Africa Corps. The GAF force – Fliegerkorps X – began its move in December 1940. The first troops – 5th Light Division – arrived with Rommel in mid-February 1941, and a full armoured division – 15th Panzer – was to begin crossing in mid-April.

The transfer of Fliegerkorps X was disclosed by the Enigma and RAF Y without delay. On 27 December AI warned the Air staff that it was arriving and that GAF attacks on the Mediterranean fleet must be expected in the near future, and on 4 January it knew it was moving to Sicily. AI’s alacrity – only seven of the bombers had reached Sicily by 5 January – was not matched by the Admiralty. The Mediterranean naval commands had not received the intelligence when German aircraft damaged the carrier Illustrious on 10 January and sank the cruiser Southampton the next day. It would be months, moreover, before the equipment and staff required for exploiting the GAF’s tactical signals, which could alone provide warning of its attacks, could be provided for ships and at forward headquarters in the desert. But the Enigma decrypts enabled AI to keep the Mediterranean commands informed of the scale of the GAF’s effort and provide advance notice of its deployments from Sicily to other bases. By the end of January, when the actual figures were 120 bombers, 150 dive bombers and 40 fighters, it had put the numbers at 160,150 and 40, and
by early February it realised that it had over-estimated the number of bombers by 40. As early as 21 January it knew that 50 bombers were arriving at Benina (near Benghazi) and Rhodes, and on 27 January, three days before their first mine-laying raid on the Suez Canal, that they included mine-laying aircraft. From the middle of March the SIS was supplementing the decrypts with reports of the numbers and types of aircraft operating from the Dodecanese.

Intelligence about the movement of the German ground forces to Libya was less precise, and the authorities were slow in accepting it. They had allowed that the German army might intervene, and feared that they would get no warning, ever since Italy entered the war. It was on this assumption that at the end of August 1940 the decision was taken to send an armoured brigade to Egypt while the outcome of the battle of Britain was still unknown. In October Italian decrypts disclosed that together with a GAF delegation carrying out trials with three types of German aircraft, a German army mission was visiting Graziani’s Headquarters. By the middle of November, on the strength of several reports from the SIS, British embassies and the United States, MI accepted that German army units, including armour, were arriving in Italy, but emphasised that there was no reliable evidence as to their destination: it might be Albania, Yugoslavia, Malta, Tunisia or Libya, all of which were being mentioned in the rumours that were being received. The authorities in Cairo did not disagree. They believed Germany was bound to send a land force to Libya some day, but still accepted that they would get no advance warning of its arrival - other than the prior appearance of GAF units.

By January 1941 the GAF had made its appearance, and reports from the embassies and the SIS, the latter reinforced by the resourceful Poles, who had now organised the collection of information about movements on the Italian railways, had begun to point more insistently to Libya by referring to ‘the Egyptian campaign’ and listing German stores and equipment suitable for African conditions. By 3 February air reconnaissance had detected that close on half a million tons of shipping, most of it ships of over 6,000 tons, had recently concentrated in Naples. Neither in Cairo nor in Whitehall was it yet thought that the evidence pointed firmly to either the destination or the imminence of a move. But if their caution thus far was excusable, the same cannot be said of Whitehall’s response to the first Sigint disclosure. An Italian airforce decrypt on 9 February, giving instructions relating to the participation of the GAF in the escorting of convoys between Naples and Tripoli, led GC and CS to believe that the convoys were German. The Admiralty and the Air Ministry accepted this conclusion with great reluctance, and not till 18 and 19 February did they forward it to the Middle East. As late as 15 February A1 associated a recent increase of German transport aircraft flights between Italy and Libya with ‘the current atmosphere of evacuation in Tripoli’: they were more likely to be helping the Italians to get material out than preparing for the arrival of German reinforcements.

The first convoy with German troops had meanwhile left Naples for Libya on 8 February and the first confirmation of their arrival came on 22 February, when the British forces at El Agheila made contact with German armoured cars.

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Whitehall’s anxiety about a German thrust to the Middle East through the Balkans and Turkey, dormant during the summer of 1940, had revived when the threat of Sealion was seen to be receding and Germany made her first move into the Balkans in October by despatching air and military missions to Romania. From the beginning of November the SIS and the attachés in the Balkan capitals, having provided good notice of the infiltration into Romania, were warning that it was being extended to Bulgaria.

Their reports on the timing, the scale and the purpose of these moves were conflicting. The inherent difficulty of getting good intelligence in the planning stages of military operations was compounded by the fact that German preparations for the attack on Greece (operation Marita) did not run smoothly. At intervals between early November and the end of the year Hitler revised the scale of the attack from 3–4, to 10 and then to 17 divisions. The resulting delays in planning for the transit of the force were increased by Bulgaria’s obstructiveness and her insistence on concealment. Even when he had set a final time-table – passage through Romania in January 1941, entry into Bulgaria on 7 February, invasion on 22 March – the advance parties which arrived in Bulgaria in civilian clothes at the end of December encountered severe logistical problems and further recalcitrance, and German troops did not move in until 2 March.

Unaware of the facts, but in receipt of many rumours relating to them, the intelligence branches in Whitehall were inclined to exaggerate Germany’s readiness for action. By the end of November MI believed that the entry of her troops into Bulgaria was imminent and warned that, while the completion of her preparations did not necessarily mean that she would act immediately, she could have four divisions on the Bulgarian–Greek border within 7 days. Its concern was temporarily allayed during December by decrypts of Enigma signals to and from the GAF mission in Romania. These had been increasing since the end of October, but were still so largely concerned with the installation of air warning radar posts in Romania as to suggest that Germany was concentrating on the defence of the oil installations rather than planning an offensive during the winter. In the last week of December, however, the Enigma provided unmistakeable evidence that her preparations were entering a new stage and revived the fear that she might attack at any time.

As well as disclosing that radar installations were now arriving in Bulgaria, the decrypts showed that eight Army Co-operation Staffeln attached to 12th Army were being sent to locations in southern Romania, some of which were known to have operated with Panzer formations during the campaign in France, and that the GAF in Romania was to be built up to a strength of 500 aircraft and placed under the command of Fliegerkorps VIII, hitherto associated with operation Sealion. They also contained an isolated and unexplained reference to an operation Marita. Nor was the Enigma alone in pointing to an acceleration of German preparations. Among other reports from the Balkans, one from the British Minister in Budapest claimed that German rail movements through Hungary were being increased to 1,800 trains – enough for 20 divisions – and one from the SIS stated that 12th Army Commander had moved from Cracow to command an attack from Romania on Greece through Bulgaria and Yugoslavia at the beginning of March.

MI was not yet convinced that Marita was an attack on Greece; Germany might be bent only on intimidating Greece and Yugoslavia before advancing through Turkey. It no longer believed, however, that her offensive was
imminent: she would not make it without thorough preparations and before the weather had improved, and would defer it till March. The Prime Minister, on the other hand, was afraid that Germany was ready to move. On 6 January 1941 he wrote a memorandum for the Chief of Staff: 'Nothing would suit our interest better than that any German advance in the Balkans should be delayed till the spring. For this very reason one must apprehend that it will begin earlier.' And in the next few days, when the sources began to mention dates, he became convinced. A54 now reported that 'zero hour' for some unspecified move was 15 January, and on 7 January a decrypt revealed that rear detachments for the intermediate landing grounds in Hungary and Romania had been instructed to arrive by 15 January and be ‘ready for the tasks assigned to them’ by 20 January. On this evidence, and also on the strength of further decrypts which showed on 9 January that GAF personnel were moving into Bulgaria to establish telegraph and teleprinter links with Romania and lay down lines to the Bulgarian–Greek border along the main axis of advance to Salonika, he persuaded the Defence Committee that Germany would attack Greece on 20 January. The next day – 10 January – he persuaded the Cabinet that, as it was of first political importance to implement the guarantee given to Greece, the C in C Middle East should be instructed to fly to Athens and offer the fullest possible assistance.

Wavell, whose forces were in hot pursuit of the Italians in North Africa, questioned the instruction. In the belief that Germany’s activity in the Balkans was designed only to upset British and Greek nerves and stop the British advance in Libya, he asked the Chiefs of Staff 'to re-consider whether the enemy’s move is not bluff'. It was Churchill who answered him: ‘we have a mass of detail showing that a large-scale movement through Bulgaria, towards the Greek frontier, aimed presumably at Salonika, will begin or or soon after 20 January.’ But by 20 January further Enigma decrypts had corrected this hasty judgement, notably by indicating that Germany had as yet sent only anti-aircraft units to Bulgaria and was still discussing with Romania the future supply of fuel for the GAF in Bulgaria. By then, moreover, the Greek government had rejected the offer of assistance. The Defence Committee decided that while Wavell should build up a mobile reserve in Egypt for possible use in Greece or Turkey within the next two months, he could continue his advance as far as Benghazi.

Thereafter the volume of decrypts greatly increased with the advance of Germany’s preparations. By the end of January they had established that the concentration of Fliegerkorps VII in Romania would be complete by early in February, but that no army units and no supplies had yet moved into Bulgaria. On this evidence Whitehall concluded that Germany could not attack before 1 March – an assessment which was at last on target. Up to the middle of January the Germans hoped to launch **Marita** on 1 March, (though they were subsequently forced to postpone the date till 1 April. On 7 February GC and CS solved a new variant of the Enigma which the Germans had brought into force on 23 January for their railway movements. This immediately disclosed the beginning of a massive movement of ammunition, fuel and stores from Hungary to locations in SouW West Bulgaria on the axis of advance through the Rupel pass to Salonika. Additional information on this movement was reaching London from the SIS by the second week of February. By then the British attaches in Bucharest and Sofia had reported the German troops would cross into Bulgaria on 17 February’, but that the Germans were still wrestling
with the poor state of Bulgarian communications and making feverish attempts to improve roads and repair bridges, intelligence about the scale of the army build-up was less precise. By early February, when only 9 divisions had in fact reached Romania, the SIS and the attachés had claimed to have identified 23. Partly on account of this exaggeration, which could not be corrected by evidence from the decrypts, it remained uncertain whether the coming offensive was to be limited to Greece. But the intelligence left little doubt that its immediate objective was the occupation of at least part of Greece, while the absence of any evidence of preparations for a move into Yugoslavia was a reliable indication that it would be made only through Bulgaria.

The DMI presented a summary of the intelligence to the Defence Committee on 11 February. His conclusion was that the Germans could reach the Greek frontier with five divisions about 12 March and, allowing for such resistance as could be expected from the Greeks, could be at Salonika within a week and at Athens with ten divisions between mid-April and mid-May. At the meeting the Prime Minister urged that this schedule gave time for British forces to reach northern Greece and, against the protests of CIGS, the Committee decided to order Wavell to give priority over continuing his advance to Tripoli to preliminary arrangements for the despatch of the bulk of his fighting force to Greece. It also decided that the Foreign Secretary (Eden) and the CIGS should fly out to Cairo and accompany Wavell to Athens for talks with the Greek government.

During the next two weeks no firm intelligence was received which called for a revision of the DMI’s assessment of 11 February, though there were indications that the German programme was incurring delays, and in the event Germany did use 10 divisions in her advance from Bulgaria. But there were rumours that in addition to General List, commanding 12th Army, von Rundstedt and von Kleist were in Romania, and on 24 February, relying on these as indicating that the offensive was to be on a more formidable scale than had been expected, the DMI warned the Chief of Staff that ‘we must be prepared to face the loss of all forces sent to Greece.’ The Chiefs of Staff in their turn advised the Cabinet on the same day that without co-operation from Yugoslavia, which they did not expect, and from Turkey, which had rejected a limited offer of aid, the despatch of troops to Greece was ‘unlikely to have a favourable effect on the war as a whole.’ They had learned by then that the Greeks, who had now accepted British support, had only three weak divisions on the Bulgarian border and had not withdrawn them, as arranged, to defensive positions in the Aliakmon Line.

On 24 February, undeterred by the warning, the Cabinet reaffirmed its decision to transfer troops to Greece. It had not then learned that German armoured cars had been encountered at El Agheila; but that news, received before it held further discussions on 27 February, did not change its mind. In the absence of any signs that the Germans had any plans to advance in North Africa, and in the knowledge that the offensive against Greece was larger than any threat they could mount in the desert, the Prime Minister refused to draw pessimistic inferences from it. On 2 March this appreciation was supported by the C-in-C Middle East, who discounted the possibility that Rommel would constitute a serious danger before the summer. The movement of British troops to Greece began on 4 March.

In the next three days the Cabinet hesitated. It was influenced in part by a warning from MI and the JIC that, in view of the weakness of the Greek...
positions, Germany might attack, with a smaller force than she had originally contemplated, before the British force arrived. But it was reassured on learning on 6 March that the CIGS and Wavell in Athens and GHQME in Cairo did not think the Germans could reach the Greek frontier until 11 or 12 March. Neither the warning nor the reassurance was based on any precise intelligence but the final decision to proceed, taken on 7 March, was followed by firm indications that the German attack would not take place before the end of the month. They included the decrypt of a report from the Italian military attaché in Sofia on 11 March that Germany’s dispositions could not be complete before 20 March and an Enigma decrypt announcing that Fliegerkorp VIII’s HQ had moved to a position 100 miles north of Salonika on 23 March and would be ready for operations from 25 March. Sigint did not disclose that on 17 March, when it became clear that British forces were arriving in strength, Hitler had decided to increase the number of divisions committed to operation *Marita* and occupy the whole of Greece in order to eject them, or that the date for the assault, recently set for 7 April, had been brought forward to 1 April. But these changes brought the German D-Day into line with the date on which British assessments had settled since the middle of March and somewhat reduced the continuing British exaggeration of the number of divisions the Germans had available.

Thanks to the Enigma, estimates of the strength of the GAF were accurate. On 13 March A1 gave the number of aircraft in Bulgaria and Romania as 482; the actual number was 490. On 27 March it calculated that the number in Bulgaria was 320 with 40 more expected soon; the actual number was 355. MI’s estimates, on the other hand, remained too high. On 27 March 13 divisions had moved into Bulgaria, with 3 more arriving, but MI believed that 16 had arrived and that 5 more were moving in. Its estimate of the total number in Romania and Bulgaria was 35. In fact the Germans deployed 17 in the theatre until extra forces were brought in for the attack on Yugoslavia, when the figure rose to 29.

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Until the middle of March Whitehall correctly assumed that Germany had no plan for an attack on Yugoslavia. The Minister in Belgrade kept it well informed about Germany’s mounting pressure on Yugoslavia to sign the Tripartite Pact and grant transit facilities, but the intelligence about her logistical preparations and deployments made it clear that she did not intend to back political pressure with the use of force. As late as 23 March A1 discounted a simultaneous attack on Yugoslavia and Greece; it would require a greater diversion of the GAF from the West than Germany had carried out. With the arrival of British forces in Greece, however, the authorities in London and the Middle East became acutely conscious that if Yugoslavia succumbed to the pressure, or if the British move prompted Germany to change her plans, a German advance from Yugoslavia through Monastir would outflank the Greek and British defence line.

Their fears were justified on 20 March, when the Yugoslav government agreed to sign the Tripartite Pact. Nor were they allayed by the Yugoslav coup d’état. Carried out on 27 March with the knowledge and encouragement of the
British embassy and the SOE in Belgrade by Air Force and Army Officers in collaboration with the disaffected political parties, this surprised Germany but precipitated an immediate response from her. Within 12 hours of the coup the Enigma revealed that the transfer from the Balkans to Cracow of the HQs of Panzergruppe Kleist and XIV Corps with 3 armoured divisions, SS Division Adolf Hitler and other formations, which had recently been ordered, had been halted, and that the Chief of the Air Staff and AOC Luftlotte 4, the senior air command in the Balkans, had been summoned to Berlin for urgent consultations. By 30 March the decrypts had disclosed the start of a new series of rail movements into the Balkans and preparations for an army and air concentration on the Romanian border with Yugoslavia, while the SIS had reported from Carinthia that troops were being hastily assembled for a move to Yugoslavia through Austria and Hungary and A-54 had provided details of the timetable for the attack. From 3 April the Enigma and the GAF low-grade communications showed that the transfer of air reinforcements to the Balkans from North-West Europe, Sicily and North Africa was in full swing. On 9 April A1 estimated that a further 500 aircraft had arrived, raising the total in the Balkans to over 900.

These measures entailed final changes in Germany’s timetable for the attack on Greece. After minor last-minute alterations, her new plan provided for the bombing of Belgrade and the attack on Greece on 6 April and set 8 and 12 April as the dates for the ground offensives into Yugoslavia. Sigint gave tactical notice of these dates. On 2 April the decrypt of a message from the Italian minister in Sofia reported that a simultaneous attack on Greece and Yugoslavia was scheduled for the morning of 5 April and an Enigma decrypt disclosed that an unspecified special air operation had been ordered for 6 April; and the commands in the Middle East were warned that the offensive would probably begin on 5 April. On the morning of 5 April, on the strength of another Enigma decrypt, they were advised that the GAF had been ordered to commence hostilities on the morning of 6 April.
CHAPTER SIX

The Operations in Greece, Crete, North Africa and the Middle East, March–June 1941

The opening blows of the campaigns in Greece and Crete were exchanged at sea, on the day after the coup in Belgrade, at the battle of Matapan. The defeat of the Italian Fleet at Matapan, which eliminated the danger of attacks from it on the convoy route between Egypt and Greece, was made possible by intelligence arising in part from the participation of the GAF in the Fleet’s first and last large-scale offensive sortie. The Fleet sailed on 26 March under pressure from Germany for a strike against the British convoys and with an undertaking that Fliegerkorps X would provide reconnaissance and escort.

Hitherto, while Italy had continued to be well informed about British naval movements, British intelligence on Italian movements had remained virtually non-existent. In November 1940 the Fleet Air Arm attack on the Italian Fleet at Taranto forestalled a movement to bombard Suda, but of this intention the British had no advance information. During Force H’s bombardment of Genoa in February 1941 intelligence failed to disclose that the Italian Fleet had left Spezia and passed close to the British ships. No warning was received, again, of the raid carried out by Italian explosive motor boats in Suda Bay on 26 March 1941, when they damaged HMS York. But before this last attack was made the British already suspected that some larger undertaking was being planned.

Their suspicions had been aroused by indications from the GAF Enigma that the Axis powers might be planning a landing on the Libyan coast for the end of March. It soon turned out that these indications referred only to coastal supply operations, but C-in-C Mediterranea, who had been prompted by the decrypts to hold his ships at short notice for steam, was kept on the alert by the receipt on 25 March of further information. The GAF Enigma disclosed that all German twin-engined fighters from Libya had been ordered on the previous day to move to Palermo “for special operations”, and an Italian decrypt announced that 25 March was D minus 3 for an operation involving the Rhodes Command. This message was transmitted in the Italian naval Enigma, which was used only infrequently. On 26 March further messages in the same cypher showed that air reconnaissance and attacks on airfields in the Aegean had been ordered for two days before the operation and on the day of the operation: that there had been requests for information about the British convoys between Alexandria and Greece; and that provision was being made to neutralise British air cover. The C-in-C Mediterranean received these decrypts, together with the Admiralty’s appreciation that they pointed to the likelihood of a thrust into the Aegean or the eastern Mediterranean, in the forenoon of 26 March. Early that afternoon the Admiralty was able to confirm what had so far remained uncertain – that the Italian Enigma messages of 25 and 26 March referred to the same set of operations.

On the strength of this evidence the C-in-C took action during the evening
of 26 March. He cancelled a southbound convoy that was due to leave Piraeus, arranged that a convoy bound for Piraeus should reverse course only at nightfall, to avoid arousing Italian suspicions, and ordered a cruiser force that was already at sea (Force B) to be south of Crete at dawn on 28 March. He himself planned to sail with the 1st Battle Squadron and the *Formidable* after dark on 27 March. As yet he was uncertain whether the enemy intended a surface raid or a large-scale air attack on the convoys. But uncertainty was brought to an end at 1230 on 27 March when a flying-boat from Malta sighted three Italian cruisers and a destroyer about 75 miles east of Sicily steering towards Crete.

The C-in-C sailed after dark that day, as previously planned. Because the Fleet’s chances of intercepting Italian movements depended on not arousing Italian suspicions as well as on having tolerably good evidence that their ships were at sea, he was still sceptical that he would meet the enemy – he bet his Staff Operations Officer that there would be no encounter – but he took an additional precaution before sailing. Knowing that the Japanese Consul General at Alexandra regularly reported on the movements of the Fleet, and as regularly played an afternoon round of golf, he visited the club house with his clubs and an overnight bag, and let himself be sighted. Whether the ruse was effective is not known, but GC and CS later deciphered the Italian assessment that three battleships and one aircraft carrier were still in Alexandria at 1900 on 27 March.

The battle at Matapan followed on 28 March. It was the first important operation in the Mediterranean to be based on Sigint. It is true that no further Sigint came to hand after the Italian ships had been sighted on 27 March and that the battle manoeuvres were decided on the strength of further sightings, those provided by HMS *Warspite*’s Walrus reconnaissance aircraft being especially valuable. But without the advance information provided by Sigint the presence at sea of the Italian forces would not have been detected in time and the Mediterranean Fleet would not have been in a position to avert the probable destruction of at least one of the two important convoys at sea in the threatened area. As it was, the intelligence enabled the Fleet not only to prevent a heavy loss of shipping and a serious disturbance to British plans, but also to sink three Italian cruisers and two destroyers and torpedo the flagship, *Vittorio Veneto*. In the longer term the severe handling received by the Italian Navy consolidated British naval control of the eastern Mediterranean, an outcome that was to be invaluable during the evacuation from Greece and Crete.

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The lack of records makes it impossible to reconstruct precisely the part played by intelligence during the campaign in Greece. It is clear, however, that although field intelligence was of little assistance, the high-grade Sigint sent out from the United Kingdom helped to reduce the scale of the calamity.

The amount of tactical information was severely restricted. Although there was a little air reconnaissance, no PR was available. It was not long before the Greek air observer system broke down and the GAF was able to make many attacks without warning. Against the GAF, field Sigint did something to off-set
these deficiencies. The field Y unit in Greece was the first fully mobile unit to reach the Middle East. Arriving in Egypt in January 1941, its staff had been intended to deal mainly with the Italian low-grade cyphers. But the unit had operated in France and Belgium in 1940 and most of its staff knew German as well as Italian. As they were equipped with copies of the GAF bomber grid, they were able to exploit tactical traffic and German plain language transmissions. But GC and CS had as yet made no progress with the German Army field cyphers for lack of traffic, and partly for this reason - and partly because the unit had to be constantly on the move during the retreat - the service it provided was of little operational value in the ground fighting.

Field intelligence might have played a more important role if the main British and German forces had come to grips. That they did not do so was due at least in part to the assistance the British forces derived from the Enigma decrypts during their retreat. The Greek campaign was the first in which intelligence from the decrypts were transmitted to commanders in the field direct from GC and CS. A special radio link for this purpose, which had been opened to Cairo on 13 March, was extended to GHQ Greece and HQ BAF Greece by 27 March. The recipients of the intelligence were told only that it was completely reliable: commands were not indoctrinated as to its source until arrangements for their secure handling of it were completed at the beginning of May. They received it in paraphrased form. These precautions must have blunted the impact of the intelligence. Even so, the GAF Enigma was being read daily with less than a day’s delay and its chief contents were reports from GAF liaison officers giving information about the identifications and locations of the German Army’s formations and sufficient notice of intentions to keep the GAF informed of the Army’s tactical plans.

As to how these appreciations were used in Athens and at the forward HQ’s - with what delays they were received, how they were combined with other intelligence, how they influenced operational decisions - little evidence has survived. It is clear that the HQ’s were hampered by severe organisational difficulties. The intelligence staff provided for the British expeditionary force was too small, so that when it was divided into two echelons - one at forward HQ and one at Athens - neither was sufficiently self-contained to be an efficient body. In Athens, moreover, there were several sources of information - the British Legation with its Service attachés, and the Greek General Staff, as well as the Intelligence section of the expeditionary force - and no time to organise effective co-ordination between them. To make matters worse, communications from Athens to the forward HQ’s were bad, as were those from Athens to Cairo where the C-in-C had considerable difficulty in getting a clear picture of the fighting. But the surviving records at least establish that these difficulties were off-set by the fact that the intelligence reaching the C-in-C ME and GOC Greece from the Enigma was accurate and timely.

The GOC’s main decisions concerned the timing of the repeated withdrawals that were forced on him. They appear to have been extremely well-timed as a result of the Enigma appreciations that were being sent to him. He made an early adjustment to his initial defensive line when it became apparent to him by 8 April that the German XL Corps was going to be a threat from the direction of Monastir, and the Enigma decrypts were providing nearly current intelligence about the movements of the spearhead troops of XL Corps as they advanced through Monastir, outflanked the Alaikhmon line by a route which MI had thought them unlikely to use, as being extremely difficult for
tanks, and compelled General Wilson to withdraw to Olympus. Enigma information that German armour intended to operate to the south of Olympus reached him on 15 April and undoubtedly influenced his decision of that date to withdraw to Thermopylae — a decision of which it has been said by the Australian official historian that ‘if the … withdrawal had begun a day later it would have been disastrous for the British force’. On 21 April, again, the decrypts showed that Thermopylae was being threatened by three divisions, and confirmed that the Greek Army in the Epirus had capitulated.

* * *

Rommel had by then swept through Cyrenaica to the Egyptian frontier. After taking El Agheila on 24 March, he had decided on another limited thrust on 30 March and then, in the face of Italian protests, to the complete surprise of the British authorities and contrary to his instructions to limit himself to defending Tripolitania until 15th Panzer had arrived in mid-May, had taken advantage of the weakness of the British front to develop a full-scale offensive. He had reached Agedabia on 2 April, Benghazi on 4 April, Derna on 7 April and, by-passing Tobruk, had taken up defensive positions by the middle of the month in the Bardia – Solium – Sidi Omar area.

On 2 March Wavell had estimated that the Germans would not try to reach Benghazi until they had built up to one infantry division and one armoured brigade and that as their present strength was only a brigade group, this would not be before the summer. This estimate of the strength of the German contingent and of the rate of build-up was accurate enough, as was soon to be confirmed by the Enigma, but it took no account of what Rommel might attempt without waiting for the build-up. Nor was this over-sight corrected when slight indications of preparations for an advance were obtained from the decrypts of a new Enigma key.

Introduced in January 1941 for Fliegerkorps X and its north African sub-command, Fliegerführer Afrika, GC and CS had broken this key (the Light Blue) on 28 February, from which date it read the traffic daily, within 24 hours, until it went out of use in December 1941. From 3 March its decrypts identified Rommel as GOC of the Afrika Corps and established the approximate scale of his force; though there was some uncertainty as to whether he had only part or the whole of 5th Light Division and as to whether or not he also had other units from 3rd Panzer Division from which 5th Light had been lifted, it was clear by 17 March that he had somewhat less than a normal armoured division. By the same date they had thrown some light on the scale of the contemplated build-up by referring to arrangements for a sixth, seventh and eighth convoy. As for Rommel’s intentions, on 10 March decrypts mentioned air reconnaissance of the Agedabia area, and on 19 March they disclosed that leave had been stopped in advance of an expected increase in the scale of operations. Although these pointers were not ignored, they produced only a slight modification in British appreciations. On 20 March Wavell confessed to some anxiety about the Cyrenaican front, but concluded that administrative problems ‘should preclude anything but a limited advance’. On 24 March, the day on which the Germans took Agheila, his intelligence staff estimated that while Rommel might be ready for limited operations against Cyrenaica by 16 April, he would not try to
retook Benghazi before he had brought up armoured reinforcements, which would not be before mid-May. In Whitehall the intelligence staff did not dissent from these appreciations, which were based on reconnaissance reports of enemy troop movements east of Tripoli as well as on the Enigma.

Intelligence was scarcely more successful in influencing the fighting than it had been in foreseeing an early advance. At the tactical level, indeed, it was virtually non-existent. The British forces were too weak to mount extensive patrols; moreover, their armoured cars were outgunned by Rommel’s. The Army was dissatisfied with the reliability of the RAF’s reconnaissance. The Sigint unit at Western Desert HQ, which had performed so well during the earlier fighting, was now handicapped by the fact that the Italians had tightened up their communications security and in any case rarely referred to German movements. More serious still, the unit was untrained in the interception and exploitation of German W/T traffic. It took in some plain language traffic and some traffic in the GAF’s daily-changing operational code — for there was still no forward RAF unit at this stage — but could do little with it. It intercepted for the first time the German Army’s signals in a medium-grade code that was later to be a valuable source; but no systematic study of this was undertaken until June 1941. There was a similar delay before it undertook regular traffic analysis on the increasing amount of German W/T. In all these respects the British performance contrasted badly with that of Rommel’s forces. From the time of their arrival in North Africa the Germans made excellent use of reconnaissance patrols, both on the ground and in the air, and their field Sigint unit, profiting from British neglect of signals security, produced valuable intelligence. Before beginning his advance Rommel learned from Sigint of British withdrawals and weaknesses south-west of Agedabia; during the advance, Sigint supplemented his air reconnaissance with a steady flow of information, especially from the interception of the British R/T traffic.

British deficiencies in field intelligence could not be offset by the GAF Enigma decrypts. These now carried an increasing amount of tactical intelligence, including the daily intentions of Fliegerführer Afrika, reports on the results of RAF raids, statements of the German supply situation and, particularly when they ran out of fuel and rations, reports on the locations and movements of the German and Italian ground forces. But although they were now being transmitted direct to Cairo from GC and CS, they rarely arrived in time for the British forces to make operational use of them. To make matters worse, the GC and CS messages went only to Cairo until August and delay in forwarding the information from Cairo to the commands was increased by the need to adopt tight precautions in view of the extent to which, as the Enigma revealed, the Germans were reading the British field codes and cyphers. Nor were these the only difficulties. At GC and CS the staff who selected the decrypts for transmission to Cairo were still learning their trade and, as in the Greek campaign, their inexperience in recognising what would be of immediate significance to an army engaged in operations sometimes led them to withhold information of great importance.

It was not only the forwarding of tactical intelligence that suffered from GC and CS’s inexperience and from the haste with which it had to work. On 2 April it informed Cairo that elements of 15th Panzer Division were moving from Trapani to Palermo, probably bound for Tripoli, but failed to add that it knew that an advanced detachment of this division was already in Tripoli or
that the date for the onward movement from Palermo had not yet been fixed. It also failed to report when it learned, on the other hand, that other reinforce-ments promised to Rommel were cancelled after the beginning of the German campaign against Greece. Defects in the service to Cairo also arose from the fact that the German signals or the British intercepts of them were sometimes corrupt – so that false reports of the presence of the 5th Panzer Division in north Africa were not corrected until June. When all this has been said, however, the Enigma traffic was still invaluable for its strategic information, if not on the tactical level.

As early as 2 April it revealed that, because operations elsewhere had higher priority, Fliegerfuhrer Afrika was being denied reinforcements. On 5 April it produced proof that in pushing on beyond Agedabia Rommel was flouting his instructions. On this evidence the JIC concluded that Rommel’s offensive was improvised and that he was not under orders to conquer Egypt, and the Prime Minister was able to give this assurance to the C-in-C Middle East. On 14 April the Enigma reported that the bulk of the German forces were taking up defensive positions in the Sollum–Sidi Omar sector. In signals intercepted on 26 April Fliegerfuhrer Afrika was told that his forces were adequate for their allotted task, and this task was re-defined: the GAF in Libya was switched from close support of Rommel to attacks on British shipping off Tobruk and the defence of Axis shipping at Benghazi. From the middle of the month the Enigma had carried frequent reports from Fliegerfuhrer Afrika about his fuel shortage and on 28 April it revealed that the GAF in the forward area of Tobruk–Bardia was seriously impeded by casualties and non-replacements.

Far less was known about Rommel’s losses and supply difficulties than about the GAF’s, and little had been learned about his further plans, because GC and CS was not reading the army Enigma, which was not solved extensively until September 1941. In addition, although it was beginning to look as if he had temporarily been fought to a standstill, particularly after the failure of his assault on Tobruk at the beginning of May, great uncertainty prevailed about the timetable for his armoured reinforcements. On 18 April, despite the fact that several references to the movement of 15th Panzer Division had by then been sent to Cairo, the C-in-C Middle East was appalled to learn that the division then disembarking at Tripoli was a Panzer division, which must be expected to have 400 tanks. On 27 April he estimated from a variety of intelligence sources – air reconnaissance, captured documents, POW and Enigma – that 15th Panzer Division could all be at Tobruk by 8 May. By the end of April, however, the Enigma had disclosed that elements of 15th Panzer Division were still arriving – in fact, though this was not known at the time, an attack by British destroyers on the convoys on 16 April had delayed its timetable and its transfer was not due to be completed until mid-May. It was in these circumstances, when there was unmistakable evidence that 15th Panzer Division was arriving but when uncertainty about its timetable had not yet been cleared up, that the Chiefs of Staff decided to take the risk of sending the *Tiger* convoy with armoured reinforcements for Wavell through the Mediterranean to Alexandria instead of round the Cape.

Early in May Sigint illuminated the enemy’s situation. As the British were to learn only after the event, Rommel was asking in the last week of April for ground reinforcements to be sent by air, for GAF reinforcements and for the deployment of U-boats on the coast between Sollum and Tobruk, these
measures being essential if he was to avoid the loss of Solium and Bardia and the abandonment of the chance to take Tobruk, and OKH was becoming alarmed. On 27 April it sent General Paulus to Libya to discover Rommel’s intentions and restrain him. On 2 May Paulus gave Rommel new instructions, and these were transmitted in full to Berlin in the GAF Enigma. The main task of the Africa Corps was to retain Cyrenaica with or without Tobruk, Solium and Bardia. Given the ‘thoroughly exhausted’ condition of the troops the emphasis must be placed on re-organisation, the creation of mobile reserves and the establishment of a secure basis of supply. Further attacks on Tobruk, even on a small scale, were forbidden unless quick success without substantial losses could be expected. Except for reconnaissance, there was to be no advance beyond Solium without OKH permission until the whole of 15th Panzer Division had arrived: at that point a decision must depend on the circumstances.

Whitehall and Cairo had this intelligence at their disposal by 4 May. In Whitehall it strengthened the view of the Chiefs of Staff that a German attempt to advance on Egypt could be ruled out because it would call for an air commitment on a scale that would handicap the plan for an invasion of Britain, which they still believed to be Germany’s over-riding aim for 1941. In Cairo it directly influenced the scale and the timing of operation Brevity, the first main counter-attack against the German positions at Halfaya, Solium and Capuzzo which Wavell delivered between 15 and 17 May. Plans for some operation, to take advantage of Rommel’s difficulties after his failure at Tobruk and before 15th Panzer Division could reach the front, were in any case being made, but it was because he had received the full text of Paulus’s instructions and knew that 15th Panzer Division had not yet arrived in Tripoli in full strength that the C-in-C committed all his available tanks to the attack despite the fact that the Tiger reinforcements had not yet arrived in Alexandria.

On 16 May Cairo learned from GC and CS that after the Brevity attack on the previous day the German situation at Solium and Capuzzo was critical, ruling out the concentration of reserves and any counter-attacks, and that the Germans could not expect air support before 17 May. On 17 May it knew from further decrypts that Rommel had applied for help to Luftlotte 4, over the head of Fliegerfuhrer Afrika, in an attempt to prevent a similar situation developing at Bardia. However narrow the margin, however, the attempt to defeat Rommel before he had been reinforced had come to nothing – except for the temporary reoccupation of the Halfaya Pass – by 18 May.

The main reason for the failure was the technical superiority of the German equipment, particularly armour and anti-tank guns. British intelligence had given no warning of this, and its extent was revealed for the first time during the British counter-attack. At the same time, intelligence performed poorly during the fighting. Although the GAF Enigma contained much tactical information, it was often out of date by the time it was read at GC and CS. When it was sent out to the Middle East there was a delay in getting the intelligence from Cairo to the British forces, and their inefficient communications further reduced the chances of making use of it. More serious still – for even when, later on, these delays had been reduced, the Enigma would still be more valuable for what it said about order of battle and supply than for tactical battle intelligence – the British inferiority in field intelligence was as marked before and during the battle as it had been during the retreat.

Rommel’s field intelligence intercepted the British signals and alerted him
to the coming attack. On the other hand, the British commanders failed to
detect Rommel’s success in bringing forward in good time a large part of his
reserve armour. From air reconnaissance, including PR, they knew before the
attack that Rommel had between 30 and 50 tanks in the Sollum–Capuzzo–
Halfaya areas and that the bulk of his armour lay at Tobruk, 70 miles to the
rear, and they expected to have a tank superiority of two to one in the battle
area. In the event, despite Rommel’s grave fuel problems, they encountered
rather more armour than they had themselves, and neither air reconnaissance
nor any other source had betrayed the movement forward of the enemy tanks.
Intelligence also failed during the operations which led to Rommel’s recapture
of the Halfaya Pass on 27 May – operations which began as bluff but which
developed into a serious attack in greatly superior strength.

A month later the second British counter-attack (operation Battleaxe),
launched as soon as possible after the arrival of the Tiger reinforcements, failed
for the same reasons. As the C-in-C had feared in advance, the German tanks
and armoured cars turned out to be too much, in performance as in numbers,
for the British. Once again Rommel was well served by his field intelligence. As
a result of intercepting British signals, he was expecting the attack on the day it
was delivered, and he was supplied with good information from W/T and
captured documents throughout the battle. And once again British field
intelligence was weak, both before and during the battle. Before the counter-
attack began, it was known that Rommel was strengthening his defences; air
reconnaissance had found no signs that he had received any important
reinforcements during the past month and the Enigma, with its full informa-
tion on the GAF order of battle, had established not only that there had been no
increase in the GAF’s strength in Libya, but also that its strength in Sicily had
been drastically reduced by withdrawals to other theatres. It was thus not
difficult to rule out a German advance. But the evidence about the number and
disposition of Rommel’s tanks was unsatisfactory. The British forces had
counted on meeting 100 German tanks. They were met by more than twice that
number, Rommel having once again brought up practically all his reserves
from the Tobruk area at the right time without revealing their movement. In
these circumstances it mattered little that the general lines of Rommel’s
counter-attack had been judged correctly: the British forces did not have
strength enough to meet it.

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Up to the beginning of Rommel’s advance into Cyrenaica the British had had
little success in disrupting Axis supplies and the reinforcements to north
Africa. After the beginning of the advance, operations against the supply routes
were stepped-up. Whereas 10 Axis merchant ships had been sunk en route to
Libya during the first three months of 1941, 21 were sunk during April and
May. But this improvement was insufficient to bring about any serious damage
to the enemy’s supply position.

That more could not be done was due in the main to operational
limitations. The RAF did something to interrupt work in the ports of Tripoli
and Benghazi and the coastal shipping in the enemy’s forward area, but it was
unable to mount an effective attack against his trans-Mediterranean shipping
because it could keep only a small striking force at Malta, where reconnaissance aircraft were also in short supply. The attack on that shipping increased following the decision of C-in-C Mediterranean to base 4 destroyers at Malta from 11 April. During May, however, while it became possible to increase the PR aircraft and the air striking force at Malta, the destroyers had to be withdrawn. At the same time, there was still a dearth of advance intelligence of operational value about enemy shipping – a dearth which is emphasised by the fact that it was exceptionally, as a result of a single item of Sigint, that the destroyers were moved to Malta by 11 April and were successful on 16 April in wiping out an entire convoy (5 merchant ships and 3 escorting Italian destroyers) that was carrying units of 15th Panzer Division to Africa.

The C-in-C Mediterranean decided to base the destroyers at Malta on receiving from the Admiralty on 7 April the news from an Enigma decrypt that ‘advanced elements of German 15th armoured division were embarking at Palermo on or after 9 April probably for Tripoli’. To the same item of intelligence, if only indirectly, the destroyers owed their success against the convoy on 16 April. On the arrival of the destroyers, Malta intensified its air reconnaissance; one enemy convoy was sighted on 11 April, another on 12 April, and on both of these occasions the destroyers sailed to intercept but without success. But on 16 April they were guided to the convoy by a third sighting by reconnaissance aircraft.

As yet, however, it was rarely the case that air and naval reconnaissance benefited from Sigint. The Italian naval cyphers were not being read, nor was there any German naval Sigint for the Mediterranean area. From the middle of April the GAF Enigma left no doubt that Rommel’s advance had produced an acute shortage of fuel and transport in north Africa. It showed, too, that the enemy was making desperate attempts to overcome the shortage by developing shipping on the coastal route from Tripoli to the front and by flying especially urgent replenishments across the Mediterranean. But when the bulk of his supplies were going by sea – convoys were leaving Naples for Tripoli every 3 or 4 days between March and the middle of May, and there were individual sailings from Palermo and Trapani – the Enigma contained only occasional escort instructions from Fliegerkorps X, and they could rarely be forwarded to the naval and RAF commands in time for them to act on them. In these directions, as in British army field intelligence, things were to improve before the fighting in north Africa was resumed; but none of the advances had been made by the end of June.

At the beginning of Rommel’s advance Whitehall’s anxiety about Axis intentions in the Middle East was sharpened by Rashid Ali’s coup of 3 April against the Regent’s government in Iraq. In view of the imminence of Germany’s attack on Greece, the long-standing fear that she would move through Turkey and Syria to Iraq or Egypt had temporarily abated before the coup took place, and further reassurance on this score was obtained by 8 April from Enigma decrypts which showed that 5th and 11th Panzer Divisions had been moved from the Bulgarian–Turkish border to take part in the attack on Yugoslavia. In view of Rommel’s advance, however, it could not be overlooked that even if the
Axis Powers had not promoted the coup to divert British troops from Egypt, they would exploit it for that purpose. On these grounds Wavell counselled Whitehall to maintain relations with Rashid Ali and seek to restrain him by diplomatic pressure. The Chiefs of Staff and the Cabinet, however, while accepting that the C-in-C Middle could spare no troops, determined on military intervention with troops from India. The Ambassador and the SIS in Iraq were sending warnings that British inaction would encourage Rashid Ali and that he was acting in collusion with Italy and Germany: and in a message decrypted on 5 April the Italian Minister in Baghdad had reported that he had agreed with his German colleague that Syria would be the best route for the despatch of arms to the Iraqi nationalists.

The arrival of the first contingent of British troops from India at Basra on 18 April brought on the crisis. The SIS reported that Rashid Ali had been given an ultimatum by the Iraqi army: it would take over from him unless he turned out the British forces and established relations with Germany. On 30 April he invested the RAF base at Habbaniya, where fighting broke out on 2 May, after giving Germany notice of his intention and appealing to her for air support. Whitehall received no intelligence about his approach to Germany or Germany’s negotiations with Vichy, which by 6 May agreed to the passage of arms by train through Syria to Iraq and to the use of Syrian bases by the GAF. Since the middle of April, however, the GAF Enigma had disclosed that Germany was planning a large airborne assault from Greek airfields: and although the decrypts had finally established by 26 April that Crete was the target of this assault, the Chiefs of Staff feared that it might be switched to Syria or Cyprus, as a stepping stone to Iraq, if the British position in Iraq deteriorated – and even harboured the groundless suspicion that the references to Crete in the decrypts might be part of a deception plan to cover a descent on Syria or Cyprus.

Between 2 and 5 May the Chiefs of Staff pressed Wavell to consider the immediate despatch of troops to Habbaniya, which could not be reached by the Basra force on account of flooding. On 6 May, when the RAF broke the siege and the decrypt of a message from the Italian Minister reported that Rashid Ali had failed at Habbaniya and that his stocks of bombs and ammunition were exhausted, they pressed Wavell to operate without delay against Baghdad. The C-in-C, still preferring a political solution, was reluctant to act. But on 8 May further Italian decrypts showed that Rashid Ali was in desperate straits and on 9 May Enigma decrypts at last hinted at German intervention: the GAF was preparing a small-scale operation from the Athens area, separate from the airborne assault it was mounting against Crete. This news prompted Churchill to urge Wavell to operate against Baghdad: ‘every day counts, for the Germans may not be long’.

In the next few days, as British troops from Palestine began their entry into Iraq, the Enigma confirmed that the German effort was to be a limited one. The decrypts showed small numbers of aircraft with Iraqi markings arriving in Iraq and Syria via Rhodes and reported that an arms train had left for Iraq from Damascus, where the Vichy High Commissioner was asking the Germans to keep their presence as unobtrusive as possible. Between 14 May, when the GAF began bombing the British forces, and 31 May, when Baghdad capitulated, AI estimated that 30 German aircraft were operating – the number was in fact 24 – and it emerged from Enigma and Italian diplomatic decrypts that they were severely hampered by shortage of fuel. On 1 June an Enigma
decrypt disclosed that Hitler had ordered resistance to continue: despite the adverse situation, reinforcements were being planned and supply bases being organised in Syria and Iraq; troops would not be sent at present, but a battalion was being got ready in Germany. Later on the same day, however, a decrypt reported that the GAF was to be withdrawn to Syria, and on 3 June further decrypts showed the aircraft were returning to the units and that their support base near Athens was being disbanded.

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The intervention in Iraq was undertaken in the interval between the British retreat from Greece and the beginning of the battle for Crete, and with full knowledge that that battle was imminent. The Enigma had given two weeks' notice of the date of the German assault and provided in advance crucial details about the German assault plans. And it was mainly on this account that the British were able to inflict on the enemy more damage than he had sustained during the whole of the earlier fighting in Greece, and to turn his achievement in taking the island into a Pyrrhic victory.

An airborne attack on Crete was not part of the original Marita operation. Not until March 1941 did General Student, AOC of the parachute and airborne troops of Fliegerkorps XI, draw up a plan for such an attack. Fliegerkorps XI with 500 Ju 52s was not assembled in the Athens area until 14 May on account of supply difficulties encountered during the move from Germany to the Balkans. Other delays postponed the start till 20 May.

In Whitehall, where it had long been expected that the Germans would use paratroops in the Balkans as they had done in Norway and the Low Countries, the first signs of German preparations for airborne operations were received in the last week of March. On 25 March, the Enigma having revealed that Fliegerkorps XI was collecting Ju 52s for multiple glider-towing and that it had been ordered to prepare the temporary move of 5 or 6 Gruppen of Ju 52s to Plovdiv, MI reported that 250 transport aircraft had arrived in the Balkans. By 30 March it had confirmed the arrival at Plovdiv of the advance party of a 'detachment Suessmann', a General known to be associated with Fliegerdivision 7 - the crack airborne formation of Fliegerkorps XI which was known to have carried out the paratroop landings in Holland - and of other units, including one which was known to have been training in night glider-towing in Brunswick, and MI warned that large-scale airborne operations in southeastern Europe were being prepared. As yet, however, there was no information about the targets.

Uncertainty on this last point continued throughout April. It was known from Enigma by 18 April that 250 Ju 52s had by then been withdrawn from routine duties and placed under Fliegerkorps XI in the Plovdiv area and, by 24 April, that Goring had decided to use some of them on a special operation. What that was, however, was revealed only when a regiment of Fliegerdivision 7 dropped on the Corinth Canal on 26 April in an attempt to cut off the British retreat, which had begun two days earlier. By then the Enigma had established that a further operation was intended: Fliegerkorps XI was given priority for fuel supplies, and there had been a reference to the importance of getting the supplies to Fliegerkorps XFs area by 5 May. But there was still no evidence that
Crete was the next German objective until the GAF Enigma explicitly mentioned Crete on 26 April: Luftflotte 4 then referred to the selection of air bases for ‘operation Crete’ and Fliegerkorps VIII requested photographs and maps of the island.

Such was the anxiety about the situation in Iraq that, even then, the authorities in Whitehall were not convinced. The Chiefs of Staff, fearing a German descent on Syria or Cyprus, doubted the decrypt evidence and the Prime Minister, who had concluded by 28 April that ‘it seems clear ... that a heavy airborne attack ... will soon be made on Crete’, admitted on 3 May that the enemy might be ‘only feinting at Crete’. But this hesitation did not cause any delay in informing the authorities in Crete of the danger to them. On 18 April the C-in-C Middle East had warned them that Crete might be one of the German objectives. By that date, moreover, the link which carried the Enigma direct from GC and CS to Cairo had been extended to them. On 16 and 21 April they were notified on this link that the GAF was preparing airborne operations from Bulgaria. On 22 April, just before the evacuation from Greece, they were warned to burn all the material they had received on the service, but the Prime Minister decided that the Enigma material must continue to go to Crete and General Freyberg, who took command on 30 April, received it from GC and CS disguised as information supplied by an SIS agent in Athens. It is not clear whether he was told the true source but Cairo would have assured him that it was totally reliable.

Any remaining uncertainty was coming to an end from 1 May when the Enigma revealed that in connection with operation Merkur Fliegerkorps VIII had been ordered to refrain from destroying airfields on Crete and from mining Suda, to make a photographic mosaic of Crete and to report on bomb stocks. On 4 and 5 May it provided further confirmation that Crete was the target by showing that extensive air reconnaissance of Cretan ports and airfields had been laid on. Even more important, the Enigma now established that the assault was not imminent. On 2 May it reported the departure of the first and second wave of Fliegerkorps XI from Hanover and carried a request that Student should announce by 6 May when the Korps could arrive in Greece. On 4 and 4 May it showed that Fliegerkorps VIII did not expect to move its HQ from Plovdiv to Athens until 8 May. And on 6 May it vouchsafed nothing less than the German estimate of the probable date of the completion of preparations - 17 May - and complete final operational orders for the execution of the assault. As is now know, these were a compromise resulting from last-minute debates among the German authorities, and it was perhaps for that reason that they were transmitted by W/T in great detail. They listed the exact stages of the plan from D-day, beginning with the landing of paratroops by Fliegerdivision 7 and other units of Fliegerkorps XI in the Maleme-Khania area (the main sector) and at Heraklion and Rethymnon and proceeding, through the transfer of dive-bombers and fighters to Cretan bases, to the sea-transport of flak units, supplies, equipment and three mountain regiments of ground troops.

The flow of Enigma decrypts during the next 2 weeks covered the concentration of Fliegerkorps XI in the Athens area, monitored the progress made by the Germans in establishing themselves in neighbouring islands and in assembling 27,000 tons of shipping, and reported the results of the GAF’s softening-up attacks on Crete, which began on 14 May. On 15 May it revealed that the German Chief of Air Staff had requested a 48-hour postponement of the original date of 17 May and had received Göring’s approval for his request.
On 19 May the Middle East was informed that Enigma had shown 20 May to be the probable date of the attack and that on 19 May the German Commanders were to meet with maps and photographs of Maleme, Khania, Rethymnon and Heraklion.

The areas selected by the Germans for their airborne descents tallied closely with those to which the British in Crete were already giving prominence in their defence preparations before they received the German operational plan. But it was the fore-knowledge provided by the Enigma which gave the defenders the confidence and the time to concentrate all their forces at these points, and the value of the intelligence was all the greater because of the acute shortage of shipping, equipment and troops throughout the Middle East theatre had prevented the British from giving much attention to Crete’s defences. Plans aimed at inflicting the maximum losses on the enemy were drawn up in Whitehall and sent out to Cairo between 9 and 13 May. On 12 May Wavell sent an officer to discuss them with Freyberg. On 14 May London repeated to the Middle East the warning that the attack could come any day after 17 May, and General Freyberg so informed his troops.

By 16 May Whitehall and Cairo had agreed on a final estimate of the likely scale of attack: 25,000 to 30,000 airborne troops, 10,000 sea-borne troops, 600 transport aircraft. This was an over-estimate, the numbers actually committed by Germany being 15,750 airborne troops, 7,000 sea-borne and 520 transport aircraft, but last-minute decrypts identified the army units that were to be used and reduced earlier uncertainty about the intended size of the sea-borne assault. To the end there was uncertainty about the scale on which the GAF would support the landing. But the British miscalculations were small compared with those made by the Germans who found the British garrison to be between three and five times stronger than they had assumed. They also found, to quote the battle report of Fliegerkorps XI, that ‘the area of operations ... had been prepared for defence with the greatest care and by every possible means’ – and so much so that they had the impression that the defenders had known the exact time fixed for the invasion.

The outcome was that the Germans sustained more casualties on Crete than during all the fighting on the Greek mainland, and that the decimation of Fliegerdivision 7 left them with a crippled airborne arm. Although the British were not to know this for many months, Fliegerdivision 7 was the only force of its kind in the GAF and the Germans made no attempt to rebuild it. It is difficult to establish how far intelligence obtained during the battle contributed to this result. The Enigma contained German situation reports, reinforcement rates, and identifications of units landed in the island, and General Freyberg also got intelligence from POWs and captured documents. But we do not know how quickly he received this information or what he was able to do with it. One document, the German parachute manual, captured as long ago as May 1940 and since then widely studied in the British Army, was undoubtedly of great assistance. In Crete the Germans used the landing pattern that they had adopted in Holland, and Student later said that he would have used different tactics had he known that the manual had been captured. In Crete, too, to a greater extent than in Greece, field Sigint was useful. German R/T bombing instructions were intercepted and valuable information was obtained from Fliegerkorps XI’s tactical code. On account of shortage of aircraft and of German command of the air, there was little British reconnaissance north of Crete, while the British naval forces had to stand well south-west and
south-east of Crete during daylight in order to avoid the GAF. However, on 21 May, as the result of Sigint information an aircraft based on Egypt sighted a convoy escorted by an Italian torpedo boat. Shortly before midnight the Royal Navy sank a dozen of these ships and dispersed the rest: none of them reached Crete. News of this action induced the German Admiral to order the second of the two convoys taking troops and heavy equipment to return to the Piraeus, but the Navy was able to make an attack on the second convoy at dawn on 22 May. Though at heavy cost to itself, it prevented any German sea-borne landings on Crete by stopping both convoys. But this success was not sufficient to tip the balance and enable the defenders to defeat the German attack.

The discovery by the end of April that Crete was the immediate objective of Germany’s airborne preparations did not disperse the fear that Germany would move into Syria as well as Iraq. On 9 May, in the same telegram in which he overrode the C-in-C’s hesitations about Iraq, the Prime Minister had stressed the ‘danger of Syria being captured by a few thousand Germans transported by air’, and had repeated the suggestion already made by the Chiefs of Staff that he should assist General Catroux’s Free French battalions in the Middle East to enter the country. From 14 May, when the Enigma had confirmed the arrival of GAF aircraft in Syria, en route for Iraq, Whitehall became convinced that Germany would move into Syria unless she was forestalled by early British action. On 19 May, when the attack on Crete was expected hourly and the position in Iraq had not yet been secured, they instructed Wavell to improvise the largest possible force for a movement into Syria at the earliest possible moment.

When pressing Wavell to act quickly in Iraq, a week earlier, Whitehall had had evidence from Sigint that Germany was despatching aircraft to operate there. For the belief that she intended military intervention in Syria there was no intelligence support, and the absence of positive evidence stood in sharp contrast to the flow of Enigma decrypts on the transfer of aircraft to Iraq and the preparations for the invasion of Crete. But such was the fear that Germany would advance into the Middle East that no attention was given to negative evidence. On 15 May MI had warned of ‘indications . . . that the Germans have been led by developments in Iraq to concentrate on the eastern Mediterranean and beyond. By advancing through Turkey into Syria, and at the same time renewing their offensive in north Africa, they could develop once again the pincer movement which they have used so consistently in all their recent campaigns’. On 21 May the head of intelligence in the Air Ministry took the unusual step of using GC and CS’s Sigint link to warn his opposite number in Cairo that ‘indications, though slight, point to another airborne expedition after Crete. Possibly Cyprus or Syria’. Apart from the fact that there were no such indications, these assessments ignored the conclusion reached by the JIC on 11 May that the state of communications in south-eastern Europe would prevent serious preparations for an advance through Turkey in the next six weeks. As we shall see, they also ignored the mounting evidence from decrypts that Germany was massing most of her forces on the Soviet borders.

It was in this atmosphere that on 20 May, when the instructions to Wavell
had crossed with a telegram from him to the effect that the Free French were pressing him to invade at once with the argument that French opinion in Syria was pro-British, but that he distrusted their information, the Chiefs of Staff advised him to fall in with General Catroux’s wishes. He at once offered to resign, but withdrew the offer when the Prime Minister agreed to accept it on 21 May. Catroux, he explained, had now admitted that he had been misinformed about French opinion in Syria, that the Vichy forces would resist an Allied entry, and he himself had not been objecting to his instructions, only resisting the idea of a completely improvised operation.

During the next fortnight, while Wavel prepared the offensive which began on 8 June, intelligence provided positive indications that while the French in Syria were preparing to resist an Allied occupation, no Axis threat existed. On 23 May the German Enigma disclosed that with German assistance the French were reinforcing Syria with aircraft from North Africa. Two days later it repeated an earlier order from Hitler that all German personnel in Syria and Iraq were to be volunteers and all GAF aircraft were to have Iraqi markings; and during the first days of June it showed the GAF withdrawing from Syria as well as from Iraq. On 25 May, perhaps in the light of these indications, the C-in-C Middle East calculated that only small numbers of Germans were in Syria, and asked the Chiefs of staff whether the date of his advance should be made dependent on the arrival of a larger German force. But Whitehall had not changed its mind on the need for speed. On 28 May AI, in a second intervention into the stream of signals that were carrying the Sigint to Cairo, warned that ‘if Crete is finished soon, Ju 52s could be used for further operations’.

The advance was undertaken with forces that were known to be inadequate for the French opposition that was expected, and the outcome was a long campaign in which the Allied troops had to be reinforced on more than one occasion before it was brought to an end on 12 July. While it lasted the German Enigma regularly gave advance notice of Fliegerkorps X’s attacks on the units of the Mediterranean Fleet that were engaged in bombarding the French shore positions. It was from the GAF Enigma, again, that the British authorities learned of the Vichy government’s naval movements and intentions, the movements of French destroyers and submarines being regularly reported to Fliegerkorps X. On 27 June the Enigma decrypts announced that the French government intended to carry out an operation in the eastern Mediterranean with one battleship, four cruisers and 4 to 6 destroyers, the force having GAF protection while it landed considerable French infantry reinforcements in Syria. The C-in-C Mediterranean ordered submarines to concentrate against it. But on 2 July London was able to inform him that this operation, which would have had momentous consequences for development of German–Vichy–British relations, had been cancelled.

No less valuable was the intelligence made available by GC and CS on the French view of the progress of the campaign and on French disagreement about the desirability of asking for additional German support. Because the Abwehr agent in Syria was using the GAF’s communications, this also came from GAF Enigma. On 14 June, when the British advance was being held up, the decrypts disclosed that the Vichy High Commissioner in Syria had proposed that the GAF should be allowed to use Syrian bases, a step which Vichy had forbidden on 13 June. On the following day, however, it was learned that Vichy had insisted on maintaining the ban, though it continued to make requests for German assistance in transporting reinforcements by air. On 21
June, in view of his shortage of material, the High Commissioner was again hoping that his government would ask for German support; and the messages carrying this information also confirmed that Turkey had refused to allow French arms and troops to cross her territory. By 25 June the Abwehr agent was reporting that the High Commissioner, his troops exhausted and suffering heavy casualties, was depressed by his government’s vacillation and asking for German help on his own initiative. But on that day the agent announced that he was himself withdrawing to Aleppo, and on 4 July he expected the British to advance on Aleppo and doubted whether the situation was any longer tenable.
CHAPTER SEVEN

Barbarossa

On 31 May 1941, just when they were completing their arrangements for the occupation of Syria, the commanders in chief in the Middle East were informed by the Chiefs of Staff that Germany was concentrating large army and air forces against Russia, was demanding concessions from the Soviet government and would march if her demands were refused. As may be judged from the date and the contents of this telegram, the Whitehall authorities had been slow to reach agreement on the conclusion that Germany would make an attack on Russia, an undertaking which she had been preparing throughout the previous winter, and even when they settled these differences, a bare three weeks before the attack, they were still failing to understand that what Germany had been preparing was not a war in the event of the breakdown of negotiations, and after the despatch of an ultimatum, but an unconditional invasion, a surprise assault.

One reason for their slowness was that speculation about the possibility of a German attack on Russia had run ahead of Germany’s preparations – ahead, indeed, of Hitler’s first instructions that the attack should be prepared. By giving rise to rumours before there could possibly be any foundation for them in intelligence, this strengthened the disbelief with which they later greeted genuine pointers to Germany’s intention.

As early as 14 June 1940 – the day on which Paris fell – the Foreign Office, prompted by the wish to get on to closer terms with Russia, was advising Sir Stafford Cripps, the newly-appointed Ambassador to Moscow, that the Russians were alarmed by Germany’s victories in France, and Cripps told Molotov that ‘according to our information’ Germany would be forced to turn east if France collapsed. On 26 June the Prime Minister sent via Cripps a hint to Stalin to the same effect. There is no ground for doubting whether these warnings were sincere. On 27 June the Prime Minister expressed his opinion to Smuts: ‘If Hitler fails to beat us here he will probably recoil eastwards. Indeed, he may do this without attempting invasion . . .’ But the views expressed by Cripps and the Prime Minister had not been advanced by the intelligence branches. On the contrary, a divergence between their views and those of the Foreign Office emerged during the preparation of a JIC paper on Germany’s intentions that was issued on 2 July. While the Foreign Office cast some doubt on Germany’s determination to invade the United Kingdom and, though not expecting it at once, allowed for a German move into the Ukraine, MI insisted that Germany would give absolute priority to Sealion.

After the beginning of July, when it became manifest that Germany was preparing for Sealion, the conviction of the Service staffs that the defeat of Great Britain was Germany’s overriding objective was universally accepted. On 5 August 1940 the JIC concluded unanimously, with no trace of dissension, that Germany and Russia both had the best of reasons for avoiding an open clash. By the middle of October, however, when the threat of invasion was receding, Cripps and the Prime Minister had returned to their earlier speculations and the earlier dissension between the Foreign Office and MI had
reappeared. Cripps now told the Foreign Office that the Russians were so consumed with fear of Germany and Japan that it was unnecessary for him to warn them of the dangers of an Axis attack; and at the end of the month his response to the news that Molotov was going to Berlin was to repeat that in the long run, probably during 1941, the fundamental hostility between Germany and Russia would reassert itself. On 31 October the Prime Minister - this time in verbal briefing of senior military commanders - took the view that Germany would inevitably turn on Russia during 1941 for the sake of her oil. By then this view had recovered ground in the Foreign Office. On 29 September MI had asserted that ‘the time will never come . . . when it will be safe to say that invasion of the UK is off’, and on 7 October, in a letter to the DMI, the Foreign Office chairman of the JIC had protested that his assertion was ‘irrational’ and that MI’s attitude was ‘crippling our strategy’.

Until the end of October 1940 the reluctance of MI to believe that Germany could cease to regard Britain as her main enemy was justified not only by the knowledge that she was giving priority to the Sealion front, but also by the state of intelligence about her intentions towards Russia. In June Cripps had supported his warning to Molotov by referring to ‘our information’, but no such information had been received in Whitehall. Nor was any obtained during the next three months, a fact which is not surprising in the light of the state of Germany’s preparations.

On 21 July, soon after he had issued his Sealion directive and learned that the British government had rejected his peace offer, Hitler had ordered preliminary studies for an attack on Russia. On 29 and 30 July he had decided that preparations should begin for a five-month Blitzkrieg against Russia from May 1941 in case major operations against the United Kingdom had to be deferred. On 5 August OKH had received a first study for the operation. As yet, however, the German planning was confined to Hitler and a handful of his senior officers, so that Sigint was silent on the subject and the other sources – the SIS and British diplomatic reports – merely duplicated the speculation in which people in Whitehall were themselves engaging.

In July 1940 the SIS reported that the Soviet Military Attache in Berlin had warned his government that Germany was preparing to attack Russia. In the same month, however, another SIS agent concluded that war with Russia ‘was out of the question at present’. The reports from diplomatic sources were no less contradictory, some claiming that Russia and Germany were both preparing for a clash and others claiming that Hitler had renounced his earlier eastern aspirations. Among the latter, one dwelt in some detail on the German anxiety to refute Cripps: the German embassy in Moscow was saying that the warning he had put about was based on the movement of German divisions to Poland and was explaining that these divisions were not first-line troops and had been sent east because they could not be maintained in France. This might have been the basis for suspecting that Germany was protesting too much, but it would have been a flimsy basis and any tendency to make much of it must have been checked by the Russian government’s response to the warnings from Cripps and Churchill: on 1 August it denounced the attempts of Great Britain to drive a wedge between Russia and Germany.

By the end of October the number of German divisions facing Russia had been increased from 15 to 33 (including 5 armoured, 2 motorised and 1 cavalry), and the logistic preparations in the east – the establishment of training centres and airfields, the transfer of supply depots and the develop-
ment of communications - had begun in earnest. During September, following a concentration of Russian troops against Finland, Germany had negotiated the passage of German troops through Finland and increased her forces in north Norway. Germany was concerned with the protection of the Roumanian oil and the Finnish nickel in the event of Russian moves against them, but her attempt to explain her eastward deployments as being defensive and her insistence that the logistical preparations were being made for economic, not military, reasons did not wholly satisfy the Russians. By mid-September another problem was creating friction between the two countries. In consequence of Hitler's orders at the end of July that the German army be raised to 180 divisions, German deliveries to Russia were falling so far behind what she had promised in the trade agreement of February 1940 that the Russians had temporarily cancelled all long-term projects for exports to Germany. By 1 November they were complaining that Germany could apparently deliver war material to Finland but not to Russia. Alongside these developments, which were increasingly difficult to conceal from the Russians, Germany had taken highly confidential steps to further the preparations for a Russian campaign. On 28 September Hitler had confirmed his verbal orders for the expansion of the Army and the creation of new divisions for the east and had laid it down that these were to be ready by 1 May. Also in September, the Abwehr had been instructed to improve its neglected coverage of Russia - though Hitler had vetoed OKH's wish to begin photographic reconnaissance of Russia for fear that this would disclose his intentions. By mid-October Army Group East had been set up in Poland and OKH had moved its HQ from France to Zossen. On these developments Whitehall received several reports from the SIS and diplomatic sources. Some contained rumours of a breakdown in Russo-German trade relations. In particular, an SIS source reported that Mikoyan was opposing the export of materials which the USSR needed for its own defence. Other reports claimed that Russia was putting pressure on Finland (for such things as demilitarisation of the Aaland Islands) and that Germany was sending troops to Finland, garrisoning the nickel mines there and signing an agreement with Finland for the transit of German troops to north Norway. But the reports put different interpretations on these developments. Some spoke of an increase in Russia's military precautions against a German attack and indicated that some circles, particularly the Swedish government, were convinced that a German attack on Russia would not be long delayed. Others said that Germany was only reacting to a Russian threat and was taking every possible care not to antagonise Russia. Up to the last day of October, when the War Office weekly intelligence summary reported that the Russians were undertaking large-scale manoeuvres in order to improve standards in their army, the intelligence branches had commented on none of these reports. But given the nature of the reports they can scarcely be blamed for their reticence. Up to the same date Whitehall had received two other items of intelligence to which it is arguable that it paid too little attention. One came from A-54. On 22 August he reported that he had learned from an OKH officer that the intelligence branch responsible for the Russian area had been expanding since June, that the Abwehr's counter-intelligence activities against Russia were also to be increased as a matter of urgency, and that the Abwehr in Romania had been reinforced by specialists on the southern Ukraine, the Crimea and the Caucasus. None of the intelligence branches drew the attention of the JIC, the Chiefs of Staff or the cabinet to this item. By the end of September, however,
A-54 was predicting that Germany's occupation of Romania would be followed by German advances through Turkey and Spain.

The second item of intelligence that might have been thought significant concerned the eastward deployment of German divisions. On 27 August MI accepted that a very considerable addition to the troops in Poland was taking place, and quoted reports of a total of 60 divisions there. The figure was a considerable over-estimate: the number of German divisions in Poland reached 25 in September and did not greatly increase till 1941. But MI concluded that not even 60 divisions constituted an undue concentration of German forces in the east: the Germans had to keep their spare divisions somewhere, and from Poland they could use them to intervene anywhere in Europe.

After the German entry into Romania in October 1940 the German threat to the Middle East replaced Sealion as the chief ground for the conviction that the defeat of Britain was Germany's chief priority, and thus for the view that rumours about German preparations for an attack on Russia should be ignored.

On 31 October MI recognised that 'Germany is preparing for a campaign in areas suitable for operations by mechanised forces on a large scale ... These areas might equally well be Russia or the Middle East. Furthermore,... in the Ukraine Germany can find her raw materials. In addition to which there have been signs recently of increasing nervousness on the part of the Russians as to Hitler's future intentions ...'. To MI, however, it seemed probably that Hitler, yielding reluctantly to the advice of his military advisers, had decided to postpone Sealion and prepare for an advance through the Balkans to Turkey. Its conclusion was that Hitler 'sees dangers in this policy which may bring him into conflict with Russia and dislikes it because it will not yield quick results, but he is wise enough to see that he may have to adopt it'.

Once it had accepted that Hitler had temporarily turned away from Sealion and was contemplating operations against Great Britain in the Balkans and the Mediterranean, MI supplemented its belief that Germany would not wish to tackle Russia until she had disposed of the United Kingdom with the argument that she nevertheless had to prepare against the possibility of a Russian attack on herself while she was engaged in the south and south-east. On 27 October it was using the argument to explain the move of German troops to Finland, of which it then had 'confirmed evidence', and the German–Finnish transit agreement of September, of which it had now obtained the details. On 3 November MI adopted the same line: the move to Finland had completed Germany's European bulwark against Russia. On 6 and 12 November MI extended the explanation to cover the German deployment in eastern Europe. The purpose of this, as of the move to Finland, was to hold Russia off while Germany advanced through Bulgaria and Thrace to the Middle East and helped Italy to subdue Greece. On 16 December it declared that 'Germany thinks that 58 divisions in Poland and 10 in East Prussia, as well as fortifications in Poland and a potential base in Finland, will keep Russia quiet'. On 24 December it repeated the same view: Germany did not want a two-front war and would not fight Russia until she had disposed of Great Britain. On 1 January 1941, by which time a recently established network of Polish agents had disclosed that a considerable amount of west to east road and rail construction was taking place in Slovakia, MI's explanation was that Germany was preparing to move troops from Poland and the Protectorate to Romania for the attack on Greece.

On 9 January 1941 the first inter-departmental study of German intentions
that had been attempted since early November followed the line laid down by MI: German forces in eastern Europe had been moved there to guard against a Russian attack while Germany advanced into the Balkans: until she had defeated Great Britain Germany would not wish to fight Russia 'except in dire necessity'.

* * *

On the same day - 9 January - Hitler reaffirmed his intention to invade Russia at the middle or the end of May 1941 in the face of expressions of anxiety about the undertaking from OKH and Admiral Raeder. Their doubts had increased as they had watched Hitler’s plans take shape in a series of decisions and directives during the previous two months. On 12 November, at the outset of Molotov’s visit to Berlin of 12–13 November, he had confirmed in a directive the verbal orders for the preparation of the invasion which he had issued on 31 July. After the Molotov visit he had decided that there should be no attempt to reach a negotiated settlement with Russia; diplomatic exchanges should be continued only for the purpose of deception and as a means of preserving the advantage of a surprise attack. There had followed on 18 December the release of the _Barbarossa_ directive. Based on plans submitted to Hitler by OKH on 5 December, this laid it down that Soviet Russia was to be defeated in one rapid campaign ‘even before the conclusion of the war with England’. The Army was to assign all available units to this task subject only to the protection of the occupied countries. The GAF was to release units for the support of the army in an eastern campaign in such strength as would ensure that land operations were brought to a rapid conclusion and that eastern Germany suffered as little as possible from enemy air attack. This concentration in the east was to be limited only by the need to protect supply bases and operational areas as a whole against air attack and to ensure that the offensive against Britain, and in particular against her supply routes, was not brought to a standstill. Orders for deployment against Russia would be issued 8 weeks before the operation was due to start. Preparations requiring a longer period, if they had not started already, would be put in hand at once and be completed before 15 May 1941. It was ‘of decisive importance that the intention to attack should not become known’.

Knowledge of these further decisions was confined to the highest levels in Germany and no whisper of them reached Whitehall. Two obstacles nevertheless stood in the way of a total acceptance of inter-departmental appreciation of 9 January.

The first was the fact that rumours about German preparations for an attack on Russia had been increasing. During November and December 1940 the SIS was reporting that its contacts among the Balt aristocrats were openly saying that they would soon regain their estates ‘in the wake of the German army’. From November the world’s Press – notably the _Neue Zürcher Zeitung_ and the _Chicago Daily News_ – began to carry stories of a coming Russo–German war. By the end of November the eastward deployment of the German army was the subject of constant speculation among the diplomatic corps in Moscow. In November the SIS man in Helsinki reported that he had heard from Abwehr officers that Germany would attack Russia in the spring.
in an appreciation issued on 17 January 1941 MI noted that there had been ‘a number of suggestions lately that Germany may be intending’ an attack on Russia and proceeded to examine them in the light of what was known about the deployment of the German Army. The three German divisions in north Norway were probably there to guard against the danger of British raids. There were 1,500 troops in Finland – this was a lines of communication contingent. The 6 divisions in Slovakia evoked no comment. Of the presence of German divisions on the Romanian frontier with Russia there was no evidence. Improvements were being made to the communications between Germany and Russian Poland – these were ‘probably intended for implementing more rapidly recent economic agreements rather than for any military purpose in the immediate future’. Similar work in Romania indicated preparation for operations in the south-east rather than against Russia. As for Poland, the number of German divisions there had now climbed to 70 in MI’s estimates but most of them had been there since the previous summer and many of them were internal security divisions, not part of the field army. Apart from the fact that the Germans were undertaking a good deal of work on fortifications on the Russo-German frontier, which made it unlikely that Germany contemplated any offensive action in the area, German dispositions and preparations in the neighbourhood of Russia’s frontiers ‘cannot at the moment be described as anything but normal’.

The second obstacle was the lingering suspicion elsewhere in Whitehall that military order of battle intelligence was not everything – that there was some substance to the persisting rumours. This suspicion had flared up again in November 1940, at the time of Molotov’s negotiations in Berlin in which Molotov had insisted on Russia’s interest in Finland and the Balkans and resisted Hitler’s suggestion that Russia should expand in the direction of Persia and India. Though the negotiations had been commented on in countless reports from British embassies, the British government had learned little about their true purpose or their outcome, and the speculation of MI and the Foreign Office on these subjects had diverged. For MI, Molotov’s visit to Berlin had been made necessary by the need for closer contact between the Russians and the German governments at a time when German troop concentrations on the Russian frontiers, made by Germany in order to secure her rear, were alarming the Russian and when the Germans were anxious to know Russia’s attitude to their extension of the war into the Balkans and against Turkey. In the opinion of the Foreign Office the important points had been that Russian policy in the Balkans was running counter to German designs and that Russia had not responded to Germany’s attempt to get her to support a German move into the Middle or Near East.

By 22 January, when it had learned that Russia and Germany had renewed their economic agreement and signed a Pact of Friendship, the Foreign Office was commenting with approval that in the appreciation of 17 January MI had on military grounds reached the same conclusion as it had itself reached on political grounds – that there was no reason to expect an early German attack. This view was not shared by the Prime Minister or Cripps. On 6 January the Prime Minister again referred to the possibility that Hitler would turn east. ‘A great campaign in the east of Europe’, he wrote, ‘the defeat of Russia, the conquest of the Ukraine and an advance ... to the Caspian would none of them, separately or together, bring him victorious peace’. On 20 January, no doubt on his initiative, the Defence Committee of the Cabinet debated,
inconclusively, whether, beyond Bulgaria, Germany’s object was to operate against the British or to drive into the Ukraine and the Caucasus. On 24 February he commented that Russia was now in an unenviable position and that her attitude was one of making concessions to Germany in order to gain time. Cripps, meeting the Foreign Secretary and the CIGS in Ankara at the end of the month, found that the CIGS believed that Germany was still giving priority to Sealion. He himself, in contrast, was still convinced that Germany would attack Russia first, and that she would do so ‘not later than the end of June’. Early in March the rumour was circulating around the embassies in Moscow that on his return from Ankara he had told Vyshinski, the deputy Foreign Minister, that in his personal opinion, based on reliable sources, Germany would turn on Russia after defeating Greece, Yugoslavia and Turkey.

What, since it did not exist in Whitehall, was the source of his ‘reliable’ information? A possible answer is provided by what is known of American intelligence about the Barbarossa preparations. According to some American published accounts, the United States Commercial Attaché in Berlin had been kept informed of the initial planning between August and December 1940 by a senior member of the Nazi Party, and sometime between early January and mid-February 1941 he was given full details of Hitler’s Barbarossa directive of 18 December and of the Führer conference on the subject of 9 January 1941. According to the same accounts, Washington received this information on 21 February and gave it to the Russian Ambassador in Washington on 1 March – the further delay being in part due to consultations with the United States Ambassador in Moscow and to his advice that the Russians would distrust a warning and regard it as provocation. Cripps was perhaps informed of this development by his American colleague. There is no evidence, however, that Whitehall received any information at this time from the United States government. What was subsequently received, however, was not as precise as it is suggested by the above accounts. The Foreign Office files show that on 21 March and 17 June 1941 – the latter only received on 25 June, after the German attack had begun – the British embassy in Washington sent to London secret documents, dating from the previous January and April, which it had obtained from the State Department. Only the April documents survive in the files. They consist of very generalised accounts of German intentions and strategic objectives in the Mediterranean as well as against Russia, and the plans for the attack on Russia are only in broad outline. The documents dated January and received from Washington in March were presumably no more revealing; at least in the Service intelligence branches they received no more attention than did the many other rumours that were coming in about Barbarossa. In the second half of March MI was reaffirming the assessment it had formed in January.

It is true that a further advance in Germany’s preparations did not go entirely unnoticed by the intelligence sources. For obvious reasons the German Army staggered the eastward movement of its formations and HQs, those headed by well-known generals remaining in the west for as long as possible. The GAF, whose forward airfields and other installations had been under construction since October, deferred till April and May the deployment of the signals and administrative troops needed for the reception of its operational formations. The operational formations themselves were used against the United Kingdom or kept in Germany for refitting until a still later date: like the Army’s main mechanised formations, they were not transferred to
the east until the last three weeks before the opening of the offensive. At some levels, however, the German eastern build-up had to be intensified after the Barbarossa directive of 18 December 1940 and particularly after 3 February 1941, when OKH incorporated that directive into an operational order. On 3 February the Army Group commanders were appointed and indoctrinated. The number of divisions facing Russia grew from 34 in mid-January to 46 by 5 April after allowing not only for despatch of 28 divisions from Poland to the south-east for the Balkan campaign, but also for the transfer of some divisions from the east to western Europe. In March the GAF intensified its vast programme for the construction of airfields and accommodation in the east.

From the beginning of February reports on some of these activities began to reach Whitehall. One SIS report dated 31 January said that preparations for the invasion of Russia were almost open: troops were arriving in Poland from France; Russian speakers were being recruited into the Army and Russian émigrés into German intelligence units, regardless of suitability; preparations for operations by the GAF were particularly striking and included the construction of a continuous chain of aerodromes along the railway line from Poznan to Lodz. On 5 February MI commented on another report that large numbers of German troops, mainly armoured, were reaching East Prussia and that there was rail congestion between Berlin and Warsaw. Its comments were in the old vein: there was no other evidence to suggest that Germany was preparing for action against Russia and these moves were probably being made in order to keep Russia quiet while Germany occupied Bulgaria. On 6 February its comments on items which dealt with the German garrison in north Norway also conformed to MI’s earlier views: the garrison was not large enough to suggest that Germany was contemplating a descent on Iceland but it was not excessive as a safeguard against the danger of a Russian or a British attack. On the same day, however, the DMI attached another appreciation to a letter he wrote to the chairman of the JIC and the other Directors of Intelligence. This said that the German Army, calculated by MI to be about the size of 250 divisions, was ‘stronger than is necessary for actual operations, excluding a war against Russia which is unlikely for the present’. At first sight the wording suggests that no change of ground has taken place; but the phrase ‘for the present’ has at last replaced the phrase ‘until Germany had disposed of Great Britain’.

On 7 February MI issued another ambiguous appreciation. This stated that 250 divisions would be enough to hold off Russia if Germany attacked Turkey, but it added that ‘Hitler is an opportunist’. The implication behind this phrase might have been that Hitler was unlikely to undertake a venture which, like an attack on Russia, required long preparation. But it is possible that MI felt that he might switch to a surprise attack on Russia if it suited him.

A further sign of uncertainty – perhaps also of division of opinion – in MI occurred on 14 February. On that date MI notified the General Staff that a ‘most reliable source’ had recently reported an increase in German intelligence activity in the Near East, particularly against Turkey, Syria, Egypt, Iraq, Persia and Russia, at the expense of the intelligence staffs in west Germany. In the previous August it had received similar information from A-54 and had not drawn it to the attention of the higher authorities. It now took this step in part
because the latest information had come from an even better source, the hand

cipher of the Abwehr which GC and CS had broken during December 1940. No
doubt for the same reason, its comments on the information, though primarily
about Germany’s intentions in the Balkans and the Middle East, included
remarks about Russia which departed from its earlier views. One of them was
that, although it would be ‘dangerous’ to let the information cast doubt on ‘the
serious intention of Germany to invade Great Britain in the coming months’,
‘it does certainly suggest that invasion is not imminent’. Another read as
follows: ‘The present changes do not seem to have the effect of weakening the
intelligence centres charged with action against Russia’ and ‘they may be
significant of German intentions in the later months of 1941’. Given that the
information was such as to foster Whitehall’s grave anxiety about Germany’s
intentions in the Balkans, Syria and Iraq – that the DMI, indeed, in
hand-written comments on it, dwelt only on its relevance to the danger in the
Middle East – these remarks constituted no mean concession from Mi’s
previous standpoint.

On 5 March it paid more than its usual attention to SIS and diplomatic
reports suggested conflict between Germany and Russia, including one to the
effect that the Hungarian General Staff was convinced that Germany planned
to attack Russia in June and July and another which claimed that the Germans
had asked the Romanian government to supply plans of all bridges crossing the
Pruth and the Dniester, the frontier rivers with the USSR. MI thought that the
first of these reports ‘must be taken with reserve’ but that the second was
‘significant’. It also noted that the mobilisation of the Romanian Army was
possibly relevant, and added the comment that Romanian and Hungarian
forces could serve as a deterrent to Russian action in the Balkans ‘for the time
being, irrespective of a more active role in the near future’.

But if MI was now on the alert, it was now, also, that Germany’s deception
measures had some impact there. On 10 January, in a directive announcing
that Sealion and Felix (the plan for operations against Gibraltar) were to
remain temporarily postponed, and again on 6 February after approving OKH’s
operational order for Barbarossa, Hitler had ordered an intensified effort to
disguise the Barbarossa preparations as preparations for invasion of the United
Kingdom in 1941. The intensified effort involved actual movements and
operations, beginning in March with the westward deployment of 21 divisions,
mostly of second-class quality, from eastern Europe to Belgium and northern
France, and incorporating especially heavy GAF raids on the United Kingdom
in May. On 5 March MI noted SIS reports of the beginning of this east-to-west
movement and, according to post-war testimony, was deeply divided as to what
to make of it. Some of the specialists on the German order of battle were sure
that the troops belonged to training formations which had been moved east
before the attack on France; they suspected, moreover, that their return to the
west might be a pointer to Germany’s intention to turn on Russia. The DMI,
by their account, dismissed this view as wishful thinking. By 11 March a
compromise view had been adopted. On that date MI noted that the westward
movement of troops was continuing and concluded, from the concurrence of
westward and eastward movements, that the German Army was being redistrib­
uted, rather than concentrated in any one area.

This conclusion paved the way for Mi’s return to its earlier position. On 18
March, noting the continuing rumours of Germany’s intention to attack
Russia, it conceded that ‘the whispering campaign appears to have intensified’,
and that 'there are indications that Germany is less friendly, even on the surface'. But it felt that some of the rumours arose from the fact that the Germans had been moving troops to Poland during the past three months, and that these troops 'may be to replace those which have moved to Romania and to dispose of some of Hitler's new divisions', and its final conclusion was that 'so long as Germany has her hands full elsewhere, however, an attack on Russia is most unlikely'.

On 19 March this conclusion was reaffirmed in a further interdepartmental report. The key to Germany's intentions after the end of the Balkan campaign was, this paper said, her determination to try to defeat Great Britain during 1941, and she would not attack Russia before she had defeated Great Britain. If Great Britain had not sued for peace by June Germany would give priority to a march through Syria to Suez and would do all she could to increase the strain on British resources by encouraging Japanese intervention, by stirring up insurrections in Latin America and by mounting such diversionary operations as an attack on Freetown. The report admitted that she might also be contemplating other campaigns, in areas 'suitable for operations by mechanised forces where petrol was available'. But in the week following the report the Service intelligence branches continued to discount the rumours which conflicted with it. On 23 March AI was unconvinced by an SIS report that Germany intended to turn on Russia after occupying Greece, Yugoslavia and European Turkey in April: in its view the GAF was consolidating for a renewed onslaught on the United Kingdom and she would need three months to prepare for an attack on Russia. Two days later, in an appreciation devoted mainly to the situation in Libya and the invasion threat to the United Kingdom, MI agreed with AI that Sealion was now unlikely unless renewed air attack and intensified blockade failed to reduce Great Britain, but it felt that Germany was in earnest about a Balkan campaign. It mentioned the fact that reports continued to show that Germany was busy in Finland and to suggest that she intended to attack Russia in the summer. But the activity in Finland was 'possibly with a view to containing Soviet troops, possibly to distract Soviet attention from the Balkans'. As for the rumours about an attack on Russia, they 'were not convincing'.

* * *

In defence of the intelligence branches, it must be conceded that, rumours apart, they had as yet received few items of information that could have been set with any confidence against their strategic assumptions. Nor did Churchill dissent from their conclusions. As he wrote later:

"Up till the end of March I was not convinced that Hitler was resolved on mortal war with Russia, nor how near it was. Our intelligence reports revealed in much detail the extensive German troops movements towards and into the Balkan states .... but none of these necessarily involved the invasion of Russia and all were readily explainable by German interests and policy in [that area] ... . Our information about the immense movement taking place ... towards the main Russian front... was far more difficult to acquire. That Germany should at that stage and before leaving the Balkan scene, open another major war with Russia seemed to me too good to be true .... There was no sign of lessening German
strength opposite us across the Channel. The German air raids on Britain continued with intensity. The manner in which the German troop concentrations in Romania and Bulgaria had been glossed over and apparently accepted by the Soviet government, the evidence we had of large and invaluable supplies being sent to Germany from Russia, the obvious community of interest between the two countries in overwhelming and dividing the British Empire in the East, all made it seem more likely that Hitler and Stalin would make a bargain at our expense rather than war upon each other'.

For him, however, the intelligence picture underwent a substantial change at the end of March. On 26 March the Enigma disclosed that German Army formations previously ordered to move from the Balkans to the Cracow area included three armoured divisions and two important HQs. On 27 March, immediately after the coup in Belgrade, the Enigma revealed that this transfer was being halted.\(^1\) For the Prime Minister and for some of the intelligence bodies this intelligence provided the first confirmation that Germany’s main preparations were directed against Russia. On 28 March the head of AI’s German section issued the following minute:

'It is significant that the day after Yugoslavia signed the Tripartite Pact orders were issued for the transfer of a large proportion of the German “Balkan” forces to the Russian front. This, together with other reports and events such as the Lend-Lease Bill and the development of airfields in the east, leads me to believe that Germany’s intention is to move into the Ukraine in the near future. A Balkan conflagration would necessarily postpone this. We have always believed that for economic reasons Germany must if possible avoid a war in the Balkans. On the other hand for the same reasons she may be forced to occupy part of Russia. A considerable time must, however, elapse before she could gain any appreciable economic advantages. There is therefore a possibility that Germany will accept diplomatic defeat in the Balkans and ... concentrate on preparations for an aggressive policy against Russia'.

On 30 March GC and CS also concluded that the Enigma evidence pointed to the possibility of some large-scale operation against Russia, ‘either for intimidation or for actual attack’. By then the Prime Minister had reached the same conclusion.

At the news of the Yugoslav coup he had thought that ‘if a united front were formed in the Balkan peninsula Germany might think it better business to take it out of Russia observing that we have had many reports of heavy concentrations in Finland and intrigues in Sweden and Finland’. That was on 28 March. Thereafter, according to his subsequent account, the receipt of the Enigma intelligence —

Illuminated the whole Eastern scene in a lightning flash. The sudden movement to Cracow of so much armour needed in the Balkan sphere could only mean Hitler’s intention to invade Russia in May. This seemed to me henceforward certainly his major purpose. The fact that the Belgrade revolution had required their return to Romania involved perhaps a delay from May to June'.

His subsequent account is confirmed by the fact that on 30 March he put this concusion in a telegram to the Foreign Secretary in Athens —

\(^{1}\)See Chapter 6, p.71.
'My reading of the intelligence is that the bad man concentrated very large armoured forces etc to overawe Yugoslavia and Greece, and hoped to get former or both without fighting. The moment he was sure Yugoslavia was in the Axis he moved 3 of the 5 Panzers towards the Bear, believing that what was left would be enough to finish the Greek affair. However, the Belgrade revolution upset this picture and caused the northward movement to be arrested in transit. This can only mean, in my opinion, the intention to attack Yugoslavia at earliest, or alternatively [to] act against the Turk. It looks as if heavy forces will be used in Balkan peninsula and that Bear will be kept waiting a bit. Furthermore, these orders and counter-orders in their relation to the Belgrade coup seem to reveal magnitude of design both towards south-east and east. This is the clearest indication we have received so far. Let me know in guarded terms whether you and Dill agree with my impressions'.

On 3 April he sent a message to Stalin:

'I have sure information from a trusted agent that when the Germans thought they had got Yugoslavia in the net, that is to say after March 20, they began to move three out of the five Panzer divisions from Romania to southern Poland. The moment they heard of the Serbian revolution this movement was countermanded. Your Excellency will readily appreciate the significance of these facts'.

To the Prime Minister’s indigntation, this message did not reach the Russian Government till 19 April. One reason for the delay was Cripps’ belief that the Russian Government would regard it as provocative. Cripps did not doubt that a German attack was imminent, and already at the end of March he had again urged Whitehall to open discussions with the Russian Government. During the delay he stressed to Vyshinski the seriousness of the German threat to Russia and the advisability of Russian support for the Balkan states. On 19 April he gave Vyshinski both the Prime Minister’s message and one from himself. His own note stated that in view of ‘the many indications we have received from usually reliable sources ... a seizure by force of the sources of supply in the east is not a hypothesis at all, but part of the planned German development of the war for the spring of this year’. The embassies in Moscow were by then alive with rumours of an early German invasion and Cripps may have heard that the Swedish embassy had informed his American colleague on 24 March that it had good grounds for believing them to be accurate.

Unlike Cripps and the Prime Minister, the Foreign Office remained unconvinced. On 1 April, having received from the embassy in Belgrade the rumour that Hitler had told Prince Paul that he would attack Russia on 30 June, it decided not to forward it to the Russians. Its reasoning was that, as the Soviet Government felt safe until Great Britain had been defeated, warnings would only encourage it to remain subservient to Germany unless they contained incontrovertible evidence that Germany intended to attack regardless of Russian concessions. No doubt on similar grounds, the Foreign Secretary counselled the Prime Minister against sending his warning of 3 April. Although this relied on evidence that was, to say the least, more plausible than the rumour about Prince Paul, the Foreign Office did not accept his

\[1\] Hitler had in fact ordered this movement of armour on 17 March to implement his decision to transfer the armoured spearhead for Barbarossa from the Moldavian front to an area north of the Carpathians.
interpretation of it. It was not a regular recipient of Enigma decrypts and was in no position to judge their significance; but it had the authority of MI for believing that the decrypts of 26 and 27 March were not a decisive pointer to Germany’s plans. A Foreign Office minute early in April approved the ‘very same point of view’ expressed by MI at a meeting on 31 March that Hitler would not attack Russia if he could avoid it.

The Foreign Office soon changed its mind. On 11 April the Foreign Secretary instructed Cripps to urge the Russians to do their utmost to encourage the Balkan states to resist Germany, and his message said that ‘the German attack [on Russia] of which there are so many signs’ would not be prevented by ‘the fact that he [Hitler] is in conflict with us.’ On 16 April he told the Soviet Ambassador in London of the Prince Paul rumour and discussed with him the possibility of an Anglo-Russian rapprochement. MI, on the other hand, continued to be sceptical. On 1 April it conceded that the Enigma decrypts were ‘of interest’, but it also insisted that ‘there is as yet no reason to believe the numerous reports that Germany intends to attack Russia in the near future’. On the contrary, ‘the German object is undoubtedly to exert military pressure on Russia to prevent Russian interference in German Balkan plans’. This conclusion MI repeated to the Chiefs of Staff on 3 April, when it added that the rumours of an impending attack might be being put about by Germany in order to influence Russia’s diplomatic decisions. On 2 April in its widely circulated weekly intelligence summary it had indeed pointed out that the German Army now had 250 divisions, that this was the maximum that Germany could sustain without damage to her war production and supply, that she could not sustain so large a number in a long campaign, and that ‘this policy seems to indicate that the German General Staff either contemplate in 1941 a short rapid campaign for which 250 divisions are considered sufficient, or hope to achieve their ends by an overwhelming display of force and... thereafter expect a period of quiescence’. In this paper, too, however, it indicated its preference for the second of these interpretations by again referring to Germany’s interest in holding off possible threats. On 9 April, again in the War Office weekly intelligence summary, it considered that reports of a German attack on Russia might well be German propaganda ‘as part of a war of nerves against Russia during the Balkan campaign’.

In the next inter-departmental intelligence assessment – a paper on ‘Germany Strategy 1941’ issued by the JIC on 10 April – MI’s views prevailed. On this occasion, as so often before, the intelligence bodies concluded that Germany’s main objective remained the defeat of Great Britain during 1941, by blockade and air attack if possible, by invasion if necessary. It was beyond question that she also planned a drive through the Balkans as far as the Straits, but so long as she saw any chance of defeating the United Kingdom during 1941 she would not continue her advance as far as Syria, Egypt or Iraq – the more so as this would antagonise Turkey and Russia. As for Russia, a ‘direct’ German attack was unlikely at present. Germany would continue military preparations in the east with the double purpose of keeping Russia amenable and of enabling herself to take immediate action when necessary. In the long run, of course, a Russo-German clash was inevitable unless Germany was defeated in the war with Great Britain. Germany undoubtedly had her eyes on the Ukraine and the Caucasus; Russia was fully aware of this. But Russia would do all she could to avoid the clash and so would Germany. The many rumours to the contrary were probably designed to frighten Russia. Concentration and
movements of German troops in the east, of which there was considerable intelligence, could have been undertaken for the same purpose, and such preparations would enable Germany to move against Russia if she later decided that her chances of eliminating Great Britain during 1941 were receding.

After the completion of this report MI showed signs of wavering. On 15 April it stressed that there was still no indication that Germany was increasing her total forces on the Russian frontier. But it also noted reports that the Russians were moving troops to the frontier, added that these ‘suggest that they, at least, are taking the German threat seriously’ and concluded that the rumours of a German attack ‘were consistent both with a war of nerves and with an intention actually to invade’. In the War Office weekly intelligence summary of 16 April MI repeated this admission: it was impossible to tell whether the ‘persistent rumours coming from so many quarters ... are merely being spread by Germany as part of a war of nerves or have some more solid basis in fact’. It repeated it in the Chiefs of Staff resume on 17 April. Nor did it dissent when, after discussions with the Service intelligence departments and MEW, the Foreign Office reached the same judgement in an appreciation of the latest intelligence for despatch to Cripps on 20 April.

At the end of March the Polish underground organisation in eastern Europe had reported that Germany would attack on 15 April, and SIS’s representative in Geneva had heard from a well-placed source with contacts in German official circles that Hitler would attack Russia in May. In the middle of April some diplomatic sources were predicting that the attack would be early in June and suggesting that Russia had some knowledge of the German plans. By then these sources – the Poles, the SIS and the diplomatic reports – had also sent in considerable detailed intelligence to support the general warnings. Germany had ordered a further call-up of men for military service and was developing airfields in Poland, mapping the Russo-German frontiers by air photography, training Russian refugees in Romania for administrative work, organising Ukrainian and white Russian emigres, printing Russian currency notes, continuing preparations for fifth column activity in the Ukraine and the Caucasus. In the past month she had also increased her divisions in East Prussia and Poland. In commenting on this evidence to Cripps on 20 April the Foreign Office admitted that Whitehall did not know what to make of it. The reports might be part of a German war of nerves. A German invasion would result in much chaos throughout Russia and the Germans would have to reorganise everything in the territories which they might occupy. Meanwhile they would lose their supplies from Russia. The loss of material transferred across the Trans-Siberian railway would be even more important. Although the resources of Germany were immense, they would not allow her to continue her campaign in the Balkans, maintain the existing scale of air attacks against the United Kingdom, take the offensive against Egypt and at the same time invade and reorganise a large part of the USSR. All these arguments pointed against a German attack. On the other hand, a rapid success in the Balkans would enable Germany to throw most of her 15 armoured divisions against Russia. There was as yet no information about the movement of German aircraft towards the Russian frontiers: if the necessary preparations had been made in Poland, aircraft could be moved there at the shortest notice. The appreciation concluded by saying that the German General Staff appeared to be opposed to a war on two fronts and in favour of disposing of Great Britain before attacking Russia, but the decision rested with Hitler.
The apparent unanimity of this appreciation concealed, however, a serious divergence of opinion between MI and the Foreign Office, which was becoming more convinced that Russia was soon to be attacked. This became clear when the Chiefs of Staff called for a verbal discussion with the JIC on 22 April. In a brief for the CIGS in advance of the discussion MI dwelt mainly on Sealion and discounted the rumours of a German attack on Russia because there were 'no immediate signs of the essential troop moves in the direction of the USSR'. Another MI appreciation of 22 April stated that 'it appears certain that preparations for an eventual war with Russia are continuing, but there is absolutely no confirmation that Germany will attack this summer'. These assertions were strictly correct: partly because Germany was deferring the eastward movement of her armour, and partly because for communications connected with the eastern deployment, as opposed to those connected with the Balkan campaign, she could use landlines and forbid references to operational matters in messages going out by W/T, there were 'no immediate signs', 'no confirmation'. At the discussion itself the Foreign Office Chairman of the JIC argued only that a threat to Russia might well develop as soon as the Greek campaign was over. But the DMI insisted that this development could be excluded. There was no advantage to Germany in attacking Russia before the invasion of the United Kingdom: if she did so it would be after the harvest.

To the archive copy of DMI's brief for the CIGS there is attached a typewritten note in which an unidentifiable writer commented: 'If Germany can beat us, Russia is in the bag. Russia does not represent an obstacle to Germany in her battle with Great Britain. A pincer movement (on Suez) is the most likely course'.

* * *

At the meeting of 22 April, of which only a brief record survives, the two schools at least agreed that, if and when a German intention to attack Russia was confirmed, the movements of Germany's armoured divisions would provide the important evidence. In the event, however, Enigma decrypts relating to the GAF provided the next pointers to her intentions.

These pointers arose from 24 April, when the Enigma disclosed that a Signals Regiment was ordered from the Channel front to Poland, there to come under Fliegerkorps V which had hitherto been in France. On 30 April AI summarised decrypts pointing to a considerable programme for the construction in Poland of airfields and fixed GAF installations, including a signals and aircraft reporting system, and noted that, while this was 'probably for training purposes', the GAF could now transfer a substantial operational force to Poland at short notice. On 3 May the Enigma revealed that aircraft of Fliegerkorps VIII, previously active in Greece, were to be hurriedly refitted in Gatow and that one of its units was to join a rail movement to Cracow a week later. It added on 5 May that the air component of 12th Army was to join a movement for Oderberg, a major concentration point near Cracow, on 22 May; on 7 May that the GAF was overflying Finland; on 13 May that Fliegerkorps II, which had been under Luftflotte 3 for attacks in the United Kingdom, was subordinated to Luftflotte 2, already associated with the eastern build-up. On 17 May it disclosed that Luftflotte 4 signals troops in the Athens area were ordered to
withdraw from operations and entrain for Moldavia between 20 and 25 May, and that elements of Fliegerkorps IV (hitherto in France) were ordered to the Bessarabian frontier and given an operational area from the south Carpathians to the Black Sea. On 18 May elements of Fliegerkorps VIII were ordered to join a rail movement to Oderberg on 28 May. This move was delayed by the operation against Crete, which nearly delayed the already postponed Barbarossa campaign, but the final urgent withdrawal of this formation to the eastern front was reported in the Enigma on 1 June. By 19 May Fliegerkorps I and II, previously associated with the Sealion preparations, had been ordered to be brought up to more than war strength, and the elite Flakregiment 'Hermann Goring' had been told to proceed to a point east of Cracow and place itself under Flakkorps II. By the same date it was known from the Enigma that GAF and army units carrying bridging equipment were to join a movement starting for Moldavia on 5 June.

The first mention of code-name Barbarossa had meanwhile occurred in the Enigma on 8 May in connection with Luftflotte 4, and the first reference to Plan or Contingency B (Fall-B) was received on 14 May, when the GAF Enigma associated it with 12th Army. By that date, from this source and from the Railway Enigma, Whitehall had obtained a considerable amount of information even about German army movements. On 26 April it learned that the movement of ground forces from the Balkans to the Cracow area, halted at the end of March, had been resumed. By 5 May it knew that up to five motorised divisions were involved. As always, the GAF Enigma information on army movements was fragmentary and its interpretation was anything but a straightforward matter. By 19 May only about a dozen of the divisions known to be on the move had been identified, and their destinations remained unknown. Even so, it was clear by then that many of the divisions that had taken part in the Greek campaign had either left the Balkans or would soon be doing so: that unidentified formations were also on the move; and that the moves were taking place with some urgency. Nor was there much doubt that most of the moves were toward the Russian frontier. The accompanying GAF signals and other units were known to be going to widely dispersed points in eastern Poland and Moldavia, and Posen had been established as the HQ of Army Group B. 12th Army - later to be taken out of the operation - had been connected with the Cracow area and it was known that three of its corps were taking part in the movements. As early as 5 May, moreover, it had been learned from the Enigma that a POW cage from 2nd Army at Zagreb was to join a movement on 22 May on its way to join a division at Tarnow east of Cracow.

It was not only the evidence of the Enigma traffic that indicated that exceptional activity was afoot. From the beginning of May the SIS’s Polish connections reported on a series of eight railway movements, all named after Polish rivers, of which only one was mentioned by name in the Enigma. In addition the SIS supplied after the middle of April, from its Polish, Czech and Yugoslav connections, a steady stream of individual reports about German troop movements to the east and about the formation by the Germans of civilian administrations for the territories to be captured.

By the middle of May it could thus no longer be questioned either that exceptional German military preparations were in train or that they were aimed at Russia. But at that juncture the picture that was being built up by the military evidence was blurred by the diplomatic evidence - or rather by the assumptions of the diplomatic world.

* * *
From the middle of April embassies throughout the world were not only claiming that Germany was preparing to turn on Russia. They were also canvassing the possibility of a new Russo-German agreement. The rumour, which was without foundation, was given colour by the resumption of trade negotiations between the two countries, and it soon swelled into the belief that Germany was making stringent demands such as control of the Ukraine, and would attack if they were rejected. Few of the commentators believed at first that Stalin could yield to the demands, but none doubted that Germany was making them: and even the suggestion that Russia was giving way was circulating by the middle of May. A report to this effect was broadcast at that time by Rome Radio, though it was publicly denied in Berlin and privately to the British Government by the Soviet Ambassador.

The Sigint evidence available up to the middle of May was not absolutely incompatible with these rumours. By that date, however, GC and CS had concluded that it indicated that Germany planned an invasion and was not merely seeking to intimidate the Russians. It was particularly impressed by the revelation that a POW cage was being moved to Tarnow, by the urgency with which Fliegerkorps VIII was being prepared for despatch to Poland and by the news that Flakkorps I and II were also being transferred: these units had played a decisive forward role during the invasion of France. By 23 May AI had reached the same conclusion on receiving the news from the Enigma that Fliegerkorps II and other components of Luftflotten 2 and 3 were now moving from France to the east. Although it admitted that German preparations might be intended only to intimidate Russia, it now believed that they pointed to a decision to 'satisfy German military requirements by occupying western USSR'. Hitler having concluded that an early victory over Great Britain had become impossible, and estimated that the GAF would probably commit 1,070 aircraft (excluding army co-operation). In MI, however, the Enigma evidence again failed to carry the day.

On 25 April, before the Enigma clues had begun to accumulate, MI had produced for the first time a full-length appreciation devoted solely to Russo-German relations. In this paper it had conceded that there was 'an actual threat' to Russia, but had still discounted a German intention to attack. Apart from feeling that Germany’s preparations sprang from the wish to contain Russia while Germany was fighting in the Balkans – an argument which it now used for the last time – it remained convinced that her chief aim was the defeat of the United Kingdom. She was putting herself in a position to attack Russia, but her reasons were that she needed to ensure Russia’s continuing economic collaboration, that she wished to keep Great Britain and Turkey guessing and, possibly, that she was feeling that she would have to invade Russia ultimately, if she failed in the Battle of the Atlantic. On 15 May it was somewhat more hesitant. It now had to consider not only the Enigma evidence but also diplomatic reports that German-Romanian staff talks were in progress and that Russian maps had been issued to Romanian officers, and SIS reports that pro-German governments were being organised among émigrés from the Ukraine and the Baltic States. It accepted that ‘preparations for operations against Russia will soon be complete’; and it listed not only the strategic arguments that should deter Germany from turning on Russia, but also, for the first time, those that might persuade her to do so – the need to free most of her ground and air forces before invading England: the wish to forestall Russian intervention in Finland, Scandinavia and the Balkans. It also conceded that the
presence of two Flakkorps in Poland and the movement of armoured divisions pointed to an offensive. But it still concluded that Germany had not yet decided whether to threaten Russia into complying with her demands or to attack her. Fundamentally, it could not bring itself to believe that an attack would make sense.

On 21 May its weekly intelligence summary was pointing out that it was difficult to find a logical reason why Hitler should attack unless he had ‘made up his mind ... to dispose of the Red Bogey once and for all’. And because it did not believe that he had done such a thing, it allowed its attention to be deflected from Sigint and the military evidence by the diplomatic reports that were suggesting that Germany’s object was only to intimidate the Russians, and that she was succeeding. On 22 May, in the Chiefs of Staff resume, it conceded that even the diplomatic reports suggested that the situation remained tense. ‘Two reports state that Hitler has not finally decided whether he has obtained his wishes by persuasion or force of arms, and another indicates that the latter alternative will be chosen if the former does not give results by the end of May’. ‘Nevertheless’, the resume added, ‘some reports of rapprochement suggest that German threats have been successful and that arrangements for German control of the despatch of supplies from Russia have been accepted by the latter country. German propaganda which was recently spreading rumours of war is now stressing co-operation’.

It was in this situation that the JIC brought together all the intelligence in the first study it had specifically devoted to ‘Germany’s intentions against the USSR’. Issued on 23 May, the study recognised that the Germans could not fight Russia at the same time as invading England, but that Sealion was unlikely in the immediate future. More than that, it acknowledged that ‘the domination of Russia was a fundamental German objective’, and that it was in Germany’s interest ‘for matters to be brought to a head as soon as possible’. These were the arguments which underlay the JIC’s first conclusion: ‘Germany cannot fight a long war without obtaining greater economic help from Russia than she is now receiving. She can only obtain this by an effective agreement or war’.

Which of these courses would Germany take? The JIC recapitulated all that had been said in recent weeks of the disadvantages that Germany would incur by attacking Russia, adding only the new consideration that a war forced on Russia would strengthen the Soviet Government’s hold on the Russian people. Against these disadvantages, it set down the arguments that might induce Germany to attack and these now included, alongside Germany’s growing economic requirements for strategic purposes, the consideration that an invasion would enhance Germany’s military prestige, which might be useful in offsetting the danger that the USA might enter the war, and enable Germany to assume the role of anti-Bolshevist champion — thus facilitating the consolidation of the “New Order” in Europe. After weighing up these pros and cons the JIC reached its second conclusion: ‘the advantages ... to Germany of concluding an agreement with the USSR are overwhelming’. After all, Germany might do as much for her military prestige by imposing an agreement on Russia as by making an attack on her.

In its third conclusion the report considered one of the reasons why it was impossible to be certain that Germany would take her ‘natural course’, which ‘would be to exert extreme pressure, backed by the threat of force, to obtain by negotiation from the USSR the concessions she requires’. The Soviet Govern-
ment’s ‘natural course’ was to try to avoid a clash by yielding to German demands; but it would refuse to sign any agreement that endangered its effective control of Russia, and it was making extensive preparations to meet the German threat should the worst happen. All depended on how much Germany demanded. ‘If in the course of negotiations she sees no prospect of reaching agreement she will implement her threat of force’.

Before reaching these conclusions the JIC summarised the Enigma evidence about Germany’s military preparations and was in no doubt that they were taking place on a gigantic scale. But it omitted just those items – the POW cage and the hurried withdrawal of key GAF formations from the Balkans – which had persuaded GC and CS that she was not negotiating about her demands. On the other hand, the assumption that Germany was negotiating with Russia appeared as a statement of fact: ‘With her usual thoroughness Germany is making all preparations for an attack so as to make the threat convincing’. Moreover, the body of the report had a section added to it under the heading ‘Latest Intelligence’ and this announced that there were indications that Hitler and Stalin had reached an agreement on military as well as economic and political collaboration.

These indications had been received from, among other sources, the British Ambassador in Washington. On the day the JIC report was issued, Lord Halifax reported that, according to information obtained from Berlin on 21 May, German troops were assembled in force on the Russian frontier, but that the Russian Government had recently assented to German demands for a large increase in supplies and that the economic agreement might have military implications, with Russia allowing the passage of German troops and material to areas east of Suez and committing herself to take action against India. It is reasonable to suppose that it was this rumour which prompted the JIC to add a sentence to its final conclusion at the last minute. After saying that Germany would implement her threat if she saw no prospect of reaching agreement, the JIC ended its report with the observation that ‘from present intelligence agreement is the more likely event’.

* * *

This belief continued for the next fortnight to close Whitehall’s eyes to the possibility that Germany was preparing an unconditional attack.

It is fair to add that the entire diplomatic world continued to share the belief. On 22 May a decrypt from the Japanese Ambassador in Moscow reported that Germany was unlikely to attack as long as Russia continued to be acquiescent. Other Axis diplomatic decrypts pointed unequivocally in this last direction: in one decrypted on 25 May the Japanese Ambassador in Berlin mentioned the German interest in threatening India by advancing through Turkey and the Middle East. So did the talk of other embassies: Russia would yield and the Germans would then march to Suez via Syria; Germany was still determined to attempt an invasion of the United Kingdom. At the same time the rumour that the Germans were proposing direct participation in the Soviet economy—a rumour which had been circulating in the diplomatic community in Moscow for some time—continued to reach London up to the middle of June. There were even suggestions that Germany and Russia had reached
agreement on the joint development of the Ukraine and direct German control of the sources of supply from some areas of Russia. On 2 June the Foreign Office's explanation for the apparent lack of negotiations in Moscow was that they might be taking place in Berlin so that Stalin could keep from his colleagues what was going on.

To set against this stream of reports, Whitehall received on 23 May from A-54 the warning the Russo-German negotiations were 'just a delaying mechanism': he also gave further details about the alternative regimes that the Germans were organising for Russian areas. From 27 May, GC and CS was supplying a steady flow of evidence on military preparations. On 27 May the GAF Enigma revealed that Fliegerkorps II was asking for maps of Latvia, Lithuania, most of Poland and north-east Romania. On 29 May it showed that the commanders of Luftflotten 1 to 5, AOC Centre, Fliegerkorps I, II, IV, V and VIII, Flakkorps I and II and Fliegerfuehrer Baltic were, together with the GAF Liaison Officer with OKM, all invited to attend a conference with their Intelligence Officers on 4 June. By then there was from the GAF and the Railway Enigma ample evidence of an assembly for attack behind the Bessarabian frontier, and the assumption that Moldavia was to be a jumping-off point had been confirmed in two ways. A newly identified army authority, the C-in-C of the High Command of the German Army Troops in Romania, planned to fly along the line of the frontier river. Siebel ferries and an assault boat company which had previously been in the English Channel were being included in a rail movement destined for Moldavia. Of the many rail movements known to be running to Poland, the contents and destinations were identified in only a few cases, but these few left no doubt that GAF and army units were being deployed along practically the whole length of the frontier. In north Norway the Enigma had by now revealed the arrival of further reinforcements and had provided some indications that the Germans were preparing to attack. During the first week of June the GAF Enigma established that the transfer of Luftflotte 2 from northern France to the east was substantially completed, that the delayed departure of Fliegerkorps VIII from Greece was at last taking place and that the units of Fliegerkorps VIII were to transfer to their advanced landing grounds for Fall-B before 16 June. In a signal decrypted on 8 June Luftflotte 2 told Fliegerkorps VIII not to mention operational matters on W/T or landline till further notice. On 10 June in a further decrypt Goring summoned the commanders of all the GAF formations that had been mentioned in the Enigma signals to a conference at Karinhall, his personal HQ, for 15 June.

For GC and CS this further evidence converted the probability that Germany might be planning a surprise invasion into a virtual certainty. On 31 May it issued a special paper surveying the Enigma intelligence to that date —

'It becomes harder than ever to doubt that the object of these large movements of the German army and air force is Russia. From rail movements towards Moldavia in the south to ship movements towards Varanger fjord in the far north there is everywhere the same steady eastward trend. Either the purpose is blackmail or it is war. No doubt Hitler would prefer a bloodless surrender. But the quiet move, for instance, of a prisoner-of-war cage to Tarnow looks more like business than bluff. It would no doubt be rash for Germany to become involved in a long struggle on two fronts, but the answer may well be that the Germans do not expect the struggle with Russia to be long. An overwhelming eastward concentration, a lightning victory, an unassailable supremacy in Europe and Asia
such may be the plan behind this procession of troop trains from the Balkans to the eastern frontier'.

On 7 June, by which time it had worked out the GAF order of battle on the Russian front, identifying the rough operational areas of most of its units, and had calculated that well over 2,000 aircraft were involved, GC and CS issued another special report. It concluded that there was little doubt that Germany was planning 'a very large-scale operation against Russia with the main front of attack in Poland and East Prussia'. On the evidence that Fliegerkorps VIII was not to transfer to advanced landing grounds for *Fall-B* before 16 June it calculated that Germany would be ready by 15 June.

These were not the only Sigint developments. During the first week of June GC and CS reported that five new naval W/T frequencies had been introduced in the eastern Baltic and also noted that 'the introduction of army and GAF type call-signs into naval traffic pointed to imminent co-operation'. From about the same time it noticed that the GAF in the west was employing a form of radio deception (dubbed 'Sham') in an attempt to conceal the eastward movement of its formations. From the quality and regularity of the transmissions, and with the aid of DF, it was able to detect that ground stations were broadcasting signals which simulated those normally passed between aircraft and their ground controllers.

In Whitehall the intelligence organisations put a different interpretation on the Enigma clues. For them every new indication of the scale and urgency of Germany's military preparations was further proof that Germany was determined to get her way in the negotiations, and they equally feared that Russia might yield. But they could no longer exclude the probability that Germany's determination would lead to war. On 30 May the JIC was as convinced as before that agreement was being sought, but less inclined than in the report of 23 May to believe that an agreement would come. It concluded that 'although many reasons exist why Germany should decide, after her success in Crete, to exploit her success by action toward Egypt, all the evidence points to Germany's next move being an attempt to enforce her demands on the Soviet by means of a threat of force which can immediately be turned into action'. In an annex the report noted that the GAF preparations were so thorough that they could 'only portend such drastic demands on the Soviet government that Hitler is doubtful of their acceptance and is, therefore, prepared to implement his threat of force by actual operations'. It was at this point, on 31 May, that the Chiefs of Staff warned the Commanders-in-Chief in the Middle East that Germany was demanding drastic concessions from Russia and would march if they were refused.

On 31 May and again on 2 June the Permanent Under-Secretary in the Foreign Office noted in his diary that, while he agreed with the Chiefs of Staff that Germany was fully prepared for an attack on Russia, he still believed that Russia would give way. But by 9 June opinion in the Foreign Office had hardened into conviction that, as the Foreign Secretary then told the Cabinet, 'all the evidence points to attack', and a Foreign Office minute described Hitler's apparent decision to attack Russia as 'the most astonishing development on the grand scale since the war began'. The Foreign Office was

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1See above, p.88.
presumably influenced by a decrypt, obtained on 3 June, in which the Italian Ambassador in Moscow had reported that his German colleague had assured him that Germany was not negotiating with Russia, and by the fact that on 7 June the Swedish Government had warned it that Germany would bring force to bear about 15 June.

On 10 June, following the Cabinet meeting of the previous day, the Foreign Secretary gave the Russian Ambassador full details of the intelligence available about Germany's military dispositions and elicited from him the re-assurance that no political negotiations were proceeding between Russia and Germany and that there would be no Russo-German alliance. But at its next meeting, on 12 June, the Cabinet remained hesitant. After being informed by the Foreign Secretary that Cripps, on a visit to London, did not know whether Russo-German political negotiations were taking place, but expected Germany to issue an ultimatum when her military build-up was completed, it felt unable to decide whether Germany would prefer to destroy Russia's military forces or to demand complete control of the Ukraine and the Caucasus in the hope that Russia would yield; if Russia gave way to this demand, it noted, Germany would have outflanked Turkey to the north. But no sooner had it broken up on this uncertain note than GC and CS decrypted a message sent out by the Japanese ambassador in Berlin on 4 June. It was part of a long account of the interview he had just had with Hitler. Hitler, the Ambassador reported, felt that the Soviet attitude, though outwardly friendly, was habitually obstructive, and he had decided that Communist Russia must be eliminated. If sacrifices were not made now they would be twenty times greater in 5 or 10 years' time. Romania and Finland would join Germany against Russia and the campaign would soon be over. 'If Japan lagged behind when Germany declared a state of war against Russia, it was quite open to her to do so'. The Ambassador added that, though neither Hitler nor Ribbentrop mentioned a date, the atmosphere of urgency suggested that it was close at hand.

This information finally convinced the JIC that Germany intended to turn on Russia. In a short paper issued on 12 June it announced that 'fresh evidence is now to hand that Hitler has made up his mind to have done with Soviet obstruction and intends to attack her. Hostilities therefore appear highly probable, though it is premature to fix a date for their outbreak'. On 13 June, presumably on the strength of the same information, the Foreign Secretary, after consultation with the Prime Minister, told the Russian Ambassador that the evidence for a German offensive was increasing and offered to send a military mission to Moscow, and the Chiefs of Staff instructed the Joint Planners and the JIC to make arrangements for the despatch of a mission when Germany attacked.

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Between 14 June and 22 June, the day on which Germany launched the offensive, the Enigma, without disclosing the actual date, left no room for doubt about the imminence of the attack.

On 14 June GC and CS decrypted messages which issued code-names for operations against Russia from Norway and Finland and carried most secret orders in connection with the arrival of a 'Chief War Correspondent' at
Kirkenes. On 15 June an aircraft reporting unit at Kirkenes was instructed to prepare to cross into Finland but in no circumstances to occupy its posts there until authority was given. By 18 June decrypts had revealed that there were GAF battle and special operation staffs at Kirkenes and that the latter was receiving information about Russian orders for the camouflage and dispersal of aircraft. Three decrypts on 20 June dealt with the crossing of the frontier. One lifted the ban on flying over the prohibited frontier zone, but limited flying there to the movement of aircraft to airfields near the frontier. Another warned the special operations staff at Kirkenes that, since mine-laying was to be carried out before the crossing, surprise would not be possible. In a third, Kirkenes was instructed that any aircraft flying over the frontier before the general crossing must do so at a great height. Apart from these messages to north Norway, there had been other indications in the Enigma. On 14 June the staff of Luftflotte 4 received instructions to be at their new battle HQ, ready to operate, from 17 June. On 19 June Luftflotte 1 was told that it could carry out mine-laying before ‘general crossing of the frontier’. On 21 June GC and CS decrypted a message in which Luftflotte 4 gave Fliegerkorps IV a target for the first attacks.

To the end, however, Whitehall found it difficult to discard the belief that Germany would present Russia with demands and an ultimatum. On 16 June MI, noting that there had been rumours that Russo–German relations were to reach a crisis about 20 June, did confess that much obscurity surrounded the nature of the German demands, but it still suggested that ‘Germany anticipates the necessity of using force, possibly because she feels certain that Russia cannot bow to the very drastic demands she wishes to make’. The Foreign Office was never wholly convinced that ‘Germany intended to attack Russia and not merely to use diplomatic and military pressure to intimidate the Soviet Government’ – that Hitler had decided to invade Russia ‘without giving her the chance to surrender to the most stringent demands’. As for Cripps, who predicted so early and for so long that Germany would attack, his suspicion that Russia would give way to pressure increased as the crisis mounted. When he attended the Cabinet on 16 June, still expecting a German ultimatum, he spoke at some length and with much uncertainty about whether Russia would or would not meet German demands.

Like the long-standing assumption that Russia and Germany were negotiating, the feeling that Russia might even now give way to Germany’s demands owed something to the policy which Russia had adopted towards the threat from Germany since the beginning of 1941. She had been increasing her defensive preparations and issuing political warnings, backed by military movements, against Germany’s expansion to the south-east; but she had also been doing her utmost to propitiate Germany – renewing the trade agreement in January, resuming her supplies to Germany and increasing them month by month, acquiescing in extensive German violations of her airspace, withdrawing recognition of the Belgian, Norwegian and Yugoslav Governments in May, and maintaining towards other western governments not merely an uncommunicative attitude, but even a pose of unconcern which culminated on 14 June in her public denial of the rumours that Germany was about to attack her. In relation to the German threat, this policy was no doubt well considered. It is sufficiently explained by the need of the Russian Government to gain time and by its wish to make it plain in Russia and to the world, in the event of a German invasion, that Russia had not provoked it. In Whitehall, however, as for other
governments that watched from outside, it necessarily created uncertainty as to whether Russia would resist if Germany increased the pressure, and all the more so because of another consideration.

Cripp's hesitation owed much to his conviction that, as he told the Cabinet on 16 June, Russia would be unable to hold out for more than 3 to 4 weeks if Germany did attack, in this belief he was at one with all the Whitehall departments, where the lack of intelligence about Russia and information from Russia was well-nigh complete. On 9 June the JIC allowed Germany 4 to 6 weeks to occupy the Ukraine and reach Moscow; in a revised version of this paper issued on 14 June it changes its estimate to between 3 and 4 weeks at the shortest but possibly as long as 6 weeks. In MEW’s opinion ‘the Germans would not incur heavy casualties or any high degree of military exhaustion in defeating the Red Army’. The Foreign Office held much the same view. Only the Prime Minister did not wholly share the prevailing pessimism about Russian powers of resistance.

From the middle of June, as the Enigma pointed more clearly every day to the imminence of Barbarossa and as doubt about Russia’s readiness to withstand German political pressure was replaced by certainty that she could not long survive a German attack, Whitehall’s latent anxiety about Sealion returned to the surface. On 14 June the JIC calculated that, on the assumption that Germany reached Moscow in 3 to 4 weeks, there would be an interval of 4 to 6 weeks before she could attempt an invasion of the United Kingdom; if she took as long as 6 weeks to defeat Russia this interval would be between 6 and 8 weeks. On 17 June MI noted that the SIS’s sources, including the valued Polish network, were reporting that further German troop movements into France were about to take place on a large scale. It was in these circumstances that, urged on by the Prime Minister, the Chiefs of Staff on 25 June, 3 days after the opening of Barbarossa, ordered that the anti-invasion forces in the United Kingdom should be kept on the alert and be brought to their highest state of efficiency by 1 September. Nor was it until 23 July that the JIC concluded that an invasion attempt was unlikely before 1942. It based this view on the obvious ground that, with the improvement of British defences, invasion was becoming an increasingly hazardous operation and that, given the need for redeployment from Russia, it had become a complex undertaking. It supported it with the argument that Sigint and photographic reconnaissance contained no sign of German redeployment. The JIC repeated this view on 1 August, and on the following day the Prime Minister and the Chiefs of Staff decided to withdraw the directive in which they had required the highest state of readiness from the beginning of September.
PART II
CHAPTER EIGHT

Improvements in Intelligence from the Summer of 1941

From 22 June 1941, the day the Germans attacked Soviet Russia, GC and CS abandoned all work on Soviet cyphers. For lack of material, it had in any case made little progress against them for years: and in view of the continuing expansion of German wireless communications, its still limited interception and cryptanalytical resources had all to be concentrated against Axis traffic. A fortnight later, via the British Military Mission in Moscow, London began to supply the Soviet authorities with regular summaries of the intelligence it was obtaining from Enigma about the eastern front. They were supplied under strict precautions, disguised as coming from reports received from reliable and highly placed sources in Berlin and omitting such precise details as unit identifications which might have betrayed their true source in decrypts. Quite apart from the possibility of a total Soviet collapse, the Enigma had disclosed that the Germans were reading some Soviet cyphers, and there could be no question of risking the security of the Ultra Secret.

The despatch of these summaries continued into 1945, though with interruptions which, with increasing frequency after the Soviet victory at Stalingrad in January 1943, were imposed in response to the refusal of the Soviet authorities to reciprocate by supplying information about the German forces or even their own operations. As a result of their extreme secretiveness London depended for its considerable knowledge of Soviet order of battle and intentions on its Enigma decrypts; these regularly carried highly detailed German army and air force appreciations of the state of the Soviet forces and the situation on the Soviet fronts.

The mutual suspicion which stultified the development of Anglo-Soviet co-operation contrasted sharply with the willingness with which the authorities in London and Washington overcame the reserve and the misunderstanding that were perhaps unavoidable in so sensitive a field, and entered into arrangements for the exchange of intelligence that were to lead during 1942 to the establishment of what was virtually a single Anglo-U.S. intelligence organisation. The first substantial agreement was made in the spring of 1941 on the initiative of the United States: Washington gave London 2 copies of the Japanese diplomatic cypher (the Purple machine) in return for information about GC and CS’s success against the Enigma, and the JIC began to exchange assessments with the U.S., at first via the British and U.S. military missions in Washington and London and eventually, when that was set up, direct with the U.S. JIC. From June 1941 the Admiralty supplied decrypts of the signals of the U-boat Command to the U.S. Navy, which was beginning to assist in the escorting of Atlantic convoys. In January 1942, after the attack on Pearl Harbour and the U.S. entry into the war, the two governments agreed to the complete exchange of all military intelligence. Thereafter, this agreement was implemented at all levels - by the two JIC’s: in the service departments: at integrated Command HQs when they were established: by the FBI and MI5: by
the SIS and the OSS; and by the exchange of staff between the organisations which collected intelligence from censorship, PR, the interrogation of POW and Sigint. The integration was nowhere more complete than in the handling of Sigint, for which the two countries had evolved by the autumn of 1942 an effective division of labour. They jointly attacked cyphers if that was necessary; but otherwise (except that both undertook the decryption and dissemination to their own forces of the U-boat traffic in the Atlantic and each processed and exchanged what it could intercept and decrypt in the vast Far Eastern theatre) the United Kingdom concentrated on the cyphers in the European and Mediterranean theatres, supplying the intelligence to U.S. as well as British and joint Anglo-American Commands, and the U.S. took responsibility for servicing the intelligence about the forces of Japan. Before long, Australia in the Far East and Canada for the Atlantic were participating in the network.

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In the interval between the German attack on Russia and the entry of the U.S. into the war GC and CS had meanwhile extended its successes against the Axis cyphers in Europe and the Mediterranean. Having solved the GAF’s Red Enigma key in May 1940, its Brown key in September 1940, the key it introduced for operations in North Africa (the Light Blue) in February 1941, the first of several Railway keys in February 1941, and then the Navy’s Home Forces key (Dolphin) in June 1941, it solved the key used by the GAF’s Sigint service at the end of June, and early in January 1942, as soon as they were brought into force, seven of the separate keys introduced for the GAF’s individual Fliegerkorps and Luftgau commands. By the end of June 1941 it had solved an Army key (Vulture) for the first time – one that was in use on the Soviet fronts – and from mid-September to the end of November 1941 it read the operational keys (Chaffinch and Phoenix) of the German Africa Corps. With these advances it had paved the way for what was to be, despite occasional set-backs, a series of further successes. From the summer of 1942 it was solving daily the settings of never less than 30 Enigma Keys, these being the most important of the 50 or so that were concurrently in force. Hardly less valuable for the Mediterranean and north African commands, it also solved in June 1941 another machine cypher, the C38m, which the Italians had recently introduced for use by the port authorities and the fleet units involved in the movement of convoys and merchant shipping. The C38m decrypts did much to make up for the unreadability of the main Italian naval cyphers: they regularly yielded intelligence of crucial importance until Italy’s collapse.

As a result of these successes, and all the more so because they coincided with active Axis operations on a growing number of fronts, there was a continual increase in the volume of high-grade Sigint. During the winter of

*It was at this stage that GC and CS introduced for the classification of the Enigma keys a system of code names under which, while colours remained in use for the keys already named, Fliegerkorps keys were named after insects, Luftgau after flowers, Army after birds, Navy after fish – but the further proliferation of keys and solutions was to lead to some inconsistency in applying the system.*
1940–41, when GC and CS was reading only two or three GAF keys, the number of decrypts had risen from 50 to about 250 a day as Germany expanded into the Balkans and north Africa. Between June 1941 and January 1942 it rose steadily to 1,300. By the middle of 1943 between 3,000 and 4,000 Enigma signals a day were being decrypted, and a large, if smaller, volume of Italian and Japanese traffic. Nor was the number to fall below that level for the remainder of the war.

At the beginning of 1943 GC and CS completed a still more impressive feat by breaking some of the cyphers which Germany had recently introduced for non-morse transmissions between her army commands. At every stage of the work - at the point of interception; in reconstructing the basic machine; when decrypting the transmissions after the settings had been found - the attack on this traffic, which was named Fish at GC and CS, had to surmount intellectual, technological and organisational problems of a still higher order than those presented by the Enigma. The regular decryption of it would have been impossible without the development of an electronic machine (named Colossus) which, unlike the electro-mechanical Bombe with defeated the Enigma, was the first working approximation to the modern computer. The contribution that Fish traffic made to intelligence was correspondingly immense. Compared with the output of the Enigma, the number of decrypts was small - some 300 a month during 1943, though much higher after the middle of 1944 - but most decrypts incorporated several individual signals; and whereas the bulk of the Enigma was transmitted at and below Army level, and at equivalent levels in the other Services, the Fish traffic was confined to communications between Armies, Army Groups and OKH.

On GS and CS, and on its standing within the intelligence system, the advances it made from the middle of 1941 exerted a profound impact. Having grown four-fold to about 900 by the beginning of 1941, the staff employed at Bletchley Park numbered about 1,500 at the end of 1941. It was to rise to 3,293 at December 1942, to 5,052 by June 1943, to nearly 7,000 by June 1944. Of these totals, most were administrative or ancillary staff engaged in operating the cryptographic machinery and in sorting the output, and in typing, teleprinting or transmitting it by radio. The relatively small force engaged in cryptanalysis, translating, research and intelligence assessment, which rose from 200 in June 1941 to about 1,000 in 1944, retained the combination of cohesion and flexibility which underlay its facility in solving new problems and seizing new opportunities. In Whitehall recognition of its resourcefulness dissolved the barriers of jealousy and incomprehension which had initially kept its civilians at arms length and separated the producers of Sigint from those responsible for making the best use of it. From the end of 1941 the posting of more and more Service personnel to Bletchley, many of them war-time recruits from the occupations which were supplying its civilians, ensured that as an inter-service as well as an inter-departmental organisation it made an increasingly effective guidance and control for all Sigint production, at home and overseas.

From the same date the expansion that was taking place in the amount of intelligence from other sources, notably PR and POW interrogation, was all the more rapid because Sigint now guided their development and acted as a check on the accuracy and value of their output. In the summer of 1941 the Central Interpretation Unit (CIU) was established on an inter-service and eventually an
Anglo-American basis for all PR interpretation in the United Kingdom, and all British operational PR units were amalgamated into a single formation under Coastal Command. More aircraft, of longer range and using improved cameras and techniques, were at last coming into service. As a result of this re-organisation and expansion, PR coverage obtained from the United Kingdom from the end of 1941 was double what it had been at the end of 1940, and in frequency and range it was meeting all the requirements of the intelligence authorities in the area from north Norway to Königsberg, Prague and Gibraltar. In the Mediterranean and North Africa it proved more difficult to rectify the shortage of aircraft and avoid duplication of effort between the three Services; but resources were adequate, and were organised efficiently, from the summer of 1942. In that theatre, on the other hand, closer contact with the enemy gave greater impetus to the exploitation of POW interrogation; though not neglected in the UK, this yielded little intelligence of great importance there before the summer of 1942.

The SIS was slower to recover from pre-war neglect and the disruption it had suffered during Germany’s over-running of Europe. Apart from obtaining Polish reports on shipping movements from the Biscay ports and restoring limited contacts with French and Polish agents in Paris and Vichy, it had made no progress by the autumn of 1941. A marked tightening up of German counter-espionage measures then inflicted further setbacks on it: the penetration of parts of the Polish network; restriction of the movements of its Vichy contacts; and closure of the Czech channels including A54. A marked man from October, he was finally arrested in March 1942. Recovery from these further blows took place only slowly during 1942. But the SIS then established networks in Norway, Denmark, Spain, the Middle East, and North Africa – areas where, starved of resources and lacking transport and communications, it had hitherto produced little of value. In the field of counter-intelligence, on the other hand, the SIS and MI5 had all but completely eliminated the threat from enemy espionage in the United Kingdom by the end of 1941, and had made great strides towards containing it overseas.

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During the first half of 1940, and especially in the condition of near panic that followed the unexpected German successes in western Europe in the spring, the security service had been persuaded, in the absence of any reliable intelligence, that a Fifth Column, manned by Nazi sympathisers and enemy aliens and organised by the Abwehr, was waiting to strike. The reasons for the lack of intelligence – the fact that no Fifth Column had existed and that the Abwehr had made no plans to infiltrate agents – had emerged in August. MI5 had then made use of a pre-war contact to introduce two double agents to the Abwehr, and the SIS’s Radio Security Service had begun to intercept and decrypt radio transmissions associated with the Abwehr’s hasty preparations for despatching spies in advance of a German invasion. Assisted by these sources, and by the ineptitude of the Abwehr, MI5 had totally defeated the Abwehr’s first offensive. All but one of the 21 agents who arrived between September and November 1940 were either immediately captured or gave themselves up: the exception committed suicide.
The signals decrypted in 1940 had used simple codes, as used for individual agents. By December 1940 GC and CS had brought about a radical improvement in security by breaking the more sophisticated hand ciphers used for communication between the Abwehr’s HQ and its control stations. In December 1941 it consolidated that advance by solving the keys of the Abwehr’s Enigma machine, which had been steadily replacing the hand ciphers. By then, moreover, the SIS and MIS had acquired more double agents. Some were recruited from agents captured on their arrival in the UK. Others were Abwehr employees who volunteered their services from early in 1941: they included those who, under the code names Tricycle, Garbo and Brutus, were to become the most valuable. During the second half of 1941, with Sigint and the activities of the double agents reinforcing each other as sources of information, the counter-intelligence authorities built up so full a knowledge of the order of battle and the operations of the Abwehr throughout Europe, and also to a lesser extent in Latin America and the Middle East, that it presented little threat to British security for the rest of the war. In some areas, notably Spain and Gibraltar, where it was difficult to mount effective action against it, and where Italian agents were also active, its espionage and sabotage operations continued into 1943, as did its unsuccessful attempts to infiltrate agents into the United Kingdom. But its nuisance value was more than offset – the existence of the Abwehr became, indeed, a substantial liability to the German intelligence authorities – when the British authorities began to use the double agents for the purpose of deception.

The prime task of the double agents remained that of advancing security by eliminating true agents while at the same time persuading Germany that she was so well served by the Abwehr that she need not struggle too hard to improve her espionage system. Not until the SIS and MI5 were confident that they controlled all agents in the country, moreover, and would not fail to detect new arrivals, could they safely use the agents to pass misleading information about the resources and the intentions of the Allies as part of a sustained programme of strategic deception. Except in the Middle East, where such complete security against espionage could not in any case be hoped for, but where theatre and tactical deception using visual and wireless deception as well as double agents was carried out with some degree of success against the Italians in the winter of 1940–41 and to greater effect against Rommel before and during the battle of Alamein in October 1942, that point was not reached until the autumn of 1942.

It was then too late to use the agents of the Double Cross system in support of the Allied landings in French North Africa. That those landings achieved surprise was due to the excellence of Allied wireless security and, to a smaller extent, to wireless and visual deception. From that time onwards, however, the direct contacts of the double agents with the enemy were patiently employed in conveying to him the vast supply of misinformation that was to deepen his confusion before and during the Allied invasions of Sicily and Normandy. The precise effects of the deception on the outcome of these huge undertakings continue to be debated. But if only because they persuaded the Germans to accept absurdly inflated estimates of the forces ranged against them, the double agents undoubtedly made a significant contribution to their success.

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The greater flow of intelligence from Sigint and PR had meanwhile, from the middle of 1941, brought about a dramatic improvement in the ability of the Service intelligence branches to provide accurate information about enemy operations and reliable assessments of his resources and intentions. The system for transmitting the gist of operational decrypts direct from GC and CS to the commands in the Middle East and the Mediterranean, introduced in March 1941, had overcome its teething troubles by the summer as adequate staff and security precautions were put in place, and secure and rapid communications had been established between the Service intelligence branches and the UK operational commands. For strategic purposes, where what Whitehall required was the collation of the assessments of separate branches and the prompt dissemination of considered reports by a single body, this long-standing need was at last met by the JIC.

In the spring of 1941, after several experiments to improve the machinery for central assessment had failed for lack of firm intelligence, the JIC had established a full-time inter-service Joint Intelligence Staff (JIS) of sufficient size and standing to secure on the one hand the co-operation of the Service branches and, on the other, the confidence of the political and operational authorities – the Joint Planning Staff, the Chiefs of Staff and the War Cabinet. With this step the JIC itself was freed to concentrate on intelligence policy and the work of supervising relations between the Service branches, the CIU, GC and CS, the SIS, and the growing number of other inter-Service bodies that were being set up for such specialised purposes as the settlement of priorities in the production of Sigint, the improvement of topographical information and the provision of the detailed intelligence required by the staff engaged in the planning of British operations. The management of the intelligence system was at last put on an efficient footing. And no less important, the emergence of the JIS completed the series of improvements which, slowly but surely from the summer of 1941, made the system capable of ensuring that the growing volume of intelligence was put to good use in strategic appreciations.

Intelligence pointers would still be missed after the autumn of 1941, errors in assessment would still be made for lack of pointers as well as from oversight, and situations would still arise in which accurate intelligence could not be used. But the conduct of operations and the settlement of strategic decisions were rarely handicapped by the ignorance or the dangerously incomplete knowledge of the enemy from which they had suffered in the first two years of the war. At the same time, moreover, these handicaps were now imposed on the Axis states; as a direct result of the improvement of Allied intelligence, their intelligence systems, and above all their Sigint authorities, were deprived of most, if not all, of the opportunities they had previously enjoyed.
CHAPTER NINE

The Soviet Fronts to the Battle of Stalingrad

Next only to the entry of the United States into the war, the most dominant influence on British strategic thinking after the middle of 1941 was the ebb and flow of the fighting on the Soviet fronts. For intelligence from the Soviet fronts Whitehall mainly depended, in the absence of information from the Soviet authorities, on the reading of Germany’s cyphers, though it occasionally received valuable information from A54 and the embassies and the SIS in neutral capitals.

To begin with almost all the Sigint came from the GAF’s general Enigma key; this always remained the main source, though decrypts of reports from Berlin in the Japanese diplomatic cyphers were valuable on German intentions. The key of the GAF Sigint service on the eastern fronts (Mustard) was broken only occasionally before April 1942, but from that date it yielded regular reports on the order of battle of the Soviet Army and Air Force. A German Army key (Vulture) was read occasionally from the beginning of the German invasion and regularly from October until the end of 1941, when it was lost for over a year. It regularly provided detailed operational reports and supply information and, occasionally, high-level appreciations and announcements of German intentions. Except for several GAF local operational keys, only one other important key was broken before the end of 1942, a key used by the GAF liaison officers with the German armies (Kestrel). It was read frequently during the winter of 1941–42. Until the beginning of 1943, when GC and CS began to read the voluminous Fish traffic between Berlin and the main German commands, the Sigint was thus far from being comprehensive, and it was obtained with some delay because the keys were given lower priority than those which were of operational value to the Allied commands. But it provided the only reliable guide to events on the Soviet fronts and was sufficient to keep Whitehall abreast of the main developments.

As early as the end of July the JIC cancelled its earlier warnings of the danger of an early Soviet collapse. By 8 August it was confident that the German offensive was beginning to falter and that Soviet resistance had ruled out down to the end of 1941 troop movements to any theatre other than Russia. This appreciation anticipated the directive of 21 August in which Hitler, over-ruling his generals, ordered that the seizure of the Crimea, and the industrial region of the Donetz, and the investment of Leningrad before the onset of winter should have priority over the drive to Moscow. No news of this directive or of the objections to it in the highest circles reached Whitehall. But decrypts had disclosed by 20 September that Germany was about to renew the thrust on Moscow with 15 of her total of 21 armoured divisions and 8 motorised divisions. The offensive, the greatest Germany had yet mounted, began on 2 October.

From mid-November Sigint gave equally clear indications that the offensive was faltering, and by December, when GC and CS decrypted the order
for a general wheel-back, it had shown the German armies suffering delays or reverses on all the other fronts. A German communiqué on 8 December announcing that they had been put on the defensive for the winter was followed by decrypts which revealed that Fliegerkorps II was transferring to Sicily, but Sigint had detected no large-scale withdrawals of troops by the end of the month.

These disclosures, both positive and negative, about Germany’s redeployments ended any remaining anxiety that she might renew the attempt to invade the United Kingdom in the spring of 1942. But they did not greatly reduce Whitehall’s anxiety about the threat to the Middle East. The JIC believed at the end of 1941 that operation Barbarossa had envisaged the conquest of the Caucasus, to be followed by an advance through Iran, Iraq or Turkey to the Gulf, and that Germany would renew the attempt early in 1942. At the end of January 1942, after the Soviets had launched a huge counter-offensive on the whole front, the JIC and the Joint Planners briefly suggested that this might do so much damage to German morale and strength as to make another German advance impossible and even permit an Allied invasion of the continent in the autumn. During February, however, Sigint established that the Soviet offensive was faltering in the Ukraine and the Crimea and was being driven back on the central and northern fronts. The decrypts now came mainly from the keys of Fliegerkorps VIII (Beetle) in Army Group Centre’s sector and Fliegerkorps IV (Hornet) with Army Group South. By the first week of March they had persuaded Whitehall that while the Soviets were now in serious straits, an Allied cross-channel operation was not practicable until Germany showed signs of weakening. And by the end of that month the JIC was forecasting that while Germany would be capable of only one major offensive during 1942, it would be directed towards the Caucasus and the oil in the Middle East.

The evidence for these conclusions was far from complete. Sigint showed that, apart from the transfer of Fliegerkorps II, the GAF was making no withdrawals from the east except for rest and refitting and was sending units back there with the minimum delay, while Sigint and SIS reports indicates that troop withdrawals were being compensated for by movements to the east. There was no Sigint, on the other hand, and no other reliable information, about German deployments as between the different Soviet fronts, or about the total resources Germany would have at her disposal. These questions were the subject of vigorous debate with the US JIC, which argued during April that Whitehall was underestimating Germany’s war production and exaggerating her need for oil. Washington believed that she would be able to field 25 armoured, 35 motorised and some 200 infantry divisions and 3000 aircraft and would attack on several fronts. The JIC assessed her total strength in the east as 196 divisions of which 10 were armoured, and between 2000 and 2400 front-line aircraft, but it conceded at the beginning of May that she might attack in other sectors as well as against the Caucasus.

The British estimates of the scale of Germany’s forces were the more accurate. She went over to the offensive with a total of 172 divisions and 2640 aircraft. 68 of the divisions, including 9 armoured, and 1500 of the aircraft attacked in the south, but the Americans were nearer the mark in suspecting that the offensive would not be limited to the south. In a directive on 5 April, Hitler had laid it down that the main objective was to gain the oil region of the Caucasus and cross the Caucasus mountains, but had insisted that the army should also capture Leningrad.
At the beginning of May Whitehall expected the German offensive to begin about 8 June. During June, however, Enigma decrypts disclosed that in their attempts to clear the Crimea and eliminate the Soviet salient at Izyum, necessary preliminaries to the main campaign, the German army and air force had been forced to use spearhead formations reserved for the main attack. But it was not possible to judge how much the enemy would be delayed. Nor was it till 29 June that Sigint revealed that the offensive had begun the previous day.

It proved equally impossible to foresee the outcome. The JIC pointed out early in June that although considerably less was known about Soviet dispositions and resources than about Germany’s, a struggle engaging such large forces over so large an area of manœuvre would involve such heavy losses on both sides that the margin between success and failure for each side might become very narrow. At that stage it believed, and the US JIC agreed, that the Soviets would eventually halt the advance and that even if they lost the Caucasian oil, the Moscow industrial area and Leningrad they would probably be able to carry on the war for another year. But Germany’s initial advances, which were almost as rapid as the fastest of the 1941 offensives until the middle of August, precipitated decisions in the long-standing Anglo-America debate about the form all the timing of the Allied second front.

In April 1942, the US Chiefs of Staff had accepted that a cross-Channel invasion later that year would be impracticable, but the British authorities had at last agreed that it should go forward in 1943. In June, while the Americans held the British to this undertaking, they were persuaded that an earlier alternative operation, the seizure of French north Africa, must be prepared against the eventuality of a crisis on the eastern front. In July Whitehall became convinced that ‘in view of the possibility of Russian defeat’, it was imperative to carry out this operation (now named Torch) in the autumn before Germany could recover from the eastern campaign. The JIC was still confident that the Soviets would not collapse, but it agreed with the Joint Planners that a cross-channel invasion in 1943 (operation Roundup) would be totally impracticable if they were defeated by the spring and that even if they survived, Germany would be able to reinforce western Europe on such a scale that a cross-channel invasion in 1943 would be an extremely hazardous undertaking. Washington fell in with this view in July. But the reluctant US Chiefs of Staff did so on the understanding that Torch should involve no unavoidable reduction in preparations for Roundup and since they nevertheless recognised that it would probably rule out Roundup, they insisted that the final decision to undertake Torch should be deferred until it could be judged whether the Soviets would be so weakened by 15 September that Roundup would in any case be impracticable.

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Anxiety about the outcome on the Soviet fronts remained acute throughout August. The JIC’s belief that the Soviets would hold out on the Caucasus front was supported by assurances given by Stalin to Churchill, and also by the decrypt of a Japanese appreciation from Berlin: this stated that Germany was greatly exaggerating Soviet casualties and that the Soviets would be able to continue the struggle even if the Caucasus front collapsed. But these were little
more than expressions of hope, or fear, and nothing was learned of the crisis in
the German High Command which was brought on when von List, commanding
the Army Group A that was to be responsible for the Caucasus Campaign,
resisted pressure from Hitler to advance down the Black Sea Coast to Batum.
Von List was dismissed early in September. His dismissal was followed by a
breach between Hitler and Jodi and by the dismissal of Haider, head of OKH, at
the end of September. By 7 September, however, the Enigma had made it clear
that the main German effort was to be devoted to the capture of Stalingrad by
Army Group B under von Bock, and that the outcome of the struggle on the
entire southern front hinged on the result of the Stalingrad battle.

The decision in the battle remained long in the balance. By the end of
September, however, with the continued Soviet resistance, the possibility was
rapidly receding that Germany could carry out offensives on other fronts before
she entered on a second winter in Russia on greatly extended lines. The
Enigma decrypts showed, indeed, that Germany was making preparations for
an attack on Leningrad, including the transfer of Eleventh Army from the
Crimea: but Whitehall felt confident that the attack could not take place in
1942 unless Stalingrad fell before the end of September. In the Crimea and the
Caucasus, where the GAF Enigma which kept Whitehall in touch with the
Stalingrad fighting was now supplemented by decrypts of Porpoise, a naval
Enigma key, and reports from the British Naval Liaison Officer, Black Sea, it was
clear that the German advances were being slowed down. By 2 October,
encouraged by the news from Japanese diplomatic decrypts that Tokyo had
rejected a German appeal for an attack on Russia, the JIC felt sure that the
Germans would not penetrate the Caucasian range before the winter. At the
end of October Porpoise decrypts, which had earlier reported that Sevastopol
was being prepared as a supply base for the army and for naval operations in the
Caspian, indicated that the preparations were being cancelled: they also
enlarged on the increasingly grim plight of the German troops. As it happens,
the German advances were brought to a standstill by the beginning of
November, and on 9 November a GAF Enigma decrypt disclosing that Hitler
had ordered the bombing of Baku seemed to confirm that they would not be
resumed.

Germany’s final desperate effort to take Stalingrad had petered out by
then, and GAF decrypts revealing the move of army and air reinforcements to
the central sector of the front indicated that she was preparing for a Soviet
counter-offensive. This was launched on 19 November, an immense double
envelopment to cut off the German salient. It was accompanied by a stream of
GAF Enigma decrypts. They reported on 25 November that the Sixth Army had
been surrounded in Stalingrad, and provided full coverage of the enormous
effort made by the GAF to keep Sixth Army supplied by transferring transport
aircraft from the Mediterranean and from training schools and FW200s from
Bordeaux and Trondheim. They made it clear that the effort was failing, in part
because the GAF was forced from early in December to withdraw some 200 of
the transport aircraft from Russia to meet the emergency needs of the German
Army in Tunisia, where the Allies destroyed a high proportion of them in the
air and on the airfields.

The Soviets completed the annihilation of Sixth Army during January
while also raising the siege of Leningrad, advancing on the central front and
forcing the Germans to retreat from the Caucasus to a bridgehead round
Rostov and across the Taman bridgehead into the Crimea. Except that the
Porpoise decrypts gave advance notice of Germany’s decision to withdraw from the Caucasus and revealed that she had ordered the transport by air to the Crimea of all troops not required for the defence of the Taman. Sigint added little to the information coming from Soviet and German communiqués about these developments. But when the western Allies met in Casablanca in the second half of January 1943, to review their future strategy, there could be no doubt that the Soviet victories had completely transformed the situation on the eastern fronts and the course of the whole war.

At Casablanca the Allies agreed that the next objectives after defeating the Axis in Tunisia should be the capture of Sicily and, subject to the calls that made on their resources for the war in Europe, the assembly of the strongest possible force for invasion in the west as soon as German resistance was weakened to the required extent. But they recognised that, as a pre-condition of success, a first charge on their resources must be the defeat of the U-boats.
CHAPTER TEN

The War at Sea and the Battle of the Atlantic from June 1941 to the end of 1942

In the war at sea the situation was profoundly altered when, from June 1941, GC and CS began to read continuously and with little or no delay the wireless traffic in the Home Waters settings of the German naval Enigma that were common, as yet, to the German surface navy and to the U-boats.

This change on the Sigint front coincided with a reduction in the activities of the main units of the German surface fleet. None succeeded in leaving Germany - and only one attempted to do so - between the loss of the Bismarck in May 1941 and the beginning of 1942, when the German Naval Command decided to concentrate its main units in north Norway. But the fact that GC and CS was now reading the naval Enigma did not enable the Admiralty to rule out a repetition of that period earlier in 1941 in which, in three short cruises, one German battleship, two battle-cruisers and a cruiser had sunk over 150,000 tons of shipping. From time to time the Enigma evidence created alarm by being incomplete and tantalisingly allusive about the enemy’s intentions. But it generated increasing confidence that, should any of these units attempt further sorties, the Admiralty would have nearly current, and perhaps even prior, intelligence about their movements.

That this confidence was justified was illustrated as early as June 1941. An Enigma message of 10 June, inaugurating a new series of signals for the pocket battleship Lützow, enabled the OIC to issue in the early hours of 11 June the warning that this ship might be intending to break out into the Atlantic: a new series of signals had been opened up in this way for the Bismarck and the Prinz Eugen immediately before their departure from the Baltic. During 12 June their contents provided precise information about her progress, it was on the basis of this information that Coastal Command despatched at about 2300 the striking force, 14 torpedo bombers, which at 0218 on 13 June, two hours after she had been briefly sighted off the Naze, scored a hit on the Lützow. Although only one torpedo found its mark, and although further attacks on the ship up to 0500 failed to do further damage, the first attack left her severely crippled. The Enigma confirmed by 0525 that she had been hit. During the rest of 13 June it showed her creeping back under heavy escort through the Kattegat.

To some less important Allied advances in the war at sea at this time the Enigma either made no contribution or was only a marginal asset. It was thanks to the insecurity of the Abwehr hand ciphers that in August 1941, after earlier failures during 1940, the Germans were frustrated in their attempt to establish a meteorological station in Greenland: they did not renew the attempt until August 1942. Between May and November 1941 they lost three of their commerce-raiding auxiliary cruisers, but the Enigma contributed to only one of these British successes. Before leaving Germany, and on their return, these disguised raiders used the Home Waters settings: but the seven that were at sea at the beginning of May 1941 had all sailed during 1940, before the Enigma had become available. Once they had put to sea the raiders, operating mainly in the
The War at Sea from June 1941 to end of 1942

The sinking of three of Germany’s auxiliary raiders during the second half of 1941 was followed by a decline in the activities of these ships from the beginning of 1942. Even when these activities had been at their height, however, the raiders had been by no means the gravest threat to British shipping. Between the outbreak of war and March 1943, when their operations were coming to an end, they sank 129 ships, totalling 800,310 tons. These figures do not bear comparison with the ravages of the GAF and the U-boats. During the three months of March, April and May 1941 alone, the losses in the United Kingdom and Atlantic areas directly attributable to air attack had mounted to 88 ships of 247,118 tons, and a further 27 ships had been sunk by mines laid by the GAF, while the U-boats had accounted for 140 ships of 812,733 tons, an average of over 270,000 tons a month.

The GAF’s anti-shipping effort had begun to decline after the beginning of April 1941. But the successes obtained by the U-boats showed every sign of continuing and of achieving a decisive result. It is true that great improvements, both in organisation and equipment, were now being made to the British defences. As against that, the number of U-boats was increasing. In April Germany had still had only 26 operational U-boats, and many of them had operated practically continuously since the outbreak of the war. But at the end of the year 249 U-boats were in commission, of which 91 were operational. As well as growing in numbers, moreover, the U-boats had improved their performance against convoys by adopting new tactics.

Since the spring, as a result of the adoption by the U-boat Command of wolf-pack tactics in the north Atlantic, it had begun to emerge that, beyond the range of air cover, the available escorts could not protect convoys from mass attack by U-boats operating on the surface at night, and from massive losses, once convoys had been sighted. Although Donitz, the C-in-C U-boats, had advocated them in a book in 1939, the adoption of these tactics had taken the Admiralty by surprise. The problems they posed would gradually be reduced as

south Atlantic, the Indian Ocean and Australasian waters, transferred from the Home Waters settings of the Enigma to theAusserheimisch (Outside Home Waters) settings; and GC and CS was never able to read the latter settings. That three of the seven raiders at sea at the beginning of May were sunk during the remaining months of 1941 owed something to the progress the OIC and other naval authorities were making in the difficult task of tracking the raiders on the basis of their sinkings, of rare sightings and occasional distress signals — a task which the raiders made difficult by avoiding the regular shipping routes, by doing their utmost to prevent their victims, independently routed merchant ships, from sending distress signals, and by maintaining almost complete wireless silence. It was directly as a result of the Enigma, however, that the third raider was sunk on 22 November. She was ordered to refuel U-boats that were to operate off the Cape of Good Hope: although GC and CS could not read her instructions, it could read the instructions sent to the U-boats, which remained on the Home Waters settings even when they were working so far south, and it was in this way that HMS Devonshire caught the raider Atlantis at the refuelling rendezvous.

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the supply of ship-borne radar and HF/DF improved. Meanwhile, however, as the number of operational U-boats increased, the problem would mount unless means were found of so routeing shipping that the chances of sightings by U-boats were drastically reduced. In June the Joint Planners noted that the combined output of all Commonwealth yards did not exceed one million tons of new shipping a year, but that on the most conservative estimate the merchant fleet would have suffered a further loss of 4 to 5 million tons by the end of 1941. An appeal for a building programme had already gone out to the United States. Even if it were answered, however, Great Britain could not benefit from this source for at least eighteen months. During the rest of 1941 ‘no new large-scale military commitments involving an ocean passage can be justified’. Thereafter the outlook was bleak unless the U-boats could be brought under control. ‘We conclude from the foregoing statement of the position that it is only by a reduction of the rate of loss that a real margin of safety can be achieved.’

The Joint Planners were not being unduly gloomy. Even as things turned out, it was only by the narrowest of margins that, despite the suspension of raids by the German surface fleet and the decline in the contribution of the GAF to the Battle of the Atlantic, the U-boat campaign failed to be decisive during 1941. But from the end of June, far from continuing to rise with the increase in the number of U-boats at sea, the amount of shipping sunk by U-boats was reduced to well below a half of the level the U-boats had achieved since March. In the months from July to the end of the year their monthly toll averaged 120,000 tons.

For the reduction in actual shipping losses the main cause was a change in the Admiralty’s policy. From 18 June it raised the minimum speed limit for independently routed ships from 13 to 15 knots, and there followed a dramatic decline in losses of ‘independents’, from 120 ships in the three months April to June to 25 ships between the beginning of July and the end of September. In contrast, the number of ships sunk in convoy or straggling from convoy increased from the beginning of July. But this reflected the fact that more ships were being taken into convoy and the fact that the U-boats, the number on patrol increasing at last from the end of August, continued to improve their performance against such convoys as they were able to attack, and what is more significant is that so many convoys made an undisturbed passage, the U-boats being more and more occupied in fruitless search operations. The difference between what the U-boats now achieved over-all and what they might have achieved – and, indeed, expected to achieve – was due to the great improvement in the evasive routeing of the convoys that took place when GC and CS began to read the naval Enigma.

That the Enigma made a decisive contribution in this way, over and above such assistance as it gave in the routeing of independent ships, may be judged by the scope of the intelligence it provided. From June onwards every signal transmitted by or to the U-boats was being deciphered. Although the U-boats rarely transmitted except to send their short signals, the U-boat Command had decided that in the north Atlantic it must exercise a centralised co-ordination over their dispositions and attacks. This involved it in transmitting comprehensive situation reports and patrol instructions on the basis of which the OIC and GC and CS were able to make a detailed study of the capacities, the tactics and the methods of attack of the U-boats and the OIC was able to produce, day after day, a virtually complete chart of their dispositions. This intelligence did
not exert its full impact until the end of June. From then to the end of 1941 operational circumstances were to reduce its value in particular areas and technical difficulties were to impede its flow from time to time. But the occasional interruptions serve only to confirm the extent to which the reading of the Enigma had transformed the situation. There was a close correlation between the periods when they were being encountered and those in which the performance of the U-boats temporarily recovered.

During May the shipping losses would have been even more appalling than they were if the Enigma had not already been available to some extent: but its value was cut back by cryptanalytic delays. Thus on 19 May, when convoy HX 126 ran into the U-boat pack and lost eight ships before the escort joined, the OIC had not received the U-boat Command’s instructions which had redispersed the pack on 14 May, and did not do so until 21 May. From the beginning of June the Enigma traffic was at last read currently for two months - decrypted, that is, within an hour of its transmission - but now another problem was encountered. In the middle of June the U-boat Command, taking the first of a series of steps which showed that it was becoming disturbed that the U-boats were experiencing so much difficulty in intercepting convoys, and was suspecting internal insecurity, introduced a more complicated system of coding the positions at sea which figured within the encyphered Enigma signals. The OIC and GC and CS had largely solved the system by the beginning of July, but during June it delayed and occasionally prevented identification of the U-boats’ dispositions.

Despite this technical handicap, the current decryption of the Enigma traffic from the beginning of June enormously improved the effectiveness of the OIC’s evasive routeing. So much was this so that U-boats in the north Atlantic made no sightings between the beginning of the month and 23 June. What was equally important, the Admiralty’s knowledge from the Enigma that the homeward-bound convoy HX 133 had been sighted on 23 June, and that the U-boats were converging on it, enabled it to strip the escorts from two outward-bound convoys in order to reinforce HX 133 before the attack. In the subsequent convoy battle the escort outnumbered the U-boats and was able to keep the losses down to five ships, and also to sink two U-boats.

In these circumstances it was for operational reasons that the total of sinkings by U-boats remained high till the end of June 1941: in an area outside the north Atlantic the U-boats were still being successful. Since the spring Type IXB (1,050-ton) U-boats had been operating off the west coast of Africa, close to Freetown and the Cape Verde Islands. In April the amount of shipping sunk south of 35°N had risen to two-thirds of that sunk north of 57°N, though the number of U-boats there had never exceeded six. In May the five U-boats in the area had sunk 32 ships, mostly independents, as compared with the 25 sunk in the north Atlantic. In June they were joined for the first time by one of the latest U-boats (Type IXC, 1,120-ton) that were now becoming available, which was sent to operate in the Freetown–Lagos area, and their successes remained high until the end of the month. But at this distance from home they could not operate for long - 47 days at sea - without being refuelled, and by the end of June, with the loss or capture of almost every German tanker in the sweep that followed the destruction of the Bismarck, they had to be withdrawn.

It was not until mid-September that a second wave of U-boats reached the west African area. But then, after July and August had seen virtually no ships sunk there, the U-boat Command failed to recover the initiative because the
better organisation of shipping at last enabled the OIC to route it in the light of the Enigma information about the U-boat dispositions. In September, with five U-boats off Freetown and two further south, only three Allied ships were sunk, though U-boats outward-bound for Freetown sank seven other merchant ships from convoy SL 87. In November British ships, directed by the Enigma, sank the raider and a supply ship with which the Germans had hoped to re-fuel these U-boats. At this the U-boat Command abandoned operations in the area.

From the beginning of July the decline in sinkings off west Africa and the introduction of the higher minimum speed for independents brought about for the first time a dramatic drop in the monthly total of U-boat successes, for in the north Atlantic the failure of the U-boats to sight convoys continued. In July the U-boats on the trans-Atlantic routes again patrolled for three weeks without seeing a convoy: the only convoy (OG 69) attacked during the month was on the north–south route between Africa and the United Kingdom. In August the Enigma ceased to be read absolutely currently. But much of the traffic was still decrypted within a few hours, and none was delayed for more than three days, and the operational pattern was similar to that of July. To begin with, most of the U-boats were retained on the north–south route, where they succeeded in finding another convoy (HG 70), but when they were redisposed on the strategically more vital trans-Atlantic route, from 10 August, they again patrolled fruitlessly for ten days until, in desperation, the U-boat Command moved them eastward in an attempt to make contacts closer to the United Kingdom, between Ireland and Iceland. In this they did not succeed. Since the Admiralty had been forewarned – the Enigma was being read at the time with a delay of 50 hours – and since the area was well within range of Coastal Command’s patrols, they were subjected to intensive air and surface attacks. In eighteen attacks one U-boat was sunk and a second forced to surrender.

In September the fortunes of the U-boats improved. In addition to convoy SL 87, they attacked two other convoys on the north–south route and two trans-Atlantic convoys, sinking 34 ships from them. The improvement was partly due to the increasing number of U-boats at sea, which enabled the U-boat Command to form them into several groups for the first time, but it owed much to the difficulties occasioned for the OIC Tracking Room by the fact that the U-boat Command introduced on 11 September a new and more complex method of disguising the positions contained in the Enigma traffic. For weeks after this change the identification of the positions given in the instructions to the U-boats was a protracted process involving some guesswork. However, the recovery by the U-boats was by no means proportional to the increasing number at sea: although the number was nearly double what it had been in the first six months of 1941, the shipping sunk was below the monthly average for that period. The recovery was, moreover, short-lived. In October the U-boats attacked only one trans-Atlantic convoy (SC 48) and one convoy on the north–south route, and although these were subjected to heavy attack, Allied shipping losses were cut back by 25 per cent from the September level. And in November this comparative decline in the rate of the U-boat successes was followed by a landslide. The U-boat Command abandoned operations in the area.
The War at Sea from June 1941 to end of 1942

Enigma, was a fundamental cause. It is true that since the convoy battles of July the Enigma had revealed that in exploiting their sightings of convoys the U-boats were being increasingly hampered by the convoy escorts as well as by the arrival of less experienced U-boat commanders. During September and October, on the other hand, the heavy losses sustained by such convoys as were attacked demonstrated that beyond the areas within the range of land-based air cover, which the U-boats now avoided, the improvement in the Allied defences was still not keeping pace with the increase in the number of U-boats that could be massed into an attack if a convoy was contacted. But during October GC and CS had further reduced the delay in reading the Enigma to an average of 26 hours as compared with 50 in August and 41 in September - and GC and CS and the OIC had jointly gone far towards solving the latest method, introduced in September, by which the Germans disguised within the Enigma signals the positions on the German naval grid. It was as a result of these advances that during the last three weeks of October none of the U-boat patrol lines in mid-Atlantic succeeded in finding a convoy. 15 Atlantic convoys were successfully diverted, three were sighted by U-boats that were on passage to and from the patrol lines, and of these three only SC 48 was sighted near enough to a patrol line to enable the U-boats to develop their attack.

Until the end of October, despite the evidence that individual U-boats on passage were sighting convoys more frequently while the patrol groups were failing to do so, the U-boat Command had clung to the policy of disposing the U-boats in close-knit patrol lines, of which the object was to maximise the weight of attack if a convoy was contacted, but evasive routeing had forced it to spread the patrol lines over an ever-increasing frontage, so that the U-boats were too far apart to achieve a concentrated attack. In November it abandoned its single patrol line in the north Atlantic in favour of four shorter lines of U-boats, which were to keep continually on the move in the search for targets. But on 22 November, before these groups had had time to form, it ordered all U-boats to concentrate in the Gibraltar area and virtually abandoned the offensive against the trans-Atlantic convoys. On 8 December all the U-boats operating in the Atlantic were in the Gibraltar area.

If the main reason for the lack of sightings by U-boats during November was that the flow of Enigma intelligence about their dispositions was so

*The escorts were now being reinforced by the US Navy. Intelligence documents released by the US government show that, as well as assuming responsibility for escorting fast convoys in the western Atlantic, the US Navy participated in the conduct of convoy operations in the western Atlantic from September 1941 – receiving from the Admiralty recommended routes before the departure of east-bound convoys; diverting convoys, both east-bound and west-bound, as advised in signals from the Admiralty, even if they had no US escorts; and switching escorts from safe to threatened convoys in collaboration with the Admiralty. USS Kearny was sunk on the night of 16-17 October in the attack on convoy SC 48 after she and four other US destroyers, diverted from a west-bound convoy to reinforce the escort of convoy SC 48, had taken over tactical control of the battle.

Apart from the direct assistance they provided to convoy defence, the US escorts hampered the freedom of action of the U-boats. From early in June 1941, as the Enigma disclosed, the U-boats received frequent instructions designed to avoid clashes with the USA; this was particularly true of the orders issued on the eve of operation Barbarossa. However, the attack on USS Kearny was covered by an order issued early in June, and never rescinded, by which 'darkened warships acting as convoy escorts are only to be attacked if the situation makes it necessary.'
British Intelligence in the Second World War

complete, another reason was that, despite the continual increase in operational U-boats, the number in the Atlantic was declining on account of the withdrawal of U-boats from the Battle of the Atlantic to the Mediterranean and to Norwegian waters. Six were sent to the Mediterranean at the end of September, two more at the beginning of November. When the British offensive in Libya began on 18 November eleven further U-boats were earmarked for this theatre, and by 15 December a total of twenty had passed through the Straits of Gibraltar. In October a Northern Waters group of U-boats was formed in Norway on Hitler’s personal orders. Three more U-boats had to be spared to relieve this group at the end of November. At the end of December the U-boat Command resisted the request for three more. But on 24 January 1942 Hitler again intervened to order that eight U-boats must be kept stationed in the Iceland–Scotland area for the defence of the Norwegian coast, and by March 1942 the number of operational U-boats assigned to the Northern Waters group had risen to twenty-four.

The Enigma did not give explicit information about these withdrawals, and it was some time before the OIC worked out the scale on which they were taking place. The impact on Atlantic operations of the withdrawals was, however, disclosed in the Enigma without delay. In September twenty U-boats had been on patrol in the Atlantic, leaving aside the U-boats on passage. On 1 November there were ten in the north Atlantic and six off Gibraltar. On 8 December there were only twelve U-boats on patrol in the Atlantic, all of which were concentrated off Gibraltar, and on 20 December, when there were five in the north Atlantic but when four of them were known to be on passage to the Mediterranean, the OIC’s U-boat situation report commented that ‘the primary object seems, at least temporarily, to be no longer the destruction of merchant shipping’. By 1 January 1942 only six U-boats remained on Atlantic patrol, and all were in the vicinity of the Azores. These, the remnants of the group that had been moved to the area west of Gibraltar by the beginning of December, would have been more numerous had it not been the case that between 17 and 21 December, in an attack on convoy HG 76, homeward bound from Gibraltar, it had lost no less than four U-boats. Although it had done considerable damage to the escort, including the sinking of HMS Audacity, the escort carrier which had been attached primarily to deal with the FW 200s from Bordeaux, it had sunk only two merchant ships. This was the first convoy battle in which the escort had included an escort carrier.

Despite the decline in the number of U-boats on patrol, the shipping sunk by U-boat in the Atlantic increased in December 1941: twenty merchant ships were lost there. This recovery reflected two important changes on the intelligence front. The first was a marked improvement in the performance of the German naval B-Dienst against British naval codes and cyphers. From September 1941, after experiencing considerable difficulty with it since August 1940, it again read much more of the traffic in the main Royal Navy Cypher (Naval Cypher No 2) with much less delay. By December 1941 it was also beginning to read the traffic in a special cypher (Naval Cypher No 3) which the Admiralty had made available for Anglo-US-Canadian communications in the Atlantic in the previous summer. But the B-Dienst’s success was more than offset by the intelligence produced by GC and CS from the naval Enigma until, at the end of November 1941, the U-boat Command introduced a still more complex method of coding the positions given in the Enigma messages. In December 1941 and January 1942 it was not uncommon for the OIC and GC
and CS to fail to decode the positions given in the Enigma instructions sent to the U-boat Command was anxious and puzzled by the declining success of the U-boats in finding convoys as early as May 1941. On this front, however, good fortune smiled on the Admiralty: for a variety of reasons, the Germans deferred taking decisive action on their suspicions until 1942.

In the first place, the fact that the performance of the German naval intelligence service against the Royal Navy’s communications had slumped between August 1940 and September 1941 – the period in which, as a result of GC and CS’s success against the naval Enigma, that of British intelligence against the U-boats has so greatly improved – had presented the Command with one explanation for the failure of the U-boats. For this failure, moreover, there was no lack of other explanations. Except against convoys on the United Kingdom–Gibraltar route, where the U-boat Command was well informed by agents in Spain of the movements of convoys, the fact that British air patrols had driven the U-boats into the central Atlantic had deprived them of reconnaissance assistance from the Focke Wulf aircraft of I/KG 40. The adoption by the U-boats of close-formation dispositions, in order to maximise their attack when a convoy was contacted, had reduced their own reconnaissance range, and until the steady increase in the number of operational U-boats began to make a significant difference to the numbers on patrol, which it did not do before 1942, the numbers on patrol were still very restricted in comparison with the vast expanse of ocean they had to cover. Even so, the U-boat Command remained so unsatisfied that it more than once questioned the security of the Enigma – only to be reassured by the naval staff that the cypher was invulnerable.

In these circumstances the U-boat Command, suspecting internal insecurity, introduced from June 1941, as a means of disguising U-boat positions from prying eyes, the series of coding devices to which we have already referred. From 5 October 1941 the Command segregated its own communications from those of other users of the Home Waters Enigma by adopting different settings for the U-boats. But this measure, too, created only minor difficulties for GC and CS.1 There followed on 19 November a review of the situation in which the Command confessed itself mystified: it accepted that the Enigma was secure but it remained convinced that British intelligence was in possession of regular information about its dispositions and that British sightings, DF fixes and Traffic Analysis were not sufficient to account for it.

Of these investigations in Germany the British authorities of course

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1 It prevented GC and CS from reading U-boat traffic until 7 October and occasioned more than average delay in breaking the settings for 12 and 13 October. A similar modification, less drastic but made with the same purpose, had been introduced as early as 1 April 1941: it had given GC and CS no trouble.
received no inkling until the end of the war. But they were soon to learn the outcome of the enemy’s continuing anxiety. On 1 February 1942 the U-boat Command added a fourth wheel on the Enigma machine for the communications of its Atlantic and Mediterranean U-boats, and this step, though devised as a further measure against internal insecurity, was at last effective against GC and CS. Except for occasional days, GC and CS was unable to solve the U-boat settings until December 1942. During this long interval the effects of this great loss of intelligence were to be all the more serious because, as chance would have it, February 1942 was the month in which the B-Dienst completed its reconstruction of Naval Cypher No 3, the cypher which carried the bulk of Allied communications about the north Atlantic convoys: from then until June 1943, with only one short interruption in December 1942 and January 1943, the enemy would read a large proportion of its signals with little delay. It was for these reasons, as well as because the U-boats exploited a new operational area off the north American coast from early in the year, that the first half of 1942 was to see a startling recovery in their performance and that, despite continuous improvements in Allied defences and resources, there was to be no decline in the level of their successes until the beginning of 1943.

* * *

The German surface fleet continued to use the Home Waters settings of the Enigma, as did the U-boats in the Baltic and in Norwegian waters, and those settings continued to be read currently, or nearly currently, without interruption. But this fact did not enable the OIC to avert a further, though slighter, British misfortune—the failure to prevent the Schamhorst, the Gneisenau and the Prinz Eugen from passing from Brest up the Channel.

From the time of their arrival in Brest these ships had been kept under close surveillance by PR and by the SIS, whose agents assisted further by supplying the Admiralty with documents and photographs, including a plan of Brest’s harbour defences. The ships had also been subjected to continuing RAF attacks. The Gneisenau was hit on 6 April 1941, the Prinz Eugen on 1 July, the Schamhorst at La Pallice on 24 July when an agent’s report of her movement from Brest had led to an RAF attack. The damage was so serious that the Germans estimated that the Gneisenau and the Prinz Eugen would not be operational before the end of the year. The Admiralty knew by the end of April that the Gneisenau had been seriously damaged, and by October had received reports from SIS and PR that all three ships had been hit, but it could not on the basis of SIS and PR evidence be sure of their operational state. At the end of 1941, however, it received the first indication that they might be preparing to move. Between 16 December, when PR disclosed that the Prinz Eugen was undocked, and 23 December, when PR disclosed that the Gneisenau was also alongside a jetty, the Enigma revealed that the gun crews of all three ships were carrying out firing practice in the Scheer and the Hipper in the Baltic. On 24 December the Admiralty informed the three air commands that a breakout from Brest was likely at any time.

Between 19 and 23 January 1942 the Enigma showed that the Schamhorst gun crews were still with the Scheer, but by 1 February evidence pointing to a break-out had accumulated. PR, which during January had shown the ships
sometimes in and sometimes out of dock, had established that all three were undocked on 31 January. From the Enigma, from PR and from SIS reports it was apparent by then that they were leaving port at night for steaming trials and returning each morning. PR, the Enigma and the SIS also revealed the reinforcement of the Channel by 2 destroyers, 5 torpedo boats and 8 minesweepers, and enemy minesweeping and GAF reconnaissance were noted in the vicinity of Brest. On 1 February the OIC concluded that the departure of the ships was ‘near at hand’, and on 2 February the Admiralty distributed an appreciation of the possible destination of the ships.

The appreciation concluded that ‘the Channel passage appears to be their most probable direction . . .’. Neither up to this time nor later was any hint received from any intelligence source that Hitler, his fears of an invasion of Norway increased by the British raids on Vaagso and the Lofotens in December 1941, had insisted that the ships must be brought back to Germany through the Straits of Dover in daylight, a daring undertaking which relied heavily on surprise but made the best use of fighter cover. Apart, therefore, from the evidence that the enemy was assembling additional naval forces in the Channel, the Admiralty’s conclusion was based only on operational considerations: the Channel represented less risk to the enemy than the ocean passage.

On 3 February the First Sea Lord, at a meeting of the Chiefs of Staff, referred to a concentration of enemy fighters on the Channel coast as perhaps indicating the intention to move the ships through the Straits. By that date, moreover, the Enigma and PR showed that the enemy’s naval reinforcements between Brest and the Hook had risen to 7 destroyers, 10 torpedo boats, over 30 minesweepers, 25 E-boats and many other minor warships. And on the same day the Air Ministry brought into force operation Fuller—the plan drawn up nine months earlier for dealing with a possible Channel break-through, which placed all the air forces concerned at indefinite short notice. A system of special air patrols was instituted: designed chiefly to detect the ships if they sailed round Ushant, this also allowed for the unlikely case that they might break out in other directions. The Admiralty also diverted six destroyers from convoy duties, holding them at short notice in the Thames Estuary, and made other redipositions. It had already despatched two submarines, \textit{all that could be spared}, to patrol off Brest.

Though the destination of the ships now seemed virtually certain, the problem remained of finding out the time of their departure, and it was vital to solve this since the effectiveness of the planned counter-measures depended on the earliest possible notice. On 5 February the Enigma revealed that Admiral Commanding Battleships had hoisted his flag in the \textit{Scharnhorst} and the OIC, which also knew that the battle cruisers had recently carried out further exercises, took this as indicating ‘an impending departure’. On 8 February, however, a lift in the weather permitted PR to establish that all three ships were still in Brest, the \textit{Scharnhorst} being in dock, and had been joined by two further destroyers, making four in all, and at this news AOC-in-C Coastal Command issued an appreciation to Bomber and Fighter Commands. This repeated the Admiralty’s conclusion about the destination of the ships and added that departure was likely to take place ‘any time after Tuesday 10th February’. On the same day, he issued detailed operational orders to Coastal Command’s groups and individual stations and took the risk of ordering the Beaufort torpedo bomber squadron stationed at Leuchars and charged with watching the \textit{Tirpitz}, which had recently arrived at Trondheim, to fly south. 11
Group, Fighter Command, which was responsible for co-ordinating all fighter forces engaged in operation Fuller, also issued additional orders on receiving AOC-in-C Coastal Command’s appreciation. On 10 February, however, without informing the Admiralty, AOC-in-C Bomber Command stood down more than a half of his Fuller force, leaving only 100 bombers at four hours’ instead of two hours’ notice.

By that time the Enigma had been providing for the past week scraps of evidence to the effect that German minesweepers were clearing a new passage through the Bight. As well as removing virtually all doubt about the enemy’s intention to go up-Channel, these clues, elucidated with the help of captured charts of enemy swept channels, had enabled the OIC to establish the lie of the new passage. Shortly after 1800 on 11 February further decrypts were received on the strength of which the OIC that night completed the plotting of the route. At 1229 on 12 February the Admiralty promulgated ‘the most probable route for the battle cruisers’.

This information was issued after the Schanhorst, the Gneisenau and the Prinz Eugen had been detected in the Channel. Except that PR on 11 February had shown that all the ships were again out of dock, no last-minute intelligence of their departure had been received before they sailed at 2245 that day, nor was it till 1125 on 12 February, when they had already passed Boulogne, that news of the identification of the squadron was transmitted from Fighter Command to the Admiralty and all other authorities concerned.

The lack of current and near-current Enigma decrypts was not the least important reason why so much time elapsed before it was discovered that the ships had sailed. As luck would have it, the delays in breaking into the daily naval Enigma settings at this time were such that the traffic for 10, 11 and 12 February was not decrypted until 15 February. But in this situation it was all the more unfortunate that during the night of 11–12 February the plans that had been made for getting early warning by other means were dogged by a series of operational mishaps and failures.

On 6 February the Admiralty had given HMS Sealion ‘discretion to penetrate inside Brest roads, to try to catch the German ships in the enclosed waters where they had been seen to carry out their trials and exercises’. To assist her in this most dangerous patrol she was provided with information about the minefields and swept channels off Brest and with the details of the German exercise areas which the OIC had obtained from the Enigma. On the afternoon tide on 11 February she had penetrated into the approaches to Brest, had seen nothing, and had withdrawn at 2035 to charge her batteries in preparation for renewing her attempt the next day. Meanwhile, the German ships had been preparing to sail at 1930, but their departure was delayed till 2245 by an RAF raid which was carried out when PR, the first that had been possible since 9 February, had disclosed that they were still in harbour, with torpedo booms still in position, at 1615. But for their delay in sailing, they might well have been seen by the Sealion.

As it happened, they were missed not only by the Sealion but also by the three special night air patrols that were being flown by Coastal Command. The aircraft flying the earliest and most easterly of these patrols, that which covered the coast round Brest and was designed to detect the ships in whatever direction they sailed, reached the patrol area soon after 1900 on 11 February. At 1925 it signalled that its ASV was defective and returned to base. By 2238 its crew was back in the patrol area in a stand–by aircraft, and for some minutes
early in 12 February the stand–by aircraft was in ASV range of the German ships. But the ASV registered no blips. The second patrol ran from Ushant towards Jersey. Its aircraft reached the line on schedule at 2015 on 11 February. But at 2055 it, too, reported that ASV was not working; and, as the aircraft was not replaced, there was no patrol when the ships passed the line at 0050 on 12 February. The third patrol fared equally badly. Designed to cover the area from Le Havre to Boulogne up to daylight, it was terminated at 0613 on 12 February, about an hour before schedule, because of a fog forecast; the ships were then still to the westward of it. There remained only the routine first–light patrol that was flown daily by Fighter Command between Ostend and the mouth of the Somme, and the German ships were some distance west of the Somme when this patrol ended just before 1000 on 12 February. To complete the tale, PR of Brest after daylight on 12 February was prevented by low cloud and a smoke screen from discovering whether or not the ships had sailed.

The first signs of enemy activity in the Channel were detected by British coastal radar stations. Between 0825 and 0959 they registered four plots of enemy aircraft circling in small areas just north of Le Havre. The plots were of a type that was by no means uncommon, and it was not until about 1000 that No 11 Group, Fighter Command, realising that the areas being circled were moving north-east at a speed of 20 to 25 knots, decided to send two Spitfires to investigate. They took off at 1020. By that time Fighter Command HQ had learned that enemy attempts to jam the coastal radar screen had begun at 0920 and that the radar station at Beachy Head was beginning to record indications of surface vessels, and at 1052 the stations in Kent reported ‘two fairly large ships’ off Le Touquet. But when these developments were reported to No 11 Group and the naval authorities at Dover, just before 1100, the pilots of the two Spitfires were already being interrogated: having observed their routine instructions not to report by W/T, they had landed back at 1050, and the senior pilot was reporting that he had seen an escorted convoy of 20 to 30 ships and a group of E–boats. This information was rushed to No 11 Group and to Dover – where it arrived at 1105 – before the junior pilot added that he had also seen a vessel with a tripod mast and superstructure. And before his interrogation could be completed, two other Spitfires, on a sweep that had no connection with operation Fuller, had returned to base at 1109 to announce that they had sighted the German squadron at 1042,16 miles west of Le Touquet. It was their report, thus delayed by their observation of routine instructions not to break W/T silence, that Fighter Command transmitted to all concerned at 1125.

All the attempts that were made to attack the ships during the rest of 12 February came to nothing. Although there were other reasons for their failure – the weather was foul and the available British forces were limited – it was mainly due to the lateness of the alert. The subsequent Board of Enquiry attributed this to two things in the first instance. It drew attention first to the neglect of the authorities to rectify some of the breakdowns in the night air patrols, and particularly to their omission to strengthen and extend Fighter Command’s routine first–light patrol in the Channel after the night patrols had proved defective. Secondly, it criticised the slowness of the authorities in taking action on the earliest indications that were received of the enemy’s move – the circling plots registered by coastal radar, and the enemy’s attempts to jam the coastal radar stations. And by way of accounting for these shortcomings it emphasised that it had been ‘the general opinion among those
who were dealing with the problem... that the enemy's most probable course would be to try to pass through the Straits of Dover by night'.

When all this has been said, however, it must be admitted that the German authorities had planned the operation meticulously, choosing ideal weather and sea conditions and making excellent use of the element of surprise: and it may be added that, even so, intelligence, and good liaison in making use of it on the British side, turned the successful transit of the Straits by German capital ships into a Pyrrhic victory. On the strength of the intelligence about the minesweeping in the Bight, Bomber Command had laid 69 magnetic mines along the new swept way on 6 February and 25 more on 7 February. On 11 February, when the route of the new channel was established more precisely, it had laid four more mines, and further mines were laid on 12 February, when it was learned that the enemy was in the Straits. On the evening of 12 February in the vicinity of these mines the two German battle cruisers were each mined once, the Schamhorst being severely damaged, the Gneisenau less so, and both were thus prevented from joining the Tirpitz in Norway. The Schamhorst had earlier hit another mine, in a position too far to the westward for that to be attributable to the recent minelaying, but the previous damage to her had been less serious.

That both ships had been mined was soon established by the Enigma, but the news was not published: the temptation to release it, and mitigate the indignation that swept the United Kingdom, was resisted. It was not till much later that the Admiralty learned that on the night of 26–27 February, when she was in the floating dock at Kiel, the Gneisenau was further damaged by two heavy bombs in a Bomber Command raid. This attack, on top of the damage she had sustained in Brest and during the passage to Germany, left her needing a year under repair, and in January 1943, the month in which the Schamhorst at last succeeded in making the passage from the Baltic to Norway, the Gneisenau's refit was abandoned.

The German Naval Command assessed the move of the Brest ships through the Channel as 'a tactical victory, but a strategic defeat'. It recognised that by concentrating its ships, and that partly for defensive purposes, it was abandoning the threat from Brest to the Atlantic convoys. During most of 1942, however, it continued to achieve tactical successes in Biscay and the Channel, getting blockade runners in and out of Biscay and sending auxiliary raiders to sea via the Channel, the only possible route since the middle of 1941.

Between April 1941 and May 1942, in the first instalment of an Axis programme of sailing German and Italian blockade runners between Japan and the Biscay ports, with scarce raw materials for Germany and machinery and machine tools for Japan, six ships got away from Biscay and twelve out of sixteen ships succeeded in reaching Biscay from the Far East. No advance warning had been received before the sailings began. Nor did intelligence about the blockade runners quickly improve after PR and the naval Enigma had established in June 1941 that one of them had reached Eiscay - in fact it was the second - and the SIS had reported in September 1941 that yet another had arrived.
The main source of information about the Axis plans turned out to be the Japanese diplomatic cypher traffic, and even when this gave the date of departure of a ship from Japan, which it did only on rare occasions, that information was not a sufficiently precise basis for mounting special Biscay patrols. The naval Enigma evidence suffered from the same limitation with respect to inward-bound ships. Although it suggested from time to time that a movement through Biscay was being prepared, it only once revealed the position of a blockade runner on the high seas. It was with assistance from the Enigma that the Coastal Command patrols sighted a blockade runner for the first time on 11 January 1942 and that the ship - the *Elsa Essberger* - was successfully attacked and driven to off-load her cargo in Ferrol, but the only other sighting of an inward-bound ship up to June 1942 was a chance sighting on 15 May. The Enigma traffic more commonly gave warning that a ship was about to leave the Bay - for the blockade runners usually got U-boat or torpedo-boat escort on arriving at or departing from a Biscay port - and the OIC had some knowledge of the routes that the ships would take across Biscay. Almost always, however, the Enigma warnings came too late for action, as did PR and SIS warnings of impending departures.

By June 1942 only three blockade runners had been sunk - two by routine naval patrols and, as the Enigma disclosed, one accidentally by a U-boat. On the other hand, 12 arrivals had been detected in the past twelve months, mainly by the naval Enigma or PR, and six departures had been noted. In the same month MEW expressed considerable anxiety about the success of the Axis programme. It calculated that in the first six months of the year nine blockade runners had reached the French ports carrying 60,000 to 65,000 tons of rubber and valuable supplies of tin, wolfram, hemp, hides, silk and vegetable oils, and that if the total were to reach 100,000 tons for the whole of 1942 Germany’s essential needs in some of these commodities would have been met. But despite the introduction of stricter measures by the Admiralty the expanded blockade running programme launched by the enemy for the winter of 1942-1943 was not seriously interrupted until the end of 1942, when intelligence about the blockade runners underwent marked improvement.

Until the autumn of 1942 the same was true about the passage of auxiliary raiders through the Channel. For a short period at the end of 1941, with the loss or the return to Germany of all the ships that had sailed in 1940, the Germans had no auxiliary cruiser at sea. In January 1942 a second series of cruises began with the departure from Biscay of the *Thor* (Raider E), which had moved down the Channel during the previous month. She was followed by the *Michel* (Raider H) in March and the *Stier* (Raider J) in May. Their movement down the Channel was disclosed by the Enigma, but attempts to intercept them failed. In all three cases the Home Water Enigma enabled the Admiralty only to give warning that they had left Biscay for their cruise.

In October 1942, in contrast, with fuller Enigma intelligence to help them, strengthened British striking forces foiled the next German attempt to get such ships down the Channel. The Admiralty was able to warn the naval commands on 29 September 1942 that the *Komet* (Raider B) was about to leave Germany on a second cruise. On 2 October the Admiralty’s warning was confirmed by an Enigma message announcing that she was to be employed on a further cruise, and on 4 October another message reported her passage through the Kiel Canal. Between 7 and 13 October, when the raider reached Le Havre, the Enigma was being read with a delay of 36 hours, and on the German side there
were unexpected delays in the ship’s nightly passages from port to port. For these reasons the earliest attempts to intercept her, one by destroyers on 10 October and one by aircraft on 12 October, were unsuccessful. But on the night of 13–14 October, on passage from Le Havre to Cherbourg, the *Komet* was sunk by a force of motor torpedo boats and destroyers. They worked with the additional advantage that, on the basis of many months of Enigma traffic, the Admiralty knew precisely the route the raider would follow.

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The difficulty that the Germans were beginning to encounter when moving their auxiliary raiders through the Channel was not the only indication that the initiative in European coastal waters was beginning to pass from the Germans. Since the spring of 1942 the British had carried out raids on German-occupied France and throughout the year, while German successes against British coastal shipping were steadily reduced, the British offensive against German coastal shipping no less steadily increased.

The raids were carried out against Bruneval in February, against St Nazaire in March and against Dieppe in August. The raid against St Nazaire, with the object of denying the use of its dock to the *Tirpitz*, was planned on the intelligence side in close collaboration between the intelligence staff of Combined Operations HQ, which was responsible for the operational planning, and several other bodies. In contrast to the mass of static information put into the planning of the raid, no current intelligence became available during the operation, and it was not until the raid was almost over that the naval Enigma began to reveal some of the enemy’s reactions to it. In time the Enigma gave useful details about the defence measures introduced at other ports in consequence of the raid - though these did not include the fact that Hitler ordered Dönitz to withdraw to Paris the U-boat control room that had been set up at Lorient towards the end of 1940. PR established the extent of the damage on the evening of 29 March: further details came in from the SIS during the following month.

The purpose of the Dieppe raid was to test the German coastal defences and discover what resistance would be met in seizing a port; it was also hoped to inflict wastage on the GAF, thereby providing some relief to the Soviets. The project suffered from postponements leading first to its cancellation and then to its revival at short notice. It also suffered from changes and compromise during the planning stages: in particular: it was originally to be preceded by heavy air bombardment and accompanied by airborne attacks, but these provisions were abandoned. Either as originally conceived or in consequence of these developments, the raid was not merely a hazardous but a doomed undertaking; but defects in intelligence may have contributed to its failure.

The most serious defects related to topography and the scale of the fixed defences. The beaches proved to be quite unsuitable for a landing with tanks. Extensive PR had detected that there were gun positions in the eastern cliff, but had failed to establish the calibre of the guns, and it had also failed to show

*See below, p 166.*
that similar gun positions were built into the cliffs on the western headland. These were the prime reasons why such havoc was inflicted on the frontal assaults that the evacuation of as much of the force as could get away had to be ordered within five hours of the landings. In these circumstances it mattered little that the landings had achieved tactical surprise, or that the scale and time of arrival of local troop reinforcements and of intervention by the GAF had been assessed with reasonable accuracy. A great risk had been taken in discounting the danger of intervention by 10th Panzer Division, which was known to be in Amiens, but the wisdom of this decision was not put to the test: the division’s advance guard was ten miles from Dieppe when that part of the raiding force that could not be evacuated was surrendering on the beaches.

Since the end of 1941 there had meanwhile been a steady reversal in the war against coastal shipping as British losses began to decline and the British offensive grew in scale. From June 1941 the GAF’s previously unremitting assault on coastal shipping had given way to sporadic bombing raids and minelaying sorties, mainly at night, because so many of its units had been transferred to the eastern front, and from July 1942, as it continued to be stretched elsewhere, it was laying fewer mines in British waters than the E-boats. E-boat operations were themselves being reduced as the flotillas had to be dispersed, first to the Baltic and subsequently to Norway and Sicily. Hardly less important in bringing down the British losses were two other developments. Naval and air arrangements for the protection of shipping were improving; and this improvement owed not a little to better intelligence.

From the middle of 1941 the exploitation of the GAF’s WT transmissions in tactical codes had reached the point at which Cheadle could give several hours’ warning of most attacks, and its techniques had extended to using the activity of the GAF’s MF navigational beacons to give notice that raids were to be expected from particular airfields by particular units. Numerous raids were predicted by these methods during 1941, in many cases an hour ahead of the radar alert. Fighter patrols flown as a result of these warnings often deterred the GAF from attacking convoys and disrupted GAF minelaying sorties against the east coast estuaries. Another source of intelligence, useful against both the GAF and the E-boats, was the interception of the enemy’s plain language and low-grade code transmissions by RT on VHF. From the middle of 1941 more coast stations were brought into service to intercept this traffic, communications between the stations and the operational commands were improved, and RT intercept staff, known as Headache parties, were installed in the destroyers of the Nore Command. Thereafter, and particularly as more and more ships were equipped with Headache, the RT intercepts increasingly contributed to the defence of the east coast convoys.

Unlike the work of Cheadle and the RT traffic, neither the GAF nor the naval Enigma gave advance notice of attacks. From October 1941, however, when the Germans established a force of 20 E-boats for operations in British coastal waters, the naval Enigma decrypts regularly yielded intelligence about the movements of this force between different bases, the routes the E-boats used in their sorties and the areas they had mined. Such was the effect of this further contribution to the efficiency of Coastal Command and the naval defences that the E-boats were forced to operate only at night from the middle of 1942.

But see pp 162–163 for Cheadle’s increasing problems in 1942.
Increasingly during 1942 the Sigint was being used less for defensive purposes than in support of the mounting British offensive against the enemy’s coastal shipping. It was of little value for guiding the RAF’s bombing attacks to their targets; for this purpose the most useful sources were air reconnaissance, the coastal radar and the growing ability of the CIU to extract operational information from the interpretation of PR photographs. But the regular reading of the naval Enigma was invaluable from the summer of 1941 in building up the virtually complete knowledge of the German coastal shipping routines, in the entire area from the North Cape to the Spanish frontier, which illuminated the information from these other sources and determined the RAF’s reconnaissance programme. From August 1941 the evidence of the decrypts, which were supplemented by intercepts in the dockyard cypher and a merchant shipping code and, in Norway and the Baltic, by reports from the SIS and the naval attaché in Stockholm, showed that the British offensive was forcing the enemy to stop daylight sailings. By the autumn of that year it was clear that only a few strategically important ships were venturing south of Rotterdam. But if the initiative was passing from Germany to Britain, the British offensive was still obtaining only moderate results from its direct attacks. As a result partly of continuing British operational deficiencies and partly of improvements in German anti-aircraft defences, which reduced attacks between Rotterdam and the Elbe from November 1941 and forced the RAF to bomb from higher levels from June 1942, only 42 ships were sunk in direct attacks between April and December 1941 and only 42 (in no less than 1,565 attacks) during the whole of 1942.

It was solely due to the naval Enigma that these figures, which were but a fraction of the sinkings claimed, were known at the time. From the summer of 1941, moreover, the Enigma decrypts established that minelaying was far more effective than direct attacks: by April 1942 they had recorded the loss of 191 enemy ships in the past year from all forms of minelaying, of which 149 had been sunk by mines laid by Coastal and Bomber Commands. On this evidence, Bomber Command became more prepared to devote a part of its effort to minelaying from the end of 1941. Thereafter, the minelaying campaign was steadily expanded as operational shortcomings were removed – by an increase in the production of mines and the use of more effective aircraft – and as research on the evidence provided by the naval Enigma and captured documents about the enemy’s shipping routines, swept ways and navigational arrangements established with increasing accuracy when and where German shipping was most vulnerable to mines. Its success is illustrated by the following figures:

<table>
<thead>
<tr>
<th>Period</th>
<th>Mines sown by Bomber and Coastal Commands</th>
<th>Enemy ships sunk by mine</th>
<th>Enemy ships damaged by mine</th>
</tr>
</thead>
<tbody>
<tr>
<td>April–Dec 1941</td>
<td>1,150</td>
<td>35</td>
<td>39</td>
</tr>
<tr>
<td>Jan–July 1942</td>
<td>4,366</td>
<td>71</td>
<td>47</td>
</tr>
<tr>
<td>Aug–Dec 1942</td>
<td>5,345</td>
<td>93</td>
<td>64</td>
</tr>
</tbody>
</table>

A further indication of its effectiveness is the fact that during August–
December 1942, while all other forms of attack on shipping caused the loss of only 20 ships in return for the loss of 197 aircraft, the minelaying cost 93 aircraft. Thanks largely to the Enigma, the authorities in Whitehall had at the time a reasonably accurate knowledge of the enemy’s casualties and of the extent to which they stemmed from the minelaying offensive. Not less important, they recognised increasingly clearly after the middle of 1942 that, as was indeed the case, the offensive was largely responsible for the fact that a shortage of shipping was handicapping the German war effort. MEW detected this in the first half of 1942, when it noted a falling off in the German–Swedish trade and the fact that Germany had been requisitioning Norwegian fishing vessels for cargo work. By October it knew that the Germans had appointed a special Reichskommissar for shipping and that a serious operational shortage existed. At the end of the year it estimated that the Reichskommissar had done little to alleviate the shortage, which it attributed not only to a decline in shipping but also to shortage of officers and crews, the immobilisation of diesel ships by fuel shortage, and the diversion of shipping to meet Sweden’s coal requirements. In March 1943 it emphasised that by the end of 1942 the shipping situation in northern waters had ‘deteriorated to the point where a shortage of serviceable shipping has become a limiting factor in the German supply programme’. In this report, moreover, while allowing that other causes were at work – an increasing demand by the enemy’s armed forces for naval auxiliary vessels and also to shortage of officers and crews, the immobilisation of diesel ships by fuel shortage, and the diversion of shipping to meet Sweden’s coal requirements. In March 1943 it emphasised that by the end of 1942 the shipping situation in northern waters had ‘deteriorated to the point where a shortage of serviceable shipping has become a limiting factor in the German supply programme’. In this report, moreover, while allowing that other causes were at work – an increasing demand by the enemy’s armed forces for naval auxiliary vessels and a low rate of replacement and repair were now mentioned, as well as shortages of crews and of diesel fuel – it gave pride of place to the heavy losses brought about by the Allied anti-shipping offensive, especially to ships of between 3,000 and 8,000 tons, and stressed that there would be a progressive deterioration in Germany’s shipping position if the offensive was maintained at the existing level.

* * *

If the end of 1942 saw a distinct change to the disadvantage of Germany in the war in coastal waters, the previous 9 months had been marked by the rise of a new problem – the need to pass convoys to and from Russia’s Arctic ports against increasing enemy opposition. These convoys had begun in August 1941. Until the end of the year they had been run without interference, and they had lost only one merchant ship and one destroyer to U-boat attack up to the beginning of March 1942. By December 1941, on the other hand, the Germans had established a new command, Admiral Commanding Northern Waters, to be responsible for U-boat and surface ship operations in this area, and had decided to move U-boats and destroyers to the far north, as well as to reinforce the GAF there. And between then and the spring, as they came to realise the scale on which supplies were reaching Russia, and as their determination to interrupt the convoys supplemented the original reason for the decision to divert forces to Norway, which was the fact that Hitler’s anxiety about a possible Allied descent on the Norwegian coast had been intensified by British commando raids in the Vestfjord and at Vaagsø in December 1941, they built up a balanced force of surface units, U-boats and aircraft in the Norwegian theatre.
The GAF reinforcements - bombers and torpedo-bombers, backed by long-range reconnaissance aircraft - began to arrive in January 1942, when new air commands were set up at Stavanger and Kirkenes. In February a third new GAF command, Fliegerführer Lofoten, was given the dual role of defending Norway and working against the convoys. In the same month the number of U-boats allocated to the far north for anti-convoy operations was increased from three to nine, and six others were distributed between Narvik, Trondheim and Bergen for reconnaissance and defence against landings. In May all U-boats that had been diverted to the Norwegian theatre were transferred to the Arctic Command. On 23 February the Scheer and the Prinz Eugen joined the Tirpitz, which had reached Trondheim on 16 January. The Hipper joined them there on 21 March, and on 26 May the Lützow reached Narvik, to which area the Scheer had moved earlier in the month.

Of these redispositions the British authorities were kept closely informed. From the GAF Enigma and the low-grade GAF Sigint provided by Cheadle they had a detailed knowledge of all the changes that were taking place in the GAF order of battle: and of the more important of these changes - the various stages by which the GAF brought about the very considerable increase in its strength: its preparations for operations against naval units: its development of a torpedo-bomber force: the arrival of FW 200s at Trondheim for long-range reconnaissance in northern waters - they had notified the Home Fleet long before the Germans made their first air sighting of an Arctic convoy, PQ 12, on 5 March and their first air attack on one, PQ 13, on 27 March. With the aid of the naval Enigma they quickly detected the first important reinforcement of the U-boats in the Arctic in February, and were able to keep track of the further increase in Arctic U-boats to 12 in March and to estimate that the total number in Norwegian waters was about 21 by August, when the actual figure was 23. From the same source they received advance warning of the transfers of the main units of the German Fleet from the Baltic to Norway.

As early as 12 February the Admiralty knew from the Enigma that further large warships were to join the Tirpitz at Trondheim, and on the morning of 20 February it obtained indications from Traffic Analysis that a naval movement from Germany had begun. On the strength of this evidence a reconnaissance aircraft sighted two large warships off Jutland at 1100 on that day. It was unable to keep contact in bad weather, but from the evening of 21 February detailed Enigma intelligence came in about the future movements of the ships. It was as a result of this information that the ships were sighted twice on 22 February and, four submarines having already been sent to patrol off Trondheim, one of them, HMS Thickent, torpedoed the Prinz Eugen on the morning of 23 February as she and the Scheer approached that base. By the afternoon of 24 February the Admiralty knew from the Enigma that the Prinz Eugen had been hit. With this exception, however, it proved impossible to intercept the main units. One difficulty was that the Enigma usually gave very short notice of their movements. Another was that, beginning with the transfer of the Tirpitz, the ships in most cases avoided the more usual exit route through the Belts and the Kattegat and moved to Norway via the Kiel Canal and the North Sea. It had thus turned out that the Admiralty was able to warn that the Tirpitz had left Germany only on 17 January, the day after her arrival in Trondheim, though it had known from the Enigma since December that she was to be ready for operations by 10 January, and, the Enigma having shown that she had embarked neither an Admiral nor an intelligence detachment as the Bismarck...
had done, it had informed the Home Fleet from 7 January that it was unlikely that she would immediately try to break out into the Atlantic. In the same way, all efforts to attack the *Hipper* came to nothing. Special reconnaissance was laid on when low-grade Sigint pointed to the possibility of an imminent naval move. But it was not until the early hours of 20 March that the Enigma confirmed that she was at sea and gave details of her route. She was sighted off Norway on the afternoon of the 20th. In May the *Lützow* also escaped attack while moving to Norway, as did the *Prinz Eugen* during her return to the Baltic, despite the receipt of warnings from the Naval Attaché, Stockholm, the Enigma and the W/T ship-watching stations which the SIS had now established in Norway.¹

Once the German reinforcements, naval and air, had reached their bases in Norway they presented a formidable threat to the Arctic convoys. The difficulties were particularly severe when it came to protecting the convoys against the GAF and the German battleships. Against the U-boats in the Arctic the Admiralty could not practise evasive routeing to anything like the extent that it could in the Atlantic: the room for manoeuvre was heavily restricted and little deviation from the convoy routes was possible. As against that, the forces supporting the convoys were invariably commanded by Flag Officers and to them, as Ultra recipients, the Admiralty relayed a constant supply of Enigma in addition to other intelligence. Other factors played their part in limiting the success of the U-boats – the persistence and the efficiency with which the escorts took the offensive against them; the fact that the U-boat Command did not use its most experienced commanders on the Arctic route; the fact, which emerged unmistakably from the Enigma, that Admiral Commanding Northern Waters operated the U-boats much less efficiently than the U-boat Command operated the Atlantic U-boats. But the Enigma provided the support forces with a comprehensive and precise account of the number of U-boats on patrol, their movements and dispositions and their operational reports, and it may be assumed that this was not the least reason why the U-boats did comparatively little damage except when they were exploiting the disorganisation imposed on the convoys by GAF attacks or the fear of raids by the main units.²

The GAF, which in fact accomplished most of the damage, presented a problem to which intelligence could contribute much less. The evidence for the details of impending attacks, as of the patrols and sighting reports of the enemy’s reconnaissance aircraft, was provided mainly by the GAF’s low-grade W/T traffic. Not all of this could be intercepted in the United Kingdom; inferences from the considerable amount that was intercepted there could not often be relayed in time. To overcome these difficulties the NID and AI developed a system by which parties of so-called ‘computers’ from Cheadle accompanied the Home Fleet’s cruiser admirals who commanded the close support for the convoys. These parties received via the Admiralty details about

¹The SIS was unable to establish an agent in the vicinity of the fleet anchorage in Trondheim itself before the summer of 1942 and it did not succeed in installing one in Altenfjord until the autumn of 1943.

²Between 21 August 1941 and 30 December 1942 306 merchant ships sailed to Russia of which 53 were lost, 36 to aircraft and 17 to U-boats. In the return convoys the total was 227 ships, of which 17 were lost, 2 to aircraft, 8 to U-boats and 2 to surface attack. Four merchant ships and an escort were lost in a British minefield off Iceland.
the GAF’s frequencies, call-signs and daily-changing low-grade codes. With this assistance, and given their understanding of the GAF’s signals procedure, they were able to provide the convoy escorts with a fairly good picture of the enemy’s reconnaissance activity, and they could sometimes predict an attack twenty minutes ahead of radar. But this system was not introduced until May 1942 - the parties sailed for the first time with PQ 16 - and by then the scale of the GAF’s effort had so much increased that tactical intelligence, however good, was of little avail. Against PQ 16 the GAF deployed 129 attack aircraft and 72 assorted reconnaissance aircraft, and it made 230 bomber sorties and 42 torpedo bomber attacks. Against PQ 18 in September 1942 it made an even bigger effort - the biggest, indeed, against any Arctic convoy, for in November the bulk of its Arctic squadrons were to be moved to the Mediterranean - and PQ 18 lost 13 out of 40 ships, most of them to GAF attack.

For nine weeks before the sailing of PQ 18 the Arctic convoys were suspended. In part the result of the diversion of Home Fleet forces to the Mediterranean, the suspension was also accepted because the problem of dealing with the menace from the German surface fleet had proved unmanageable during the sailing of PQ 17. This problem had first arisen at the end of February with the arrival at Trondheim of the _Scheer_, the _Prinz Eugen_ and enough destroyers to provide a screen for the _Tirpitz_. Moreover the Enigma had disclosed at that time that the German Admiral Commanding Battleships, who had not accompanied the _Tirpitz_ when she sailed in January, had now embarked. Accordingly, distant cover by battleship and aircraft carrier was provided for the convoys for the first time when PQ 12 and QP 8 sailed on 1 March, the two convoys were sailed simultaneously to maximise the protection and Coastal Command flew special patrols off Trondheim. But the difficulty of ensuring protection was emphasised when the _Tirpitz_ sailed on 6 March.

Despite good notice of her expected departure, the Admiralty received no intelligence about her for two days, and the situation was saved only by her failure to find the convoys in bad weather during 8 March and by her decision to call off a further search planned for 9 March. Advance notice from the Enigma of this decision and of the route she would follow back to Trondheim enabled aircraft from the _Victorious_ to attack her at extreme range. The attack forced her into Narvik, but was otherwise unsuccessful, and there was no further news of her until air reconnaissance located her in Trondheim on 18 March.

Against the next convoys - PQ 13 and QP 9 which sailed on 20 and 21 March - the German navy deployed ten U-boats and three destroyers. The Admiralty was able from the Enigma to provide the support forces with details of the U-boat patrol areas, to warn them to expect GAF and destroyer attacks and to advise them that the GAF had sighted PQ 13 on the morning of 27 March. About the destroyers the Enigma supplied considerable advance information, their movement to Kirkenes on 26 March, notice of their intention to attack, and indications of where their attack was to be expected all being relayed to the support force of PQ 13 well before the encounter on 29 March in which the support force, led by the cruiser _Trinidad_, sank one enemy destroyer and damaged the other two, in exchange for damage to herself and the loss of one merchant ship. PQ 13 was the first of the convoys to suffer appreciable losses - two ships sunk by aircraft, two by U-boats and one by destroyers - but the ships sunk were either stragglers or had been scattered by a gale, and were thus unable to benefit from the intelligence sent to the
support forces. Not less important, the Enigma provided the Admiralty with negative evidence that none of the larger enemy ships had moved north with the destroyers – the absence in the Enigma decrypts of signals to the main units or of reference to main units in the signals to the U-boats and the destroyers.

In this last respect, as in the fact that it provided the support forces with a stream of information about the current strength and dispositions of the U-boats and the GAF, about the GAF’s sightings of the convoys, and about the movements and intentions of the destroyers in the north, the pattern of the intelligence sent out during the passage of PQ 13 was repeated for the next few convoys. On two occasions during the passage of PQ 14 and QP 10 in the middle of April the Admiralty assured the Home Fleet that there was no evidence that the enemy’s main units were at sea. At the end of April the Home Fleet was alerted in the early stages of the passage of PQ 15 and QP 11, in response to Enigma evidence that the GAF had brought some units to one hour’s notice for anti-shipping attacks. Although it soon emerged that the enemy’s state of readiness was in part associated with an anti-invasion scare in the Lofoten area,\(^1\) the convoys were duly subjected to air attack without further warning. In addition, on 1 May, QP 11 was attacked by three German destroyers which sank one merchant vessel and the cruiser *Edinburgh*, previously damaged by a U-boat. The Admiralty was able to warn the Flag Officer Commanding 18 Cruiser Squadron (CS 18) in the *Edinburgh* at 1420 on 1 May that the destroyers had sailed from Kirkenes at 0100. The *Edinburgh* was sunk on 2 May, but – as the Admiralty at once learned from the Enigma – she and her destroyers sank one of the German destroyers and damaged the other two.

With every subsequent convoy operation the convoys themselves were increased in size, the days lengthened, and the strain of watching for any sign of movement by the large German ships steadily mounted. After the arrival of PQ 15 the movement of the *Scheer* from Trondheim to Narvik, which was revealed in the Enigma on 10 and 11 May and checked by PR the next day, added considerably to the strain and delayed the sailing of PQ 16 from 16 to 21 May. The movement more than offset the fact that the threat from destroyers had been greatly reduced in the engagement with the *Edinburgh*. In addition, the Enigma disclosed that Admiral Northern Waters had moved his HQ to Narvik, a move which led the OIC to believe that the Germans aimed to bring a bigger weight of attack against the Russian-bound convoys at an earlier stage in their passage. By the end of April, moreover, the Enigma had established that the *Tirpitz* had escaped damage during Bomber Command’s latest attempt to put her out of action; the Enigma decrypt reporting on the raid that was carried out against her on 27 April described the attack as ‘most courageous’ but said that there was no damage to the ship, smoke having provided the best possible protection. It was with these developments in mind that on 18 May the First Sea Lord reiterated that the passage of the Arctic convoys was ‘a most unsound operation, with the dice loaded against us in every direction’, and that on 23 May, when the Admiralty replied to an enquiry from the C-in-C Home

\(^1\)Since October 1941 either the naval or air Enigma had disclosed several such German alerts. There was one in October 1941, one in February 1942, one on 21 April 1942, in which the *Hipper* and the *Tirpitz* were brought to short notice, in addition to that reported on 30 April.
Fleet as to the extent to which he could expect to receive intelligence from the Enigma during the next few days, it warned him that 'it is not usually possible to forecast when source will recommence' and that 'movements of German units are not certain to be detected by this source'.

On the same day the Admiralty was able to tell the Home Fleet that the Scheer and her four destroyers had been put at short notice on 21 May. On the evening of 25 May the Enigma reported that the Liitzow would reach Narvik on the following day. But in the event, although PQ 16 was subjected between 25 and 28 May to intensive attack by U-boats and the GAF, the GAF again doing most of the damage, the Scheer and the Liitzow made no move against it. On 28 May, moreover, when the battered convoy was approaching Bear Island, the Enigma revealed that the Tirpitz would be exercising at Trondheim between 28 and 30 May. The inactivity of the main units probably resulted from Hitler's insistence that the Navy should not risk a serious reverse, an insistence which had led him to instruct Admiral Raeder that the heavy ships must not be used against a convoy unless the whereabouts of the British aircraft carriers had previously been established. It was the need to adjust to these instructions, which made it unlikely that the ships could otherwise sail in time to attack the convoys, that took Raeder to Trondheim at the end of May to work out with Admiral Commanding Battleships a plan for sending the ships to temporary bases in the extreme north as soon as the next Russia-bound convoy was known to have sailed, and for using all of them against it only after it had passed 20° E.

Of Hitler's prohibition and the German Navy's reaction to it the Admiralty learned nothing from the Enigma beyond the fact that Raeder visited Trondheim on 31 May. On 18 June, however, it received from the Naval Attaché Stockholm an account of how the Germans planned to attack the next Arctic convoy with U-boats, air forces and two groups of surface ships. It was thus with every expectation that the German surface ships would intervene, and with considerable foreboding, that the Admiralty made its preparations for the sailing of PQ 17. It gave orders that the cruiser covering force should not proceed east of Bear Island unless it was clear that the convoy was threatened by an enemy force which did not include the battleship; and in a last-minute telephone discussion with the C-in-C the First Sea Lord told him that the Admiralty might order the convoy to scatter if it appeared to be in imminent danger of attack from the enemy's surface fleet. By this time 13 Allied submarines had been deployed to cover the exits from the north Norwegian bases and the approaches to the convoy route and, in an attempt to improve the chances of detecting the enemy's warship movements, arrangements had been made for RAF Catalinas to land at Russian bases after patrolling off north Norway and to work from them for a time before returning to the United Kingdom.

* * *

This was the first information obtained from a source subsequently graded A2 by the Admiralty (Enigma was graded A1) via the Naval Attaché Stockholm. He had succeeded at this point in obtaining via the Deputy Chief on the Swedish Combined Intelligence Staff decrypts of German operational orders passing from Berlin to the German naval commands in Norway by land-line.
When PQ 17 sailed on 27 June 1942 the Enigma intelligence about the
strengths and dispositions of the U-boats and the GAF’s forces was, as usual,
excellent, and it included details of the arrangements made by the GAF for
finding and shadowing the convoy and numerous German reports of the
position of the ice-edge. As for the German surface ships, the Home Fleet had
recently been informed that there was no evidence from the Enigma that the
*Tirpitz* had left Trondheim. Late on 30 June the Admiralty sent the C-in-C and
the cruiser admirals a further negative report: ‘it appears from negative
information that there was no movement of a main unit on the Norwegian
coast on 27, 28 and 29 June’. On the afternoon of 1 July they were informed
that it was known that the Germans expected the convoy to be passing Jan
Mayen at about that time, but that ‘on negative evidence it would appear that
there had been no movement of main units and no sighting of PQ convoy up to
1200 on 1st July’. The C-in-C was fully aware of the basis of these negative
reports. On 28 June he had asked to be kept informed ‘of times at which
current Special Intelligence becomes available’. Thereafter the Admiralty sent
him regular messages telling him when the OIC expected the Enigma to be
broken, when the Enigma had been broken and, from time to time, when the
OIC had completed the study of the latest period of decrypts.

At 1432 on 1 July the GAF’s sighting report of PQ 17 was intercepted in the
United Kingdom, and at 1900 the Admiralty relayed the news to all ships. On 2
July it added two items of Enigma intelligence for the Ultra recipients. At 1313
it warned them that the GAF had ordered a torpedo-bomber attack for 2100. At
2349 it informed them that there were ‘no direct indications of movements of
enemy main units’, but drew their attention to the fact that the GAF had placed
its coastal fighters on the alert and had flown reconnaissance patrols during 2
July in an effort to locate the C-in-C’s heavy covering forces. During 3 July the
Enigma established that two German fleet movements had taken place earlier
that day, and left little doubt that one was the transfer of the *Scheer* to a base
north of Narvik and the other the movement of the *Tirpitz* and the *Hipper*
from Trondheim northwards up the coast. That the *Scheer*’s northern base was
probably Altenfjord was known from the fact that the Enigma had revealed in
June that nets were to be laid out there and a report from the Naval Attaché
Stockholm, also in June, that two major warships were expected there.
Although the Enigma indicated that the *Lützow* was not in company with the
*Scheer*, it did not disclose until 8 July that she had remained in the Narvik
area, where she had run aground and become non-operational. As for the
*Tirpitz* and the *Hipper*, it had not been possible for air reconnaissance to throw
any light on their whereabouts.

The information about the movements of 3 July derived from the fact that
GC and CS was reading the Enigma traffic for the period 1200 on 1 July to 1200
on 3 July from about 0500 on 3 July.\(^1\) In the Arctic theatre the Enigma settings
were changed daily at noon and, as with all naval Enigma, the settings of the
second of a pair of days were usually broken within a few hours once the
settings of the first day of the pair had been broken. The Enigma traffic for the

\(^1\) At the beginning of July 1942 the shortage of bombs at GC and CS necessitated difficult
decisions about priority as between PQ 17 and the fighting in the Western Desert, which had
become critical after Rommel’s Gazala offensive. After consultation with Whitehall, highest
priority was given to the Home Waters traffic in view of the threat to PQ 17.
first of the next pair of days – that for the period from 1200 on 3 July to 1200 on 4 July – was broken at 1837 on 4 July and the decrypts began to reach the OIC about 1900. This unreadability gap, stretching from 1200 on 3 July to 1900 on 4 July, was made all the more agonising by the fact that an accident had interrupted the air reconnaissance patrols off North Cape between 1100 and 1700 on 4 July. While it lasted, apart from reporting that the GAF had sighted PQ 17 at 0726 and again at 1630 on 4 July, the OIC sent only two items of intelligence to the C-in-C Home Fleet. One at 0250 on 4 July suggested that a sequence of German naval transmissions, transmitted at hourly intervals since 1407 on 3 July, might remain indecypherable when the Enigma was next broken and ‘may indicate the commencement of a special operation by main units’, and the other, at 1145, confirmed the move of the Scheer to Altenfjord. At 1203, however, the Admiralty gave the Flag Officer Commanding First Cruiser Squadron (CS 1) discretion to continue east of the limit of 25° E ‘should the situation demand it’. The C-in-C, having received no intelligence to account for this change of plan, at once qualified the Admiralty’s instruction by ordering CS 1 to leave the Barents Sea when the convoy was east of 25° E, or earlier at his discretion, unless the Admiralty assured him that the Tirpitz ‘cannot be met’. At 1800 CS 1 announced his intention of withdrawing at 2200. But at 1858 having heard that the Enigma for the period to noon on 4 July had been broken, the Admiralty signalled him to this effect: ‘Further information may be available shortly. Remain with convoy pending further instructions’.

When GC and CS reported that it had broken the Enigma for the 24 hours up to noon on 4 July the First Sea Lord was visiting the OIC with the Assistant Chief of Naval Operations and the Director of Operations Division (Home). The first of the OIC’s signals conveying to the Home Fleet the intelligence derived from the latest decrypts was despatched after some discussion between them, the DDIC – the head of the OIC – and Commander Denning, the officer responsible under DDIC for appreciations about the German surface fleet. As despatched at 1918 it announced that the Tirpitz had arrived at Altenfjord at 0900 that morning and that her destroyers and torpedo-boats had been ordered to refuel at once; it added that the Scheer was also at Altenfjord and that at 1622 on 3 July two U-boats had been ordered to shadow the convoy. Denning recollected that he had wanted to add the comment that all the indications suggested that the Tirpitz was still in Altenfjord, that after some argument the comment was deleted before the signal was sent and that Admiral Pound then asked him why he thought the Tirpitz had not yet sailed. He gave the following reasons. He was convinced that in view of her experience while operating against PQ 12 the Germans would not allow her to sail until they had satisfied

"This surmise was based on the decrypt of a signal from the Scheer timed 1158 on 3 July in which she reported that she had been unable to decipher two recent signals, and on the fact that the signals had also proved to be indecipherable at GC and CS. The signals differed from signals using the Offizier settings: in these the originator and the recipient and a statement that an Offizier message followed were encyphered in the ordinary Enigma setting. They may have been indecypherable because they were encyphered in a new four-wheel Enigma key that was coming into use for communication between Flag Officers during fleet operations. Named Barracuda at GC and CS and Neptun by the German Navy, there is some evidence that this key, which was rarely used and never broken, was made available to the Fleet in time for the intended operation against PQ 17. But apart from the two received on the morning of 3 July no indecypherable signals were received at GC and CS during that operation."
themselves that she would not be in danger from the Home Fleet, particularly its aircraft carriers. Another newly arrived Enigma decrypt had disclosed that at 0015 on 4 July a German aircraft had sighted CS I’s force and reported that it included a battleship, and together with the fact that there was no evidence that the GAF had sighted the Home Fleet since 1 July, this led him to believe that the enemy could not disregard the possibility that CS I’s force might be a major force. Up to noon the Enigma had provided no decrypt ordering the U-boats to keep clear of the convoy, and he thought that transmissions by the U-boats since noon, though as yet unreadable, showed that they were still in contact with it. Finally, he argued, other German naval W/T traffic since noon had exhibited none of the characteristics normally associated with the presence of surface ships at sea, and no sighting reports had been received from British and Russian submarines on patrol off the North Cape. According to Denning, the First Sea Lord reflected on all this and then asked, as he left, ‘Can you assure me that the Tirpitz is still in Altenfjord?’ and Denning replied that, although he could not give an absolute assurance, he was confident that she was, and expected that his opinion would be confirmed when, in the fairly near future, GC and CS broke the Enigma for the 24 hours beginning at noon.

In the event GC and CS broke the Enigma for this period almost immediately: the decrypts began to reach the OIC at 2000. But it had provided no new positive intelligence bearing on the First Sea Lord’s questions by the time the DDIC left to attend a staff meeting which the First Sea Lord had called the 2030. One new decrypt, which Denning remembered showing to the DDIC as he was leaving, did indeed virtually prove that the Tirpitz had not sailed by noon. Timed 1130 on 4 July but not received in the OIC until 2031, it was summarised in an Ultra signal timed 2110: it had informed the U-boats that no German surface ships were then in their operational area and that the British heavy ships were to be the main target for the U-boats when they encountered them. But this intelligence did not change the situation: the assumption had already been made that the Tirpitz’s destroyers and torpedo-boats would not have completed refuelling until about noon. As for the decrypts transmitted since noon, one had established that a U-boat had sighted CS I’s force at 1327, reporting it as ‘heavy enemy forces’; another at 1458 had ordered this U-boat to shadow ‘the battleship formation’ and had repeated that the other U-boats were to attack the heavy ships; but the third had disclosed that the GAF had correctly reported at 1455 that CS I’s force consisted of four heavy cruisers with destroyers. Ultra signals summarising these decrypts were sent to the C-in-C Home Fleet and CS 1 at 2108 and 2110, in the DDIC’s absence.

Otherwise, the Naval Section at GC and CS, which shared Denning’s judgment, could support it only with the strong negative evidence that in the latest intercepts there was as yet no reference to the German ships, no Offizier signals and no indecipherable messages.

On the strength of this intelligence the DDIC either could not prevail against the decisions reached at the staff meeting or did not feel that he could counsel against them. He returned to the OIC about 2130 to report that the meeting had decided that it must be assumed that the Tirpitz had sailed; that for this reason, and on account of the threat from U-boats, CS 1 should be ordered to withdraw; and that since the German surface ships could reach it at 0200 on 5 July if they had sailed as soon as the destroyers and torpedo-boats had refuelled, the convoy should be scattered. Nor did he have any success when he was persuaded to go back to the First Sea Lord to say that the OIC still
wished to advise the Home Fleet that it believed not only that the *Tirpitz* had not yet sailed, but also that she would not until the Germans had established the location and strength of the forces supporting the convoy. In the absence of positive evidence that the enemy had not sailed since noon, the First Sea Lord would not approve such a signal or countermand the recent decisions. The Admiralty’s orders were despatched in three signals at 2111, 2123 and 2136 on 4 July.¹

It was indeed the case that positive evidence that the *Tirpitz* had not sailed was lacking when the orders went out. Although the Enigma had just become current, and although GC and CS was giving priority to decrypting the most recent transmissions, the decrypts had not yet fulfilled Denning’s expectation that they would confirm his appreciation. More than that, the negative evidence was having to contend with the anxiety that every next decrypt might disclose that they were at sea. As for the other arguments on which Denning had based his appreciation, it was not the OIC’s practice to accept that, particularly in the Arctic where 100 per cent interception of signals could not be guaranteed, the presence at sea of surface ships could be disproved by the behaviour of undecryphered wireless traffic, or by the lack of sighting reports by Allied forces. It was by no means clear since the receipt of the decrypt timed 1455 that the Germans were confusing CS 1’s force with the Home Fleet, the more so as British heavy ships had never been sent as far to the east as the position in which CS 1 had been first sighted: DF fixes on the U-boat transmissions were too few and too inaccurate to prove that the U-boat had not yet been ordered out of the convoy’s vicinity. While it would be wrong to suggest that the First Sea Lord and his staff recognised the force of all these reservations, it is easy to see why Denning’s appreciation fell short of their demand for conclusive evidence: and it is easy to see why they demanded conclusive evidence. They had to consider what would happen if the convoy was not scattered, if the supporting force were not withdrawn, and if the *Tirpitz*, the *Hipper*, the *Scheer* (and, for all they knew, the *Lützow*) and their seven destroyers had indeed already sailed.

At the same time, the operational authorities had to recognise that the convoy would in any case suffer heavily if it was scattered – it in fact lost 14 out of its 37 ships to air attack and 10 to U-boats, of which 8 or 9 were known to have kept almost continuous contact with it since 1 July – and this makes it tempting to argue that they should either have deferred a decision pending the receipt of further decrypts or have ordered the convoy to reverse course and bring itself closer to the Home Fleet. But deferment would not have saved it. In appreciating that the enemy ships had not yet sailed, Denning was right; but they sailed the next day, in adequate time to have reached the convoy before it neared Murmansk. As for reversing course, although the instructions issued to the convoy before its departure had made provision for this alternative, as for scattering, it was presumably ruled out because the convoy was already 120 miles north east of Bear Island and 375 miles from the Home Fleet, and decisions were being made on the worst case assumption that the *Tirpitz* was already at sea. Had it nevertheless been adopted, it could only have ended with the withdrawal of the convoy to the United Kingdom. On the one hand, it

¹*here is no contemporary record of the proceedings at the staff meeting, and for the DDTC’s report on it and for his return to the First Sea Lord we rely on Vice-Admiral Denning’s testimony.*
would not have enabled the Home Fleet to engage the *Tirpitz*. As Denning correctly appreciated, the German ships would have sailed only when it had been established that the Home Fleet was in no position to interfere with their attack: and they in fact sailed after the GAF had sighted it at 0500 on 5 July, some 500 miles from the convoy’s position. On the other hand, it had never been contemplated that the Home Fleet could accompany the convoy to Murmansk in face of the threat from the *U*-boats and the GAF.

The scattering of the convoy was followed by a continuing lack of reference in the decrypts to the German surface ships. In view of the limitations that Hitler had imposed on the use of the German ships, Raeder had ordered the *Tirpitz* and the *Hipper* to Vestfjord and the *Scheer* and the *Lützow* to Altenfjord as soon as he knew that the convoy had sailed, and hoped to get permission to send them to sea as soon as the Home Fleet had been located. During the night of 3–4 July, the GAF having failed to sight the Home Fleet on 3 July, he had moved the *Tirpitz* and the *Hipper* to Altenfjord to join the *Scheer*; and he kept the whole force ready to sail until Hitler’s permission came. It came in the forenoon of 5 July after the Home Fleet had been located. The *Tirpitz*, the *Hipper* and the *Scheer* began to leave Altenfjord with 7 destroyers and 2 torpedo-boats between 1100 and 1130, with the intention of attacking convoy PQ 17 on the morning of 6 July. And at 1145, fifteen minutes before the Enigma settings changed again at noon and brought about another temporary intelligence blackout, the *Tirpitz* reported that she would be ready at Rolvsøyssund, one of the exit routes from Altenfjord, at 1430. The decrypt of her signal was relayed to the Home Fleet at 1517. The German squadron was sighted by a Russian submarine at 1700 and by an aircraft at 1816, and at 2029, steering an easterly course off the North Cape, 300 miles from where the convoy had scattered, it was sighted by a British submarine.

At 2219 on 5 July the German ships were recalled when the enemy realised the extent of the damage that was being inflicted on the ships of the scattered convoy by *U*-boats and the GAF. Since the Enigma for the period from noon on 5 July to noon on 6 July was not broken until the morning of 6 July, the Admiralty’s signal to the Fleet announcing that the Germans had called off their operation was not sent until 1317 on 6 July. The ships were sighted at Altenfjord at 1045 on 7 July, and although attempts were made to intercept them with submarines, they reached Narvik without incident at 0200 on 8 July – as the Enigma, readable once again, disclosed within a few hours. Later on 8 July the Enigma indicated that one or more warships might be leaving Narvik for the south. It was not until 13 July, however, that it confirmed that the *Lützow* had moved to Trondheim during the night of 9–10 July, threw some light on the damage that had prevented her from taking part in the operation.

"This was the first occasion on which a PRU Mosquito flew to Vaenga, in Arctic Russia, refuelled and returned to the United Kingdom. After this the Soviet authorities were persuaded to allow a detachment of the PRU to operate Spitfires from Vaenga. Arriving in September 1942, the Spitfires carried out a number of successful sorties before the end of October, when the weather deteriorated. The detachment was then withdrawn, but it handed over its Spitfires, cameras and equipment to the Russian Air Force. During its stay it discussed PR techniques with the Russians and was allowed to examine Russian photographs of the area. Though limited in scope, these exchanges interested A1 and MI in the possibility of future collaboration against enemy-held positions in Norway, and further PR detachments were to be sent to the area in September 1943 and March 1944."
against PQ 17 and established that 3 destroyers had also grounded in the Narvik area on 3 July.

* * *

In the interval before the sailing of the next convoy to Russia on 2 September the Germans withdrew the *Lützow* to Germany and sent the 6-inch cruiser *Köln* from the Baltic to Trondheim. As with most of the enemy's movements along the Norwegian coast earlier in 1942, it proved impossible to interfere with these transfers, but intelligence - chiefly the naval Enigma and NA Stockholm's A2 source - gave advance warning of them and confirmed with little or no delay that they had taken place. Against another enemy operation, however, it was possible to turn intelligence to practical use. On 19 August it emerged from the Enigma that the minelayer *Ulm* was approaching Narvik from the South. On 25 August the Enigma gave details of the area off the north-west coast of Novaya Zemlya in which the *Ulm* was to lay her mines and of the route she was to take. On the strength of this information the Admiralty ordered the US cruiser *Tuscaloosa* to detach the three British destroyers which were accompanying her: as a result the *Ulm* was sunk that night.

The sinking of the *Ulm* greatly reduced the threat of large-scale mining to the Arctic route. At the beginning of October the Enigma showed that the Germans had been reduced to using the *Hipper* for minelaying off Novaya Zemlya - though it failed to give advance warning of her sortie, and NA Stockholm's A2 report that she had left on a short cruise on 24 September did not reach the Admiralty until 27 September. Until the end of September, however, these two sources left no doubt that the Germans had every intention of repeating against the next convoy the combined attack by surface ships, U-boats and aircraft that they had planned against PQ 17. On 1 August they warned their U-boats, of which 20 had already been disposed on the assumption that the next Russia-bound convoy would sail soon, to expect co-operation from surface ships. On 5 August, on receiving from one of the U-boats a false sighting of a convoy, they sailed the *Köln* from Trondheim to join the *Tirpitz*, the *Hipper* and the *Scheer* in the Narvik area and ordered the transfer of an additional Gruppe of Ju 88 torpedo-bombers (up to 30 aircraft) to north Norway. The GAF Enigma gave advance notice of the move of the aircraft and reported their arrival; but Admiralty did not learn that the *Köln* had moved until an hour after her arrival at Narvik.

By the time PQ 18 sailed on 2 September the British authorities had set up for the first time a balanced force of strike and reconnaissance aircraft in north Russia. Two squadrons of RAF Hampden torpedo aircraft, a squadron of Catalina flying boats and four PR Spitfires were despatched at the beginning of September, the first priority of the reconnaissance aircraft being to watch the German surface ships. To accompany the convoy through the critical area a large number of destroyers replaced the earlier system of a cruiser covering force in the hope that with their torpedoes they would either deter the *Tirpitz* or damage her if she attacked. Against the expected heavy attacks by the GAF an escort carrier was included in the convoy. The chances that the convoy would escape detection and attack were known to be slim, and it came as no surprise when low-grade Sigint showed that FW 200s had sighted the close
escort in Iceland on 6 September and the convoy itself on 8 September. By then the Admiralty had issued, as usual, a comprehensive statement of the whereabouts of the 20 U-boats that could be expected to attack and an estimate of the GAF forces that would be used. This estimate - 65 torpedo-bombers and 120 bombers - understated the number of torpedo-bombers - 92 - which the GAF had assembled; but it left no doubt that PQ 18 must expect a higher scale of air torpedo attack than any convoy had yet experienced.

On 9 September, after further air sightings of the convoy, the Germans re-disposed their U-boats and the OIC relayed the new patrol areas to Ultra recipients on the following day. On 10 September they moved the *Scheer*, the *Hipper* and the *Köln* from Narvik to Altenfjord. The ships were sighted by British submarines but the Enigma provided no news of the German move until the early hours of 11 September, when the Admiralty reported that Admiral Commanding Cruisers in the *Hipper* was due at Altenfjord at 0300 that day. Nor was it until the afternoon of 11 September that the OIC was able to conclude from some signs in the Enigma and photographic reconnaissance of Altenfjord that the *Tirpitz* had probably remained at Narvik.

On 13 September, as well as giving the latest instructions sent to the U-boats, the Enigma became momentarily more revealing about the surface units in Altenfjord. At 1650 the ships were brought to one hour’s notice, a fact which the Admiralty brought to the attention of the Flag Officer with the convoy’s covering force at 2325. Thereafter, the ships in Altenfjord were kept under observation by the PRU on 14, 15 and 16 September, the Enigma enabled the Admiralty to confirm on 15 September that the *Tirpitz* was still at Narvik on 14 September, and the Admiralty learned from NA Stockholm’s A2 source on 16 September that the Germans intended to employ only the *Hipper*, the *Scheer* and the *Köln* against PQ 18, and that the *Tirpitz* was suffering from some defect and would not sail unless the situation required her. But by 16 September the German naval authorities had decided not to use any of the ships. Although the Admiralty did not learn this at the time, they had on 13 September wanted to sail the Altenfjord squadron against the west-bound convoy, QP 14, but on 14 September, having once again been warned by Hitler that they must take no undue risks on account of the importance of the squadron for the defence of Norway, they had cancelled the operation.

Within a fortnight NA Stockholm’s A2 source reported that the *Tirpitz* had bearing trouble and would undergo a refit, and she was photographed by a PR Mosquito from Leuchars at Narvik on 28 September. There followed in October further temporary relief. After indicating on 21 and 22 October that the *Scheer* was moving from Altenfjord to Narvik and that she or another main unit might move further south, the naval Enigma disclosed on the evening of 23 October that ‘a formation’ was to pass a point between Narvik and Trondheim at 1100 on 24 October. By midnight on 23/24 October it added that two ships would enter Trondheim fjord on 24 October. Once again, as so often before, these clues were an insufficient basis for an attempt at interception by the Home Fleet or submarines or Coastal Command, all of which needed timely notice and good luck if they were to overcome in operations on the Norwegian coast the obstacles created by bad weather and great distances.¹ Nor was it until 24

¹But it is possible that the operational authorities held back because another and less orthodox operation was already being planned against the *Tirpitz*. On 26 October Leif Larsen sailed from the
hours later that the OIC learned from another source, presumably the Naval
Attaché Stockholm, and certainly to its surprise — for the earlier Stockholm
reports had said that the labour and equipment for *Tirpitz*’s refit were being
sent to Narvik — that the two ships were the *Tirpitz* and the *Scheer*. This was
confirmed by the Enigma during 25 October.

The *Tirpitz* stayed at Trondheim, but early in November the *Scheer* went
back to Germany for a refit. No attempt was made to intercept her, most
probably because intelligence about her move, such as it was, arrived too late.
As early as 6 November the OIC suspected from Enigma indications that she
might move south, and on 7 November it learned that she was at sea. But her
movement was evidently not reported by the SIS’s ship—watching stations —
they were often prevented from signalling by difficult W/T conditions — and it
was not until the evening of 7 November that the Enigma disclosed that she
had been off Stavanger at 1430 that day: and not until 11 November did it
report that she had reached the Baltic.

By then the GAF in north Norway was also being reduced. The GAF, unlike
the surface fleet, had made heavy attacks on PQ 18, its torpedo—bombers being
especially effective though with heavy losses to themselves. These attacks
would have been more damaging but for the fact that, for the first time, steps
had been taken to have the GAF’s R/T traffic intercepted by a ‘Headache’
operator in the ship of the cruiser admiral in command of the close escort: the
intercepts gave advance warning of some of the attacks, thus enabling the
escort carrier to fly off her aircraft in good time. The attacks marked the peak
of the GAF’s effort against the Arctic route. Before the sailing of the last convoy
in the PQ/QP series — that of QP 15 from Archangel on 17 November — the GAF
Enigma had disclosed at the beginning of November that torpedo—bombers and
long—range bombers were being moved from north Norway to the Mediterra-
nean to counter the Allied landings in north Africa.

* * *

In November 1942, when the British authorities were thus obtaining some
relief on the Arctic route, no relief was in sight in the Battle of the Atlantic.
Since the introduction of a separate Enigma key for U—boats on 1 February
1942 the Atlantic communications of the U—boat Command had all but
completely defied cryptanalysis at GC and CS: the setting of the new key had
been broken for only three days — 23 and 24 February and 14 March — and it
had taken 6 three—wheel Bombes 17 days to solve each of these settings. For
some months the operational consequences of the loss of the U—boat Enigma
had been mitigated by the fact that it had all but coincided with the decision of
the U—boat Command, following the entry of the United States into the war, to
concentrate its main effort against shipping on the American and Canadian
coasts. But from August 1942, when the U—boats had returned to the convoy

SOE’s Shetland base in an attempt to sink the *Tirpitz* with the newly developed one—man torpedoes
(Chariots). His mission, originally planned for Narvik but switched at the last minute to
Trondheim, came close to succeeding. He bluff ed his way to a position from which the attack could
be mounted but lost his Chariots in an unlucky squall.
routes, the continuing lack of intelligence about their movements and
dispositions, combined with their ever-increasing numbers, had been reflected
in the fact that their sinkings of Allied ships, both in the open Atlantic and in
terms of their total success, had risen beyond all previous levels.

On 1 January: the first six U-boats (Type IXB and IXC, of 1,050 and 1,120
tons) were heading for the new operational area off north America. They sank
their first ship there on 12 January. On 24 January – such were the pickings,
according to the reports of the first U-boats to arrive, and so poor the defences –
Donitz ordered 12 U-boats on patrol west of the United Kingdom to return to
port for servicing and immediate redeployment against the area. In the event
only four of them got to the east coast of the USA, for early in February Donitz
was ordered to deploy 20 operational U-boats to Norway. Otherwise, except that
he despatched two Type IX U-boats to the Freetown area in February, he gave
absolute priority to the offensive in the Americas, where the area of operations
had been extended by the despatch of 5 U-boats (Type IXB and IXC) to the
Caribbean in the second half of January. No further U-boats were transferred to
the Mediterranean until September 1942; not till July 1942 did U-boats return
to the Gibraltar area, and not till the autumn did they seriously resume the
search for convoys in the north Atlantic.

The level of the U-boats’ successes recovered rapidly in the wake of their
transfer to the new operational area. Of the total of 327,000 tons of Allied
shipping sunk in January 1942 two-thirds was sunk by U-boats in American and
Canadian waters in the last third of the month. In every month but one from
January to June, inclusive, the amount of shipping sunk by the U-boats
mounted sharply, and by far the largest number of the sinkings occurred either
off the American and Canadian eastern sea-board or, as they slowly extended
their operational area, in the Gulf of Mexico and the Caribbean. Nor is it
difficult to say why. The operational U-boat force was at last increasing steadily:
the average number of Atlantic U-boats at sea increased from 22 in January to
61 in May. With this force – its effective time on patrol extended by refuelling
from tanker U-boats, of which the first became available in April 1942, and by
the activities of an enemy refuelling network in central America, based on
British Honduras, which the British and American security authorities could
not break up until June – it soon became possible for the U-boat Command to
keep between 10 and 15 U-boats permanently on patrol between Boston and
Trinidad, despite the long period they had to spend on passage to the area.

Until June, on the other hand, the American and Canadian authorities were
able to make only slow progress towards organising anti-U-boat defences,
especially in instituting coastal convoys and providing air cover. Two U-boats
were sunk by aircraft off Newfoundland in March, but there was no further
success until a U-boat was sunk off Bermuda on 30 June and the first sinking of
a U-boat by air attack off the US coast did not occur till 7 July.

When operational conditions were obviously among the main reasons why
the U-boats were able to achieve in the first half of 1942, in return for
negligible losses, their greatest sustained period of success in the whole course
of the war, it is difficult to assess the extent to which the recovery of their
fortunes was also due to the loss of intelligence about them that followed from
their adoption of the four-wheel Enigma on 1 February. Not even the best
intelligence about their activities off the American coast would have facilitated
either an effective counter-attack on them or the effective evasive routeing of
shipping so long as the U-boats were at liberty, in the absence of air cover, to
operate close inshore and, in the absence of a convoy system, to do so against unprotected shipping. From June 1942, on the other hand, by which time the Allies had made no progress against the U-boat Enigma, it was because of the extension of US and Canadian air patrols and the introduction of convoys, that the U-boats began to report that they were encountering growing difficulties; and only then did the U-boat Command reduce its offensive in the western Atlantic, except in the Caribbean and off Brazil, and turn its attention back to the convoy routes to and from the United Kingdom. In these circumstances, it may well be the case that the most serious operational consequence of the loss of the U-boat Enigma during most of 1942 was that the Admiralty and the US Navy Department had to wait until the beginning of 1943 for firm evidence that the enemy was reading the cypher which carried the inter-Allied signals about Atlantic shipping movements. The loss of the Enigma, which coincided with the beginning of the period in which the U-boats derived maximum benefit from the B-Dienst’s exploitation of Naval Cypher No 3, goes some way to explain why steps to improve the security of that cypher, and eventually to replace it, were delayed until the early summer of 1943. For Allied intelligence, moreover, it may even have been fortunate that the introduction of the fourth wheel for the Atlantic Enigma also coincided with the German decision to concentrate the U-boat offensive against the American coasts. Had the U-boats continued to give priority to attacks on Atlantic convoys after the Enigma had been changed, there would have been such an improvement in their performance against convoys that the U-boat Command might have concluded that its earlier difficulties had been due to the fact that the three-wheel Enigma was insecure.

However that may be, it was not long before the extent of the change that had come over the intelligence situation was borne in upon the OIC. On 9 February 1942, in its first weekly U-boat situation report after the new Enigma settings came into force, the Tracking Room announced that ‘since the end of January no Special Information has been available about any U-boats other than those controlled by Admiral Norway’. ‘Inevitably’, it added, ‘the picture of the Atlantic dispositions is by now out of focus and little can be said with any confidence in estimating the present and future movement of the U-boats’.

It is true that the tracking of the U-boats was not again reduced to that state of pure guesswork, relieved only by what was learned from British sighting reports, the attacks made by the U-boats and the DF-ing of their few transmissions, which had prevailed before the spring of 1941. The German Navy used the Home Waters Enigma settings in the western Baltic until January 1944, when it introduced a separate Enigma key for the entire Baltic. Between November 1941 and May 1942 it also used the Home Waters settings in the eastern Baltic, an area in which separate (and unreadable) settings were otherwise in force up to January 1944. Primarily from the Home Waters Enigma – though German naval low-grade codes also helped – the OIC still obtained regular information about the commissioning and working up of new U-boats in the Baltic, which enabled it to keep a reliable check on the numbers coming into service and to identify the type of each newly numbered U-boat, and was usually warned when a U-boat left the Baltic or Norway or the Bay of Biscay for an operational cruise and when it had returned to base. In addition, the Home Waters Enigma continued to provide detailed intelligence on the routes followed by the U-boats when entering or leaving the Biscay ports. Further, after reading the Home Waters Enigma for months before the U-boats
in the Atlantic abandoned the use of it, the OIC and GC and CS had built up an enormous fund of knowledge about every aspect of the U-boat Command - its routine procedures, its tactical methods, including the methods it used for pack attacks, its strategic ideas, the endurance of each of its types of U-boat. During 1942, finally, other sources - POW and captured documents, PR, diplomatic reports and the SIS - continued to supply new information not only of this kind but also on the performance, armament and other characteristics of each type of U-boat. With this information the OIC maintained accurate estimates of the number of U-boats at sea at any one time, had a good idea of how many were homeward and outward bound and how many were on patrol, kept a good check on the claims of Allied forces to have destroyed U-boats, and was sometimes able to deduce, from its type or from information about the experience of its commander, the operational area to which a U-boat was proceeding. But it was still the case that the Enigma now vouchsafed no information about the U-boats between the time they left harbour and the time they returned from patrol.

In this situation, despite every effort to forecast the daily movement of each U-boat after it had left harbour, the daily plot of U-boat dispositions soon ceased to be reliable. And this was now more clearly recognised than had been the case before the spring of 1941 because research undertaken on the basis of the Enigma decrypted up to the beginning of February 1942 had established that little reliance could be placed on other aids to the tracking of U-boats. Checked against the decrypted signals, RFP and TINA had shown a high rate of failure, and one that had increased in parallel with the increase in the number of U-boats at sea. It had to be accepted that RFP and TINA could only distinguish supply and minelaying U-boats, which were being identified by PR in the Biscay bases, from the much larger fleet of standard U-boats. Another analysis had checked the positions of U-boats given in the decrypts against the DF bearings on the transmissions of the signals and had shown that DF fixes, although more reliable than RFP or TINA, were somewhat erratic.

It was thus with understandable anxiety that the Admiralty watched the steady increase in the daily average number of U-boats at sea in the Atlantic, from 22 in January and 61 in May to 86 at the beginning of August, and that it awaited the time when, with the improvement of the defences on the American seaboard, the U-boats would be redispersed for another offensive against the convoy routes. This time came in August. Between 5 and 10 August a pack of U-boats - in fact 18 of them - fought the first in the new round of convoy battles in the north Atlantic against convoy SC 94, sinking 11 out of its 33 ships, 53,000 tons of merchant shipping. During the two months August and September 1942 the U-boats located 21 of the 63 convoys that were sailed, made sustained attacks on 7 of them and sank 43 of their ships. In those months they were still sinking less shipping in the Atlantic than on the American sea-board, where they continued to find soft spots in the Caribbean and make surprise attacks in the St Lawrence. During October, however, when the number of U-boats at sea was known to have reached just over 100, their sinkings in the open Atlantic exceeded for the first time the figure of half a million tons as compared with 85,000 tons sunk off the American coast.

In November there was a small decline in the number of ships sunk in the trans-Atlantic convoys because many U-boats were diverted to operate, without success, against the Allied landings in north-west Africa. But the total amount of Allied shipping lost to U-boat attack reached, at 721,700 tons, the highest
figure for any month in the entire war. At the same time, the number of U-boats sunk in the north Atlantic area, including the Americas, again fell back. During the first six months of 1942 only eleven U-boats had been sunk in the area, eight of them by convoy escorts; in July 6 had been sunk, in August 5, in September 3, in October 8. But in November only 2 were sunk. And at the end of December another convoy battle, the attack on convoy ON 154, showed how much the U-boats had regained the upper hand outside the range of air cover. In this attack 11 U-boats sank 13 ships and lost only one of their number.

There is no difficulty in these circumstances in imagining the relief with which the Admiralty received the news that GC and CS had begun to make its way into the four-wheel Enigma and was at last confident that it would continue to make progress against this most formidable of all the Enigma keys. Indeed, its satisfaction can be sensed in the cautionary signal which the First Sea Lord sent to the US Chief of Naval Operations on 13 December 1942, and which read as follows:

'As the result of months of the most strenuous endeavour a few days’ U-boat traffic will be readable in the immediate future and this may lead to better results in the near future.

You will, I am sure, appreciate the care necessary in making use of this information to prevent suspicion being aroused as to its source. We have found this especially difficult when action by routeing authorities outside the Admiralty is required.

It would be a tragedy if we had to start all over again on what would undoubtedly be a still more difficult problem.'
CHAPTER ELEVEN

The Air War in the West from May 1941 to the end of 1942

In May 1941 the transfer of most of the German bombers to the Russian front brought to a close the first and the most sustained of the GAF’s offensives against the United Kingdom. Two main developments thereafter changed the character of the air war in western Europe. The RAF, later reinforced by the US Eighth Army Air Force, intensified the bombing of Germany and also undertook daylight fighter sweeps and light bomber raids with the object of bringing the GAF to battle and inflicting casualties. The GAF, on the other hand, partly because of the consequent development of its defensive fighter forces at the expense of its bomber and reconnaissance forces, and partly because of the gradual dilution of its over-all resources by the demands of the Russian and the Mediterranean theatres, proved all but unable to resume the bombing of the United Kingdom. Only briefly, between April and October 1942, did it make the attempt in the period down to the beginning of 1943 and then its effort was on a much smaller scale than during the winter of 1940–1941.

Beginning on a modest scale, night attacks on cities like Exeter, Norwich, York, Bath and Canterbury rose in intensity during May 1942. During that month, however, the raids became less accurate and effective. Nor did the GAF’s performance improve when, in June, it switched its targets on most nights to ports and industrial towns. By early September 1942 – except for an attack on Canterbury on 31 October – its night offensive was over. Its day-time attacks with fighter–bombers, which had been resumed in the spring, were relatively more effective. Delivered by 2, 4 or 8 aircraft at low level to avoid radar, and using FW 190s in place of Me 109s from July, they were difficult to counter. But the force engaged seldom mustered more than 20 serviceable aircraft, and after a raid on 31 October – again on Canterbury – it suspended operations on being called away to take part in the occupation of Vichy France.

The failure of the GAF’s offensive was by no means unqualified. With some 200 bombers and a few fighter–bombers, the GAF held down no fewer than 1,400 British fighters throughout 1942, at a time when they were urgently needed in other theatres, not to speak of 6,000 guns and large forces of Service and civil defence manpower. Whatever may be said of the decision to retain such a powerful fighter force in the United Kingdom – it is a decision that was subsequently severely criticised – it owed nothing to faulty strategic intelligence. Soon after the beginning of the offensive the Air Intelligence Branch accurately forecast the probable scale of the enemy’s effort – as many as 150 aircraft might take part in a raid, but it was unlikely that the figure would normally exceed 80 – and from its knowledge of the state of the GAF and of its commitments in other theatres it realised that there was little chance that the enemy would be able to resume the bombing of the United Kingdom on a larger scale.

For the accuracy of these assessments, and for the fact that it remained confident that they did not need revision, Air Intelligence was indebted to
British Intelligence in the Second World War

Sigint. From early in 1942 the Enigma had disclosed that the GAF was beginning to suffer from manpower shortage, the first of the enemy’s armed forces to do so. In March 1942 it indicated that the GAF’s fighter arm was most seriously affected. At the end of the year it revealed that the overall shortage had become so great that, despite its own difficulties, the GAF had had to sacrifice a large amount of its manpower to provide ground fighting divisions: this significant development had begun in October. At the same time, the Air Ministry could be sure that, should the GAF decide to increase its effort against the United Kingdom despite its other commitments, the change of policy would be disclosed by the Enigma and by the GAF’s low-grade communications. Early in April, before the beginning of the 1942 offensive, it had learned from these two sources that the GAF was increasing its bomber strength in north-west Europe: the new arrivals had included II/KG 100, ordered home from the eastern front, and IV/KG 40, identified in Holland, together with Reserve Training Units. There were good grounds for believing that the Enigma, supplemented by the low-grade Sigint, would give notice of any further reinforcements.

Even so, intelligence gave no indication of the much increased scale of enemy attacks which began towards the end of April, and no warning that they would be directed against undefended Baedeker targets. The arrival of bomber reinforcements in the west was interpreted as being a precaution against repetitions of the British raid on St Nazaire, which had taken place on 27–28 March. Nor did the British defences derive much benefit from operational intelligence during the course of the 1942 offensive. Against the fighter-bomber raids no effective system of alert was developed until the end of 1943; what provided it from that date was not an improvement in operational intelligence but the introduction of ‘low-looking’ radar to counter the fighter-bombers’ low-flying tactics. As for the night offensive, the long-range bombers adopted tactics designed to elude or confuse the now extended warning radar chain, and the Sigint sources were usually able to predict GAF activity only in general terms. The Enigma key used in connection with $X$-Gerdt occasionally gave advance warning of a particular target but notice of individual raids and of their targets was not often received.

It will be evident that intelligence had now lost the chief means of determining the enemy’s operational intentions which had stood it in good stead during the Blitz of 1940–1941. From some months after the introduction of the beam systems Enigma intercepts had commonly revealed the target for the night, and timely notice of coming raids and good indications of their intended targets had also been provided by the interception and laying off of the beams from the Knickebein and $X$-Gerdt transmitters, which had been switched on long before each raid. But the GAF, as well as ceasing to transmit Enigma instructions for the beams from June 1941, had progressively reduced the interval between the switching on of the beam transmitters and the launching of the attacks. By May 1941 it had been operating a procedure by which the transmissions did not begin until its aircraft had crossed the English coast. At the same time, it occasionally switched the system on in order to mislead the defences, for example by setting the beams to intersect in the south while a raid was taking place in the north.

As a result of other GAF security precautions it proved impossible during 1942 for Cheadle to make up for the loss of this source of detailed advance warning from its study of the MF beacons and the broadcast transmitters which
the GAF used for marking turning points on raids and for homing on the return flight. From October 1941, in an effort to counter the British ‘meaconing’ of the beacons and also presumably to prevent the expanding RAF effort from making use of the beacons for its own navigation, the GAF had begun to change the beacon call-signs and frequencies much more frequently: they changed 6 times a day until August 1942, 15 times a day thereafter. This placed an onerous burden on Cheadle. After the autumn of 1941 it was rarely able to give advance warning of an enemy raid and it often encountered delays before it could report the call-signs, frequencies and locations of the beacons for ‘meaconing’ purposes.

Despite the added difficulties with the beacon call-signs and frequencies, the ‘meaconing’ organisation continued to function efficiently and to be a serious embarrassment to the GAF, as was shown when the GAF introduced a restricted frequency band for the beacons in September 1942 and additional beacon frequencies in 1943. Nor was ‘meaconing’ the only counter-measure which helped to reduce the effectiveness of the GAF’s night-bombing offensive. During the lull since May 1941 the British counter-measure authorities had anticipated the improvements the enemy might make to the equipment and procedure of his navigational beam systems, and the preparations they had made were largely successful in preventing the GAF from using these aids after April 1942.

As early as May 1941 POW and captured documents had revealed that the GAF was planning to introduce a more sensitive Knickbein receiver, one that could be used on any one of 34 spot frequencies between 30 and 33.3 Mc/s instead of on these frequencies only, and to increase the number of Knickbein sites from 9 to 12. This intelligence enabled No 80 Wing RAF to rule out, at least for the time being, the possibility that it might have to counter more radical modifications – a change of audio modulation frequency or the adoption of frequency modulation – as well as to put in hand the extension of its jamming equipment. Although the transmissions on the new Knickbein frequencies were first intercepted in September 1941, the GAF used them only for exercise purposes and deception during its bombing campaign against the United Kingdom in 1942.

The original X-Gerdt, the second of the GAF’s beam systems, ceased to be used operationally in June 1941: the last of the daily Enigma messages relating to it was decrypted on 16 June and later in the summer the Enigma confirmed that KG 100, the formation which had been using the system, had been transferred to the Russian front. But there were indications that the X-Gerdt, too, was being improved. In October 1941 a POW reported that a ‘dog whistle’ frequency was soon to be used – a statement which was interpreted correctly to mean that a supersonic frequency was involved. During the spring of 1942 the Enigma disclosed that a new variant of the X-Gerdt known as Taub (deaf) was being developed and thereafter further information on the subject was obtained from a POW. It was not before 23–24 May, however, after the Baedeker raids had virtually come to an end, that the X-Gerdt was detected operating with supersonic modulation and that its jamming was taken in hand.

Once the jamming started X-Gerdt was of little value to the GAF, the average percentage of bombs on targets being reduced to 13 per cent. After being used seven times in May, it operated four times in June, once in July and once in September 1942, and its signals ceased altogether from the middle of November. While the complexity of the system, and the fact that only one unit
was equipped to use it, were probably the main reasons why it was abandoned, the discovery that the British had counter-measures capable of dealing with the additional modulation no doubt contributed to the enemy’s decision.

Y- Gerät, like Knickebein, was not reintroduced for operations against the United Kingdom till 1943. But the GAF continued to radiate the beams after May 1941 without making use of them, and the preparation of counter-measure against the time when the system might be brought back into service presented no problem.

The reduction of the GAF’s bombing of the United Kingdom from May 1941 was accompanied by an increase in the RAF’s offensive against Germany. The offensive was to be enormously costly on account of the efficiency of the enemy’s defences - a subject on which intelligence was for long unable to give Bomber Command much practical assistance. It was not until the middle of 1942 that the intelligence authorities began to build up an understanding of the German radar and night-fighter aircraft systems, and not until early 1943 did they influence the introduction of Allied technical counter-measures and begin to contribute heavily to the adoption of more effective bombing policies.

At the outbreak of war the British authorities had assumed that the RAF’s attacks on Germany would encounter heavy anti-aircraft opposition. But their assessment of the strength of the defences was based on information about pre-war guns and aircraft and was over-optimistic. In particular, although they themselves had developed to the point of deployment a radar system for the location of enemy aircraft, they discounted the possibility that Germany might also be developing an early-warning radar system. In fact, Germany had started a radar research and development programme in 1934; by the outbreak of war she was deploying an early-warning system, had installed a naval set in some ships and had brought an AA fire-control set to a late stage of development.

Up to the middle of 1940 only one item of information had been received. After the Graf Spee had blown herself up after the battle of the River Plate on 18 December 1939, the report of the technical team which examined the wreck had described an aerial and concluded that she had possessed a gun-ranging radar set having a wavelength of 57 (or 114) cm. A search of previous intelligence on the Graf Spee had then produced a photograph taken in 1938 which showed the aerial in position but covered in canvas; no record exists of any earlier attempt to interpret the photograph. But the conclusion that the Germans had some form of radar, and that it must be assumed that they had some knowledge of the British system, had been confirmed by Sigint and POW during the following summer. On 30 June 1940 a GAF Enigma message had referred to the fact that German aircraft had been able to intercept armed reconnaissance owing to excellent Freya reporting. On 10 July the Enigma had disclosed that there was a Freya north of Lannion, and on 14 July it had revealed that there was one on the Cap de la Hague. POW interrogations were also now beginning to contribute. One had referred to German naval experiments with an apparatus for range and direction finding by means of reflected radio beams; another to experiments by the Flak command with a system
known as EEMG. These and similar scraps of information had by August 1940 made it clear that the Freya was some form of RDF.

In August the intelligence sources had provided some details about the enemy’s radar procedures. POW had disclosed that air crews had to notify the Freya station so that their radar tracks might be identified, and on 8 August two Enigma decrypts had enabled further deductions to be made. The first had again referred to reporting methods and, with the POW reports, had made it certain that radio, rather than visual or some other means of detection, was employed. The second had been concerned with tactics to be employed in flights to England: as far as possible they should assemble over France, not out at sea, to prevent the British stations (DT Gerät) from giving warning to the RAF fighters. From this indication of the order of range that the Germans had ascribed to the British stations, the British authorities had been able to estimate that the range of the German equipment was less than 70 miles.

Once Freya had been identified as a radar, and the evidence had indicated that its function was probably earning warning, it had not proved difficult to build up a general knowledge of the deployment, the organisation and the operational methods of the enemy’s coastal early–warning system. In July 1940 it had been discovered that German stations were reporting aircraft plots by W/T in minor codes. From August the GAF Enigma had provided an increasing number of references to the location and administration of these stations. Thereafter these two sources had provided a good deal of general information about what was now seen to be the Freya chain at a time when the Germans were extending it beyond the eight stations that had existed in the Frisian islands in October 1939 and were themselves learning how to operate it. In February 1941 the GAF Enigma, which had made few references to equipment and none to frequencies, disclosed that one Freya and two Würzburg were being sent to Romania and two Würzburg to Bulgaria, and added that ‘the apparatus is absolutely essential since only in this way can aircraft–reporting cover to the coast be guaranteed’. This intelligence confirmed that two radars existed - were, indeed, being deployed - and when related to the lengths of the Romanian and Bulgarian coastlines it provided a crude estimate of their ranges.

Within a few hours on 24 February 1941, the main coastal chain was doubly unmasked by photographic reconnaissance and the first interception of Freya signals. From the preceding July a Freya was known to be in the neighbourhood of Auderville, at the Cap de la Hague station, and attempts had been made, without success, to photograph the equipment. The main difficulties had been the scale of reconnaissance photographs, and the suspicion that the equipment was small. In November 1940 improvements in reconnaissance had produced photographs of greater scale which showed two circles to the west of Auderville of about 20 ft in diameter which could not be interpreted. Slight changes were noted between successive frames, and as a consequence it was decided to fly a low–level sortie against what was now a priority target. The first attempt failed on 16 February, but six days later the necessary photographs were obtained. Also on 24 February, before the photographs could be

*In a review in 1942, an Air Scientific Intelligence report described how a large number of different names for radar sets made early correlation and interpretation difficult – Freya, EEMG (Elektrische Entfernungs Messgeräte), Heavy DT, Matratzen, Made, Sichtgerät etc.*
exploited, DT transmissions were intercepted and their characteristics and origin determined. They were on 120 Mc/s (2.5 m) with a pulse repetition frequency (prf) of 1,000, giving a maximum range of about 150 km. The rotatable array seen in each of the circles in the photographs was of a type and of the right dimensions for the transmissions, and DF evidence supported the identification of this set as the Freya.

During the remainder of 1941 more information accumulated about Freya and the preparation of counter-measures was taken in hand. SIS and POW reports threw light on its method of operation. From interception and PR evidence it was possible to keep step with the changes that were being made to equipment - to establish, for example, that some sets had a different pulse rate of 500, and thus twice the earlier maximum range of 150 kms; to assess its accuracy at about 1 km; and to take signal-strength measurements which suggested a power of 100 kw. But the Wurzburg continued to be a more elusive target. From March transmissions were heard on a frequency of 560 Mc/s (53 cm) which led to the speculation, correct as it turned out, that the Wurzburg had been designed primarily for gun-ranging or AA prediction. But no progress was made in identifying the apparatus from which these pulses came, or in associating it with the Wurzburg, until, late in November 1941, the examination of small-scale photographs showed an unexplained mark near to the cliffs at St Bruneval, near Cap d'Antifer, from which area 53 cm signals had been intercepted. On 3 December a low-level sortie was flown, and although no photographs were taken, the pilot reported that the object was 'an electric bowl fire about ten feet across'. Photographs were obtained on 5 December: they showed that the apparatus had a 3 m dish.

Although it seemed reasonably certain that this apparatus was responsible for the 53 cm transmissions the need for proof and for the acquisition of more detailed technical information led to the decision to make a raid on St Bruneval on 27-28 February 1942. It succeeded in capturing the receiver, the amplifier, the pulse generator, the transmitter, the aerial element, and, together with one of the operators, full details of the operating methods.

Even before photographs of the Wurzburg were obtained in November 1941 the first clue was received to the existence of a third enemy radar. In September 1941 the RAF delegation in Washington had been given indistinct photographs of an apparatus mounted on a tower in the Berlin Tiergarten. Further information - some of it from a Chinese scientist who had seen this apparatus and described its general construction, and some from vertical photographs of Berlin taken by the PRU - made it possible to deduce that the apparatus was at least 20 feet in diameter; and the probability that it was a third type of radar was confirmed by the fact that the Bruneval photographs had shown that the diameter of the Wurzburg was only about 10 feet.

Further examples of the new radar, called the Giant Wurzburg, were next found on operational sites. After the Enigma had referred to equipment having a range of 60 kms, a Belgian agent of the SIS reported in March 1942 that there was a Freya station at Nieuwerken near St Trond. Since this was in a known German night-fighter area, and might be expected to have Ground Controlled Interception (GCI) equipment, a PR sortie was flown. The photographs showed two radar sets similar to that in the Tiergarten and the circumstances suggested that they were an essential element in the night-fighter control system. In April a similar site was photographed on Walcheren Island, at Domburg. This last photograph, a low oblique, was important in two ways. It
provided sufficient details of the externals of the new radar to enable some estimates to be made. It also gave the layout of a GCI site, disclosing that it had a Freya, two Giant Wurzburg and two Wurzburg. The Giant Wurzburg transmissions had still not been heard, but sufficient evidence had been accumulated to suggest that its frequency and prf were 560 Mc/s and 2,000. A directional aerial was then pointed at Domburg, and in May 1942 it received the pulses on 560 Mc/s at a prf of 1,875.

At this juncture, in the spring of 1942, having reconstructed the characteristics of three ground radars and established their maximum ranges - 150 km for Freya, 60 km for the Giant Wurzburg, 40 km for the Wurzburg - the British authorities could see that the Freya was used for early warning and the Wurzburgs for Flak control and night-fighter operations. From the same date, with this framework of knowledge helping them to assess new intelligence, they also benefited from a marked improvement in the supply of radar intelligence from the GAF Enigma, the SIS, the reconnaissance and photographic interpretation work of the PRU and the CIU, and the interception of the radar transmissions by TRE and No 80 Wing. They accordingly experienced far less difficulty than before in keeping abreast of the continuing development, quantitatively and qualitatively, of the enemy’s ground radar programme. By the spring of 1943 they knew that the number of Freyas in service had grown to about 300, of Wurzburgs to about 1,000, of Giant Wurzburgs to nearly 300; and it was clear that the Giant Wurzburg was gradually replacing the Wurzburg for height-finding at the early-warning stations. And before the end of 1942 they learned that the Freyas in the early-warning chain were gradually being replaced by larger sets.

The first information about this new apparatus was received in July 1942 from the SIS, which reported that a square steel construction, 10 metres high by 35 metres long in a fixed north-south direction, had been seen near a suspected Freya site near The Hague. In August the CIU reported that camouflaged erections at the site, which had been thought to contain a Freya, had been replaced by a long raised girder, and in September it detected a similar construction, about 96 feet long and supported on four uprights, near Plougasnou in Brittany. Two further constructions of the same kind were then photographed at known radar stations, behind Cap Gris Nez and north of Domburg. By the end of November 1942 the new sets were associated with references made in German fighter R/T in the previous July to an apparatus called Mammoth (Mammut) and with transmissions on 125 Mc/s in the Freya band, but of abnormal strength, which had also been intercepted since July. Although the particular reason for the introduction of Mammut still remained uncertain - it might have been easier searching, greater range, better low cover, greater plot precision, small susceptibility to jamming or some combination of these desiderata - it was obvious by then that the Mammut presented a considerable advance on the Freya. It incorporated electrical rather than mechanical means for swinging the radar beam, which was a new departure in German design. Moreover, if as seemed probable, it used a phasing device to scan from a fixed structure, its introduction meant that the Germans had mastered a technique which the British had regarded as presenting too many difficulties.

From the fact that Mammut was an improvement on Freya for early-warning tracking, it could be deduced that to obtain maximum benefit from it the enemy would be introducing better equipment for height-finding at his
early-warning stations, for which purpose the Giant Wurzburg had already gradually replaced the Wurzburg. This suspicion was confirmed in March 1943. Since the previous summer GAF Enigma decrypts had made occasional references to the installation of another new radar apparatus, the Wassermann, in the Mediterranean and at sites on the North Sea coast. They made it clear that the Wassermann was bigger than the Freya and that it required special construction and extensive foundations, but otherwise provided no details: nor was any suspicious construction detected at the sites by the PRU. Early in November 1942 the CIU reported the appearance at another site, north of Boulogne, of a chimney-like object some 120 feet high. Erected over underground buildings, and having extensive scaffolding or curtaining hanging down its sides, its purpose could not at first be discerned. In February 1943, however, when the PRU photographed a similar installation on Heligoland and Mammut had already been identified, it was tentatively concluded that this further development must be the Wassermann and that it had the additional function of long-range height-finding. In March this conclusion was strengthened by SIS reports of tall structures being built at a site in Norway and at sites on the Dutch coast. At one of the Dutch sites, Bergen-aan-Zee, a tower had been photographed in December, but it had hitherto been thought to be dissimilar to the chimneys photographed near Boulogne and on Heligoland. One of the SIS reports added the information that the tower rotated. Another of the reports referred to the installation at this site as a Wassermann. Wassermann transmissions had still not been intercepted. On the other hand, the evidence indicated that the introduction of the set into service was a recent development and that it was as yet operational only on Heligoland, at Bergen-aan-Zee and possibly at Boulogne.

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By the end of 1942 the characteristics of the German ground radars were well understood: indeed, equipment for jamming them had been in existence and under continual development since May 1942, and only the feeling that the benefits of jamming would be more than off-set by the effects of enemy interference with British radar had delayed its introduction. It had been more difficult to acquire intelligence about the deployment and the equipment of the German night-fighter organisation, including the procedures by which the ground radars controlled the night-fighters opposing Bomber Command. The German night-fighter organisation presented the British intelligence bodies with a formidable problem. Not least because the organisation itself was undergoing continual extension and improvement, they did not arrive at a thorough understanding of how it worked until the end of September 1942 despite the steady accumulation of information about it from the summer of 1940 when night-fighters first attacked Bomber Command.

Among the Sigint sources the Enigma yielded only occasional references until 1942. In June 1940 it reported that with the aid of something called Freya, JG 51 had destroyed nine British bombers; and as early as August 1940 it disclosed the existence of NJG 1, the first night-fighter Gruppe which had been created by the GAF in June, following the appointment of General Kammhuber to command the defences against night bombing. He constructed
and rapidly expanded a defence belt based on night-fighter sectors or ‘boxes’. By the end of 1941, when it showed that NJG 1 had been renamed Fliegerkorps XII and allotted its own Enigma key (named Cockroach at GC and CS), the Enigma had thrown next to no light on the equipment, tactics, deployment and expansion of the enemy’s organisation. Nor did this situation immediately improve when GC and CS broke the Cockroach key in February 1942. Because of the difficulty of this key and because of competition for priority between it and other Enigma keys not much of the traffic was read until September 1942: and because of the essential facts about the night-fighter system and its method of control had still not been determined, little could be made until then of the decrypts of Fliegerkorps XII’s signals. The same was true of the other Sigint source, the encoded signals to and from the ground-controlled fighters for which, as for its regular day-fighter communications, the GAF used R/T on HF, until the Air Intelligence branch (AI) began to work out the elements of the night-fighter system, and to understand its method of control, with evidence provided by the SIS, the CIU and the PRU.

From the end of 1941 SIS agents had been given special training in how to report on radar matters: by the following spring more than half of the reports from them that were sent to the CIU to assist its photographic interpretation were concerned with radar. Many of them were reports of radar sites, some of which were followed up with valuable results by the PRU. One dated 20 April enclosed a stolen map, which gave the deployment of a searchlight regiment throughout the southern half of Belgium, and full details of the radar and searchlight dispositions within a single sector of the air defence belt. By May the evidence had made it possible to deduce how a typical sector was organised and equipped. At that point it became clear that some reorganisation was taking place in the main defensive zones. The SIS began to report that the searchlights were being removed: by 20 May the PRU had confirmed that all had gone. For some time thereafter it remained difficult to identify the sectors: by the beginning of September only seven GCI stations had been located. But from that date the PRU and SIS evidence made it possible to compare the German reported raid tracks and the actual flight paths of the RAF bombers. The comparison enabled the position of one of the radars to be located and then related to Fliegerkorps XII’s decrypts. This allowed a full interpretation of the decrypts and made it possible to locate more and more of the sectors in the main belt and to keep track of their steady proliferation. By the end of 1942 AI had located over 50 GCI stations and identified their sectors, and it was clear that the German expansion programme had concentrated on two areas. One lay along the coasts of Holland and the Bight: the other was an inland belt – known by the British as the Kammlhuber line – which stretched from Schleswig Holstein to eastern France and the Swiss frontier.

To determine how the ground radars were used to control the fighters proved to be even more difficult. By the end of 1940 POW interrogations had established that the Freya could not identify unless the aircraft gave notice of their times and routes, and thus that the fighters were not equipped with Identification Friend or Foe (IFF) equipment. From February 1941, however, evidence began to accumulate from a variety of sources − references by POW: the study of the night-fighter R/T traffic; the examination of a crashed aircraft, which proved to be wired for the device though it did not carry it − that the enemy was introducing IFF equipment and that the device went under the name of FuGe 25. And in October 1941, when an Enigma decrypt disclosed that
a Staffel of Ju 87s in Libya had been fitted with the device and a POW described its method of operation, it became virtually certain that the German IFF equipment was operational but that its use was being restricted to aircraft operating over friendly territory. Even then, however, there remained some uncertainty as to whether the identification of the equipment as FuGe 25 was correct — for other names that might be associated with it were appearing in the intelligence sources — and it was possible only to speculate about its characteristics and the way it was used for GCI and IFF. Until, from the spring of 1942, the equipment captured at St Bruneval provided first-hand knowledge of the level of radar technology that the enemy was applying to the night-fighter control system and the Enigma decrypts of Fliegerkorps XII established that there were two versions of the airborne device: FuGe 25 which worked with the Giant Wurzburg and FuGe 25A which worked with the Freya stations.

It still remained to intercept the Air Interception transmissions. As in the case of the ground radars, none of the sources disclosed the essential details about frequencies and pulse rates. Moreover, the transmissions of the airborne sets could not normally be intercepted without the use of airborne search receivers. By September 1942 airborne signals had been intercepted by a special ground station in Norfolk but it could not be confirmed that these transmissions were from airborne equipment until a listening aircraft had flown in a night-fighter area and observed whether the transmissions grew in intensity up to the time it was attacked. This hazardous exploit was carried out successfully on 3 December 1942. It confirmed that the transmissions were taking place on a wavelength of 61 cm and with a prf of 2,700.

With this technical advance AI finally obtained a complete understanding of the German defence system as it was at the beginning of 1943. By combining technical and order of battle intelligence it was at last able to describe how the night-fighter organisation had evolved and how it now functioned. It realised that the radius of operation of the radar-controlled night-fighters, initially 25 miles, had been extended by the introduction of the Giant Wurzburg early in 1941 to about 40, this being the extent of the ‘box’ within which each GCI station controlled the defensive activities of its night-fighters. From photographic reconnaissance of the GCI stations it could see that up to May 1942 there had been minor differences between the typical layout and equipment of the stations in the inland belt and those of the stations in the coastal belt, but that these differences, of which the most important was that the coastal belt had made no use of searchlights, had disappeared when the inland belt adopted the same tactics as the coastal defences. Since then the organisation and the procedure in the two belts had been identical.

The organisation was divided into sectors, each consisting of three GCI stations and three boxes, one station to a box. The sector controller ordered up the fighters, one to each box, when an alert was sounded for his area. Each fighter then came under the direction of a GCI control officer who had a Freya and two Giant Wurzburgs at his disposal. He used the Freya for early warning, tracked the fighter with one of his Giant Wurzburgs and turned the other Giant Wurzburg on to the enemy bomber once it was sighted. Thereafter, by comparing the radar plots of the bomber and of his own fighter he determined the vector position of the bomber relative to the fighter and passed this information to the fighter. If the fighter was equipped with AI he vectored to within 1 3/4 miles of the bomber; otherwise he vectored it to within visual contact. Throughout an engagement the station was fully occupied with one
target: it could not direct its attention to other bombers within its box. After an engagement the station vectored its fighter back to a beacon to await the next target. Additional evidence, derived from the operational experience of the British bomber crews as well as from intelligence, suggested that the German fighters established contact with bombers in about 20 per cent of the attempts, that about 60 per cent of the contacts led to successful attacks, and that the attack was usually made from behind and below, sometimes from as close as 20 to 25 yards.

From the autumn of 1941 partial knowledge of this system had enabled tactical measures to be taken against the Kammhuber line: the chief of the counter-measures was to fly the bombers in a compact force through a single box in as short a time as possible, since the controller could handle only one target at a time. By December 1941 RT intercept had confirmed that something called *Kleine Schraube* was a radio beacon around which the German night-fighter orbited while waiting to be vectored on to its target, and in May 1942, by fusing the R/T with W/T intercepts, GC and CS had established the frequency and the characteristics of the *Kleine Schraube* which made it possible for Cheadle to DF the beacons and locate many of the fixed points of the night-fighter areas. In June 1942 it had thrown light on the problem of the FuGe 25A by showing that the night-fighters carried an apparatus which they called *Stem* and which was used to identify them by the ground controller. In July 1942 the appearance in practice signals late in 1941 and in operational traffic from early in 1942 of a new R/T code signal *Emil Emil* led to the suggestion that the signal indicated that the night-fighter had now been brought close enough to the bombers to pick up its target by its own detector: this was the *Lichtenstein* apparatus which had been mentioned by a POW in April 1941 and was first referred to in the Enigma decrypts in July 1942. But in addition to making these contributions to knowledge about the deployment and the control procedure of the enemy system, the study of the R/T traffic had provided evidence about the tactics of the night-fighters, recording the number of enemy aircraft that had operated the previous night, the number of interceptions they had attempted, the number of successes they had scored; and establishing such general findings as the fact that twice as many Allied bombers were intercepted on their way home as on their way to their targets.

Despite the fact that a big effort went into the study of targets, intelligence could do little before the end of 1942 to increase the effectiveness of the British bombing raids. Until then, moreover, it exerted no influence on the evolution of bombing policy except for a brief period from January to March 1941 in which the primary target of Bomber Command was the destruction of Germany’s synthetic oil installations.

The evolution of bombing policy was dictated by strategic considerations and the operational and technical limitations imposed on Bomber Command by its training and equipment. Among the strategic considerations the most important were the strength of pre-war doctrines about the potentiality of strategic bombing and the fact that those doctrines were buttressed after 1940 by, on the one hand, the call for retaliation for the GAF’s raids on the United
Kingdom and, on the other hand, the argument that, apart from the naval blockade and such subversion as SOE might accomplish, the bomber had become Great Britain’s only offensive weapon. The chief limitations on the effectiveness of Bomber Command were the fact that the enemy’s defences made day bombing of pin-point targets too hazardous and the fact that it then encountered technical difficulties in finding and hitting precision targets at night. It was on account of these difficulties, as much as under the influence of the general arguments for strategic bombing, that Bomber Command, which had abandoned day bombing as early as April 1940, embarked on the transition from precision to area bombing in October 1940, from which date it had concentrated its night bombing against towns or industrial areas instead of against specific industrial installations. In June 1941 the Air Staff, taking another large step towards area bombing, decided that while Bomber Command should concentrate on moonlight nights against railway centres and other transport targets, it should otherwise – that is, for about three-quarters of the time – continue its offensive with raids on such large and easily located targets as Cologne, Düsseldorf, Duisburg, Hamburg, Bremen, Hanover, Frankfurt, Mannheim, Stuttgart and Berlin, with the double aim of achieving economic dislocation and reducing civilian morale.

In reaching this decision the Air Staff was influenced by its growing recognition of the limitations facing Bomber Command, and particularly by the fact that those limitations had been underlined during a short-lived offensive against Germany’s oil installations between January and March 1941. The oil raids had finally established that it was to no avail that MEW could provide Bomber Command with good information about targets – in this case, detailed evidence about the location of Germany’s oil installations and reasonably accurate estimates of the state of her oil supplies. It had also confirmed that a second form of intelligence – Cheadle’s ability to supply the RAF with the call-signs, frequencies and location of the German MF beacons – could do little to reduce Bomber Command’s navigational problems. If they were equipped with appropriate receivers, British aircraft could use these beacons to check their navigation on the way to their targets. But while this procedure was valuable for general navigational purposes, neither it nor traditional navigational methods were adequate for the accurate location and bombing of targets at night. This called for equipment and training that remained, as yet, beyond the reach of Bomber Command.

The photographing and assessment of bomb-damage also had a bearing on the bombing effort. There was until the end of 1940 a tendency to prefer air crew claims and the occasional report from Germany to the evidence of PR which was detecting little damage. Thereafter, with Spitfires available for photographing bomb damage and improved cameras making it possible to produce large-scale photographs, the true situation gradually emerged. After the first mass raid by all available aircraft on a selected industrial area – that against Mannheim on 16 December 1940 – all the air crew reports claimed that most bombs had fallen in the target area and that the centre of the town had been left in flames. But on 21 December, at its second attempt, a PRU Spitfire succeeded in photographing Mannheim in daylight, with distinctly sobering results. The photographs showed that, although considerable, the damage had been widely dispersed and that much of it was outside the target area. At the end of December a PR report on recent attacks on two oil plants at Gelsenkirchen showed that neither plant had suffered major damage. It was
not until April 1941, however, after detailed study of large-scale daylight reconnaissance photographs of further raids, that the Directorate of Bomber Operations recognised that the estimate of 300 yards for bombing accuracy at night in good conditions was unattainable. This figure had been taken, without justification, from a pre-war estimate for daylight bombing; the correct figure was 1,000 yards, though 600 yards might be achieved in the best conditions.

With the resumption of the bombing offensive in June 1941 a further advance in bomb-damage assessment showed that Bomber Command had neither sufficient accuracy in target location nor adequate bomb-aiming equipment even to produce the results that had been expected from area bombing. That this was so was finally established in August 1941, when Lord Cherwell instituted the first thorough survey of the night photographs taken by bombers during their operational sorties as a means of confirming their location and pinpointing bomb bursts.¹ This survey showed that since the beginning of June, of the aircraft which had claimed to have attacked within five miles of their targets, only about 1 in 3 had done so. This proportion, moreover, was the general average: 2 in 3 had done so when attacking French ports, but only 1 in 4 in raids on Germany, and only about 7 in 100 when the target was in the Ruhr, where industrial haze was common and the German defences were at their most formidable.

The investigation led to the creation at Bomber Command of a small unit to carry on this kind of research; this was the origin of the Operational Research Section (ORS) in Bomber Command. The survey also brought about for the first time a full realisation of the need for urgency in introducing the new navigational equipment and new techniques that were already under development. The use of these in selected aircraft with expert crews to produce a Pathfinder force after the fashion of the GAF was now urgently examined. But none of the new equipment came into service before March 1942, and some of it was delayed until 1943, while the Pathfinder force was not created until August 1942. Meanwhile, as well as achieving meagre results, the latest offensive was already faltering because the size of the available bomber force was quite inadequate for the task that had been imposed on it. From as early as June 1941 the need to conserve the force was creating severe problems, and the casualty rate was being anxiously discussed by the Cabinet.

When this phase of the offensive came to an end in February 1942 it had done little damage to Germany’s military potential despite absorbing about 60 per cent of Bomber Command’s total efforts for seven months. It may therefore be wondered why the authorities persisted with the offensive when intelligence could now make accurate assessments of the effects of the bombing even if it could still make little positive contribution to its effectiveness. The RAF’s own narrative on the offensive has maintained that one of the main reasons was that, despite the progress made in the assessment of bomb damage, ‘the picture was never painted as gloomily at the time as it appears in retrospect’. The narrative continues –

‘Crews’ reports of what they believed they had accomplished were treated as

¹These photographs should be distinguished from night photographic reconnaissance. This was still in the experimental stage and it was not until the end of 1942 that the first operational night PR sortie took place.
reliable. Proved cases of error, usually revealed by daylight PR, came as a great shock, and at first threw doubt on the efficiency of the PI [Photographic Intelligence] rather than on the visual reports. Furthermore, the crews’ belief usually received a good measure of confirmation from the bulk of “intelligence reports” percolating through at a lapse of a week or two. These told of heavy damage and lengthy disruption of transport and other facilities; or bolstered up current belief in the effect of that imponderable weapon, the attack on morale, giving rise to the impression that whenever our Wellingtons, Hampdens and Whitleys flew by night the population of western Germany took to its shelters, cowered under an incessant rain of high explosive and plotted rebellion against the hated Nazi regime.

There could be no greater contrast imaginable than that between the enthusiastic “traveller’s tales” from Germany via Sweden or Switzerland on the one hand, and on the other the bleak pictures of scarcely damaged town brought back by PRU Spitfires and the tell-tale night photographs [revealing bombing] of fields and open country. Rarely can there have been a campaign in which intelligence was so conflicting.

But the narrative adds that -

‘realists in the Service accepted the irrefutable “evidence in camera” and, under the cloak of complacent publicity which kept the British people happy, went to work on schemes to improve matters and build up a force that could do what the optimists imagined was already being done.’

It seems safe to assume that it was for these reasons, political and operational, that the authorities persisted, not because they ignored the results of accurate bomb-damage assessment, and still less because the intelligence bodies were failing to provide this information.

It was on strategic and operational grounds that the Air Staff recommended, even when the previous offensive was being abandoned, that bombing should be resumed at an early date and that, with the aim of breaking Germany’s civilian morale, and particularly the morale of her industrial workers, still greater emphasis should be placed on area bombing. On 14 February 1942, the Air Staff having argued that given that Bomber Command was expanding, was about to introduce a new bomber and would now be benefiting from ‘Gee’, the first of its radio navigation aids, bombing would produce better results than in the past, the Chiefs of Staff accepted the recommendation. But they did so with some misgivings. Sceptical of the results achieved so far, the other two Services were also beginning to insist that the demands of the RAF were clashing seriously with their own defence requirements and to feel, perhaps, that Bomber Command was ceasing to be the only arm capable of taking the offensive. On 14 February, without objecting to the RAF’s plans, the First Sea Lord requested the transfer of squadrons from Bomber Command to Coastal Command. On 6 March, the Admiralty again pressed for an increase of land-based aircraft for work at sea, especially for long-range reconnaissance for convoy support and attacks on U-boats, and claimed that the Admiralty should control all aircraft engaged on naval operations. Four days later the CIGS expressed grave dissatisfaction at the Air Ministry’s failure to provide aircraft for army air support and also demanded that the Army should control its own aircraft.

Under this pressure the Chiefs of Staff agreed to review existing air strategy and on 23 March 1942, to assist their review, they called for the first
time for a report from the JIC on the results achieved so far by the bombing of Germany and the effects of continuing the policy, in so far as they could be assessed. But the JIC’s report made it clear that intelligence could not answer these questions. Evidence was limited to photographic reconnaissance which could detect only visible damage, and in the absence of reliable reports from Germany there was no way of calculating the wider effects of visible damage on the economy or the morale of the enemy. For these reasons the JIC concluded that given good operational conditions over six months air bombing was capable of bringing about an increasingly reduction in Germany’s war effort, but that the reduction could not be quantified. This conclusion was dismissed as useless by the Chiefs on Staff on 10 April.

In these circumstances the government again called in Mr Justice Singleton, asking him to estimate ‘in the light of our experience of the German bombing of this country, and of such information as is available on the results of our bombing of Germany, what results are we likely to achieve from continuing our air attacks on Germany at the greatest possible strength during the next six, twelve and eighteen months respectively?’ His report, submitted on 20 May 1942, found, as had the JIC, that the available intelligence was not illuminating. It concluded that there was little prospect that in its attack on German morale Bomber Command would have any great results within six months: for the longer term, the state of German morale would depend not merely on the bombing but also on whether Germany suffered reverses, or failed to achieve successes, in Russia. And it was for its indirect effects in forcing the GAF to retain resources in Germany, which would be ‘of incalculable value to Russia’, rather than for its direct effects on German morale, which were ‘much more difficult’ to assess, that the report favoured a continuation of the bomber offensive.

In addition to offering these general conclusions, Mr Justice Singleton had to pronounce on protests which MEW was now making against the manner in which Bomber Command had been carrying out the new directive since February. MEW did not regard the bombing offensive as likely to have an important effect on the level of Germany’s industrial production, and it accepted that its most important effects, even on industry, were likely to be those which it had on the living conditions of the civilian population. But in the belief that the policy of area bombing should be combined with concentration against specific industries it had advised that targets selected according to a variety of economic criteria should be listed in the directive, particularly those that were known to be important for electric power, synthetic rubber, special components for the air and armaments industries, oil and substitute fuels, aluminium and soda ash, and diesel engines and accumulators for U-boats. And before very long it was complaining that Bomber Command was paying no attention to even this generously comprehensive list of priorities.

MEW’s dissatisfaction came to a head after Bomber Command’s attack on the MAN submarine diesel factory at Augsburg on 17 April. This was an experimental raid: the new Lancaster bombers were used for the first time in daylight and in routeing them to the target use was made of intelligence about the air defences over a wide area of Europe. But Bomber Command had chosen the target without considering MEW and MEW protested strongly to the Prime Minister that the target, which in February it had put at the bottom of its recommended list, should not have been chosen in preference to others of greater economic importance.
MEW’s protest was referred to Mr Justice Singleton. In his report he accepted MEW’s argument that ‘to assess the probable effect on Germany’s war effort of different degrees of damage to parts of her economy is difficult, but it is essential in the framing of an effective bombing policy’. At the same time, however, he recognised the force of Bomber Command’s view that the prime criteria in selecting targets must be vulnerability and feasibility and, having conceded that ‘the final choice of the target for the night must always rest with the C-in-C Bomber Command’, he suggested that the bombing would produce better results if it gave priority to industrial areas rather than to houses and that liaison might possibly be improved between Bomber Command and the Bomb Target Committee which met once a fortnight under the chairmanship of the Air Ministry’s Director of Bomber Operations.

To the general objective laid down in the directive of February 1942 the Air Ministry itself provided more effective opposition than did MEW because it could support its arguments with firmer intelligence. As early as January 1942 the Air Intelligence Branch had urged that the offensive should be directed against the German aircraft industry. On 28 February it went further and recommended a switch back to day bombing in a campaign of attrition against the GAF. It rested its argument on the fact that the Enigma evidence on the German order of battle was beginning to suggest that, as a result of the heavy strain of the Russian fighting, the GAF, and particularly its fighter arm, was weaker than at any time since the outbreak of war. These pleas were rejected on operational grounds – the RAF lacked the technology to mount precision attacks on the aircraft industry, and its bombers were not equipped to engage in daylight combat with the GAF. On 8 April, however, the Chiefs of Staff were sufficiently impressed by the Air Ministry’s evidence to instruct Fighter and Bomber Commands to consider plans for inflicting wastage on the GAF, and early in May the Air Staff made a still greater concession. On 1 May the Director of Intelligence (Operations) at the Air Ministry pressed once again for a new directive to Bomber Command that would give priority to aircraft industry targets. He did not succeed in getting a new directive but on 5 May the Air Staff amended the February directive, giving high priority to the three aircraft industry factories that were believed to be responsible for nearly all of the GAF’s fighter production.

If the views of the Air Staff were changing, it was not only because it was beginning to be impressed by Air Intelligence’s evidence about the critical situation in the GAF. It was under pressure from the Anglo-American Combined Planners, who also stressed that the reduction of the GAF’s fighter force would be the best way of giving assistance to Russia. By May, moreover, it was having to face the fact that, so far as could be judged, the latest phase of the bomber offensive was having no appreciable effect on German industry.

Considerable improvement had been expected in the accuracy and effectiveness of bombing from March 1942 following the introduction of ‘Gee’. But the photographic intelligence soon established that ‘Gee’, while fulfilling expectations as a navigational aid in getting aircraft over their target, and particularly in enabling aircraft to keep a tight schedule, was of little value to blind bombing, for which indeed it had not been designed. During March and April, in eight raids on Essen, 1,081 out of 1,555 aircraft claimed to have attacked, but only 22 out of 212 photographs taken during the raids proved the attacks to be within five miles of the town. In all raids during the two months night photographs showed that 40 per cent of the aircraft had bombed within
five miles compared with 26 per cent in the previous three months. In conditions when visual aiming had been impossible the evidence from the photographs was scanty, but it suggested that 50 per cent of bombs fell within five miles of the target and only 20 per cent within two miles.

As well as using ‘Gee’, the RAF was at this time developing new tactics by introducing flares and a high proportion of incendiary bombs into air attacks. In March, April and May precision attacks with the new tactics were made from time to time with varying success, but with poor results when low-level bombing was impossible. Night photographs and day-time PR frequently showed negligible damage against the main targets in May.

It was in these circumstances that Bomber Command obtained approval for its wish to revert to the policy of confining itself to mass bombing, and to do so by committing its entire force in thousand-bomber raids against a single town. The first thousand-bomber raid took place on 30 May 1942 against Cologne. It caused immense damage to the city, destroying 3,300 houses and rendering 45,132 people homeless. The extent of this damage was accurately assessed at the time as 3,000 houses and 50,000 homeless — though the number of deaths, actually 474, was greatly exaggerated in MEW’s estimate of 1,000 to 6,000 — and it was far more serious than the total damage Bomber Command had done to Cologne with 1,364 sorties in smaller raids during the previous nine months. To that extent the experiment was a success. At the beginning of July, however, MEW recognised that the city was functioning normally again within two weeks of the raid. Two further raids on the same scale, moreover, were distinctly less successful. 956 bombers attacked Essen on 1 June and 767 claimed to have bombed in or near the town. But none of the night photographs showed the target, and only 8 out of 73 photographs were within five miles of it. PR over the next few days confirmed that little damage had been done to the town and none to the Krupp works. On 25 June 904 aircraft bombed Bremen with results that were almost as disappointing. PR showed damage to parts of the town and to the Focke Wulf factory, but established that the docks — the chief objective — had escaped injury. These poor results brought the thousand-bomber raids to an end.

The reduction in the GAF’s bombing of the United Kingdom from May 1941 was accompanied by an increase not only in Bomber Command’s night offensive but also in the frequency of daylight sweeps over north-west Europe by Fighter Command, supplemented by aircraft of Coastal Command and the day bombers of Bomber Command and from mid-1942 the bomber formations of US Eighth Air Force, with the aim of destroying GAF fighters. The daylight offensive had begun at the beginning of 1941. From June of that year it was intensified in an effort to help the Russians by reducing or reversing the flow of GAF formations to the eastern front and disrupting communications in western Europe. Although Bomber Command soon withdrew from it, Fighter Command kept up the offensive with one-third of its total strength until the end of 1941. The offensive failed in its aims: the GAF did not have to reinforce the two Geschwader of fighters that it maintained in the west. At the same time, Fighter Command incurred heavy casualties. Having lost 51 pilots in
these sweeps by June 1941, it lost a further 411 in the second half of the year, more than the number it had sacrificed during the Battle of Britain between July and October 1940. Not the least reason why the offensive was nevertheless continued lay in the fact that Fighter Command produced 'enormously exaggerated estimates of German losses'. Between June 1941 and the end of the year it claimed to have destroyed 731 aircraft whereas the GAF lost only 154, of which 51 were not destroyed by British action.

The exaggeration persisted because, as in 1940, the intelligence sources were unable to provide any check on the reliability of the claims made by British pilots. While the other sources - Enigma, POW, PR and SIS - had nothing to offer, the study of the tactical communications of the GAF’s day-fighter formations had not yet been developed. Cheadle could usually, if with some delay, determine the losses of enemy aircraft using W/T, but the GAF fighters used R/T. Nor did matters improve during the first half of 1942, when, after being suspended during January and February from the need to conserve Fighter Command’s resources, the daylight offensive was resumed. It was again prolonged despite heavy casualties, largely as a result of the continuing inability of the intelligence authorities to produce a reliable method of estimating enemy losses.

From the end of January 1942 indications that the GAF was reducing its day-fighter force and its Flak organisation in north-west Europe to meet the demands of other fronts coincided with the faltering of the Soviet counter-offensive and an anxiety in Whitehall to provide all possible relief to the Soviet forces. Furthermore, by the end of January the Enigma had disclosed that 30 of the latest type of single-engined fighter were being transferred to Russia and on 6 March 40 single-engined fighters were known to be moving from the Pas de Calais to provide protection for the strike force assembling in north Norway against the Arctic convoys. The CAS now pressed for a resumption of Fighter Command’s offensive and for a reconsideration by Bomber Command of the possibility of daylight raids on Germany. The daylight offensive re-commenced on 24 March and, as had been hoped, the GAF responded energetically: at the end of March the Enigma disclosed that fighter reinforcements were arriving in France and on 19 April it revealed that 120 out of 180 single-engined fighters in the Pas de Calais were the new FW 190. As a result of the prompt action of the GAF, however, and of the superiority of the FW 190, Fighter Command’s casualties were again severe. By mid-June it had lost 259 aircraft in return for the destruction of 58 German fighters. As before, on the other hand, Fighter Command continued to over-estimate the enemy’s losses; when his actual losses were 58 aircraft, it claimed to have destroyed 197 by that date - and the Air Ministry remained unable to correct the exaggeration. On 6 July, when it had learned from the Enigma that the GAF was finding it difficult to supply aircraft to north Africa, had imposed flying restrictions in Russia and had decided to quintuple fighter aircraft production at Wiener-Neustadt. Air Intelligence judged that Fighter Command’s operation had ‘contributed substantially to the present satisfactory situation’ and urged that ‘further intensive operations would be likely to cause the Germans most serious embarrassment’. It was as a result of this appreciation that, despite growing anxiety about Fighter Command’s casualties, the offensive was kept up on a reduced scale until it reached its climax in the Dieppe raid on 19 August.

In so far as one of its main objects was to impose wastage on the GAF and provide relief to Russia, the Dieppe raid was a resounding failure, though the
extent of its failure was partly concealed by the fact that the RAF again over-estimated the GAF’s losses. It claimed to have destroyed 92 German aircraft, with 39 probably destroyed and 140 damaged, in return for the loss of 106 Allied planes. The German records give the German losses as 25 bombers and 23 fighters, plus damage to 16 bombers and 8 fighters. As a result of the raid, however, the GAF increased its fighter force in north-west Europe. At the same time, the raid coincided with the opening of the day-time offensive against Europe by the bomber formations of US Eighth Air Force, which made its first cross-Channel raid on 17 August. The US force were dedicated to precision daylight bombing with its Norden bombsight; its confidence in its mission was sustained initially by its own small losses, but when these were replaced by heavy casualties, as they soon were, it was almost wholly its belief in its large claims against enemy aircraft that persuaded it to continue the offensive until the autumn of 1943. Its claims were more exaggerated than those made by the RAF – so much more so that the Air Ministry early distrusted them. In October 1942 for example, when US Eighth Air Force claimed to have destroyed 102 GAF fighters in an attack on Lille, the Air Intelligence Branch estimated that the figure could not have been more than 60. As it happens, however, the enemy lost only one fighter during this raid.

The absence of even remotely reliable estimates of the GAF’s losses was due to the lack of Sigint evidence. When the other sources were silent on the subject, even GC and CS’s study of the GAF’s day-fighter R/T was failing to fill the gap. By the end of 1941, by which time the range of R/T interception had been extended to include all the main fighter areas between Norway and the Spanish border, the Air Section was able without delay, in advance of identifications obtained from POW and crashed aircraft, to identify individual fighter formations and to establish the total numbers of GAF day-fighters. But it was unable to correct Allied estimates of enemy losses, and its reports on the tactics, procedures and dispositions of the enemy’s day-fighters were not assisting the Allied commands to reduce their own heavy casualties before the middle of 1943.
CHAPTER TWELVE

The Mediterranean and North Africa from July 1941 to February 1942

In the summer of 1941 the British assumed that Russia might collapse as early as August or September. They also assumed that Germany took the same view and was already planning large-scale offensives towards the Middle East and the Mediterranean. But they were far from sure where and when she would strike on that front and their uncertainty was unrelieved by the receipt of any reliable intelligence about the enemy’s intentions. The threat to Malta and Gibraltar seemed to be surpassed only by the danger to the Middle East. About the Middle East there was further uncertainty. Despite the fact that they agreed that Russia’s collapse would be followed by a German offensive in that direction from the north, Whitehall and Cairo held different views as to how soon this offensive could be launched.

In Whitehall the JIC believed that the threat from the north would take ‘months’ to develop, and the Prime Minister used its arguments in his attempt to persuade the C-in-C Middle East to take the offensive in Africa in September, before Rommel could take Tobruk – the ‘indispensable preliminary to serious invasion of Egypt’. General Auchinleck, the new C-in-C Middle East, argued that, since winter conditions might permit Germany to switch forces even while Russia continued to resist, the threat to Syria from Anatolia might develop as early as the first half of September. It was largely because ‘the north may become the decisive front’ that he wanted to delay until the end of 1941 before making a move in north Africa.

At the beginning of August, during a brief visit by the C-in-C to London, the two sides agreed on a compromise. Both accepted the compromise reluctantly. The C-in-C subscribed to the view of the Chiefs of Staff that ‘the immediate danger’ from the north ‘was diminished by the continued resistance of Russia’. But he still offered only to make his advance (operation Crusader) on 1 November The London authorities accepted his offer, but as well as feeling that he was exaggerating the imminence of the threat through Turkey, they regretted the delay for other reasons. They were aware of the current weakness of Rommel’s position: they were also afraid of the possibility that, particularly in the event of an early Russian collapse, his forces could be reinforced and resupplied more quickly than the British forces in Egypt.

In contrast to the lack of information about Germany’s strategic plans, some reliable intelligence was available about the enemy’s supply difficulties in north Africa. GC and CS continued to break virtually every day, and to do so almost currently, both the general GAF Enigma settings (the Red) and the settings that had been allotted to Fliegerkorps X and Fliegerführer Afrika (the Light Blue); and while this traffic was mainly concerned with GAF activities and supply operations, it also carried some information about the ground situation in north Africa. Since June it had shown that, as a result partly of the German operations against Crete and partly of Rommel’s effort in June in beating off operation Battleaxe, the supply position of the enemy ground and
air forces was becoming increasingly precarious and that German emergency measures were failing to overcome the difficulties. On 28 July MI in London concluded that supply difficulties alone would delay any general Axis offensive in north Africa. By then, moreover, the Enigma had provided evidence that even an attack on Tobruk was not yet likely. Up to 10 July MI had allowed that this might come in the near future. But by 14 July, having learned from the Enigma that the Germans were still buying siege artillery in Tunisia, it had concluded that Rommel’s preparations for an assault on Tobruk were probably not completed. This conclusion was supported by a report from a well-placed SIS source to the effect that the Axis would undertake no large-scale operations in Libya before the end of October.

If their knowledge of the enemy’s difficulties increased the preference of the London authorities for early British action, the setting aside of their immediate fears about Tobruk did something to reduce their apprehension at the C-in-C’s insistence on delay. But they still feared that the Axis would overcome its difficulties and manage to get reinforcements to Africa while the C-in-C reorganised and trained for a set-piece battle, and for this anxiety, too, there were good grounds in the available intelligence. As early as 11 June the GAF Enigma had revealed that the Axis had decided to reduce the demand on motor transport and coastal shipping by sailing single ships direct to Benghazi, though only four ships were yet available for the service. By the beginning of July it had emerged that four Italian 20,000-ton liners were being used to transport Italian troops to Tripoli. More disturbing, reports were then coming in from the SIS of the southward movements of German troops through Italy en route to Libya. These reports, received before the C-in-C’s arrival in London at the end of July, were corroborated soon after his departure. The GAF Enigma identified a new German infantry regiment (the 361st) in Libya in the middle of August and soon afterwards established that it belonged to a new division (Division zbV Afrika, later renamed 90th Light).

The intelligence about north Africa failed to deflect the C-in-C in the direction of the Prime Minister’s preference for a quicker and less well prepared advance. But during the second half of 1941 the continuation and improvement of this intelligence conspired with other developments to make that period one of sustained British successes against the Axis supply routes to north Africa, successes which were to have considerable importance for the future course of the fighting on land. At the beginning of June Fliegerkorps X moved from Sicily to Greece to replace Fliegerkorps VIII, which had gone to the Russian front. In the first half of 1941 Fliegerkorps X’s operations from Sicily had greatly restricted British anti-shipping attacks from Malta. Its transfer to Greece, of which the GAF Enigma provided full details, coincided with an increase in the British anti-shipping forces in the Mediterranean. It also coincided with a significant increase in the amount and operational value of anti-shipping intelligence. Partly the result of additions to the number of reconnaissance aircraft working from Malta, this was mainly due to the breaking of the C38m cypher.

The first intelligence from the new source transmitted to the Middle East was sent out on 23 June: it gave details of the sailing of a convoy of four liners to Africa with Italian troops. On 10 July GC and CS broke the July settings. Thereafter, with progressively shorter interruptions till the end of each month, when the Italians introduced new settings, it was to go on reading the traffic with little or no delay until the Italian armistice. In the year after it was broken,
the Italians made steadily increasing use of it: the number of signals rose from 600 in August 1941 to nearly 4,000 in July 1942, the peak month. As it was used by Italian naval shore authorities and fleet units, it often provided information about the intentions of the enemy’s main fleet. Most important of all, however, it was as a result of its reading of the C 38m that GC and CS was able from July 1941 to give the operational authorities advance notice of virtually every convoy and important independent ship that sailed with troops or supplies across the Mediterranean, and usually to identify the ships and the escorting forces involved.

Apart from its contribution to individual operations, moreover, it was invaluable for the light it threw on the enemy’s supply arrangements. It gave advance notice that from the beginning of August 1941, partly to give the Malta forces a wider berth and partly to reduce the long haul in north Africa from Tripoli to the forward area, the enemy would increase the number of sailings to Benghazi and thus sail more ships from the Aegean. At the end of September the decrypts showed that Fliegerkorps X had been ordered to discontinue its raids on Egypt and was transferring one Gruppe of long-range bombers and one of Me 110s to Sicily. In the middle of October it revealed that the Italians had suspended all sailings to Tripoli as a result of their increasing losses on that route, where four ships had been sunk in the past fortnight.

Up to the time of this suspension the monthly average of Axis tonnage sunk had been running since June at about double what it had been in the first half of the year, and there was no lack of evidence that the losses were creating supply difficulties in north Africa. On 27 September the JIC calculated that Rommel’s supplies were sufficient only for a limited campaign of not more than a fortnight. It based this conclusion not only on the GAF Enigma, which showed that GAF stocks continued to be low, but also on another new source – signals in the German Army Enigma which were first decrypted at GC and CS on 17 September. These showed that on 22 September the DAK had been ordered to reduce consumption of water, food and fuel. On 10 October they showed that Rommel was also short of 88 mm anti-tank ammunition. By the middle of October – this emerged from the C 38m – the Italians were being driven to take emergency measures to maintain essential supplies, transporting troops by air and in destroyers and sending submarines to Bardia and Derna with fuel and other stores. Nor is there any doubt that these shortages forced Rommel to put off, first from September to October and then from October to late in November, an attack on Tobruk.

Despite its contribution to this result, however, the anti-shipping intelligence showed that mainly as a result of his greater use of Benghazi since the beginning of August, no fewer than 24 ships had arrived between then and the beginning of September. This information led to the decision to use naval surface forces based on Malta to boost the effectiveness of the attack on enemy convoys. On 21 October, as soon as fuel supplies were adequate, Force K – consisting of the cruisers HMS Aurora and Penelope and two destroyers – arrived in Malta. Its exploits during the next two months were to be an outstandingly successful exercise in the operational use of intelligence.
RAF in the Middle East. By keeping the enemy air forces short of supplies and by increasingly diverting them to the protection of shipping, it reduced the RAF’s main defensive problem — the protection of the great assemblage of shipping in the Canal and on the supply route to Tobruk and of the workshops and aircraft parks in the Cairo area. In return the RAF was better able to concentrate on its offensive tasks, some of which — bombing attacks and minelaying operations at the enemy’s disembarkation ports, interference with the supply routes between his ports and his depots, and raids on the communications between his rear areas and the front — were an extension of the anti-shipping campaign. The others, no less important during the planning of the British offensive, were the supply of information about the enemy’s preparations and dispositions and the need to thwart his efforts to acquire such information about the British.

In its defensive role the RAF was also directly assisted by intelligence, especially by the GAF Enigma. This warned it of GAF reinforcements — of the fact, for example, that six Fw 200s of KG 40 and six He III’s had arrived at bases in the eastern Mediterranean in August for operations against the Canal and the Red Sea — and kept it informed that Fliegerkorps X was consistently below strength. More important, it provided detailed tactical information on the GAF’s day to day operations, and commonly did so in time for the information to reach the Middle East before the operations took place. GC and CS frequently predicted Fliegerkorps X’s attacks against the Tobruk convoys, and practically all GAF mining operations off Tobruk, off Alexandria and in the Canal were either forecast or known about on completion, with full details of the number, type and claimed position of the mines dropped. From September 1941 the RAF Y Field Unit at Alexandria was supplementing the GAF Enigma by monitoring the GAF’s tactical W/T activity, though it was not until 1942 that the RAF Y organisation in the Mediterranean got into its stride.

The intelligence used in the RAF’s offensive activities came from a greater variety of sources. Although the development of PR in the Mediterranean remained painfully slow, five to six sorties a day were being flown for the Army during the planning of the British attack and PR was making a considerable contribution to the stock of knowledge about the enemy’s Army formations, his dispositions, defences, dumps and minefields, his roads, tracks and ports, and the movement of his supplies. High grade Sigint and the work of the Army’s forward patrols supplemented the air reconnaissance in the collection of information about ground targets for the RAF; and for the RAF’s operations against the enemy’s air forces, and its watch on them, Sigint was the outstanding source. The GAF Enigma provided regular reports by the GAF on its tactical policy, its strengths and serviceability, the state of its airfields and its locations, transfers and reinforcements, as well as about its supply situation; and virtually every day it contained details of the day’s targets and intended scale of effort and retrospective operational summaries. Such was the flow of this intelligence, and so slight the delay with which it was received, that it is no exaggeration to claim that the British authorities were as well informed as were its own commanders about the GAF’s state and order of battle. They knew in advance, for example, that the Germans intended to equip one fighter unit with Me 109 Fs, which were superior to any RAF fighter then in the theatre, and the Enigma confirmed the presence of a few of these aircraft in October. About the IAF, Sigint provided similar information, though there was less of it and it was obtained with more delay.
If Sigint played a large part in enabling the RAF to establish air supremacy in the weeks before the British advance, it was also important in determining the air power the enemy would deploy in the coming battle. In the first half of October it indicated that against an RAF strength of 528 serviceable aircraft, plus reserves of 50 per cent, an Axis establishment of 642 would yield 385 serviceable aircraft in Cyrenaica but no reserves apart from 156 German aircraft in Greece and Crete which might be used at long range for attacks on British lines of communications. In the event, of the total Axis establishment of 540 in Cyrenaica, 313 were serviceable.

For the Army authorities, information about the enemy’s ground forces, particularly about his order of battle, was in short supply until the middle of September. Italian POW taken on the Tobruk front provided some details about Italian divisions in that area, and captured Italian correspondence established that a Mobile Corps had been formed round the Ariete Division. But few documents were captured and few prisoners were taken during the lull in the fighting. The SIS contributed little: it had by now established an advanced station in the desert, but its few reports dealt only with activity in the enemy’s rear areas. PR and other reconnaissance, air and ground, yielded much information about the enemy’s dispositions, movements and defences, but could not provide identification of units seen, or even determine their nationality, unless it was supplemented by Sigint, of which little was yet available about the enemy’s ground forces. In July 1941 CBME, on the basis of intercepts of communications used during German mopping-up operations in Crete, broke the medium-grade field cypher used by the German Army in north Africa. A start was made in breaking simpler codes – that of the DAK’s armoured car reconnaissance units, and the code used for relaying to units of the Army their ‘thrust lines’ or axes of advance. Cairo also reconstructed the networks, frequencies, call-signs and code names used by the German Army in Libya, and it was at last becoming possible to identify German units and formations. Since DF was as yet inadequate, however, locating the enemy transmitters was not possible: and the forward Y units had not yet built up the experience needed for interpreting the obscurities in the German signals. For these reasons, and also because of the paucity of enemy traffic, it was not until the time of the British attack that the Army Y organisation began to make progress against the German communications, although the Italian lower grade Army codes provided some information about personalities and, to a lesser extent, order of battle.

From the middle of September, however, a new source of high-grade Sigint made it possible to work out the details of Rommel’s command. Hitherto called the DAK, this was rechristened Panzergruppe Afrika on 31 July, when Rommel was put in control of the Italian XXI (infantry) Corps as well as of the DAK, the latter comprising the Italian Savona Infantry Division as well as 15th Panzer Division, 21st Panzer Division (formerly 5th Light Division) and the motorised Division zbV Afrika (later renamed 90th Light Division). By the end
of September MI had established that the German forces in Afria consisted of the two armoured divisions, now brought up to strength, and at least two regiments of the third which, though possibly motorised, was not armoured. This correct conclusion, which guided the planning of the British offensive, was based on the earliest decrypts of Army Enigma in north Africa.*

Of the various Army Enigma keys, of greater complexity than those of the GAF, and also more securely used, one on the Russian front (Vulture) had first been broken in June 1941, but those in use in north Africa had resisted the efforts of GC and CS except for an occasional day. On 17 September, however GC and CS broke into one of them (which it named Chaffinch) on a substantial scale for the first time. From 17 September to 19 October 1941, and again from 2 November to 6 December, it read it with some regularity, though always a week or more late. Chaffinch turned out to consist of three related keys. Two of these were used between all the main supply bases in Africa, Rome and Salonika, and the third for special communications, such as daily appreciations, between Africa, Rome and Berlin. The settings for November were captured on 28 November, in the early days of Crusader, and helped GC and CS belatedly to complete its reading of the November traffic. The same haul of captured documents also enabled GC and CS to break one week’s traffic in a further African Army Enigma key (named Phoenix at GC and CS) which was used for operational communications between division and corps, and corps and army.

During the planning of the British offensive the new source provided many valuable identifications of German and Italian units and formations – such as those which helped clarify the composition of the Panzergruppe.† More usefully it established or confirmed important enemy redispositions on the eve of the British offensive. By then it had disclosed the move of the Ariete Division to Bir Gubi and, with the help of POW and reconnaissance, had established the presence of the Trieste Division in the southern sector, at Bir Hacheim, and thus that that part of the British plan which was intended to deceive the enemy into thinking that there would be a threat to his southern flank was meeting with some success. On 16 November, having already located 15th Panzer Division and Division zbV Afrika in the battle zone, it established that 21st Panzer Division was arriving at a point north-west of Capuzzo, between Tobruk and the Egyptian frontier, and that the DAK’s two ground reconnaissance units were covering the gap between the Ariete Division and the sea. This information assisted the interpretation of the last-minute comprehensive air reconnaissance which on 17 and 18 November showed no change throughout the battle area.

The Enigma provided valuable last-minute information about the strength of Rommel’s armour as well as about its dispositions. During September...

*The assessment was at fault only in minor matters. It was not known whether Division zbV Afrika was subordinated to the DAK. It was assumed that the Trento Division was part of the Italian XXX Corps, which was correctly identified as the Mobile Corps, when in fact the division was part of XXI Corps.

†The Enigma helped to identify XX and XXI Corps. Italian field Sigint gave details of the divisions subordinated to XXI Corps, and located its Corps HQ. But in addition to uncertainty about which Italian formations were included in Panzergruppe Afrika it was impossible to settle whether the Littorio Armoured Division was in Tripoli. This difficulty continued to complicate calculations of enemy armoured strength in the early months of 1942.
planning proceeded on the assumption that in November the ratio of Axis to British tank strength (479 tanks) would be 4:6. This forecast was corrected when the Chaffinch traffic produced on 13 November the first decrypt of a type that was to be regularly available from the middle of 1942. It gave the following return of German tanks ready for action, total 244:

<table>
<thead>
<tr>
<th>Formation</th>
<th>Pzkw II</th>
<th>Pzkw III</th>
<th>Pzkw IV</th>
</tr>
</thead>
<tbody>
<tr>
<td>15th Panzer Division</td>
<td>38</td>
<td>75</td>
<td>20</td>
</tr>
<tr>
<td>21st Panzer Division</td>
<td>32</td>
<td>64</td>
<td>15(^3)</td>
</tr>
</tbody>
</table>

At the beginning of the British offensive MI estimated that the combined total of German and Italian serviceable tanks was 385. This was remarkably accurate, for the actual number was 390 if the Italian light tanks were excluded. MI also correctly assumed that, whereas the British had a sizeable reserve, the Axis had virtually none.

Neither in London nor in Cairo, on the other hand, did the intelligence appreciations dwell on a matter on which high-grade Sigint and PR threw no light, but to which Wavell had drawn attention at the start of Battleaxe in May – the inferiority of British to German Armoured Fighting Vehicles (AFV) and their vulnerability to anti-tank guns. During the summer of 1941 technical intelligence had gradually improved. Its sources, in addition to battle experience, were POW reports, captured documents and, above all, captured weapons and equipment which could be examined and tested. By the autumn all types of tank had been inspected and a great deal learned of their armour and armament. It was found that Pzkw III, ‘the work horse of the tank versus tank battle in the desert’, and the Pzkw IV had been fitted with extra armour plates, but it was not known in November 1941 how many had been so modified. Nor was it until March 1942 that tests established that the extra plates were face-hardened so that the two-pounder uncapped shot of most of Eighth Army’s anti-tank and tank guns did not penetrate. Information on the anti-tank guns was also increasing. A 50 mm Pak 38, which was to do much damage during the coming campaign, had been captured. But details of the 88 mm dual-purpose Flak and anti-tank gun, which had caused so much trouble during Battleaxe, remained unknown.

If underestimation of the quality of Rommel’s equipment was one reason why British confidence was high when the Crusader offensive began, another was the failure to allow for the efficiency of his field intelligence. By August 1941 the Germans were regularly reading the high-grade hand cypher which carried a good deal of Eighth Army’s W/T traffic down to division level, and they continued to do so until January 1942. Until then, when their success was reduced by British improvements, this cypher provided them with at least as much intelligence about Eighth Army’s strengths and order of battle as Eighth Army was obtaining about those of Rommel’s forces. More important, while the British Y organisation in the Middle East was still in its infancy in the autumn of 1941, at least in its work on the communications of the German Army,

\(^3\)Pzkw was the abbreviation for Pz-erkerk.pank, the roman figures denoted the type of mark. Pzkw II was by now of type N.
Rommel's was already highly efficient and was greatly valued by himself and his commanders. It derived great benefit from British carelessness with regard to tactical codes and wireless procedure, particularly the use of uncontrolled R/T, of plain language and of an unsound call-sign procedure on the brigade-to-battalion links in the forward areas. The extent of its success was not suspected until the capture of part of Rommel's field Sigint unit and a large quantity of its records in July 1942. Until then field Sigint was for Rommel a prolific source of information about Eighth Army's order of battle and, especially during battle, it frequently alerted him to Eighth Army's tactical intentions.

On the subject of Rommel's operational intentions after the middle of 1941 the intelligence sources were less helpful than they were about his supplies and the order of battle and dispositions of his forces. This was partly because the operational value of the Army Enigma was restricted by interruptions and delays in reading the traffic, and by the fact that only part of it could be intercepted in the United Kingdom.

While the British authorities were able to deduce with some confidence from an early date that Rommel was in no position to launch an offensive against Egypt, they could by no means rule out the possibility that he would make an assault on Tobruk. For that he did have the capacity, and since the Tobruk garrison would otherwise threaten his supply line when he did try to reach Egypt, its elimination was an obvious preliminary. Until well into September there was little cause for anxiety. They judged that supply and maintenance difficulties made it impossible for the Axis to undertake intensified operations for any length of time, and on 25 August MI had ruled out 'immediate operations' on learning from the GAF Enigma that Fliegerführer Afrika was to be away from the theatre until mid-September. By this date, however, the Enigma was beginning to provide evidence of the preparations that the enemy was making for an operation against Tobruk.

By 12 September, when PR had already observed some reinforcement of the Tobruk perimeter, the GAF Enigma revealed that Panzergruppe Afrika had asked urgently for maps and overlays of the Tobruk defences and that Fliegerkorps X was preparing for some special activity against Tobruk. On 21 September it again referred to a 'special operation' against Tobruk. Between then and 26 September the GAF and Army Enigmas reported further activity: HQ Division zbV Afrika had arrived in the forward area and some of its units were moving to the front from Tripoli; conferences were taking place between Rommel, AOC Fliegerkorps X and the German authorities in Rome; all parts of HQ Panzergruppe Afrika were being transferred to Gazala, 30 miles west of Tobruk; a conference was to be held at Gambut, Rommel's HQ 30 miles east of Tobruk.

On this evidence the JIC concluded on 27 September that, although a major Axis offensive before mid-October remained unlikely, action against Tobruk could come earlier than 15 October. But on 3 October a Chaffinch decrypt put an end to immediate anxiety by reporting that the disruption of traffic between Italy and Africa was causing delays to the return of troops on leave which could not be made up for two or three weeks.
During October the disruption of Axis traffic increased, with shipping to Tripoli suspended from 18 October, and intelligence led the London authorities to the conclusion that, far from intending to launch an attack of his own, the enemy was now expecting a British offensive and was straining every nerve to be ready for it. On 26 October an IAF high-grade decrypt indicated that the Italians expected an offensive and had so told the Germans. On 27 October a further Enigma item, to the effect that troops on leave from Libya were to be brought back urgently 'because of British dispositions', confirmed the view that the Axis expected some British action. But if this interpretation posed the new threat that the enemy had detected the British preparations, which were now well advanced, the evidence did not exclude the possibility that he would try to forestall them by launching his own attack. On the contrary, from 17 October Sigint references to Rommel's preparations for the attack on Tobruk became so frequent as to suggest that it could not be far off. On 17, 19 and 21 October requests for flame-throwers (believed to be for assaulting concrete emplacements), for other assault equipment and for maps of Tobruk were decrypted. On 20 October 17 Ju 52 loads of anti-tank guns were reported arriving at Gazala.

At this juncture the British offensive was subjected to a series of postponements. The first, moving the date from 1 to 11 November, evoked the intense displeasure of the Prime Minister on 18 October; a second postponement till 15 November was followed by a request from a divisional commander for a further delay. But it was also followed on 2 November by the second of GC and CS's breaks into the Chaffinch traffic. Between 3 and 11 November the decrypts contained requests for maps and a large mosaic of Tobruk and for more assault equipment, with expression of anxiety that this might not arrive 'in time': a demand by Rommel for 100 more anti-tank guns 'by mid-November'; and a demand by Fliegerkorps X for a large quantity of aircraft fuel by 20 November. On 7 November they referred to an 'impending attack'. On 10 November they revealed that the Panzergruppe had suspended leave and that the Trento Motorised Division had been brought up to Tobruk. On 16 November it was learned that the Italian San Marco marine battalion had just arrived in Africa, a fact which pointed to Rommel's intention to supplement his assault on Tobruk by a landing from the sea. On 17 November, having already disclosed that Rommel had flown to Rome on 1 November, the Army Enigma reported that he would return to north Africa on the evening of 18 November.1

These details gave Eighth Army a clear indication of the objective and nature of the German attack, and an indication of its timing sufficiently clear for the British offensive to start first.

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The British offensive of 18 November, operation Crusader, took the enemy by

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1 Despite this information a raiding party led by Colonel Keyes landed by s-irmhve t niu of
17-18 November and Keyes lost his life in an attack on what v. u u- kid 101< F.t
house at Apollonia. The news of 17 November that Rommel w...<i>.i.3.1 r
sent to the Middle East in an emergency signal but was obviously received too late to stop the
operation. On 15 November the C 38m had disclosed that the Italians had learned from various
reliable sources that the British intended to make a landing near Apollonia.
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surprise. To this initial advantage, which chiefly derived from the success of the Army patrols and of the RAF in keeping the enemy’s air and ground reconnaissance at a distance before the offensive began, another was added when Rommel’s HQ failed at first to appreciate the scope of the British operation. On his return to Africa on the evening of 18 November Rommel took the first news of it to mean that the British were making a reconnaissance in force, and ordered no change in his dispositions. On the evening of 19 November he ordered his Panzer divisions forward on the assumption that the British were trying to interfere with his own planned attack on Tobruk. It was not until the evening of 20 November that he realised that they had launched an all-out offensive. On the evening of 19 November Sigint decrypts showed that at midday on 19 November the HQ of Panzergruppe Afrika had judged that the British were making no more than a reconnaissance in strength.

By the time Rommel did recognise the scope of the British thrust, on 20 November, his delay had led the British forces to depart from their prearranged plan. The plan was for XXX Corps with the main British armour to move as though it was trying to relieve Tobruk, the assumption being that this threat would attract the enemy’s armour, but then to wait near Gafr Saleh, 30 miles into Cyrenaica, until the enemy reacted, the object being to destroy the armour in a single short-lived battle. XIII Corps, mainly infantry, was to advance along the coast only when the enemy’s armour had been defeated. XXX Corps’ waiting position was decided in the light of the locations of the enemy’s armoured divisions, these being fully established by intelligence. On reaching this position on the evening of 18 November, however, the Corps in the absence of any move by the enemy divided its armour; 22nd Armoured Brigade making for Bir Gubi, where it attacked the Ariete Division the next morning, 7th Armoured Brigade occupying Sidi Rezegh, one of the heights commanding the approaches to Tobruk, and 4th Armoured Brigade stayed in position, where it skirmished with 21st Panzer Division on 19 November and was attacked by 15th Panzer Division on 20 November. In addition, the sortie from Tobruk was now ordered for 21 November. The result of these moves was disaster for the British in the battle that began when Rommel, finally responding on the evening of 20 November, ordered the whole of the DAK to attack Sidi Rezegh on the following day.

During the forenoon of 20 November XXX Corps had received warning that 4th Armoured Brigade was to be attacked by 15 and 21 Panzer Divisions at midday that day; but this was the first contribution of Army Y. But there was no warning on the morning of 21 November when 15th and 21st Panzer Divisions attacked 7th Armoured Brigade as it was preparing to fight its way to a link-up with 70th Division’s sortie from Tobruk. Air reconnaissance spotted some 200 enemy tanks moving north-eastward. But either this information failed to reach 7th Armoured Brigade or it was assumed in the absence of further sightings and of any other intelligence that the enemy was withdrawing and being pursued by 4th and 22nd Armoured Brigades. The outcome was a day-long battle in which the British forces suffered the loss of 200 tanks, although the depleted 7th Armoured Brigade held on at Rezegh. In further heavy fighting the next day the DAK completed its defeat of XXX Corps’ armour. In five days the Corps’ 450 tanks had been reduced to about 50. The Germans, starting with 250 tanks, still had 173, although this was not known at the time.
The extent of the British losses was not appreciated by XXX Corps or Eighth Army until the morning of 23 November. During 21 and 22 November, moreover, unit reports greatly over-estimated the enemy’s losses. On 21 November XXX Corps thought these amounted to half of the German tanks; early on 22 November XIII Corps estimated that the Germans might be down to as few as 60 tanks. Eighth Army accepted the view that the fighting had gone well – and so much so that it ordered XIII Corps to begin the move along the coast that had been planned to take place only when the enemy’s armour had been ‘firmly engaged’.

By the morning of 23 November the facts were emerging. Eighth Army commander then calculated that he had only 44 fit tanks left, and since initial estimates of the enemy’s losses had been revised to give the Germans 120 tanks, he felt that there were great risks in continuing. But that evening the C-in-C ordered that the offensive should press on: two days later he replaced the Army commander. He based his order partly on the calculation that the enemy’s tank strength had been further reduced during fighting on 23 November from about 100 to 50, but mainly on the conviction that whereas reinforcements were available for Eighth Army, the enemy is ‘fully stretched and desperate . . .’ As to the enemy’s strength, there was still no reliable intelligence: in fact the fighting of 23 November had reduced the German tank strength from 173 to between 100 and 110. On Rommel’s lack of reinforcements and general supply difficulties, on the other hand, the British information was good. The C-in-C knew by 23 November that Rommel had fielded virtually his entire force of fighting tanks and could replace losses only by local recovery and repair. He had learned from Sigint on the evening of 22 November that the only Italian convoy to have left Italy since 8 November with ships capable of carrying tanks had been turned back by British forces on 21 November. During 23 November he had received a summary of Panzergruppe Afrika’s report on the operations of 21 November. This revealed that the Panzergruppe had intended to go over to the defensive on 22 November because of the fuel position. The other information available to the British commanders from Sigint was the news that late on 22 November the enemy was about to abandon Gambut, which showed that the advance of XII Corps along the coast was increasing the strain on Rommel: several messages indicating enemy anxiety about the danger of a thrust against Benghazi in his rear by the force that had gone towards Gialo, well to the south of the battlefield; and the GAF’s report that its operations were being ‘severely hampered’ by the loss of the Procida and the Maritza.1

Early on 24 November intelligence provided – for the first time in the fighting, indeed in the whole war – timely warning of the operational intentions of the enemy’s main ground forces. Realising that he retained a decisive superiority in tanks, Rommel decided to lead the two Panzer divisions and the Ariete Division from the scene of his victory over XXX Corps near Tobruk on a 60-mile easterly sweep back to the frontier area with the object of relieving his garrisons at Bardia and Sollum/Halfaya, of striking at Eighth Army’s communications and of perhaps bringing about once again a general British withdrawal. Early air reconnaissance on 24 November showed no signs of a fresh advance on his part, but Eighth Army HQ had already received from

1 See below, pp 194-5.
the GAF Enigma a report from Fliegerfuhrer Afrika of the previous day in which he announced that the Panzergruppe was confident of destroying the British forces at Rezgeh and then intended operations on the Solium front. On this information it was correctly appreciated that Rommel’s object would be to strike at communications and relieve Halfaya.

The warning did not put the British forces in a position to prevent Rommel from overrunning HQ XXX Corps and causing chaos in the British rear. During his dramatic advance, moreover, little or no intelligence was forthcoming about his movements. But the Army Y organisation intercepted the signals in which Rommel recalled his forces to the approaches of Tobruk early on 27 November and in which he described the situation there as ‘extremely critical’. More important, the high-grade Sigint confirmed the GAF’s deepening fuel crisis and its chronic shortage of fighters, and contained its warnings to the effect that British air superiority was overwhelming. We may judge from the fact that the C-in-C referred to the ‘untold value’ of this information on 24 November, and again emphasised its importance on 25 November, that it played some part in his appreciation that the enemy had regained the initiative ‘locally and temporarily only’, and had ‘little behind his effort’, and thus in his refusal to change his recent decision to press on with his own advance.

On the coast the British advance, having taken Gambut on 23 November, was by 26 November ejecting the infantry forces Rommel had left to guard the heights dominating the approaches to Tobruk. Together with shortage of supplies, it was this development which forced Rommel to pull his armour back on 27 November. But the British had no success in their attempts to cut off its retreat, and on the morning of 28 November Rommel mounted an encircling movement against Rezegh, retaken by the New Zealanders the previous day. On 30 November he recaptured Rezegh; by 1 December he had forced the British to withdraw and had once again cut off Tobruk.

During this second round of the struggle for the heights above Tobruk British tactical intelligence, though still exerting no decisive influence on the outcome, underwent a distinct improvement. Air reconnaissance, hampered by bad weather up to 27 November, now provided detailed and up-to-date reports on the enemy’s formations. Documents captured during the enemy’s advance, including important signals material taken from 15th Panzer Division on 28 November and maps giving enemy identifications and dispositions, were put to good use. POW taken included von Ravenstein, commander of 21st Panzer Division, and his maps gave information about enemy minefields and the plans for the current attack on the British positions. Army Y profited from the fact that during the attack the enemy resorted to plain language for all his operational orders. By the afternoon of 29 November the intercepts had established the latest positions of the enemy armour, which was resuming its attack after heavy and inconclusive fighting during the previous day, and had shown that the attack was to be pressed again on 30 November despite the fact that its units, particularly 21st Panzer Division, were experiencing great difficulties. High-grade Sigint also contributed. The enemy’s operational orders for the encircling attack of 29 November were decrypted in time to reach the Middle East before the attack began. On the morning of 1 December
Eighth Army received the contents of an Enigma report of the previous evening from Rommel to Berlin in which he announced his intention to renew his attack the following morning.

In addition to contributing to the tactical intelligence from which Eighth Army obtained 'a pretty good grasp of the battle', high-grade Sigint was of some help to Cairo and Eighth Army commander at the time of the decision on 1 December to resume the offensive as soon as possible despite the latest setbacks. The Middle East had received a series of decrypts about Rommel’s supply situation on 21 November. These disclosed that Army supplies in north Africa as a whole had risen since 13 November, but that Benghazi held stocks for only two or three days and could not be replenished while the threat from 'the British desert raid' held up the supply columns, and that stores forward of Benghazi were so short that the supply of Derna by submarine and destroyer was 'of the utmost importance'. The same source showed that the situation at Benghazi had not improved by the end of the month, when it also reported that there were not enough supply columns to meet the needs of the German forces.

By the beginning of December Rommel had indeed decided that the fighting was becoming a battle of attrition and that the outlook for his forces was 'grave'. On 4 December he decided to withdraw from the eastern face of Tobruk to a line running from El Adem to Bir Gubi. On 7 December, by which time he had been told that he could not expect his supply position to improve until the end of December, when GAF reinforcements to Sicily might once again enable convoys to get through to north Africa, he decided to withdraw to the Gazala position under cover of rearguard actions. Largely because GC and CS had ceased to be able to read the Army Enigma on 6 December, intelligence gave no advance notice of these decisions. The first signs of the first withdrawal were obtained in the morning of 5 December from air and ground patrols and from Y intercepts. By the morning of 8 December, when these sources made it clear than an orderly movement was in progress towards Gazala, the C-in-C and Eighth Army commander were already working on the assumption that the first withdrawal had been the beginning of a more general retreat. They had received only two items of high-grade Sigint about the enemy’s ground forces between 1 and 6 December, but the difference between them marked a turning point in the battle. The first was a confident report from Panzergruppe Afrika for 1 December. The second was the Panzergruppe’s report for 4 December, which they received on 5 December: this saw no evidence of a British withdrawal and expected that the British forces, refitted and reinforced, would renew the attack.

^ Intelligence was of no decisive importance after the beginning of the British advance to Gazala on 9 December or during the planning of the attack on the Gazala position, in which XII Corps met with unexpectedly heavy resistance. On 16 December, however, Y detected a westward movement of the enemy’s HQ without being able to say that a withdrawal was imminent, and two GAF Enigma decrypts established this beyond doubt. The first reported that a retreat to Derna on the night of 16—17 December was 'probably unavoidable'; the second confirmed that the retreat was to be made that night. Late on 16 December Eighth Army passed the gist of these decrypts to XIII Corps, urging it to do all in its power to prevent the enemy’s escape. On the morning of 17 December, however, Eighth Army realised that 'the enemy’s main body had evaded our armour and made good its escape'.
Rommel now decided to retreat all the way to the Tripolitanian border at El Agheila. Air reconnaissance, Y and high-grade Sigint provided good intelligence during this stage of his withdrawal. But in their continuing attempts to interfere with the enemy’s retreat the British forces were unable to turn this intelligence to account. How far this was due to the fact that they themselves were becoming overstretched as their lines of communications lengthened, or to the fact that, with every minute counting, they were unable to get information through to the advance formations, cannot now be established. More serious was the fact that they suffered unexpected reverses. On 23 December 15th Panzer Division attacked without warning the force that was trying to cut the coastal road at Antelat, repulsing it and thus enabling the infantry divisions of the Italian XXI Corps to slip through to Agedabia. In two battles on 28 and 29 December the DAK attacked 22nd Armoured Brigade, the force that had been sent to storm Agedabia, inflicting on it heavy losses including 60 out of its 90 tanks. Of these attacks, intelligence gave no tactical warning. A company of 21 tanks unloaded at Benghazi from the freighter Ankora had brought the DAK strength up to 68 in time for its counter-attack of 23 December. By 28 December these reinforcements, together with repairs and 23 tanks unloaded at Tripoli from the Mongenevro had raised its number of serviceable tanks to 93. But to 22nd Armoured Brigade it came as a ‘matter of surprise, indeed a contradiction of the intelligence provided, that the enemy were able to attack with so many tanks’.

The Army authorities had been kept fully informed by GC and CS since 8 December of the approach and arrival of these ships. As luck would have it, however, GS Int GHQ, ME and Eighth Army appear to have overlooked a single reference in the Sigint that was being sent to them to the fact that one of the ships was carrying 17 Pzkpw III tanks. This also applies to the only other Sigint evidence of tank reinforcements that was received at the time – the less important news sent out on 18 December that an unspecified number of tanks had arrived by air at Benina for 15th Panzer Division. By 24 December, before learning of the set-back of the previous day, the C-in-C ME was discounting the possibility that the arrival of the Axis convoys would affect the situation. In his report of that day he estimated that the German forces concentrating on Agedabia had ‘30 to 40 tanks, many of which are thought to be light or obsolete types’. On 29 December he still felt there were no signs that the enemy had been reinforced. Further forward, the estimates made by Eighth Army and XIII Corps on 26 December gave the figure of 30 for total enemy serviceable tanks. On 30 December XIII Corps, while admitting that ‘the question of possible reinforcements of medium tanks must be seriously considered’, concluded that ‘there is still no indication that any large numbers of German tanks have been landed in Africa, nor that Germany possesses any considerable reserves’. When this was being written 22nd Armoured Brigade was taking the second round of severe punishment which finally convinced XIII Corps that Rommel had received tank reinforcements: in the action of 30 December 57 enemy tanks were counted, none of them a light tank, most of them Pzkpw III or IV, and many of them looked new.

Apart from the operations in which Eighth Army reduced Rommel’s frontier garrisons at Bardia and Halfaya/Sollum in the first half of January 1942, there was no further fighting in north Africa till Rommel launched his counter-offensive on 21 January. Despite his successes in the battles of 28 to 30 December, Rommel adhered to his plan to retreat to El Agheila, to take
advantage of its natural defences and shorten his lines of communication with Tripoli. As a result of their reverses in those battles the British forces were too weak to interfere before he had completed his further withdrawal on 10 January. Despite those reverses, on the other hand, and their disappointment at seeing Rommel escape, the British authorities remained confident, as they planned for Eighth Army to renew its advance in the middle of February, that as a result of his losses, his lack of reinforcements and his supply difficulties, Rommel would be incapable of a serious attack on them before their own offensive was ready. But this calculation made no allowance for the change that had taken place in the Mediterranean. By the end of 1941 the British ability to interfere with Axis supplies had been severely weakened by the elimination of Force K as a fighting force and by Axis measures to reduce British freedom of action in the central Mediterranean.

* * *

In the two months up to the middle of December 1941 the combination of high-grade shipping intelligence and the presence of Force K in Malta enabled the British forces to bring about a virtual stoppage of Axis supplies to north Africa. It is true that the Admiralty refused to countenance GC and CS’s suggestion that the operational value of the Sigint would be distinctly improved if the C 38m were to be decrypted at Malta. In consequence of this cautious but understandable decision the Sigint passing from GC and CS to Vice Admiral Malta and from him in the form of operational orders to the Senior Officer Force K, who was not an Ultra recipient, was sometimes received too late for action. This happened during Force K’s first sortie on 25 October, when it failed to intercept a group of Italian destroyers that was ferrying troops to north Africa. Commonly, however, and perhaps as frequently as was consistent with maintaining the security of the source, the information reached Malta in good time.

Force K’s first and biggest success came in its attack on the first convoy to sail to Tripoli after the Italians had reopened the route. Full details of the route and composition of the convoy — it was a large one after the recent suspension of sailings to Tripoli — were sent out in time for Malta to have it sighted by reconnaissance aircraft on the afternoon of 8 November. In the ensuing attack Force K sank all seven ships in the convoy. Sigint confirmed next day that the entire convoy had been destroyed and that it had carried fuel for the GAF and badly needed equipment. The next success, scarcely less decisive, followed on 21 November. By 15 November C 38m had established that, as part of a larger movement, a convoy of four large supply ships and seven destroyers, covered by cruisers and other destroyers, was to sail for Tripoli on 20 November, two days after the start of Crusader. On 21 November the convoy was sighted and attacked by aircraft and submarines: they did no damage to the merchant ships but torpedoed two of the Italian cruisers, and on 22 November the C 38m revealed that the convoy was being withdrawn to Taranto for fear of a follow-up attack by Force K. Its retention in Taranto for more than a fortnight substantially added to Rommel’s difficulties. Except that this time the intelligence came from the GAF Enigma, the procedure that had proved so effective on 8 November — the transmission to Malta of advance notice of the enemy’s
departure and route: a British air sighting; an attack by Force K—accompanied
the sinking on 24 November of two ships, the Maritza and the Procida, that
were carrying to Benghazi ammunition and what Sigint had described as fuel
cargo of decisive importance to the GAF.

These and other successes in November seriously disturbed the flow of Axis
supplies at a crucial time, just before and just after the beginning of the British
offensive. Between June and the end of October about 16 per cent of the cargo
sailed had failed to get through. In November, quite apart from an increase in
the delays and dislocations caused by the British operations and by the frequent
bombing and mining of the convoy terminals, the percentage rose to 62, and
as compared with the previous monthly average, the amount reaching north
Africa more than halved. Nor was there any lack of evidence that, besides
having helped to delay Rommel’s attack on Tobruk until after the British had
begun their advance, the sinkings were impeding his operations. On 25
November the GAF Enigma reported that the destruction of the Maritza and
the Procida had place German operations in ‘real danger’ and had necessitated
the ferrying of fuel by all available aircraft and by Italian destroyers. By the end
of the month the Sigint showed that Italian destroyers were carrying deck
cargoes of petrol to Derna and floating the drums ashore in order to cut their
time in harbour and reduce the danger of RAF attack. At the same time,
however, the British successes forced the Axis powers to redouble their efforts
to protect their supply convoys. At the end of November the C 38m gave details
of the next convoy and information about its covering force. It turned out to be
the first convoy for which the Italians were forced to provide battleship
support.

With this information the RAF from Malta sank one ship and damaged a
destroyer and a tanker carrying troops and petrol, and while Force B (HMS
Ajax and HMS Neptune from Alexandria) acted in support, Force K first dashed
towards Beghazi and sank a merchant ship and then re-crossed the Gulf of
Sirte at high speed to finish off the destroyer and the tanker. On 5 and 8
December C 38m showed that the Italians were extending their use of warships
for ferrying fuel by announcing that the 6-inch cruisers Barbiano and
Giussano were to sail with fuel from Palermo to Tripoli. When the RAF
obtained the confirmatory sighting of these ships on 12 December Force K was
immobilised because its recent operations had run down Malta’s fuel stocks.
But HMS Sikh and three other destroyers which were off Algiers, hundreds of
miles to the west, en route for Alexandria, increased speed to 30 knots and sank
both cruisers off Cape Bon on 13 December.

By that time the C 38m had established that the Italians were to repeat
their attempt to sail convoys with heavy naval protection: on 12 December
several ships were to sail in three groups, each with battleship cover, and with
further protection for the whole movement from the battleship Uttorio. On the
basis of this information C-in-C Mediterranean sailed three cruisers from
Alexandria and ordered Force K, Force B and the Sikh group of destroyers to
join them from Malta. Unable to take the Queen Elizabeth and the Valiant to
sea for lack of a destroyer screen, he also carried out W/T deception in an
attempt to persuade the Italians that he had sailed with the battleships. The
ruse succeeded. The Italian fleet and convoys returned to base, but not before
British submarines had torpedoed the battleship Vittorio Veneto and two
merchant ships, and two other merchant ships had collided.

On 16 December the C 38m and the GAF Enigma made it clear that the
enemy was planning to re-sail these convoys, with the protection of the *Littorio* and other heavy ships, between that day and 19 December. By then the British forces were becoming over-stretched and in the action which followed – the first battle of Sirte – luck turned against them. When he received the intelligence the C-in-C Mediterranean had already despatched the *Breconshire* to Malta with the fuel which was now urgently needed. He decided that her escort of cruisers and destroyers under Admiral Vian, commanding 15 Cruiser Squadron (CS 15), while maintaining the primary aim of protecting the *Breconshire*, should try to attack the Italian convoy at night while Force K, coming out from Malta for the purpose, returned to the island with the tanker. During 17 December Sigint provided no further information beyond the course and speed (but unfortunately not the position) of the *Littorio*, but air reconnaissance was good enough to enable CS 15 to keep the *Breconshire* out of danger until dusk, when the squadron met the greatly superior Italian naval force and held it off for long enough for the tanker to reach Malta. After disengaging from the enemy battleships, he patrolled for a few hours the route originally laid down for the convoy’s Benghazi section. By that time, however, following his fight with CS 15, the Italian C-in-C in the *Littorio* had changed these arrangements.

When CS 15 was halfway home the C 38m revealed the positions of the enemy convoys and the fact that the Italians had decided to send their main naval force back to Taranto at 1400 on 18 December. At 1830 on 18 December, when this intelligence had been supplemented by aircraft sightings, Force K, scarcely back in Malta with the *Breconshire*, sailed again in an attempt to intercept the four important ships of the main Tripoli section, the RAF having delayed them by laying mines in their path. Just after midnight 18-19 December, before Force K could reach its quarry, it ran into an Italian minefield off Tripoli which sank the *Neptune* and *Kandahar* and damaged the *Aurora* and *Penelope*. It was the arrival of these ships in north Africa which permitted Rommel to mount his successful counter-offensive of 21 January 1942.

What was more serious, at a time when their recovery of Cyrenaica would otherwise have enabled them to increase their maritime offensive, the British were now deprived of the ability to cut off supplies and reinforcements to Rommel which had played so large a part in forcing him to retreat. This turn-about resulted in part from the elimination of Force K and the arrival of Fliegerkorps II in Sicily, a move from Russia which the Enigma disclosed in December. But it was all the more complete because the Axis powers had taken other steps to maintain their own supplies and to stop British supplies from reaching Malta and Tobruk. By the end of 1941, British naval forces in the Mediterranean had suffered other serious losses and the task of sustaining Malta had been greatly increased.

The build-up and support of Malta’s anti-shipping forces since July 1941 had been a difficult undertaking from the outset, necessitating special operations to pass convoys from Gibraltar since the island could be supplied only at still greater risk from the east while Rommel held Cyrenaica, but until the end of September the enemy had made no serious attempt to interfere. Toward the end of September, however, GC and CS was receiving the first indications that the Germans were about to divert U-boats from the Atlantic to the Mediterranean. Little was learned about the group, which first consisted of six U-boats, beyond the fact that by 10 October some of them were on the Alexandria-Tobruk route, where British forces made several attacks on them in
the second half of October. U-boats in the Mediterranean used the modified form of the Home Waters naval Enigma introduced for all U-boats on 1 October 1941, and the GC and CS was able to read their traffic until the separate U-boat settings were introduced on February 1942. But because they were operating individually, and had received instructions beforehand, the traffic seldom disclosed anything precise about their positions and intentions. On 11 November, however, the Home Waters Enigma did reveal that the first six were to be followed by two more, and that these were to operate in the western Mediterranean; and on 12 November it gave full details of the areas in which they were to patrol. Later on 12 November the OIC warned Flag Officer Force H, then on his way back to Gibraltar with HM *Ark Royal* in company, that his position and course during the afternoon had been reported to the two U-boats; it had already informed him during October that an Italian agent was watching the *Ark Royal*’s movements and that the enemy had a reporting station in the area of the patrolling U-boats, on Alboran island. Despite the fact that Force H acted on these warnings, making a ‘dog-leg’ around Alboran island to confuse the watchers and zig-zagging to avoid the U-boats, one of the U-boats torpedoed the *Ark Royal* on 13 November. She sank the following day.

By that date - in fact, as soon as they learned of Force K’s arrival at Malta towards the end of October - the Germans had decided that no less than 15 further U-boats, as well as E-boats and inshore craft should follow into the Mediterranean, and that Fliegerkorps II should be transferred to Sicily. Unlike the plan to move Fliegerkorps II, the naval transfer was not immediately disclosed by Sigint. But by 26 November the Admiralty knew that the number of U-boats had grown to eleven, and on that day it warned that another fourteen to sixteen would pass the Straits between 27 November and 1 December. The Gibraltar patrols sank one and turned back, badly damaged, four U-boats during December. Even so, as the Admiralty informed operational commands, by 15 December nineteen boats had passed through since September. During November and December 1941 seven of the U-boats were sunk, but on 25 November, within days of the torpedoing of the *Ark Royal*, a U-boat sank the battleship HMS *Barham* when she was on her way back to Alexandria after operating in support of the recent Gibraltar-Malta convoy. On 14 December another U-boat sank the cruiser HMS *Galatea* of Alexandria.

The Mediterranean Fleet suffered another serious setback in the early hours of 19 December, when Italian human torpedoes (charioteers) penetrated Alexandria harbour and badly damaged the battleships *Queen Elizabeth* and *Valiant*. Of this attack intelligence did give some warning. Perhaps on account of GC and CS’s inability to read the Italian naval book cyphers, earlier operations of a similar kind had gone on without any notice from Sigint. At the end of July motor torpedo boats had failed in an attack on Malta’s Grand Harbour because they had been detected by the coastal radar, but there had been no other warning. On 20 September, again, no warning had been received of the attack by human torpedoes from the submarine *Scire* against shipping in Gibraltar; and it was not then known that this attack - it was the first to succeed, sinking an oil fuel bulk and badly damaging two merchant ships - was the fourth which the Italians had attempted against Gibraltar. But that something was being planned against Alexandria in December was indicated by C 38m signals a few days before the attack. By 17 December GC and CS had alerted the C-in-C Mediterranean to C 38m messages which showed that a reconnaissance sortie on that day had shown the Italians that the two
battleships were at their usual moorings and - an unusual touch - that the sea was calm. On 18 December GC and CS added the information that the Italians had stated that the reconnaissance was urgent. It was on the strength of these warnings that the C-in-C issued a general alert at 1025 on 18 December: ‘Attacks on Alexandria by air, boat or human torpedo may be expected when calm weather prevails. Look-outs and patrols should be warned accordingly’. But despite the alert the Italians succeeded in entering Alexandria, and severely damaged both ships.

The enemy did not delay before taking advantage of the changed situation at sea. From 29 December the C 38m traffic revealed that the Italians were preparing to sail a convoy to Tripoli under battleship cover and gave full details in advance of its composition - nine merchant vessels of 10,000 tons - and its route. On 5 January 1942 C 38m reported the safe arrival of the convoy. As a result of shortage of reconnaissance aircraft at Malta and of heavy GAF attacks on the island, it had not been sighted until it was nearing Tripoli, and an air strike had failed to find it. Though the fact was not known, this convoy carried 54 tanks. A further convoy with battleship cover reached Tripoli virtually unscathed on 24 January. The C 38m gave details about its movements and the covering forces, and the information that it was carrying a large consignment of motor transport. It did not mention that its cargoes included 71 tanks, but there were grounds for suspecting that it was also carrying tanks: on 14 January GC and CS had decrypted a C 38m message enquiring whether Tripoli could handle tanks of 25 tons. The Chiefs of Staff urged the Cs-in-C ME to do their utmost to destroy this convoy. But air attacks succeeded in sinking only one ship.

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After Rommel’s withdrawal to El Agheila at the beginning of 1942 Eighth Army accepted that it could not resume its own advance until the middle of February. At the same time, it reckoned - and GHQ ME agreed - that the enemy, though still perhaps able to make local attacks, was too weak and disorganised to attempt a counter-offensive before then. Rommel, aware of British weakness, disproved this assumption by counter-attacking on 21 January and by at once following up his first success when he found that he had taken the British forward units by surprise. He was greatly helped by the fact that it was at this time that the Germans began to read the cypher in which the US Military Attache in Cairo was making regular reports about the state and intentions of Eighth Army.

When weather conditions were restricting reconnaissance the British were unfortunate - and the extent of Rommel’s tactical surprise was all the more complete - because other sources of intelligence produced no clear indication of the enemy’s plans. GC and CS had ceased to be able to break the Chaffinch traffic since 6 December and by January the Italian Army high-grade book cypher was becoming unreadable. The IAF’s high-grade book cypher also became more difficult from the end of 1941. Neither it nor IAF low-grade Sigint produced any clues in January 1942. GC and CS intermittently read the traffic of Fliegerkorps II and Fliegerkorps X in new Enigma keys (Locust and Gadfly) in addition to the GAF general Enigma key. But the GAF Enigma
produced only one decrypt which might have been interpreted as pointing to an impending attack. It was a message of 17 January from Fliegerführer Afrika complaining about the shortage of 50 kg bombs ‘in view of the operations of the next few days’. When relaying the message to the Middle East on 19 January GC and CS drew attention to this phrase but had to allow that it might relate only to the GAF’s routine ground attack activities, which had already been increased. In the lull before 21 January Army Y Sigint produced a good deal of information about the Italian ground forces; it contained nothing to indicate an early attack. POW produced one piece of information on 18 January – a report that the whole of 8th Tank Regiment, the armoured regiment of 15th Panzer Division, was deployed in Wadi Faregh, the point from which 15th Panzer Division in fact attacked on 21 January. On 20 January, on the other hand, the local Senussi informed the British forward troops that the enemy was preparing to withdraw further west.

As well as achieving tactical surprise Rommel found that the British forces were unprepared for an enemy offensive. The main reason for this was the assumption that he was too weak to be able to take the offensive before the middle of February. In the weeks following Rommel’s attack this miscalculation was attributed to incompetence on the part of the Middle East intelligence staffs. ‘I cannot help thinking’, wrote the CIGS to the C-in-C after the loss of Benghazi (29 January), ‘that over-optimistic intelligence played a large part in accounting for your troubles’. In February the C-in-C replaced his DDMI with Colonel de Guingand, a member of his planning staff, who protested that he had no experience of intelligence. The C-in-C replied: ‘Excellent, that’s why I have appointed you.’ It is to be noted, however, that with this appointment the senior MI officer in the Middle East, hitherto designated DDMI, was made DMI; and this change may indicate that commanders and operations staff in the Middle East were recognising that they themselves were partly at fault. Certainly it was only from the early months of 1942 that they began to abandon the habit of consulting ‘I’ only when they felt they needed information about the enemy’s situation, and to tackle the problem of integrating intelligence with plans and operations in the process of appreciation and decision-making.

On one subject – the strength of the Axis ground forces after Rommel’s retreat – the optimistic assessment made in the Middle East was challenged in Whitehall, but not by the Middle East commanders, before Rommel’s attack. On 12 January in an appreciation sent to the Prime Minister the C-in-C estimated that ‘not more than one-third of the original German–Italian forces got away . . . totalling 17,000 German and 18,000 Italian’. GHQ set the losses at 24,500 battle casualties (25 per cent of an original strength of 98,000 men) and 63,000 total casualties (battle casualties plus POW). On 13 January the Chiefs of Staff informed the C-in-C that the JIC preferred a higher starting figure of 108,000 men and the more modest estimate of 11,000 battle casualties and 49,000 total casualties, leaving Rommel with 59,000 men. But on 14 January Cairo rejected these casualty figures as ‘much too low’ and went on to stress that, whereas its own figures were based on the detailed analysis of known facts, the JIC was working, as it had itself admitted, only on general assumptions. The facts were that the enemy’s ground forces, which had totalled 119,000 men (65,000 German and 54,000 Italian) at the beginning of Crusader had sustained 8,400 battle casualties (2,300 German, 6,100 Italian) and total casualties including POW of 38,000 (14,600 German, 23,700 Italian), and thus numbered in January about 80,000 (50,00 German, 30,000 Italian).
Partly as a result of greatly exaggerating his casualties, Cairo underestimated his remaining strength by more than 100 per cent.

On the subject of enemy casualties the intelligence authorities had received no help from high-grade Sigint. This was also true for the extent of the enemy’s disorganisation. In his appreciation of 12 January the C-in-C reported that the Axis forces were ‘much disorganised, short of senior officers, short of material and ... certainly not as strong as their total strength, 35,000, might be thought to indicate’. The C-in-C quoted only ‘very full and interesting records of daily conversations between our prisoner-Generals Ravenstein and Schmitt’, who were speaking of ‘great losses in the recent fighting, mismanagements and disorganisation, and above all [discontent] with Rommel’s leadership’. Apart from a captured document referring to bread shortage no other evidence was received for the view that the Germans were seriously disorganised. Yet this view was universally accepted in the Middle East, by intelligence and operations staff alike. Just before 21 January the DDMI is reported to have been confident that ‘we have Rommel in the can’.

It was perhaps on this account that on one matter on which they were still getting Sigint – the supplies and reinforcements that Rommel was now receiving by sea – they saw no significance in the information. They did not overlook the fact that supplies were arriving. The C-in-C’s appreciation of 12 January was provoked by a signal in which the Prime Minister, then in Washington, had expressed anxiety at, among other things, an air reconnaissance report to the effect that nine ships of 10,000 tons had recently arrived in Tripoli. In his reply the C-in-C, relying on the C 38m, gave the correct composition of the convoy that had reached Tripoli on 5 January – ‘six ships recently arrived ... averaging 7,200 tons’. In an earlier appreciation of 8 January he had conceded that the convoy’s arrival should ‘ease’ the enemy’s supply situation. By then C 38m had revealed that, as well as a large consignment of fuel for ground and air forces, the convoy was carrying material ‘of great importance to the DAK’. On 15 January, however, the C-in-C was still reporting to London that the enemy’s supply situation ‘appears to be acute’ and was judging that Rommel would stand where he was until forced to withdraw by the British offensive or by supply difficulties. His advisers presumably believed that these supplies were doing no more than provide temporary relief to a well-nigh desperate Rommel. They did not allow for the possibility that the convoy which arrived on 5 January might have brought in tank reinforcements.

It is true that whereas the convoy in fact carried a considerable number of tanks – 54 by one account, 80 (40 German and 40 Italian) according to another – the Sigint information about its cargoes made no mention of tanks. But it is still remarkable, especially after the shock of discovering at the end of December that tank reinforcements had reached north Africa in the previous convoy, that British estimates did not allow for further arrivals. On 15 January they put Axis tank strength at about 90 (42 German, 45–40 Italian). On 17 January Axis strength was actually 173 (84 German and 89 Italian). As British calculations were underestimating the number of Axis tanks destroyed during Crusader, putting it at 305 when the actual number was 340, the error at mid-January was almost wholly due to the failure to allow that the important convoys which were known to be getting through to north Africa had brought tank reinforcements.
During the first three days of the advance which began on 21 January 1942 the Axis forces scattered the British forward units, inflicting sizeable losses and sustaining few themselves. These initial successes, to which the C-in-C Middle East later attributed Rommel’s victory in the rest of the battle, they owed to the fact that they had caught the British unprepared. When British intelligence had failed to give warning of the possibility of an enemy move, let alone of its timing and scale, not even an immediate improvement in intelligence could have helped the British forces at this first stage.

As it happened, no such increase was vouchsafed. The RAF’s reconnaissance, hindered now by the loss of forward airfields as well as by bad weather, produced little of value. Army Y identified some enemy units but was unable to provide information about their movements and intentions. The C 38m and GAF Enigma provided no information of operational value until 23 January. On that day the GAF Enigma showed that Rommel had advanced with his whole force in three columns, the DAK on the right, the Italian mobile divisions in the centre, and on the coast a newly-formed division, probably 90th Light, without disclosing what his intentions were. Perhaps because he had attacked without consulting Berlin and Rome, one of the Enigma messages of 23 January had emphasised that he had made use of his temporary superiority to make an advance in order to forestall the coming British attack. After considering this information DDMI Middle East remained convinced that Rommel’s move was only a reconnaissance in force though he also based this view on the appreciation that Rommel had begun with only seven days’ supplies at El Aghelia.

XIII Corps commander, in command of the forward units, was much less sanguine. On 24 January, having earlier suggested precautionary preparations for the evacuation of Benghazi, he pressed for the evacuation and for permission to withdraw to Mechili, and warned that the enemy’s striking power had been seriously underestimated. On 25 January, having been given discretion to do so if necessary, he ordered this withdrawal. His decision was overruled from Eighth Army HQ, which assured him that the enemy’s advance was not a counter-offensive, and that intelligence appreciated that it had already over-reached itself, and instructed him to take ‘the most offensive action’ and ‘the greatest risks’ to stop its further progress. Eighth Army and GHQ ME, which had estimated that Rommel had started with 75–82 tanks, including 45–60 German, still believed that at most he had 90, including 40–45 German. In fact he had started with 173 (84 German, 89 Italian) and all the Italian and at least 61 of the German tanks were still intact. XIII Corps, which had begun with 141 tanks, had suffered considerable casualties, though the real state of its main formation, 1st Armoured Division, was not yet known at higher HQ.

From 26 January the intelligence situation, already poor enough, deteriorated rapidly. On the one hand, Rommel’s intelligence staff learned that there were serious differences of opinion among the British commanders, that the British were contemplating the need to evacuate Benghazi and that they expected Rommel to advance north-eastwards from Msus to Mechili. In the light of this intelligence he decided to forestall the British by converging his three columns in a north-westerly swoop on Benghazi on 27 January, and meanwhile to confirm the British in their belief that he was making for Mechili by having the DAK make a feint in that direction. On the British side, on the other hand, the intelligence received, such as it was, only added to their
difficulties. During 27 January, in very bad weather, RAF reconnaissance sighted only one of the enemy’s movements, the feint to Mechili, and Sigint, in the first reference it had made to Rommel’s latest plan, gave disastrously misleading information about it. The information was obtained from the decrypt of a commentary which the Italian Air Command in Libya had transmitted in the C 38m. It announced that the Axis forces would continue their offensive thrust towards Mechili and attempt to reach Benghazi. Perhaps because Rommel was concerned to provide some reassurance that he would conform with Mussolini’s demand that he give priority to preparing positions from which to defend Tripolitania, it added that ‘the Axis forces will later withdraw to a line Sidi-el-Azeili—Antellat—Gialo which will be held ... as a line for further attack’.

Of these two items of information, the first by the prominence it gave to the thrust to Mechili as compared with the attempt to reach Benghazi, appeared to justify the dispositions ordered by Eighth Army on 27 January - dispositions as a result of which 1st Armoured Division, sent away from Benghazi to meet the Mechili thrust, and 4th Indian Division, ordered to operate against other forces moving towards Benghazi, were irretrievably separated during 28 January and unable to prevent Rommel’s capture of Benghazi on the following day. The second item appeared to confirm the accuracy of the appreciation in which on 27 January GS Int Eighth Army had concluded that Rommel would not make a large advance beyond his present line.

A second commentary from the Italian Air Command was issued later on 27 January and relayed to the Middle East on 28 January. As well as giving now - but too late - an accurate account of Rommel’s plan to swoop on Benghazi, it announced that he would then withdraw his motorised troops and air forces to the line Gialo-Antellat—the coast and keep contact with the British by reconnaissance forces only. With this information to the effect that the enemy was unlikely to continue to attack in strength the C-in-C and Eighth Army commander made plans to deny more ground to Rommel. But they were frustrated by operational limitations and eventually decided, on the recommendation of Eighth Army’s force commanders, to stand on the Gazala position.
CHAPTER THIRTEEN

The Mediterranean and North Africa from February to July 1942

After the return of Rommel’s forces to Gazala in February 1942 Germany’s main concern on the southern front was how best to use the sea and air supremacy that she had established in the central Mediterranean. She had not abandoned the hope of linking an advance on Egypt from Libya with a larger offensive against the Arab oil lands from the north. But the larger offensive hinged on the still uncertain outcome of the next campaign in Russia, and she had meanwhile to decide whether Rommel should continue his advance before she had consolidated the position in north Africa by capturing Malta.

During March and April there followed much discussion as to whether Malta’s capture was essential - or whether neutralisation by bombing would suffice - and as to whether an invasion of Malta should precede or follow an attack by Rommel on Tobruk. On 4 May, following a meeting between Hitler and Mussolini, a directive laid it down that Malta and Tobruk were both to be taken before Rommel advanced to the Nile, and set late May or early June as the date for Rommel’s offensive against Tobruk and July for the capture of Malta.

Of this debate in the enemy camp, as of the enemy’s intentions on the northern front in the Middle East, the British authorities received no information apart from rumours and a few hints in Axis diplomatic decrypts. With regard to the northern front the authorities in Whitehall remained reasonably confident: the major German offensive in Russia would probably not start before 15 May and there would be no attack on the Middle East through Turkey or the Caucasus before Russia had been defeated. In Cairo assessments of the northern threat remained more cautious. Until May, however, this issue did not figure much in Auchinleck’s discussions with Whitehall, for they were dominated by his wish to delay his offensive on other grounds, and it was meanwhile only too obvious that the enemy was giving high priority to eliminating Malta as a base for the attack on his north African supplies.

From the beginning of 1942 the Chiefs of Staff allowed for the possibility that the enemy would try to eliminate Malta by invading it. As well as being impressed by the strengthening of the GAF in Sicily and the beginning of its bombing of Malta, they were influenced by rumours from POW and diplomatic sources that the Axis was planning an invasion, and they were made uneasy by rumours of troop movements in southern Italy about which they had no reliable information. The intelligence bodies in Whitehall, however, by judicious use of the negative evidence of Sigint, aerial reconnaissance and other sources, resisted the conclusion that an invasion of Malta was imminent. The GAF Enigma provided a firm indication of invasion preparations for the first time on 7 February, when it referred to the establishment at Reggio Calabria of a supply base for Fliegerkorps XI, the air landing command that had carried out the invasion of Crete. But on 23 February the JIC adhered to its view that
an invasion attempt was less likely than a continuation of the bombing. Nor
was it until the end of March that it changed its mind.

One reason for the change was the receipt of further information from the
GAF Enigma. This referred to the presence in Rome of a senior parachute
general who had taken part in the Crete operation, and indicated that
paratroop units were being moved from Russia, in addition, the SIS had
obtained a report to the effect that Hitler had decided to capture Malta in April
in order to safeguard the supplies for a subsequent offensive by Rommel
against Suez. At a time when the GAF build-up in Sicily was at its height, and
when unprecedentedly heavy GAF attacks on Valetta and the RAF’s bases were
severely eroding Malta’s defences, the JIC understandably decided that this
report must be taken seriously. On 31 March it warned that, with Malta
severely weakened by air bombardment, it must be assumed that Germany had
decided to capture it, and that the attempt would probably be made in April.

Before long the intelligence bodies were again treating with considerable
scepticism the continuing rumours of an imminent invasion attempt. They
were able to do so because their negative evidence - the fact that their main
sources had not yet disclosed the moves and preparations that the operation
would call for - was now supplemented by positive indications that the danger
of invasion was receding. Chief among these indications was the reduction of
the GAF in Sicily. While the scale of the GAF’s bombing effort against Malta
continued to mount - the GAF Enigma indicated that 750 tons of bombs were
dropped in February, 2,000 tons in March and 5,500 tons in April - Whitehall
knew from Fliegerkorps II’s regular strength and serviceability returns by the
beginning of April that, at 425 aircraft, GAF strength in Sicily remained well
below the 650 which the Germans had originally intended to transfer there. It
knew, too, that the figure had been kept down by Germany’s need to retain
aircraft on the eastern front against Russia’s winter offensive. On 26 April the
GAF Enigma disclosed, at last, that units of Fliegerkorps II were preparing to
leave Sicily. On 2 May the same source showed that two Gruppen were already
withdrawing and that more were to follow. The Chiefs of Staff used this
evidence to reassure the Governor of Malta that he could discount the danger
of an invasion.

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Although Malta was thus spared an Axis landing attempt, it suffered immensely
in the early months of 1942 from air bombardment and blockade and
intelligence could do little to assist it during its ordeal.

Neither the local RAF Y unit nor the island’s radar could guarantee to give
adequate warning of approaching raids. So great, moreover, was the enemy’s
superiority in the air, so frequent his raids, that even advance notice did little
to reduce the problems of the defence. In the task of keeping Malta supplied, as
in that of defending it in the air, there was little scope for using intelligence to
reduce the brunt of the enemy’s attack. In this case there was no lack of
intelligence. The moment a convoy left for Malta from Gibraltar or Alexandria
decrypts provided valuable information about the dispositions and strengths of
the enemy’s air forces, about his reconnaissance routines and about the
armament and tactics of his bomber and torpedo aircraft. In addition, each
convoy was preceded by intensive RAF photographic reconnaissance which provided further information about the latest dispositions of the enemy air forces. But Whitehall and the commands could only watch how a convoy was faring.

For early warning of air attacks, which caused most of the losses, the escorts depended wholly on air patrols, radar and look-outs until May 1942. Thereafter, ships in the Mediterranean began to be fitted with ship-borne Y - naval 'Headache' and RAF 'computer' parties accompanied a Malta convoy for the first time in June 1942 but the results were of marginal importance despite occasional successes. Against the ever-present threat of intervention by the Italian fleet it was not possible to rely on advance notice. Nor was there any room for surprise and flexibility in the sailing of the convoys. The enemy knew their destination. From reconnaissance and from agents he also invariably knew when a convoy was being assembled: and it can only have added to the frustration of the British authorities that, from reading the messages from the network of Axis agents established around the Straits of Gibraltar, and primarily those in which the Abwehr passed the intelligence back to Berlin via Madrid, they knew how much the enemy knew. A great deal of diplomatic effort was expended in the attempt to curtail the activities of these agents, but as yet with little success.

Not surprisingly in these circumstances, it became a progressively more difficult and costly undertaking to get the supplies through. The January 1942 convoy lost one of its four ships and one of its escorts was sunk by U-boat. In February the next convoy lost all its three ships to air attack. During the sailing of the March convoy the escort received advance notice from a submarine report and from the C 38m that the Italian fleet had left Taranto, and CS 15 fought a brilliant action against the battleship Littorio and two Italian cruisers, forcing them to retire with only slight damage to his own ships and none to the convoy.1 But two of the convoy's four merchant vessels were sunk by aircraft as they approached Malta and the other two were sunk by air attacks on Valetta harbour before discharging most of their cargo. Thereafter, although fighter aircraft were ferried to Malta by aircraft carrier from Gibraltar, the island depended on submarines for aviation fuel, and by early May the supply outlook was so grim that the need to sail another convoy in June determined the date chosen for the beginning of Eighth Army's offensive.

By that time the scale of the GAF attack on Malta and its supplies was on the decline. Nor was it long before Malta was able to resume its own offensive against the Axis supplies to north Africa.

Between the middle of December 1941, when Force K was eliminated, and the end of May 1942, while the island was neutralised by the GAF’s attacks, this offensive was virtually suspended, and it was obvious from the C 38m traffic that most of the increased amount of shipping that the Axis was despatching was getting through unscathed. On 23 February 1942 another large convoy, the fourth since mid-December 1941 to be escorted by the Italian Fleet, reached Tripoli intact. From January the Axis exploited Malta’s shortage of reconnaissance aircraft, and the reduction of its naval and air attack forces, by

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1The C 38m decrypts after this encounter, the second battle of Sirte, reported damage to one of the Italian cruisers but made no reference to the battleship, on which the British force had claimed hits. It later became clear that the Littorio had suffered no damage.
sailing supply ships independently or in small groups at frequent intervals without escorts; by the end of February it was knowns that 11 ships had made the crossing in this way. In these circumstances the fact that the Italians introduced a new indicator for the C 38m signals at the beginning of March, and the GC and CS temporarily read only a small proportion of the traffic and that with considerable delay, made little difference.

During April and May C 38m gave details of 26 Axis shipping movements between Italy and north Africa. Only 9 of them were sighted by British air reconnaissance. At the same time the British anti-shipping operations had become no less costly than the sending of supplies to Malta. On 14 April five of Malta’s few remaining strike aircraft were lost in a brave but unsuccessful attack on a south-bound convoy of which the C 38m had given advance warning. Attempts by the Mediterranean Fleet to supplement Malta’s dwindling air and submarine attacks also ended in disaster. On 10 March the cruiser *Naiad* was sunk by U-boat when CS 15 was returning to Alexandria after following up unconfirmed air reports of damaged done to an Italian cruiser. On 10 May four destroyers sailed from Alexandria without air cover in a desperate bid to intercept a southbound convoy whose departure from Taranto had been reported in C 38m signals; two days later three of them were sunk by aircraft of Fliegerkorps X. Very full intelligence of this attack was obtained from the GAF Enigma, but it was obtained too late to be useful. In an attempt to intercept the same convoy the submarine *Upholder* was sunk off Tripoli with all hands.

The collapse of the British anti-shipping offensive is reflected in the following figures. In February and March 1942 the enemy lost only 9 per cent of the supplies he sailed. In April his losses were less than 1 per cent. In May they were 7 per cent, the improvement over the previous month being wholly due to the fact that aircraft from Malta sank a 7,000 ton ship off Tripoli on the last day of the month. This success was achieved with the help of the C 38m. It marked the recovery of Malta’s strike capacity, the beginning of a period in which that recovery was combined with anti-shipping intelligence to produce another sustained and decisive attack on Rommel’s supplies. For the present, however, the Axis had won the race for reinforcements and supplies in north Africa. During the first half of May it became increasingly obvious that Rommel intended to anticipate the planned British offensive by resuming his advance.

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The discovery that Rommel was planning to take the offensive brought to an end a long debate between Whitehall and Cairo in which, as in the summer of 1941, Whitehall had pleaded that the C-in-C Middle East should launch an offensive at an early date and Cairo had counselled delay. As in the previous debate, the C-in-C’s arguments were influenced by his anxiety about the northern front, which Whitehall thought excessive, while Whitehall appealed even more emphatically than in 1941 to the danger to Malta and the risk that the enemy would exploit his neutralisation of Malta to reinforce his position. But what now dominated the debate was a further divergence: Cairo and Whitehall saw in different lights the undoubted fact that the enemy’s supplies were getting through unscathed. For Whitehall the overriding consideration was that the enemy’s reinforcements would make it progressively more
difficult to dislodge him. In Cairo the chief concern was that the reinforce-
ments were giving the enemy an immediate superiority in tanks.

In the period before Rommel’s counter-offensive in January 1942 the
authorities had overlooked the possibility that the enemy was getting tank
reinforcements to north Africa. In Cairo, at least, this mistake was not repeated
after Eighth Army had been forced back to Gazala. In consequence of this
setback, moreover, another consideration, over the above and calculation of
the number of enemy tanks, acquired great prominence. On 30 January the
C-in-C stressed for the first time that from now on he would need a superiority
of two to one in tank numbers if he was to counter Germany’s technical and
tactical superiority. In the ensuing debate Whitehall did not question this
requirement, but it disputed Cairo’s estimates of the build-up of Axis tank
strength.

On the 27 February, at a time when Sigint made it abundantly clear that
Axis supply shipping was reaching north Africa without difficulty but yielded
little intelligence about tank arrivals, the C-in-C concluded that Axis tank
strength might reach 630 by 1 April and announced that he would be unable to
reach the required numerical superiority before 1 June. Whitehall persuaded
him in March that the enemy would have only 450 by 1 April, of which about
350 would be serviceable in the forward area; and he accepted mid-May as the
target date for his offensive. But he accepted it with the huge reservation that if
further Axis reinforcements indicated an increase in the total of 450 by 1 May,
his offensive would not be possible before August.

On 21 and 22 April the Enigma at last produced tank returns which
showed there were 264 German tanks forward and 151 Italian, total 415. These
returns came from the German army Chaffinch settings: GC and CS had
broken into them again on 10 April and was reading about half of the traffic
with delays of a week or more. But this evidence did not settle what the figures
might be by the middle of May and the divergence between the views of Cairo
and Whitehall on strategy continued to increase. On 3 May Auchinleck
suggested it might be wise to abandon the idea of an offensive in the summer
and stand on the defensive during 1942. On 6 May he withdrew this suggestion
but still wanted to defer an offensive till 15 June: Cairo calculated that the
enemy would have 360 German and 156 Italian tanks serviceable by 1 June,
while Eighth Army would have only 460 by that date, rising to 600 by 15 June.
The Chiefs of Staff now felt that he should be ordered to make his attack at an
early date, and on 8 May the Prime Minister insisted that as risks must be run to help Malta, and as there were some
indications that Rommel was preparing an attack in June, it would be wise to
take the offensive in May.

This failed to move the Cs-in-C in the Middle East. On 9 May they replied
that Malta was not vital to the security of Egypt and that a premature offensive
would entail risks to Egypt more serious than the loss of Malta. As for
Rommel’s intentions, the indications were ‘not very definite’, but ‘if the enemy
could be induced to attack us ... in our existing strong positions... it might
very well be the best thing that could happen’.

Whitehall had by then come to accept Cairo’s estimates of the enemy’s
tank strength, and it was to turn out that they were remarkably accurate. By 22
May, with assistance from another Enigma tank return of 7 May and detailed
sighting reports from the Long Range Desert Group, the estimates had been
amended to allow Rommel 515 serviceable tanks (325 German, 190 Italian)
disregarding any reserve. Rommel actually began his offensive on 26 May with 560 (332 German, 228 Italian) and he had 77 German tanks in reserve. Indications that Rommel was preparing to attack first, and would move before mid-June, had meanwhile been provided by the Chaffinch Enigma decrypts since the last week of April. It was learned on 25 April that a parachute rifle brigade was to be brought up by the end of May 'for operations against the British field army and attack on Tobruk'. Another Enigma message, decrypted on 30 April, listed the supplies needed as a matter of priority, and asked that they should arrive by the end of May. On 24 April GC and CS had deciphered an appreciation from Kesselring referring to information he had received from a reliable source to the effect that a British attempt to advance to Benghazi was not possible before the beginning of June and concluding that, 'since it is not possible before June, it will come too late'. Messages of 28 April between the Panzer Army and Rome showed that the Panzer Army had shortened its priority list of 23 April and that it had been assured that an effort would be made to transport the whole of the shortened list by 10 May, and referred to the Panzer Army's 'known next intention'. On 2 May a further Chaffinch message stated that the 'consumption unit' — the basic measurement used by the Panzer Army’s Quartermaster General in his fuel calculations — would be raised substantially by 1 June. This suggested that the Germans expected to receive further tanks and other vehicles by that date and were assuming that they would have sufficient fuel for them. The longer-term implications of the message took some days to work out, but eventually showed that there would be enough fuel for 38 days' operations.

On 6 May GC and CS drew attention to later evidence in an appreciation submitted to AI. 'A German offensive in Cyrenaica with the object of taking Tobruk .. . will probably be staged about 20 May. If this limited offensive meets with success an attempt will then be made to build up for a major attack on Egypt during the winter'. By disclosing enemy requests for maps and photographs the Enigma had now confirmed that Tobruk was the immediate objective, and on 5 May it had produced a message from Kesselring ordering the preparation of paratroops, gliders and towing equipment in two stages, with 20 May and 20 June as the target dates. On 9 May the JIC issued its appreciation of the same evidence. The enemy’s attack on Tobruk was likely at any time after the third week of May; despite the indications that the enemy was interested in some further operation in June, an advance to the Delta would be ruled out during the summer by Rommel’s fuel restrictions after the middle of June.

It was with this appreciation before them that on 10 May the War Cabinet received a signal of 9 May in which the Middle East Defence Committee, still resisting Whitehall’s pressure for an early British offensive, expressed the view that the indications that Rommel would attack early in June were ‘not very definite’. As all the Enigma evidence had been sent to Cairo as soon as it was received, the Cabinet decided to bring the debate to a close. The Prime Minister replied by stressing that Rommel was preparing to attack, and by instructing the C-in-C to attack during May if possible, and ‘the sooner the better’: he added that the very latest date for engaging the enemy which he could approve was one which provided a distraction in time to help the passage of the June

*This was the cypher of the American Military Attaché in Cairo, see above, p.198.*
dark-period convoy to Malta. There followed, in Churchill’s words ‘a consider­able pause during which we did not know whether he would accept or resign’. On 15 May the C-in-C informed the CIGS that the evidence had convinced him that the enemy intended to attack about 20 May, possibly earlier, but more probably between that date and the end of the month. But there was still some resistance to the evidence in Cairo. On 17 May, the AOC-in-C Middle East telegraphed his ‘personal reading of the situation’ to the Chief of the Air Staff: it was to the effect that the evidence, which appeared ‘to fit snugly’, pointed to an Axis attack on Malta. He was at once informed that the CAS did not agree.

On 19 May the C-in-C, in his reply to the Prime Minister’s message of 10 May, avoided reference to the request that he should attack in May by agreeing to choose a date that would provide distraction for the June convoy to Malta, and he asked the Prime Minister’s consideration of the fact that, owing to the narrowness of his superiority over the enemy on land and in the air, the success of his offensive could not be guaranteed.

In the light of further evidence received during the past few days, neither London nor Cairo now doubted that the attack was imminent. The Enigma had disclosed that a battle HQ was being prepared for Kesselring at Derna on 17 May, that on 18 May GAF fighters and bombers were about to move from Sicily to Crete and Cyrenaica, where they were to wait for orders to move forward in ‘a few days’, and that preparations were being made for a seaborne landing. The details it gave about the seaborne landing showed that this involved only a few hundred men and that it had been hastily thrown together. In addition, indications had begun to come in from the front: the enemy was increasing his reconnaissance and his bombing of British airfields and lines of communica­tion, and his ground and air patrols had begun to put up active opposition to British reconnaissance. On 22 May XIII Corps, in the northern sector of the Gazala line, expected the attack within 48 hours and on 25 May XXX Corps, which controlled the British armoured striking force, was brought to four hours’ readiness. And by the morning of 26 May the units of Eighth Army had been warned that the enemy might be expected to attack that night.

Although the’ Enigma did not specify in advance the time of Rommel’s attack – the night of 26–27 May – it left no room for doubt from 22 May that it would come within the next few days. On 22 May the GAF Enigma revealed that Kesselring had on 21 May summoned a conference at Derna for the following morning and had ordered that all GAF preparations were to be completed by 24 May. On the same day a Chaffinch decrypt gave notice that General Cruwell, the DAK commander who had been on leave in Berlin, was to be back in north Africa on 24 or 25 May. On 23 May another decrypt gave Rommel’s instructions that the San Marco battalion, which was to undertake the seaborne landings, was to move to the front at once. On 25 May GC and CS decrypted three messages that suggested an attack in a matter of hours. It was able to send one of them to the Middle East in advance of the beginning of the offensive, but this warning was supplemented by Army Y, which on 26 May, more than 24 hours before the ground forces made contact, intercepted the code-word Venezia, and correctly interpreted it as being the enemy’s prearranged signal for the start of his attack.
Despite having good general warning of the imminence of Rommel’s attack, the British lost the battle of Gazala. They might have avoided this setback and its far-reaching consequences – the surrender of Tobruk, the retreat to Alamein and the evacuation of the naval base at Alexandria – if they had delivered an earlier or more effective counter-attack. That this proved beyond them has been attributed generally to defects in organisation, planning and operational decisions. This conclusion makes it difficult to decide how far intelligence affected the course of events, but it is clear that intelligence failed to divine Rommel’s operational plan in advance, and was slow to grasp it after the offensive had begun, and that although an enormous improvement in intelligence then followed, it did not come in time. By the time the improvement took effect Rommel had succeeded in extricating his own forces from a precarious situation, and had recovered the initiative to an extent that was proof against even plentiful intelligence.

Rommel decided to make his main thrust, with all his mobile forces, round Bir Hacheim at the southern end of the British line. While the Ariete Division took Bir Hacheim, 15th and 21st Panzer Divisions would strike north behind the British forward defences, destroying the British armour, and 90th Light Division’s motorised units would race to the high ground dominating the eastern approaches to Tobruk with the task of seizing British supply dumps and delaying the arrival of British reinforcements. All this during 27 May. On 28 May the two Panzer divisions would turn against the rear of Eighth Army’s defensive positions at the northern end of the Gazala line while the Italian XXI Corps (infantry) joined 90th Light’s non-mobile units in a frontal attack on the same positions from the east. On the afternoon of 26 May, at the start of the main thrust, the Italian infantry supported by some German tanks were to advance in the north, and during the night of 26-27 May they were to keep up noise and movement in order to give the impression that the main thrust was to be a frontal attack north of the Trigh Capuzzo. To reinforce the deception plan the units taking part in the southern sweep were to deceive the British reconnaissance by leaving their tents behind, by facing east during halts and by observing complete wireless silence, and some of them were to thrust north-eastward during 26 May and turn south only after dark.

That Rommel had the choice between a frontal attack and an outflanking movement to the south was obvious to the British commanders. So was the fact that unless his operational plans were disclosed in the Enigma traffic – the nature of which was such that this could not be expected – they would have to infer them from what they could learn from reconnaissance and front-line intelligence, supplemented with luck by Sigint, about the movements and last-minute locations of his formations. In the event the Enigma yielded no comprehensive statement, and during May they failed to detect the radical changes which Rommel made in his order of battle in preparation for his outflanking attack.

In the last resort the failure was less crucial than the confusion which accompanied the evidence that came in when Rommel began to move. Although the final British dispositions were much influenced by Cairo’s initial judgement that the enemy would probably make an attack aimed directly against Tobruk, they allowed for considerable uncertainty as to which course he would adopt. 22nd and 2nd Armoured Brigades of 1st Armoured Division were stationed against a frontal attack and it was emphasised that it was their primary task to deal with that. But XXX Corps’ most powerful brigade, 4th
Armoured Brigade of 7th Armoured Division, was deployed 15 miles further south primarily against the possibility of an outflanking movement. In the event of a frontal attack it was judged that the British defence lines and minefields would delay the German armour while 4th Armoured Brigade joined up with 1st Armoured Division. In the event of an outflanking attack it was judged that British ground and air reconnaissance would give sufficient warning to enable 4th Armoured Brigade to move south and be joined by one or both of 1st Armoured Division’s two brigades. On the evening of 26 May, moreover, when XXX Corps obtained the first indications that the enemy was on the move, it accepted that, although it was still probable that the enemy’s main weight was in the north, the Germans had a considerable battle group in the south: that on this account ‘a thrust south of Bir Hacheim becomes more of a threat than a diversion’; and that ‘we must be prepared, as we are, to meet an attack on both of the Corps’ fronts’.

The assumption that there would be adequate notice from British ground and air patrols broke down when 7th Armoured Division’s commander doubted whether the indications of the enemy’s movements during the night of 26–27 May were sufficient to justify committing 4th Armoured Brigade to its southerly battle position and when 1st Armoured Division’s commander proved reluctant to part with 22nd Armoured Brigade. The first of these indications came during the afternoon of 26 May with the enemy’s feint in the north. The tanks involved in this attack were recognised as German, but it was observed that they were less numerous than had been expected and that no thrust developed. Later that afternoon, however, the RAF’s tactical reconnaissance sighted further to the south a considerable force of tanks moving north-east towards the centre of the British line, and this was unfortunately the part of the enemy’s main force that was taking this route during daylight for deception purposes before turning south-east. At 2300, with reports of both these movements to hand, the Eighth Army commander concluded that it was still too early to deduce where the main attack would come. During the night there followed several reports from British armoured car patrols of enemy columns moving south-east, but it was impossible to tell how big these columns were, or whether they were German or Italian, or whether they represented the only enemy line of advance. By 0230 on 27 May the reports had persuaded 7th Armoured Division’s commander that the enemy was making a very strong thrust round the south. His 4th Armoured Brigade was warned to be ready for first light and 1st Armoured Division was ordered to be ready to send 22nd Armoured Brigade to join 7th Armoured Division. But no movements had been ordered by dawn, when a tactical reconnaissance aircraft sighted what was obviously Rommel’s main force - a mass of vehicles including some 400 tanks - south of Bir Hacheim.

XXX Corps ordered 4th and 22nd Armoured Brigades to their southern battle positions when this report was received, but before they could move they were surprised by the enemy who had already overrun the modest force which had been sent south at the last moment to guard against a flanking attack. 4th Armoured Brigade suffered heavy damage in an attack by 15th Panzer Division. 22nd Armoured Brigade was attacked by both Panzer divisions and lost many tanks. By 1000 on 27 May 90th Light Division’s motorised units, which had parted company with the DAK to make a dash to the north-east, had overrun the HQ of 7th Armoured Division and scattered 7th Motor Brigade.

Despite their initial successes, Rommel’s forces encountered heavy resistance during 27 May and by the evening of that day, widely scattered, short of
their objectives and with their supply lines threatened, they were themselves in a precarious position. On 28 May, however, Rommel successfully started to concentrate them in the Knightsbridge area. At that juncture he still hoped that they could resume the offensive when he had forced a supply route through the minefields, but on 29 May they used up most of their remaining fuel and ammunition in further heavy fighting and Rommel, with his supply routes still insecure, was forced to go over to the defensive in a more concentrated area behind a screen of anti-tank guns.

Mainly from accurate air reconnaissance, the British knew by the evening of 27 May that they had checked Rommel’s thrusts, that he had lost about 100 tanks and that he had not breached the minefields. From Army Y, captured documents and POW they knew that the main thrust, checked in the Knightsbridge area, had been made by 21st Panzer Division, that 15th Panzer Division was in the same area, and that the sweep to el Adem had been made by strong elements of 90th Light Division. Until the evening of 28 May, however, when this information was confirmed and amplified by the capture of the operational orders for Rommel’s offensive, they continued to think that the bulk of 90th Light and about 100 German tanks remained west of the Gazala position, ready to make a frontal attack. And as late as 29 May, though no longer expecting a heavy frontal attack, they remained apprehensive about sea-borne and airborne attacks against the Gazala line in the north. Since the opening of the battle the Enigma had remained virtually silent about the enemy’s plans and situation. Until 30 May all but two of the decrypts dealt with GAF operations and shipping movements. Of the exceptions the first, sent to the Middle East on 27 May, showed Kesselring ordering the GAF to prepare for a move to Acroma or El Adem and the second, sent out on 28 May, showed that the Italian mobile corps had been ordered on 27 May to move north-east from Bir Hacheim.

During 29 May it became clear from air and ground sightings that the enemy was digging in behind protective gun and infantry positions and trying to open up an additional gap through the minefields. On the same day Army Y provided evidence of his supply difficulties, disclosing that 15th Panzer Division had started with water for only four days and that other formations were running short of petrol, and a captured document showed that 15th Panzer Division had been urged to economise with ammunition. On the basis of this evidence it was judged during 30 May that the enemy was weakening, and perhaps preparing to withdraw, and estimates of his remaining tank strength added to the feeling of confidence. These estimates were based entirely on visual evidence, mainly RAF sightings, but they calculated with some accuracy that there were 150 German and 100 Italian tanks in the battle area. As against this force, Eighth Army had 240 medium tanks, plus 160 Infantry tanks, and expected 150 more medium tanks by 2 June. In the course of 30 May, moreover, Eighth Army at last began to receive Army Enigma in quantity from GC and CS. The first decrypts – the product of the Chaffinch traffic on 27, 28 and 29 May – included the Panzer Army’s evening reports for these three days. There was also an Italian summary of the land fighting up to 29 May. They gave no support to the view that Rommel was withdrawing, but they emphasised the seriousness of his position. The Eighth Army intelligence summary of the morning of 31 May appreciated that ‘the only question ... is how much of his force the enemy will be able to extricate’. Rommel remained optimistic, but his own staff found his optimism ‘scarcely comprehensible’.
By the morning of 1 June Eighth Army had received from the Enigma firm evidence that Rommel was not intending to withdraw. During 31 May the decrypts disclosed that he had learned that the British planned a counter-attack for that night and that he planned to stand the meet it. A further decrypt, sent out from GC and CS at 0604 on 1 June, announced his further intentions: the Panzer Army would let the British attack its strong position and would counter-attack after destroying the British tanks with its anti-tank screen. Of the effectiveness of the screen, which was the basis for Rommel’s confidence and which was to play a decisive part in the developments of the following week, Eighth Army had already received a foretaste. During the night of 30–31 May the German guns, particularly the 88 mm, had repulsed the first attack on the Cauldron - as Rommel’s defensive position had come to be called - and administered heavy losses: and on the morning of 1 June Eighth Army’s intelligence summary emphasised for the first time the importance of the screen. The same intelligence summary also reflected the contents of the latest Enigma information: it appreciated that the enemy intended to stand and if possible to resume his advance.

The Eighth Army commander welcomed the opportunity of destroying Rommel’s force which now seemed to be opening up. However, after a second assault on the Cauldron had failed on the night of 1 June, again with heavy losses, he postponed a definitive attack until the night of 5 June. During the interval the Enigma made it plain that the enemy expected the attack. It also established that the total number of tanks in the German formations was 129 on 1 June and 133 on the following day. An inaccurate sighting report by tactical reconnaissance to the effect that there were 180 German and Italian tanks west of the minefield, and only 120 in the Cauldron, gave colour to the belief that 21st Panzer Division had been withdrawn and thus produced some uncertainty about the composition of the enemy forces. But this uncertainty did not impede the preparation of the British attack, which was planned to begin with the destruction of the anti-tank screen by heavy artillery bombardment and infantry assault, and it contributed nothing to its failure, which sprang from the fact that the screen escaped the initial artillery bombardment. The enemy positions were determined by infantry patrols and tactical reconnaissance - there was no Sigint information and there is no evidence that PR was employed - but they in fact lay further to the west than had been thought.

After the failure of the British attack of 5–6 June, British intelligence underwent a pronounced improvement. Contact with the enemy naturally produced an increase in the yield from the non-Sigint sources - POW, captured documents, air and ground reconnaissance. More important, the capacity to exploit a wide variety of Sigint sources, a capacity which had been developing steadily if slowly during previous months, expanded enormously.

Until the end of May 1942 GC and CS was breaking the daily Chaffinch settings at least a week late - often with greater delay - and decrypts were providing only fragmentary information of operational value. From the end of May these settings were being broken with an average delay of 24 hours, the reduction in delay being directly due to the enemy’s increased use of W/T. Even
when the delay was more than 24 hours the greater density of the traffic still produced a fuller picture of the enemy's supply and operational situation. Nor was Chaffinch any longer the only Army Enigma key to be read. Since November 1941, when it had been read for a week with the help of captured material, the key used by the Panzer Army for communications between army, corps and division (Phoenix) had resisted GC and CS's best efforts: the signals being mainly tactical and transmitted on low power, by no means all of them could be intercepted in the United Kingdom, and great administrative difficulties delayed the receipt at GC and CS of the signals intercepted in the Middle East. But these problems were so far overcome by 1 June 1942 that from that date GC and CS was able to decrypt much of the traffic. The result was a great increase in intelligence despite the fact that, more so than the Chaffinch traffic, the Phoenix decrypts continued to be subject to interruptions and delays. Another Army Enigma key broken at this time, and named Thrush by GC and CS, carried very full information about the transport by air of supplies and troop reinforcements to north Africa.

As always during the course of operations, the GAF Enigma keys were hardly less valuable than the Army traffic as a source of information about the land battle. The GAF general purpose key - the Red - was being broken early each day. From the beginning of the fighting this was producing a great deal of ground intelligence in addition to regular information about the order of battle, serviceability, operations and intentions of the GAF; and after 21 June, when the Panzer Army was advancing beyond Tobruk, well ahead of the GAF's bases, it was to throw even more light on the ground fighting than it usually did. Of the separate Fliegerkorps keys that had been introduced at the beginning of 1942 those of Fliegerkorps II - Locust - and Fliegerkorps X - Gadfly - were read less regularly than the Red until the end of 1942, but Primrose, the key of Luftgau Afrika, the formation responsible for the administration and supply of the GAF in Africa, was a prolific source of information about the enemy's logistic situation. Together with Chaffinch it was to become especially valuable from the end of June, when the enemy had reached Alamein and was beginning once again to encounter grave supply difficulties.

Even more valuable was the fact that just before the opening of the Gazala battle GC and CS had broken the key - which it named Scorpion - introduced for communications between on the one hand Fliegerführer Afrika's close support units and, on the other, the GAF's liaison officers with the Panzer Army, the DAK and the Panzer divisions. Until it was withdrawn in February 1943 this key was regularly read with very little delay, GC and CS having discovered that on the first day of each month it could predict the settings which would be used in a scrambled order for the rest of the month. Partly for this reason and partly because little of the traffic could be intercepted in the United Kingdom, the decision was taken to have the traffic decrypted in the Middle East as well as at GC and CS, and its decryption at CBME began on 12 July. In June and July 1942, during the British retreat to Alamein and the first round of fighting there, it yielded not only intelligence about GAF plans, but also a greater amount of current information about the ground fighting, including the location and intentions of the German divisions, than any other Enigma key.

The opening up of new sources of high-grade Sigint meant that the British now had access, if with different degrees of completeness, to every Enigma key
used in the African fighting.\textsuperscript{1} This did not mean that they knew everything about the enemy. For example, their supply information improved in July, when the Panzer Army began to include a short supply summary in its daily report; but the full ten-day returns of Rommel’s Quartermaster now used a new pro-forma which was not sufficiently unravelled to provide information to the Middle East until the eve of the second battle of Alamein. A more serious limitation, and an enduring one, was the fact that, while the sheer bulk of the Enigma intelligence made a vital contribution to the general grasp of the operational situation, unavoidable delay in decryption and transmission to the Middle East made it difficult to get advance notice of the movements and intentions of the enemy’s ground forces to the commands.

When the commands did get such advance notice via the Enigma they owed it largely to the fact that the Panzer Army’s daily report could be recognised externally at GC and CS and was given high priority there. The report was normally issued late in the evening, just before the Chaffinch setting changed. From the middle of June, when GC and CS began on most days to break the Chaffinch settings in the small hours of the following day, it was not uncommon for the decrypt of the report to reach Eighth Army HQ within 12 hours of its transmission by the Germans, and the report sometimes contained a summary of Rommel’s intentions for the day following its transmission. Except when they were in this way exceptionally fortunate, however, the commands had to deduce the enemy’s reactions and intentions from the accumulating evidence on his general situation. This came from the Enigma, POW and captured documents, but was amplified and brought up to date by ground and air reconnaissance and now, for the first time, also by Army and RAF Y.

In the lull in the fighting before the Gazala battle Army Y had begun to undergo considerable improvement in resources and organisation. The interception and exploitation of enemy low-grade and medium-grade codes and cyphers was expanded, DF facilities were increased, Traffic Analysis of the German signals system was organised at Eighth Army HQ; and steps were taken to ensure that the Y work done at Cairo, Eighth Army HQ and corps level, was better co-ordinated and its results exchanged. The improvement was far from complete at the beginning of the Gazala battle – it was to continue up to the second battle of Alamein in October, when the Army Y organisation in the Middle East comprised 2,400 all ranks as compared with 1,300 in May 1942. But within a fortnight of the British defeat Army Y was fully integrated into the operational intelligence process at Eighth Army HQ. Thereafter it produced such a flow of tactical intelligence about even the enemy’s smaller units that, in the opinion of the officer who was to become the head of Eighth Army’s operational intelligence, ‘Ultra [i.e. the Enigma] and Ultra only put intelligence on the map in the Western Desert, but in battle it was the Army Y service that was usually more valuable than the Ultra.’

Though it took place on a smaller scale, the expansion of RAF Y, an organisation which was employing 1,000 people by the end of 1942, also played its part in off-setting the delays which restricted the value of the Enigma as a

\textsuperscript{1}The Enigma key introduced for use by surface ships in the Mediterranean and the Black Sea (Porpoise) was an exception. GC and CS began to read this regularly in September 1942, having first broken it in August.
source of operational intelligence - and in compensating for the fact that, although GC and CS was able to read much of it till the end of 1942, the north African traffic in the high-grade cypher of the Italian Air Force was now yielding information only about reinforcements and transfers, and that only in occasional messages. Unfortunately, for W/T puposes the GAF had from 1 April 1942 changed the code used for air to ground communications (Auka), which could be decyphered at Cairo only with the help of information signalled from Cheadle, and delay in getting the results from Cairo to the forward areas robbed the W/T traffic of much of its operational value. On the other hand, the two mobile R/T units which the RAF had formed by April 1942 now came into their own as a source of tactical intelligence in the battle area. After the battle of Gazala, though not until nearly a month had passed since Rommel had begun his offensive, the RAF, like the Army, integrated Y with operational intelligence by placing the R/T units under the direct operational control of No 211 Group and ensuring that the R/T information was dove-tailed into other intelligence.

If Y, in the RAF as in the Army, was thus from June 1942 becoming more experienced and better organised, its improvement as a source of tactical intelligence was the more rapid because it took place within the framework of the steadily increasing familiarity with the enemy - with his organisation and his normal behaviour, with the composition of his main formations, with even the personal characteristics of his commanders - of which the major source was the high-grade German Sigint. The great improvement in the Y service from June 1942 was due not only to its own expansion and not only to the great increase in the volume of enemy traffic that accompanied the heavy fighting, but also to the fact that the regular supply of Enigma was at last laying down a firm framework within which the Y product could be better assessed. Nor was this complementary advance, so crucial for the better use of both sources, confined to Y and high-grade Sigint. It applied also to the relationship between Sigint and the other sources of intelligence. The exploitation of the other sources - POW, captured documents, ground patrols, visual and photographic air reconnaissance - increasingly profited from guidance derived from Sigint; and in consequence they made an increasingly valuable contribution to the sum total of information.

* * *

These advances on the intelligence front ushered in a period in which, beginning during the battle of Gazala and ending only with the expulsion of the Axis forces a year later, the British forces in north Africa were supplied with more information about more aspects of the enemy’s operations than any forces enjoyed during an important campaign of the Second World War - and, probably, of any earlier war. In time, the intelligence helped them to turn the tide in the north African campaign. General Auchinleck, who received the more important of the high-grade decrypts verbatim from 1 June, believed that, but for Sigint, 'Rommel would certainly have got through to Cairo'. Nor does an analysis of the fighting in July leave much doubt that Sigint did indeed make a significant contribution to his victory in the first battle of Alamein. But it did not help Eighth Army to avoid the reverses, the most serious it ever
sustained, that followed when Rommel had halted the British attack of 5–6 June.

The outpost of Bir Hacheim fell on 11 June. During Rommel’s attack on it from 2 June the Enigma gave advance notice of some of the GAF’s raids and carried complaints from the GAF about the heavy losses it was sustaining and the lack of support from the Panzer Army. Army Y revealed the intentions of the enemy ground forces for 4 June, and from 7 June much information about the mounting scale of their attack. The Y information was valuable to the RAF during its many attacks on 4 June, both on the dive-bombers and against the land assault. Except for helping the RAF, however, none of the intelligence could be put to operational use: Eighth Army was in no position to relieve the garrison.

The resistance of the Bir Hacheim garrison was a further setback for Rommel’s plan. Having captured his operational orders, Eighth Army knew that he had hoped to seize Tobruk on D plus 4. By 8 June it knew from the Enigma that he had been giving priority to the Bir Hacheim assault from 6 June, when he assumed personal command of it. On the other hand, on 9 June it learned from the Enigma that he was refusing to use tanks against Bir Hacheim lest this should prejudice his ability to advance to Tobruk with the least possible delay. Another Enigma message of 12 June outlined his next move: as soon as he had disposed of the British armour in the Knightsbridge area, and of Bir Hacheim, he intended to roll up the Gazala position by cutting the coast road and to strike at Tobruk via Acroma and El Adem. At the same time, the Enigma left no doubt about his urgent need for reinforcements and supplies. The Panzer Army’s evening report of 7 June, received on 8 June, had revealed that its tank strength was down to 40 per cent, though it would recover to 60 per cent in a few days, and that personnel strength was down to 60 per cent. On 6 June Rommel had asked for 6,000 men immediately. On 9 June he ordered every fit man to the front, and further decrypts spoke of 15th Panzer Division’s desperate need for replacements. By 11 June, moreover, the Enigma had also put an end to speculation that a further German light division might have been sent to north Africa. The speculation had been started by hints from POW at the end of May; the Enigma established that what had arrived were four battalions of general replacements each a thousand strong.

On 11 June, in the light of this evidence, GS Int GHQ ME produced an appreciation of the German intentions which was largely accurate and which envisaged an all-out attack on Tobruk. Tactical reconnaissance and Army Y warned that his forces in the Bir Hacheim area were moving north–east in the direction of El Adem, and established the number of tanks taking part in the advance and the fact that Rommel was personally leading them. Reporting on this evidence on the morning of 12 June, Eighth Army’s intelligence summary judged that Rommel was bent on pressing his original plan, but that the attempt to do so ‘with depleted forces is an act of great boldness’.

Eighth Army received the decrypt of Rommel’s orders for the advance of 11 June on the morning of 12 June. Planning this advance in the light of his field Sigint unit’s intercepts of Eighth Army’s radio communications, he instructed 90th Light Division to make for El Adem, and 15th Panzer Division for the airfield there, while 21st Panzer Division and the Ariete Division pinned down XXX Corps west of the Knightsbridge area. After taking the airfield and the RAF fuel dump the forces operating against El Adem were to swing round and complete the envelopment of the Gazala position. The news was followed, not
by a second reverse for Rommel, but by another decisive defeat for the British forces. Exploiting the confusion that accompanied a first brush between XXX Corps and 15th Panzer Division early on 12 June, Rommel ordered 21st Panzer Division to join the battle. The German attack destroyed 105 British tanks – about half those engaged – and the balance of tank strength passed finally and firmly to Rommel. British Army Y learned of 21st Panzer Division’s intervention too late to give warning. In contrast, Rommel’s field Sigint alerted 15th Panzer Division to the approach of XXX Corps in time for it to take up a defensive position and to make the first attack. But XXX Corps commander was well informed about the positions of the German formations before the engagement, and it is safe to say that Rommel owed his victory less to the performance of his field intelligence service than to his superiority in direction in battle and in the quality and handling of his tanks.

On the evening of 12 June, on learning that the battle had gone against him, Eighth Army’s commander judged that he had either to stand and fight or withdraw his whole force to the frontier. With the agreement of the C-in-C and the Prime Minister, he decided to stand. It is impossible to say whether the decision was influenced by the fact that Enigma decrypts received on 12 June illustrated the enemy’s difficulties, by reporting shortages of ammunition, rations and water, and showed his anxiety about British reinforcements. Twenty-four hours later, after Eighth Army had been reduced to 50 medium tanks in further heavy fighting, the decision was reversed and orders issued for the evacuation of the Gazala position. Except that it provided currently a plea from the GAF that Rommel should move against the main forward RAF airfield at Gambut – a plea that Rommel declined – the Enigma evidence received during 13 June dealt with the armoured battle of the previous day; and, to judge from Eighth Army’s intelligence summary, Army Y contributed no operational information. On 14 June intelligence improved. For the first time GC and CS was able to send out in the early hours an emergency message based on the Panzer Army’s day report of the previous evening; it contained the news that Rommel would strike north that day in an attempt to seal off the Gazala front. By noon Eighth Army had from the Enigma full details of Rommel’s intentions for the day. At nightfall Army Y reported that Rommel had observed the beginning of the British retreat from Gazala and had ordered his forces to cut the coastal road at once. It is clear, however, that this information contributed little to the fact that most of the British force got away. The DAK was too tired to respond to Rommel’s urging and the GAF was wholly occupied until 15 June in attacks on the mid-June convoy from Alexandria to Malta.

From 15 June, when Rommel penetrated the El Adem defences, it was even more the case that intelligence could do nothing to restore a fast deteriorating situation. In the early hours of 16 June Eighth Army learned from a Scorpion decrypt that Rommel planned to extend his hold over the heights around Tobruk and take the huge Belhamed supply depot during the day. But the British had begun to destroy stores at Belhamed on 14 June. In the early hours of 17 June Eighth Army again received the DAK’s instructions for the day – it was to take the Gambut airfield and cut the road east of Tobruk to complete the encirclement of the fortress – together with information on the current dispositions of the Panzer Army and on the GAF’s intentions. By then the RAF was out of touch with Eighth Army, and it was already evacuating Gambut. In addition to these advance warnings of the enemy’s intentions, Eighth Army was now receiving a stream of Enigma decrypts and Y reports
about the enemy’s recent movements and operations. But on 17 June, in its final attempt to stop Rommel’s onrush, its last effective armoured brigade suffered another defeat and lost 32 of its 90 tanks.

The continuing retreat of Eighth Army left Tobruk surrounded. On 14 June the Eighth Army commander, realising that he might be unable to prevent this, had requested permission to accept the investment of the fortress if necessary: his only other course was to prepare for its evacuation, which would be difficult. But the C-in-C had ordered him not to let Tobruk be invested. As far back as February he had decided that he would not accept another siege, which would lock up troops he might need on his northern flank. More important, he now believed that the enemy was nearing exhaustion and that Rommel’s capacities were not ‘so great as to make it necessary to abandon Tobruk’. On 16 June he argued that ‘to invest Tobruk and mask our troops in the frontier positions the enemy would need more troops than our information . . . shows him to have’. On 18 June the intelligence officers at Eighth Army HQ still shared this view.

There was not much positive intelligence to support this conclusion. Such as it was, however, it may have reinforced the C-in-C’s inclination to defer a decision. On 13 and 14 June several Enigma decrypts indicated serious shortages of ammunition in the DAK and of fuel in the GAF. On the evening of 17 June another decrypt revealed that the Panzer Army had urgently requested that 8,000 replacements should be flown to Africa, but had been told that shortage of transport aircraft would limit the number to 75 a day. More unusually, two decrypts cast some light on the enemy’s high-level strategic decisions. On 14 June one of these informed the Panzer Army that, as a result of a review of the situation by Mussolini, Kesselring and Cavallero on 9 June, Bastico, Rommel’s titular superior, had received new orders to the effect that he should aim at the capture of Bir Hacheim and the Gazala position and at the destruction of the British armour; that the immediate encirclement of Tobruk should not necessarily be the next step, though it might be possible; that the situation would have to be reconsidered after the fall of Hacheim and Gazala; that the casualty and supply situation needed careful watching; and that exhausted troops must not be thrown into a new attack. The message added that Kesselring envisaged operations continuing for four or five days beyond 20 June, but that it was generally agreed that a temporary halt would then have to be called. On 18 June the second message told the Panzer Army that Hitler had on 13 June approved the orders given to Bastico. These messages were, it is now clear, a manifestation of the anxiety of the Axis leaders, and especially of Mussolini – an anxiety which on 1 May had led them, when deciding that Rommel should attack at the end of May with the object of taking Tobruk by 20 June, to lay it down that he should not move further east than the Egyptian frontier until the Axis had taken Malta. They indicated that the Axis leaders were now dubious as to how far Rommel should press his attack on Tobruk.

From the morning of 16 June the C-in-C had been forced by events to change his ground. He then agreed that, though it was not to be invested, Tobruk might be isolated for short periods, and thus allowed Eighth Army’s commander to keep a force there that would be adequate to hold it. On 17 June he allowed the evacuation of El Adem. Tobruk was then surrounded, and with this setback British assumptions were to receive a still greater shock. During the earlier discussions no one, with the apparent exception of DMI Cairo, had doubted that, if it was invested, Tobruk would be able, as before, to hold out.
Enigma information that Rommel was preparing to attack Tobruk reached the Middle East in the afternoon of 18 June. It gave no date for the assault, but was followed by an order of the day from Kesselring on 19 June which was relayed to the Middle East on the same day, and which announced that 'the fate of north Africa now depends on Tobruk: every man must know this tomorrow and act accordingly'. On the afternoon of 19 June air reconnaissance reported that an east-bound enemy column, 15 miles long, had turned north and then west and was moving towards Tobruk on the coastal road from Bardia. On this evidence, and because Rommel had adopted this approach in November 1941, as was known from the capture of his plan at that time, Cairo concluded that the attack would come from the east. But Eighth Army commander and the forces in Tobruk remained uncertain on this point until the DAK, after making a lengthy forced march through the night, attacked at 0700 on 20 June, far sooner than anybody had expected.

During 20 June Army Y and Enigma decrypts, army and air, provided a running commentary on the progress of the German land and air attack on the fortress, though the RAF Y unit gave no warning of the heavy air attack because its R/T set was unserviceable. As in so many battles since 7 June, however, intelligence could do nothing to affect the outcome: and on the evening of 20 June Eighth Army received from a message signed by Rommel and intercepted by Army Y the news that the garrison had capitulated.

* * *

On 22 June, having taken Tobruk and captured large quantities of British supplies, Rommel asked for permission to pursue Eighth Army deep into Egypt. On 23 June Mussolini approved under pressure from Hitler and at the cost of postponing the invasion of Malta to September – though he stipulated that in the meantime Malta must again be suppressed by intensive air attack. On the morning of 24 June, as soon as he had received approval, Rommel ordered the Panzer Army to continue its advance.

On 20 June the Cs-in-C in Cairo had appreciated that, even if he took Tobruk and the frontier positions of Solium and Halfaya, Rommel would not try to advance into Egypt unless he decisively routed the British forces in the field and received considerable reinforcements. Later that day, however, in the belief that the enemy would have seized fuel and other stocks in Tobruk, and because the fall of the fortress had removed the enemy’s need to keep any of his armour in the Tobruk area, Eighth Army’s commander expected him to advance into Egypt and recommended that, rather than make a stand on the frontier, he himself should gain time and space for re-building Eighth Army by retiring the 120 miles to Mersa Matruh. On 21 June the Middle East Defence Committee accepted this recommendation without being wholly convinced that Rommel would move into Egypt: it ordered that some force should be left at the frontier to delay Rommel ‘should he try to advance eastwards’. On 22 June the War Cabinet questioned this decision: it was a decision that gave insufficient emphasis to the difficulties which confronted the enemy in staging an attack on the frontier defences: on the other hand, Mersa Matruh might be quickly overrun if there was no more than a delaying action at the frontier.

The British authorities received no information about the exchanges that
were taking place on a high level on the Axis side between 22 and 24 June. But they learned from the Enigma on the morning of 22 June that Kesselring and Rommel had agreed that their forces would be assembled for an attack on Maddalena, Halfaya and Solium by 24 June and that Rommel intended his infantry to make a feint against Eighth Army’s frontier positions while the DAK went south to outflank them. In the same message — it was a report to Goring — Kesselring added that ‘as from 26 June I intend to transfer the Schwerpunkt [of the GAF effort] from Africa to Sicily, first because the transport crisis has become even more acute, and secondly because the GAF must have a certain space of time in which to regroup before entering on major operations.’ In the absence of other intelligence, the Middle East Defence Committee took this to be an indication that the enemy would pause after the attack on the frontier positions, and thus as a vindication of the plan to pull back the bulk of Eighth Army to Mersa Matruh and either prepare for a decisive battle there or regroup for an offensive. Eighth Army’s withdrawal was ordered to begin on the evening of 22 June.

During 23 June the Enigma gave in advance full details of Rommel’s plan for outflanking the frontier positions and revealed that, because there were no bombs or fuel in the forward area, such GAF support as could be provided would have to come from Crete. At the same time, it contained the first indications that Rommel might not after all pause at the frontier. One message confirmed that he had captured considerable supplies at Tobruk. Another stated that in the next few days the Panzer Army was to receive maps of Solium, Sidi Barrani, Matruh, El Daba and Alexandria. A third informed the GAF that Sidi Barrani, halfway to Matruh, was free from bombing on the nights of 23–24 June, and thus suggested that the Axis forces might be expecting to occupy it thereafter. Early on 24 June C 38m revealed that the Germans were aware, from decrypts of his signals, that in the opinion of the US Military Attaché in Cairo the British had been decisively beaten and that this was a suitable moment for Rommel to take the Delta. Later in the day another decrypt revealed that Hitler had ordered petrol to Tobruk ‘with utmost despatch’. By the end of that day air reconnaissance, Y and Eighth Army’s own sightings had established that the enemy’s main body, comprising the two Panzer divisions, 90th Light Division, the Ariete Division and reconnaissance units, was 50 miles west of Mersa Matruh and heading east at high speed.

On 25 June the C-in-C Middle East assumed command of Eighth Army and ordered a change of plan. Instead of a decisive battle, only a delaying action was to be fought at Matruh: the armour was not to be committed unless a favourable opportunity arose: all infantry divisions were to be re-organised into battle groups: surplus infantry was to be sent back to prepare positions in the Alamein–Qattara gap as a rallying point: and a mobile battle was to be fought between Matruh and the gap. The new plan was based on his assumption that his inferiority in tanks was such that he would be unable to prevent Rommel from piercing his centre or enveloping his southern flank. At that point, however, he had received no reliable evidence about the enemy’s tank strength since 19 June, when Army Y had disclosed that 15th Panzer Division had 60 serviceable. On 20 June Cairo had estimated that the enemy might have as many as 519 serviceable by 30 June (of which 330

*see above, p.198.*
German), though 339 (including 220 German) was more probable, and that
Eighth Army would, when reinforced, have 327 (plus 114 Infantry tanks) on
the same date. In fact the DAK’s strength was only 104 on 26 June (60 German,
44 Italian) as compared with 155 in Eighth Army. The over-estimate stemmed
partly from the conjecture that the Germans would be able to bring forward
150, through recovery and repair, and partly from the fact that, the Enigma
having revealed that the Littorio Division was being sent forward from Tripoli,
it was assumed that it would arrive with a full complement of 120 tanks; it in
fact arrived with only 36.

During 25 and 26 June the enemy’s approach to Matruh was observed by
air and ground reconnaissance, and Y indicated that, while 90th Light Division
would thrust against the defences, Rommel’s main force would probably pass
to the south. During the enemy’s attack, however, which scattered the forward
British defences on the evening of 26 June and the next day cut off two
divisions in Matruh and surrounded another division to the south, the British
forces had to depend on what they could observe for themselves. Nor would
advance intelligence have been of value to them if it had been available. The
tactical situation was changing fast and the signals communications of Eighth
Army were badly disorganised. The situation is exemplified by a signal issued by
the C-in-C at 1145 on 28 June, on the strength of a C 38m decrypt sent out
from GC and CS at 0515. This warned that Rommel intended to cut off Matruh
from the south and east; and the C-in-C insisted that the force there was on no
account to let itself be trapped. The force had already been surrounded the
previous evening and was now having to fight its way out. In the process part of
its Sigint unit and a large quantity of its records were captured.

On the morning of 29 June Rommel drove on by a forced march to the
defence line at Alamein. At that stage the occupation and fortification of the
line was far from complete and it by no means constituted a continuous
defensive position. On the other hand, the Enigma left no doubt about
Rommel’s intentions. In one decrypt which reached Eighth Army early on 27
June the Panzer Army had asked Fliegerkorps X on Crete to supply plans of the
Alamein fortifications ‘as quickly as possible’. Another announced on the next
afternoon that the GAF had completed its reconnaissance of the Alamein–
Qattara area. By the evening of 28 June the C-in-C had learned from further
decrypts that Rommel would attack the ‘new position’ as soon as possible. At
1821 on 29 June he was sent Rommel’s signal of that morning ordering the
forced march. To him, as to Rommel, it no doubt seemed clear that if the
Panzer Army were able to make another strong attack without delay it would
succeed in forcing its way through to the Delta. But the Panzer Army had met
with stronger resistance than it had expected at Mersa Matruh, as the Enigma
revealed during 28 June, and it had also been weakened by increasing RAF
attack since 24 June – all the more so since, as was known from Enigma, the
GAF had been unable to assist it, and, as had been revealed by Y, the enemy’s
ground forces were suffering from a serious shortage of Flak.

Until 27 June the RAF’s all-out effort – an effort which was, for the first
time, supplemented by USAAF heavy long-range bombers and could now be
extended to Benghazi – had met with virtually no GAF resistance, and had
profited from good intelligence from Army Y, the Enigma and reconnaissance
about the enemy’s supply columns, the positions of his HQs and the
movements of his formations. On 25 June the Enigma had testified to the
RAF’s effectiveness by showing that the enemy was taking urgent steps to bring
up two fighter Gruppen to Sidi Barrani; and on 27 June it had revealed that Kesselring had ordered the GAF to provide all-out support in the hard fighting for Mersa Matruh. But the GAF effort there had turned out to be a pale reflection of those it had made against Bir Hacheim and Tobruk. The Enigma established that while this was partly because of the extent to which Rommel had raced ahead of Fliegerfuhrer Afrika, it was mainly because the German squadrons were exhausted: from this time the Fliegerfuhrer’s routine returns showed that, although they were not sustaining heavy losses, their serviceability was consistently low.

As well as pointing to the enemy’s mounting difficulties, Sigint now contributed intelligence of immediate operational value. It is not easy to judge precisely how decisive this was for the outcome of the first battle of Alamein, but of two things there is no doubt. On account of the complicated operational situation, the intelligence was more plentiful than usual. And on account of the fact that Rommel was being slowed down, it arrived in time for Eighth Army to turn it to good account.

During 29 and 30 June the GAF Enigma gave details of the GAF units that were being moved forward and of the airfields they were occupying, and Army Y provided numerous identifications and positions of the enemy’s ground formations. More important — for despite an all-out effort by the RAF to damage and delay him while Eighth Army got into its defensive positions, the enemy continued to advance more rapidly than was expected — Eighth Army received during the night of 29–30 June, from decrypts in the GAF Enigma, the news that Rommel intended to attack at 1500 on 30 June, the earliest moment at which he could expect full GAF support, and that he would make a feint attack against the Alamein position in the forenoon, before launching the main attack. In the light of this information orders were issued on the morning of 30 June that ‘all defensive arrangements are to be completed at once on the supposition that the Alamein position might be attacked at any time from noon’. About noon, however, in a message that left GC and CS at 1050, Eighth Army got from the GAF Enigma the Panzer Army’s start line and the further information that the GAF doubted the ability of the Panzer Army to attack as planned, as the troops had failed to reach their positions. From further decrypts it emerged that 90th Light Division was still 15 miles from Alamein, that 21st Panzer Division was immobilised for lack of fuel, and that a sandstorm had delayed the GAF’s move to its advanced airfields.

The re-arrangements thus forced on Rommel were disclosed in Enigma decrypts which reached Eighth Army HQ from the afternoon of 30 June. The attack was now to take place on 1 July, probably at 0100. Further messages gave the pre-attack locations of several of the Axis formations, stated that the intended direction of attack for 15th Panzer Division was between Alamein and Bab el Qattara, and contained the news that the GAF would attack the key Alamein position between 0400 and 0600 on 1 July. On this evidence the C-in-C stood the whole army to in the early hours of 1 July and made his dispositions in the expectation that the main attack would come between Bab el Qattara and Alamein, with the object of cutting off Alamein, and that there would be only minor thrusts south of Bab el Qattara and frontally against Alamein. But the German forces got off to a slow start: by dawn the only development was the beginning of an infantry attack on the Alamein position. As for Rommel’s plan of attack, the Enigma information was far from complete; but it had been sufficient to correct the evidence of Army Y and of sightings, which during 29
and 30 June had indicated that Rommel was sending his main force south-east for an outflanking attack in the southern sector, south of Bab el Qattara. In the afternoon of 1 July it would emerge from the decrypt of his day report for 30 June that he had simulated an armoured thrust to the south, in the hope that the British armour would move to meet it, and had planned that his main force, attacking further north, should turn south to engage the British from the rear while 90th Light Division and an Italian division cut off the Alamein position.

In the event, at first light Rommel’s main thrust was sighted where it was expected, between Alamein and Bab el Qattara, by air reconnaissance and attacked by the RAF. It was held up by the infantry box at Deir el Shein for most of the day, while Y intercepts showed that the enemy plan was to turn south after Deir el Shein and take Qattara in the rear, and was then prevented from advancing by British armoured resistance and night bombing of its supply columns. The thrust by 90th Light Division made even slower progress against the infantry box at Alamein - it was stopped by the end of the day - and was assumed to be only the feint attack mentioned by the Enigma until the Army Y organisation intercepted at 1300 a message from Rommel urging the division to get on with cutting the coast road east of Alamein.

In the fighting of 1 July, in which the successful resistance of the infantry boxes played such a large part, intelligence was probably of no direct assistance. It is clear, however, that Y gave early information about most of the enemy’s moves, and, though often received with some hours’ delay, the Enigma evidence must have been invaluable in keeping Eighth Army HQ abreast of the situation, particularly as its own information from the battlefield was decidedly sketchy. By the late afternoon the HQ had been given the morning positions of the enemy’s formations, and had learned that 90th Light Division’s advance had been halted, that the Littorio Division had lost its way, that 15th Panzer Division was being subjected to continuous bombing attacks and that the task of that division was to attack Bab el Qattara from the rear. It was also able to discount a claim made in one of Rommel’s signals that 90th Light Division had broken through - on the basis of which Berlin issued a communiqué saying that the occupation of Egypt was imminent. More important still, Y now established the truth about Rommel’s tank strength.

Since making the huge over-estimate of 20 June, Eighth Army had had only visual evidence on this subject. This evidence had credited Rommel with 100 to 150 German tanks and 40 to 50 Italian tanks on 27 June, with a total of 130 on 28 June, and with 120 German and 100 Italian on 30 June. On 28 June the C-in-C had still assumed that the enemy had a ‘marked superiority’ in tank numbers. During 1 July Y intercepts showed that 21st Panzer Division was down to 37 serviceable tanks and 15th Panzer Division down to 17. In addition to this revelation - and the fact that the Y intercepts consistently reported on the DAK’s low strength during July - another factor must have been important in determining the C-in-C’s subsequent conduct of the battle. This was the fact that Y and Enigma decrypts during 1 July made numerous references to the RAF’s considerable interference with the enemy’s operations.

On 2 July Rommel at first tried to repeat the operations he had failed to carry out on the previous day. During the morning, however, 90th Light Division again failed to break through, and Rommel switched his main force to the attempt to reach the coast road. The movement was reported by Y and by air reconnaissance. At this juncture the C-in-C decided to counter-attack, and
by the time Y had shown that the DAK had started to move at 1800, 90th Light
had been driven back by the British armour. By the end of the day Y had picked
up evidence that the enemy was beginning to experience fuel and ammunition
shortage, had observed that 15th and 21st Panzer Divisions were being forced
to work in close co-operation because of their losses, and had established that
15th Panzer Division was reduced to 18 serviceable tanks. No tank return was
obtained for 21st Panzer Division: in fact, the combined tank strength of the
two divisions had shrunk to 26.

Notwithstanding these losses, Rommel decided to renew on 3 July attempt
to break through the Alamein defences and cut the coast road. The Enigma
disclosed his intention, together with the thrust lines to be adopted by the two
spearhead formations, 90th Light and 21st Panzer Divisions, and the informa-
tion was signalled to the C-in-C in the early hours. Before the attack developed
at 1700, the C-in-C having decided to wait for it before renewing his
counter-attack, Y gave last minute information about it. After fierce fighting
the British retained the edge in armoured strength and the enemy withdrew
under cover of smoke. Before the main attack Rommel, for the first time, had
decided to use his Italian forces in an independent thrust and had sent them
against British positions further south: this advance was revealed by a chance
air sighting and had ended in the rout of the Ariete Division, whose withdrawal
from the battle was disclosed by Enigma decrypts just after midnight. To
compound Rommel’s difficulties, the RAF scored big successes, especially
against the GAF, during 3 July – though the RAF’s own account of the battle
complains that Eighth Army missed the opportunity to have it bomb the
German ground formations which had been sighted in their assembly areas.
How far target selection was being influenced by Sigint and Y as well as by local
information is not recorded. But the Scorpion Enigma signals of the GAF
liaison officers with the Panzer Army were being decyphered in Helropolis from
12 July, and the number of Enigma decrypts signalled out to the British HQs
from GC and CS had by 3 July reached the figure of more than a hundred a day.
Over and above those of outstanding operational importance, which have
already been noted, most of these gave details about the enemy’s ground
positions, the locations of his HQs, his supply movements and the intentions
and state of the GAF. In addition, several Enigma decrypts revealed that
tension between Kesselring and Rommel was now high.

The news that Rommel would not attack on 4 July, but would be looking to
his supplies, was conveyed to Eighth Army HQ in the early hours of that day in
a signal based on decrypted Panzer Army orders of the evening of 3 July.
Although the report did not say so, he had already decided that he would have
to go over to the defensive for at least a fortnight. During 4 July, on the other
hand, the C-in-C kept up the pressure, and Eighth Army completely regained
the initiative which had been passing to it gradually since the German attack of
1 July. Indeed, it now encountered some evidence of severe overstrain, and
even of demoralisation, among the German troops. Some authorities have
concluded that it missed the opportunity to deliver a general decisive attack
because it failed to realise how close the enemy was to defeat. Others, however,
suggest that Rommel’s field intelligence again enabled him to check Eighth
Army’s initial moves. The evidence is debatable. The appreciation issued by
Eighth Army’s staff on the evening of 4 July was that, since the enemy
was trying to bring up fuel and ammunition behind his anti-tank screen,
his slight withdrawal might give way to ‘a still more determined thrust later’.
On the Axis side expectations had meanwhile been running high. During the last days of June it emerged from the decrypts that the Italians were arranging to transfer naval units to Aegean bases and that the Axis powers were making plans for the exploitation of Egypt. On 1 July the decrypts showed that the Panzer Army had urgently requested 10,000 copies of maps of the chief Egyptian cities. On 3 July C 38m revealed that the Axis had learned that Alexandria had been evacuated and were discussing arrangements for sailing the French squadron there to a French port. On the same day the decrypts showed that the Italians intended to deploy between three and five cruisers to escort troop convoys from the Aegean to Egypt, and that the first convoy had been due to leave Taranto on 2 July. But on the morning of 4 July the authorities in Berlin and Rome received the Panzer Army’s much delayed day report for 3 July. This stated that British strength, low Axis fighting strength and very strained supply position ‘compelled’ temporary suspension of a large-scale attack.

The decrypt of this signal reached the British authorities in the Middle East on the afternoon of 5 July.

Preparations for the evacuation of the ships and HQ of the Mediterranean Fleet had begun on 25 June. But negotiations with the French squadron were still continuing on 4 July when a decrypt showed that Kesselring had been informed that the British authorities had issued an ultimatum to Admiral Godefroy.
Although Rommel had been forced to go over to the defensive by 4 July, he by no means gave up his attempt to break through to the Delta. Within two days he was probing the south of the British line and on 7 July, having met with little resistance, he launched a small-scale attack there. For the rest of the month, on the other hand, he was reacting to repeated British attacks. Despite their heavy cost in men and material, and despite the fact that they could rarely be properly prepared, the C-in-C Middle East kept these up in an attempt not merely to stop Rommel but to destroy his forces \textit{in situ}.

That this was his objective, and that he clung to it for so long, was due mainly to developments on his northern flank. The early success of the offensive launched by Germany in south Russia on 28 June persuaded the C-in-C Middle East by 9 July that they might have to meet a German advance in northern Iran in the first half of October and, though this was less likely, a German attack through Syria to Iraq as early as 10 September. But if this prospect alone made it imperative to try to destroy Rommel, and to do so as far east as possible in order to avoid the need to lock up British forces in pursuing him westward, another consideration pointed hardly less strongly in the same direction. The C-in-C knew that the enemy’s forces were temporarily greatly reduced, and handicapped by enormous supply difficulties, but would be receiving sizeable reinforcements from the end of July.

The information about the enemy’s supply position and reinforcement plans came almost entirely from the Enigma. It announced on 7 July that while Rommel was to be reinforced by Germany in south Russia on 28 June persuaded the C-in-C Middle East by 9 July that they might have to meet a German advance in northern Iran in the first half of October and, though this was less likely, a German attack through Syria to Iraq as early as 10 September. But if this prospect alone made it imperative to try to destroy Rommel, and to do so as far east as possible in order to avoid the need to lock up British forces in pursuing him westward, another consideration pointed hardly less strongly in the same direction. The C-in-C knew that the enemy’s forces were temporarily greatly reduced, and handicapped by enormous supply difficulties, but would be receiving sizeable reinforcements from the end of July.

The Enigma report of the intention to send German paratroop units caused some anxiety about the possibility of an airborne attack on the airfield complex in the Delta, for it did not emerge till August that they were intended
I'm only in the ground lighting. Sigint also failed until August to disclose that the Italian Pistoia Division had arrived in Libya by sea by the end of July. With these exceptions the Enigma — supplemented by, but more often camouflaged as, POW evidence — kept Eighth Army fully abreast of the enemy’s manpower situation. It was the Enigma, too, supplemented on this subject by Army V, which showed that Rommel would be receiving tank reinforcements by the end of July. On 2fi June it showed that Hitler had three days earlier ordered that 40 tanks (30 Pzkw III and 10 Pzkw IV) were to be sent to Africa with the greatest possible speed, together with 49 anti-tank guns and 30 heavy howitzers. On 30 June it showed that the number of tanks ‘scheduled for July’ had been raised to 90 (60 Pzkw III and 30 Pzkw IV). Thereafter the total rose to 100 and the Enigma tracked their progress through Italy and across to Mersa Matruh — where the Royal Navy and the RAF attacked their transports on 20 July and sank one before it could unload — and thence to the point of their delivery to the Panzer Army at the end of July. Hardly less ominous was the news received from an Enigma decrypt on 23 July that 180 tank engines were arriving: by that time it was known from Army Y that while the DAK had only 40 serviceable tanks, 21st Panzer Division alone had 44 tanks in its workshops, and it could be presumed that 15th Panzer Division was in like state.

The C-in-C’s anxiety was also fed by his knowledge of the supply situation. During 11 and 12 July, alerted by Sigint references to their crucial importance, the RAF and the Navy sank off Mersa Matruh two large coastal vessels that had been brought forward to ply between Matruh and Tobruk. Enigma showed that this action blocked Matruh even to supply submarines and that the Panzer Army considered one ship in Tobruk worth several in Benghazi. On the other hand, Rommel reported on 21 July that his supplies, though too precarious to permit a large offensive, were sufficient for his present operations and — while the Enigma traffic did not contain this report — it was only too clear from the C-in-C’s and the Enigma decrypts that shipping across the Mediterranean was not being seriously interrupted and that, despite damage and congestion there, large stocks were being built up at Benghazi and Tobruk.

During the July fighting Eighth Army was as well supplied with operational intelligence as with the essential facts about the state of the enemy’s forces and his plans for improving it. The Enigma was the chief source, but Army Y was scarcely less important. Air reconnaissance was handicapped by shortage of aircraft, by determined enemy position and by the persistence throughout the month of cloud and dust storms.

With few exceptions, the Enigma decrypts from GC and CS continued to arrive too late to give advance notice of the enemy’s movements. As fighting was continuous throughout July, however, they gave a full account of the changing battle situation, about half of the 100 messages a day dealing with it in some way, and delay in getting this to Eighth Army HQ was offset in two ways. The Scorpion traffic, invaluable for its frequent locations and identification of the enemy’s divisions, was being decrypted at CBME from 12 July. Nol less important, the steps taken in June to integrate Y with operational intelligence at Eighth Army and Corps levels were now yielding dividends. The intelligence summaries of Eighth Army and of XIII and XXX Corps, with their pre-attack estimates of the enemy’s strengths and dispositions, leave no doubt that Y, complemented by the Enigma and co-ordinated with other intelligence collected locally, gave C-in-C all the evidence he needed for the planning of his attacks. It was at this time that Y first obtained in full measure the results
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which, during the rest of the African campaign, enabled the intelligence staff at Eighth Army HQ to feel that 'we had not done our day's work unless we had beaten the Ultra, unless we knew what was happening and could appreciate what would happen before it could arrive'.

It is impossible to tell at this distance in time how much of the Y information came from cryptanalysis, how much from plain language and how much from DF and Traffic Analysis. It is equally hard to establish precisely when and how either it or the Enigma influenced the C-in-C's tactical and operational decisions. But his conduct of the fighting suffices to show that he followed Sigint closely.

By 8 July, when the C-in-C decided to attack at Tel el Eisa at the extreme north of the line on 10 July, he knew from both sources that Rommel had moved the bulk of his forces - 90th Light Division and 21st Panzer Division and the Littorio Division - to the southern sector, and the news that Rommel intended to press his advantage there, received from the Enigma on 9 July, did not divert him from his own attack. This was delivered against a position that was known from Y to be held by two Italian infantry divisions. It virtually annihilated one of these divisions - and captured part of Rommel's field Sigint Unit - and forced Rommel to switch 21st Panzer Division back to the north to prevent a complete breakthrough.

The transfer of 21st Panzer Division was at once reported by field Sigint and confirmed by the Enigma after some delay, and both sources closely followed its activities during the operations up to 14 July in which it recaptured Tel el Eisa. The C-in-C used this information and other order of battle intelligence when planning his next move, the attack on the Ruweisat ridge on the night of 14-15 July. The attack was decided on on 13 July, when Y established that 21st Panzer Division was in the extreme north, close to the Alamein position. An hour or so after it was launched the C-in-C revealed his thinking in a signal to the CIGS: 'German troops now seem greatly stretched with 21st Panzer Division in the north, 15th Panzer Division in the centre and 90th Light Division in the south, thus opening the apparently favourable chance of hitting hard in the centre against the Italians. My policy is to hit the Italians wherever possible in view of their low morale and because the Germans cannot hold extended fronts without them'. The deployment of the Pavia and Brescia infantry divisions on and around the Ruweisat ridge had been established by Y on 10 July.

By 18 July, in conjunction with a renewal of the attack in the Tel el Eisa sector, this attack had cost Rommel the equivalent of 3 Italian divisions and had forced him to bring all his German armour from the south to the rescue. Intelligence did not disclose that he had already abandoned a breakthrough to the Delta until the Panzer Army was fully replenished, but it now showed that it was only with the greatest difficulty that he again prevented a breakthrough by Eighth Army. While Y reported all his movements, the Enigma threw much light on his problems. On 15, 16 and 17 July it disclosed that serious shortages

*This was 621st Signals Battalion, the source of much of Rommel's order of battle and operational intelligence. The consequent reduction in its effectiveness was a severe blow to Rommel who depended during the remainder of July on inadequate information from local sources. By the battle of Marcht in March 1943, however, it had been reformed and was again providing Rommel with important tactical intelligence.*
of fuel and ammunition had developed at the front, that the supply columns were over-taxed and suffering heavy casualties from RAF attacks, and that the weakness of the Italian divisions had made it necessary to lay mines in front of their positions and to stiffen them with pockets of German troops. As for Rommel’s tank strength, the Enigma showed that the Italian armour had remained in the south and Y established that 21st Panzer Division was down to 10 serviceable tanks on 17 July and on 19 July it showed that 15th Panzer Division was down to 13.

It was with this intelligence before him that the C-in-C decided on 18 July that ‘the best way of inflicting a major defeat would be to strike strongly again in the centre’, this time against the German armour, and that on 19 July he ordered a further attack on the Ruweisat ridge for the night of 21–22 July. Despite his own heavy losses in the recent fighting and the fact that the tank reinforcements he was receiving consisted mostly of obsolete Valentines, he had at this time 61 Grants, which nearly matched Rommel’s armour. It was thus with some confidence that he awaited the outcome. Nor was his optimism wholly misplaced. During 22 and 23 July Rommel at last doubted his ability to hold out and was seriously considering a withdrawal as the only alternative to losing north Africa; and although he did not report these anxieties by W/T, both Y and Enigma showed that the Panzer Army was sustaining heavy infantry losses and suffering from lack of reinforcements and that the GAF had again run into a fuel crisis. But by the morning of 24 July it was clear that the British assault had been a costly failure, not least because 23rd Armoured Brigade had fallen foul of the enemy’s mines and lost 100 out of its 150 Valentines, and that Rommel had lost very few of his tanks. The Enigma had warned on 15 July that minelaying on a large scale was about to take place.

Despite the fact that Eighth Army’s losses had now reached an alarming level the C-in-C attacked again on 26 July, this time from the Tel el Eisa salient. In his order for the assault he stressed that a quick decision was essential since the enemy was now receiving reinforcements daily. In addition to the evidence he was receiving to this effect, he knew from the Enigma that Rommel was stiffening the Italian units with pockets of German troops. Before the attack began Eighth Army learned from a decrypt that the Germans expected it; and it adopted a cover plan in an attempt to deceive them into thinking that the attack was to be delivered further south. To no avail. Largely, again, as a result of the extensive mining that the Germans had carried out – the Enigma had carried further requests for mining by 25 July but little or nothing was known about the whereabouts of their minefields – the assault was a total failure. By 27 July, with Eighth Army itself close to exhaustion, the C-in-C knew that he had been denied the objective he had pursued for nearly a month. In his attempt to destroy the enemy where he stood he had been well served by intelligence, but had been frustrated by the sheer fighting ability of the Germans and by Rommel’s brilliance in discerning the crucial area in any battle and in switching his tired but dedicated troops.

* * *

During the first week of August GC and CS decrypted two reports from the Panzer Army which indicated that it contemplated an offensive, but which also
stated that as yet an offensive was beyond its capabilities. The first complained that ‘supply arrangements at present cover only day-to-day needs of troops’ – that ‘bringing up supplies for large-scale operations, let alone offensive, is not possible’ – and went on to suggest remedies. The second complained that, whereas the Germans had so far borne the brunt of the fighting and would again do so in ‘the coming operations’, the Italians were receiving the bulk of the reinforcements. A few days later another signal informed the Panzer Army that Warlimont, whose arrival in Africa had been reported by the Enigma on 25 July, had now submitted a report and that Hitler had agreed to his ‘suggestions’. There followed other tantalising references in the Enigma traffic, including two requests that important guns and ammunition should be supplied by 15 August.

These requests suggested to Cairo that 15 August might be Rommel’s date. In Whitehall MI was inclined to agree because another source ‘who may be well informed’ had given similar information. In all probability this was a reference to a diplomatic decrypt from Rome of 5 August, which had mentioned that the Axis would attack on 15 August and – as MI knew to be correct – added that Rommel had been reinforced by two divisions. By 13 August, moreover, it was noticed that the GAF was strongly contesting the RAF’s reconnaissance of the enemy’s positions, and that the enemy’s supply position in the forward area was improving so fast that it would probably soon be as good as it had been before his Gazala offensive.

At this point, on the evening of 17 August, GC and CS brought the speculation to an end by sending out to the Middle East what was perhaps the most important single item of information that the Enigma had yet contributed to the desert campaign. The decrypt of a Panzer Army appreciation of 15 August, it contained an outline of Rommel’s intentions for the coming offensive. After mentioning that the supply position had eased, that reinforcements had arrived, that the Italians had been rested and reformed, and that a mobile defence in depth had been created and fields works and minefields almost completed, the appreciation went on to say that a British attack was possible in late August, more likely after mid-September, in a strength of 3 armoured and 6 or 7 infantry divisions. The supplying and equipping of the German troops and the preparation of all the Axis forces for a further offensive would be largely completed when stores already loaded in Italy had arrived, and after this no further real improvement could be expected. Comparison of strengths showed that until the end of August the Axis, with a 50 per cent superiority in medium artillery and 450 to 500 tanks against an estimated 400, would be strong enough to ‘make a quick penetration of the front’ in the south; but that in September ‘the situation will change considerably to the advantage of the Eighth Army’. The Panzer Army would have to re-group before an attack, and this must be done on moonlight nights because of British air superiority: full moon was on 26 August, and the supply services of the Panzer Army and the German Air Force could just manage to be ready by then, provided convoys arrived on time. Only an attack about 26 August had any prospect of success, because any postponement must of necessity be ‘a postponement for a whole month, at the end of which prospects would be remote’. On the other hand, Rommel stressed that his ability to move at that time depended on two things: the immediate despatch to Tobruk or Benghazi of supplies already loaded in Italy; and an assurance that thereafter the despatch by sea of ammunition and fuel to Cyrenaican harbours would be continuous. In the same way, he added,
Kesselring considered 26 August a favourable date provided that GAF fuel arrived in the meantime.

On 13 August, four days before this decrypt reached the Middle East, General Montgomery had assumed command of Eighth Army, and on 15 August General Alexander had succeeded Auchinleck as C-in-C. When they took up their appointments, Eighth Army HQ had just overhauled its signals arrangements so as to eliminate delay in collating and disseminating information from its own forces and from enemy sources, and it had already in the first week of August received from the Army Enigma the first of two new series of reports which the Panzer Army was to make at regular intervals during the remainder of the North African campaign. These reports, one giving a complete return of the current strengths in officers, NCOs and men, and in guns, tanks, vehicles and equipment, the other giving a comprehensive return of the current strength in fit tanks for each Panzer and Italian division and a firm figure for the tank establishment of each division, provided a virtually complete framework for the appreciation of all other intelligence about Rommel’s forces.

The complete divisional return of 1 August had shown that the total of German combat troops, about 34,000, was then less than three-quarters of the establishment of 52,000. Three weeks later the decrypt of the Panzer Army’s day report for 20 August revealed that the strength of the Army still fell short of what it required for its offensive. Despite the arrival of the troops of 164th Infantry Division, reported by the Enigma in the middle of August, and of most of the Ramcke paratroop brigade, reported on 17 August, the day report complained that the German forces were 15,000 men below strength. Even so, further decrypts during August made it clear that as a result of the arrival of these new formations – and of the Italian Folgore and Pistoia Divisions – the Axis forces were beginning to consume more maintenance stores than could be ferried over with the existing resources.

The tank return of 1 August had given the establishments of 15th and 21st Panzer Divisions as 203 and 216 and their strengths in serviceable tanks as 65 and 68. GC and CS then decrypted a signal of 1 August from OKH which announced that over and above the 110 tanks sent to Africa by 23 July, and the fit tanks that were now emerging from the workshops, 82 Pzkw III and 20 Pzkw IV tanks would be despatched in August. During the month of August five further comprehensive tank returns for the Panzer Army were decrypted, and all of them specified type as well as numbers of tanks. They enabled Eighth Army HQ to watch the rise in the number of serviceable German tanks from 133 at the beginning of the month to 234 by 28 August, but which date the number of Pzkw III Specials amounted to 171 and Pzkw IV Specials to 26 as compared with 41 and 14 on 31 July, and also showed the number of Italian tanks rising from 96 to 281 (of which 234 were medium, the rest light) over the same period.

The evidence about GAF strength in the Western Desert was no less complete. The strength was built up during August to the remarkably high figure of 298 aircraft – as compared with 210 before the battle of Gazala – by transfers, largely of fighter aircraft, from Sicily and Russia. The transfers were all recorded by the Enigma, which also reported the strengthening of Fliegerkorps X in Crete, and the intelligence estimate of the number of German aircraft available in north Africa by the end of the month was 310. The Italian Air Force was also reinforced – in fact it was brought up to the number of 460 aircraft – and although its build-up was less thoroughly covered by
It was clear enough that the enemy air forces were being prepared for an all-out effort.

Until 24 August the evidence continued to suggest that the enemy would attack, as planned, on 26 August. On 17 August it was learned from the Enigma that, to avoid arousing British suspicions, the Panzer Army had prohibited reconnaissance near the Qatrara depression. Kesselring referred to an operation beginning on 26 August in a decrypt of 20 August. The following day the Enigma reported that Mussolini had approved 26 August as the date for the opening of the offensive. By that time Y had detected that Rommel had withdrawn the Panzer divisions from the front line and relieved them with infantry, and air reconnaissance and POW interrogation had provided further evidence that re-grouping was taking place.

On 21 August, interpreting this other evidence in the light of the Enigma, Eighth Army's intelligence summary concluded that 'any advance to gain surprise must begin at night, and probably therefore when the moon is most helpful'. On 22 August it announced that 'the exact time and place the enemy will break through is still open to conjecture', but added: 'We should not expect, on past practice, a concentration of enemy armour except ... at the eleventh hour for the advance. The presence of 21st Panzer Division in the north or of 15th Panzer Division in the centre is therefore not significant. That an immobile division like 164th sits in the north while 90th Light Division, so often the crust breaker, is waiting south, points an obvious moral. It would be surprising therefore, though the evidence is still too slight to be conclusive, if the enemy did not advance in the south at full moon'.

At this juncture, on 24 August, GC and CS decrypted a message of 21 August in which Rommel had announced that he was unwell and asked to be relieved by Guderian while he took 'fairly long' leave. The decrypt of Berlin’s reply reached Eighth Army HQ by emergency signal at midnight on 25-26 August: as there was no Panzer general available to replace him, the DAK’s commander would take over and Kesselring would have the supreme command. But two days later the Prime Minister mentioned to the C-in-C Middle East that MI was now doubtful whether Rommel could start before 3 September unless he obtained fuel 'by methods not at present known to us'. The C-in-C replied that the offensive was 'equal money every day from now onwards. Odds against increasing till 2 September, when it can be considered unlikely'. Eighth Army intelligence summaries maintained the same theme.

On 27 August the summary announced that full-scale attack was less likely to come that night than on 28 or 29 August. The summary issued on the evening of 28 August reported that the enemy was still 'not quite ready'. It gave in support of this conclusion the fact that Y units had heard 15th Panzer Division asking for as much fuel as possible, 'a demand not acceded to today'. The summary for 29 August quoted an Italian POW to the effect that the enemy 'apparently intended to attack this moon' and went on 'there is no evidence that he had yet abandoned the idea ... The temporary delay may be due to a hitch in supplies as a result of our successful interference ... and to the tardy arrival in the forward area of essential material especially fuel'. The evidence for this estimate had come from the Enigma.

In a message decrypted on 26 August the Enigma disclosed that the Panzer Army had ordered that motor transport sent as an emergency measure to pick up fuel and ammunition was to rejoin its units by 28 August. On 26 and 27 August other decrypts reported that disruption to shipping had upset the
Panzer Army’s fuel supply programme and forced the Germans to give up fuel to the Italians. A further decrypt indicating an immediate offensive was not likely reached the Western Desert in the early hours of 28 August: it was a signal of the morning of 27 August in which the GAF had announced an extensive reshuffle of its senior commanders in the Mediterranean and north Africa, including the transfer of Fliegerführer Afrika to be AOC Fliegerkorps X. Two other decrypts received on the morning of 25 August reported, on the other hand, that the Ramcke Brigade was to be sent forward that day, and that speed was imperative, and that emergency arrangements were now being made to airlift petrol from Crete. And then, on the morning of 29 August, when the full moon period was drawing to an end, the Enigma confirmed that the enemy had still not cancelled his offensive. In one decrypt - of a signal transmitted on 26 August - Rommel told Berlin that on medical advice he could retain command during the coming operation, though he would need lengthy treatment in Germany later. In another - of a signal transmitted on 27 August - the Panzer Army informed Berlin and Rome that because of delays to a convoy ‘the decision about carrying out the known intention will not be notified until 29 August’.

In the event the offensive got underway during the night of 30-31 August, though Rommel did not decide to start that night until 1600 on 30 August. Intelligence gave no last-minute alert. During 30 August, however, Y disclosed that 15th Panzer Division was moving south and at last light - and in the area as well as at the time of day and within the period announced by the Enigma as long ago as 17 August - the RAF sighted the enemy’s final concentrations. Deprived of the advantage of surprise, Rommel’s thrust failed to make the quick penetration he had hoped for. During the night of 30–31 August it was subjected to heavy RAF bombing attacks while passing through the British minefields. In the afternoon of 31 August, Rommel having been forced to abandon his original intention of trying to outflank the position to the south, it turned north in an attempt to capture the Alam el Haifa ridge, consuming abnormally large amounts of fuel in this manoeuvre. It was repulsed by gunfire from artillery and tanks which had been concentrated on the assumption that an enemy offensive could not succeed unless it captured the ridge. Rommel resumed the attack on the morning of 1 September, but at noon he decided temporarily to go over to the defensive where he stood.

The Enigma decrypt announcing this decision was the first important intelligence to be received about the conduct of the battle. It did not reach Eighth Army HQ until the early hours of 2 September, by which time Eighth Army had already observed that the enemy did not seem to be intent on an all-out assault and had begun to prepare for a move to cut off a possible enemy retreat. On the same morning Rommel ordered a withdrawal, to be spread over several days, to positions just west of the British minefield. Army Y did not intercept this order - during 1, 2 and most of 3 September, indeed, it intercepted scarcely anything - nor did Rommel’s announcement of his intention to OKW appear in the Enigma decrypts. On the morning of 3 September, however, air reconnaissance reported that three large columns were moving west, leaving behind large numbers of damaged tanks, and later that day Y revealed that 90th Light Division was leading the movement. During 4 and 5 September Rommel defeated a belated attempt to interfere with his withdrawal, of which Y and reconnaissance were now supplying plentiful details. In the afternoon of 6 September Eighth Army learned from the Enigma
that the Panzer Army had already reached positions west of the minefields and was going over to the defensive there.

On the same day the Enigma carried the Panzer Army’s report on the battle of Alam el Haifa, though the report was not decrypted till 8 September. It announced that only 36 German tanks and 11 Italian tanks had been total losses. This report was to be borne out by a comprehensive tank return of 20 September which gave the German figure as 193 (as against 234 on 28 August) and the Italian as 231 (as against 242). Though the Panzer Army admitted to severe losses in guns and motor transport, and attributed them to air attacks, it had indeed abandoned its offensive less on account of battle losses than of supply difficulties, and it was to these that its report gave the greatest prominence.

The supply difficulties which played so large a part in forcing Rommel to abandon the battle of Alam el Haifa had already delayed his offensive, forced him to reduce its objective and all but forced him to cancel it at the end of August. They owed something to the administrative problems created by the length of the Axis supply lines in north Africa and the restricted facilities of the forward ports. Above all, however, they were brought about by the revival, especially from the middle of August, for the first time since February 1942, of intensive British attacks on Axis shipping.

From the end of July, when the ground fighting stopped, the RAF had devoted a major effort to destroying supplies on the roads and off the coast east of Benghazi and Tobruk, and to bombing Tobruk and Mersa Matruh. But by the middle of August Axis administrative improvements and increased GAF protection on the forward supply routes had so restored the situation that Rommel had decided that he could risk going over to the offensive so long as there was no interruption in the despatch of supplies from Italy to north Africa. At that point British attempts to interrupt the trans-Mediterranean shipping had met with only occasional successes since February.

During July the GAF, in a successful effort to prevent the arrival of reinforcements, had resumed its assault on Malta. At the same time the Axis had begun to sail ships to Tobruk, beyond the range of Malta’s strike aircraft, and an attempt to extend the range of those aircraft by refuelling them in the desert behind the enemy’s line had proved unsuccessful. Although 12 Axis ships had been sunk in the last 10 days of June and during July, all had been sunk on the coastal run between Tobruk and the front. Nor did matters improve during the first half of August. The GAF assault on Malta was now faltering, British submarines had returned to Malta, and further submarines were being sent to operate from Malta and Beirut; but only three ships were sunk in these two weeks — and all by submarine — largely because Malta was again short of fuel until it received five ships, the first to arrive since June, from the mid-August supply convoy from Gibraltar. At that point, on the other hand, with the replenishment of Malta’s supplies and the reinforcement of the Mediterranean submarines, another sustained attack on Axis shipping became possible.

The attack began with the sinking of two large freighters — the Lerica'by
submarine on 15 August, the *Pilo* by the RAF on 17 August. Their loss came at a time when, as the Enigma revealed, the Panzer Army’s consumption had been exceeding intake since the beginning of the month and stocks were sufficient to last only until 26 August: it thus posed a serious threat to Rommel’s plan to attack on that date, which he had announced as recently as 15 August.

On 19 August, two days after receiving the decrypt of Rommel’s announcement, the Chiefs of Staff instructed the authorities in the Mediterranean to make a supreme effort, by every means, to interrupt the enemy’s supply shipping during the next ten days. On 21 August the RAF torpedoed the *Pozarica*, a tanker earning fuel for the Italians, and directly as a result of this sinking, as the Panzer Army reported on 25 August, the Italian supply situation became likewise very strained. In another decrypt obtained on 26 August the Panzer Army complained that the sinking of the *Pozarica* had delayed the sailing of the *San Andrea*, another tanker whose cargo had been a ‘key factor’ in its fuel programme. Although it did not emerge from the Enigma, it was these setbacks which led Rommel to decide on 24 August that he could not yet fix a date for his offensive.

On 26 August the Enigma provided full details of an ambitious programme drawn up on 24 August and involving the arrival of 20 ships in north Africa between 25 August and 5 September. The bombing of the Corinth canal by the RAF on 26 August disrupted this programme and led the Axis commanders in Africa to make the date of their offensive dependent on the arrival of a further fuel convoy. This decision was reflected in the Panzer Army message of 27 August, the decrypt of which informed Eighth Army on the morning of 29 August that because of the non-arrival of fuel and ammunition, it could not announce the date of its attack until 29 August.

On 28 August the Enigma gave the details of the fuel cargoes for eight ships and announced a new emergency programme for getting them to Africa between 28 August and 2 September; and on 29 August C 38m announced that in addition the *San Andrea* had just sailed from Taranto. More important, the Enigma had already provided information about the times and routes of some of the ships. Two of the eight – the *Dielpi* with 2,200 tons for the GAF and the *Istra* with 200 tons for the Italians – and one other ship – the *Camperio* – had already been sunk on 27 August.

As a result of these sinkings Rommel decided on 29 August that he must limit his offensive to a local operation aimed at destroying British forces in the Alamein position. This decision was not revealed by the Enigma. During 30 August, however, the decrypts produced two reports from the Panzer Army of 28 August—one announcing that of the 2,400 tons of fuel promised for that day only 100 tons had arrived, so that stocks were sufficient for only six days’ fighting; the other announcing that ‘particularly important’ tank and anti-tank ammunition were also needed with ‘utmost urgency’. Late on 30 August the GAF Enigma confirmed that the Axis supply programme had suffered another blow, the torpedoing of the *San Andrea*. Much later on, in October, the Army Enigma disclosed that the fuel and ammunition shortage had not been overcome when Rommel decided at 1600 on 30 August to proceed with his advance; his troops moved off with fuel for only *15* days’ fighting when they had required enough for 15, and with sufficient ammunition for only four to six days.

At the time, the Enigma showed that Kesselring had by 29 August
improvised an emergency air-lift of fuel from Italy to Crete, from Crete to
Tobruk, and from Tobruk to the front, and on 30 August, when two of the
remaining six ships of the emergency sailing programme had got through to
Tobruk, it was still possible to think that the other four would arrive. But as a
result of RAF attacks on 2 September one of them – the Picci Fassio – was
sunk, another – the Abruzzi which had been promised for 30 August but was
sailing late – was damaged and the sailing of a third, the Bianchi, was delayed.
On 4 September, when the Bianchi was also sunk by air attack, the sixth ship
got through with the first fuel the Army had received by sea since 30 August.
By then, however, at mid-day on 2 September, Rommel had ordered the
withdrawal. On 3 September the Enigma disclosed that it was because of the
sinking of the San Andrea and the non-arrival of the Abruzzi that he had
already on the afternoon of 1 September gone over to the defensive. His
account to OKW of his decision to withdraw, which was not revealed in the
Enigma, attributed the decision to the delay imposed by mines, to the
incessant day and night attacks by the RAF and to the shortages of petrol: the
loss of the Picci Fassio meant that fuel supplies could not be assured before 7
September even if other ships got through.

On 29 August, as the Enigma revealed on 30 August, Rome had advised the
Panzer Army that although ‘Malta’s new lease of life’ ruled out the transport of
troops by sea, five more ships with running supplies would sail in the first few
days of September. By 5 September three of these had been sunk. The others
were delayed and it was not until three ships from a heavily guarded convoy
reached Tobruk on 8 September that the Panzer Army could be certain even of
holding its new defensive positions. Until the same date the GAF’s difficulties
were no less acute. Partly because it had to divert much of its effort to shipping
protection from the beginning of September, but mainly because of a shortage
of fuel, of which the Enigma provided full details, the GAF’s daily sortie rate in
the land battle had dropped steadily from 310 on 31 August to 130 on 6
September, the day on which the Panzer Army completed its withdrawal.

The successes against Axis shipping before and during the battle of Alam el
Haifa contrasted sharply with the British inability to disrupt Rommel’s supply
lines before the battle of Gazala. Nor did the rest of the year see any decline in
the British attacks. As in the period before their curtailment in February 1942,
the attacks were guided by intelligence derived mainly from the C 38 m traffic
with help from the Enigma. Of the 48 Axis ships sunk in the period from 2 June
to 6 November, by which date the second battle of Alamein had been won, only
one (766 tons) was not reported to the Middle East by GC and CS, while for all
but two of the remaining 47 GC and CS provided either the location in port or
anchorage, or the timing or routing of the final voyage, in good time for the
operational authorities to reconnoitre and attack. In the case of most of these
ships Sigint also supplied details of the cargoes carried. It was the Army
Enigma Chaffinch decrypts that provided most of the intelligence about
cargoes. At the same time Chaffinch built up for the British authorities an
ever-growing knowledge of the German Army’s supply situation. By August
they were able to mate the intelligence about individual cargoes with their
knowledge of the enemy’s general supply position in such a way as to
economise their limited operational resources and obtain the maximum
damage from each sinking by directing attention to the most valuable ships.
Between the battle of Alam el Haifa and the second battle of Alamein Sigint was not only valuable for its contribution to the offensive against the enemy's supply-line to north Africa, an offensive that was intensified as part of the preparations for the coming British assault. What was scarcely less important, it also established the precise effect of the offensive on the enemy's fuel, tank and manpower position. The British authorities would in any case have judged that the enemy could not hope to match the resources of Eighth Army, which had now been strongly reinforced and re-equipped. It was quite another thing that they should have known that down to 23-24 October, the date selected for their own attack, the enemy's supply position was progressively deteriorating, after a temporary recovery from the crisis experienced early in September, and that the Panzer Army was being deprived of freedom of operation.

On 8 October, GC and CS decrypted a personal appeal from Stumme, Rommel’s temporary replacement. Fuel was very strained, ammunition quite insufficient, rations at ‘an unsurpassably low level’, motor transport and spares a cause of extreme anxiety. ‘Contrast Eighth Army, considerably superior to us ... and ready to attack.’ If the Panzer Army was to maintain the north African theatre of war it must receive about 30,000 tons of supplies a month, including 12,000 of fuel, 9,000 of ammunition and 6,000 of rations. In addition, it needed as a matter of urgency 9,000 personnel replacements a month by air and the shipment of the supply and unit MT that had long been waiting in Italy. A few days earlier the decrypt of a Panzer Army return had disclosed that it had received 11,200 tons of fuel, 2,500 tons of ammunition and 1,806 tons of rations during September. On 20 October the Panzer Army signalled that by 25 October fuel stocks would be down to 3 consumption units (AV2 days’ battle supply), of which only 2 units (3 days) were east of Tobruk, and that it ‘did not possess the operational freedom of movement which was absolutely essential in consideration of the fact that the British offensive can be expected to start any day’. In contrast, transport by submarines and aircraft was doing something to relieve the shortage of ammunition, especially of anti-tank ammunition, and on 19 October the Panzer Army reported that total stocks in the battle area had risen to over 16 days’ supply. On the same day, however, it warned that since the RAF attacks had considerably reduced the efficiency of the railway, and coastal shipping remained inadequate, ‘an impossible strain is still being thrown on transport in the forward area’, and that storms in Cyrenaica were making matters worse by damaging water supplies and imposing long hauls to and from wells further to the rear.

To complement this intelligence Eighth Army HQ and Cairo knew that, apart from Flakdivision 19, a GAF formation sent over in response to appeals for more protection against the RAF, the Panzer Army had not been reinforced since the Alam el Haifa battle. Just before the British attack GC and CS decrypted a second complete strength return from the Panzer Army. Dated 20 October, it showed that the forward German units and formations numbered 49,000 men, and that the number of Italian troops in the Panzer Army was 54,000. Eighth Army’s fighting strength on the same day was 195,000 men.

The Enigma, supplemented by Army Y intercepts of the regular returns made by 15th and 21st Panzer Divisions, kept Eighth Army well informed of the enemy’s tank strength. An Enigma decrypt revealed that 224 German and 270 Italian tanks were operational on 30 September. On 2 October Eighth Army assumed that the German number might increase by as much as 100. But a further return of 14 October gave the German figure as 234, and on the
On 6 October General Montgomery recast the plan for Eighth Army’s attack. The original plan had envisaged that an assault by the infantry of XXX Corps on the enemy’s defensive zone would establish a bridgehead during the first night, and that the newly formed X Corps, with the bulk of Eighth Army’s armour, would pass through the bridgehead to challenge the enemy’s armour while XIII Corps and 7th Armoured Division, with less powerful armour, attacked in the south and swept round the enemy’s rear. In the revised plan emphasis was placed on fighting a battle of attrition: X Corps was not to seek an armoured encounter much beyond the bridgehead, but was to remain closer to Eighth Army’s infantry while the infantry continued to ‘crumble’ the enemy’s forward troops, and was to destroy the enemy’s tanks when they attacked the infantry. This change of emphasis was prompted by the discovery that the date set for the offensive was giving the enemy, despite his many difficulties, time to prepare defences of unprecedented strength and depth. On 5 October, the day before the revision of the battle plan, GS Int, Eighth Army, in a major analysis of the enemy’s defences, showed conclusively for the first time that they had been made especially formidable. In particular, it warned of the existence of what seemed to be a third line of fortifications behind the two that had already been detected.

Despite this analysis and the consequent revision of the British plan, the enemy’s defences and his powers of resistance were still to be far stronger than was allowed for. The miscalculation was in no way due to lack of intelligence about his dispositions. These began to change radically within a week of his retirement from Alam El Haifa: but by 20 September the Enigma had established the new order of battle. Moreover, on the minor changes that were subsequently made to it the Enigma evidence was so much duplicated by the other sources — Y, PR, captured documents and the occasional POW — that a
complete and virtually accurate order of battle of the German and Italian forces, drawn up by GS Int Eighth Army on 13 October, was issued to the intelligence officers of all subordinate units and formations. But the exact location of the enemy’s units remained in some cases unknown and were in others wrongly assessed.

Neither the Enigma nor any other source disclosed the battle plan which, in the light of his fuel shortage and his knowledge of Eighth Army’s greatly superior force, Rommel laid down before going on sick leave in the middle of September. Contrary to his predilection for concentrating his armour, this plan spread the Panzer Army’s armour in six battle groups spaced equally behind the whole line, within striking distance of all parts of the front, in the hope that by early and small scale intervention they would be able to pinch off any penetration of the defences by Eighth Army and obviate the need to mount large-scale armoured counter-attacks. He designed his static defences with the same object, that of localising and restricting any British penetration, of depriving the British armour of room for manoeuvre and of checking the attack before it reached his anti-tank defences. Two more or less continuous belts of mines, about 5 kilometres apart, lay in front of his main defensive positions and were connected by other minefields at intervals in such a way as to form boxes. Initially the greater part of Rommel’s troops were deployed behind the forward (eastern) minebelt; by 20 October the bulk of them had been withdrawn behind the western minebelt, leaving only the battle outposts manning the forward line.

GS Int realised by 16 September that a new continuous line, manned by battle outposts, was replacing the series of strong points on which the enemy’s defences has previously relied. On 17 September it concluded that the enemy was paying less attention to his defences in the south than in the north, and that in the north a two-line defence system was emerging. But its final pre-battle analysis of 22 October did not call attention to the general pull-back from the forward line to the main defence zone, leaving only the battle outposts to hold the western minebelt, which Stumme ordered to be completed by 20 October. Y and PR did not detect this move and there was no reference to it in the Enigma.

Whatever the difficulties of British intelligence before the second battle of Alamein, and whatever its imperfections, they were as nothing compared with those experienced by the Panzer Army. Thanks to the RAF, the enemy was denied any aerial observation of the British forces between 18 and 22 October, when Eighth Army took up its final positions, and during 23 October, immediately before Eighth Army’s advance; as was confirmed in the Enigma decrypts of the Fliegerfuhrer’s daily reconnaissance reports, no GAF aircraft succeeded in over-flying the British area of concentration.

The success of the RAF in suppressing the GAF flowed from the British command of the air, but that was accentuated by the fact that during September and October, as during the battle of Alam el Haifa, the greater part of the German bomber force in the eastern Mediterranean was diverted to convoy escort in a desperate attempt to reduce the shipping losses, and by the fact that for the same purpose, and on Hitler’s orders, the GAF was diverted for another intense attack on Malta, its third and last, from 10 October. On 28 September the state of fatigue among the GAF crews was already so great that Kesselring redistributed and reduced the GAF effort throughout the Mediterranean and north African theatre. Despite this measure, which was at once
disclosed in the Enigma, convoy escorting continued in October, and the Enigma showed that, while most of it was done by Fliegerkorps X from Crete, the forces belonging to Fliegerfuhrer Afrika were often forced to supplement the aircraft from Crete. This was especially the case after the beginning of October, by which time the Enigma had reported the transfer of bomber formations to Sicily from Crete, Russia and elsewhere ‘for a short-term attack on Malta’; and even at the height of the battle of Alamein the greater part of the bomber force continued to be employed on convoy escort work.

The GAF’s assault on Malta lasted from 10 to 19 October. It was largely ineffective. On 19 October, on the other hand, when it began its all-out offensive against aircraft on the GAF’s north African airfields, the RAF knew that two-thirds of the bombers that the GAF normally kept in Crete were still deployed in Sicily. It was not until 25 October that, as the Enigma revealed, they began their transfer back to Crete and north African bases in response to Eighth Army’s offensive, then two days old. The RAF’s offensive was further assisted by detailed photography of the lay-out of the enemy airfields. The Enigma was no less valuable: as well as disclosing which GAF units were based at which airfields at any one time, the Fliegerfuhrer’s strength returns and reports on operations kept the RAF informed of the effect of its attacks. On 22 October the return reported that the Fliegerfuhrer had 90 serviceable aircraft (40 dive-bombers, 40 fighters, 10 fighter-bombers), whereas a month earlier the RAF had estimated that the GAF had 195 serviceable aircraft in north Africa out of an establishment of 300. During the intervening month the Enigma had shown that the Fliegerfuhrer had received no reinforcements to replace losses – that he had, indeed, had to transfer about 30 aircraft to Sicily.

The effect of the RAF’s preliminary offensive was to be important during the fighting. On 24 October, the first full day of the battle, the GAF could fly only 107 sorties compared with the 1,000 flown by the RAF; nor did the GAF effort increase before 26 October. But it was no less important that, because no GAF succeeded in over-flying Eighth Army’s concentration area up to and including 23 October, the enemy remained unaware of where and when the British attack would come. At 1800 on 23 October GS Int informed Eighth Army Commander that the enemy showed no sign of expecting the attack that night. On the afternoon of 24 October it learned from the Fliegerfuhrer’s report for 23 October and from the first Enigma decrypts to mention the fighting that the Panzer Army had expected the main thrust to be in the south, and Eighth Army’s first report on the battle, issued at 1900 on 24 October, was able to say that ‘apparently we gained complete surprise’.

Despite Eighth Army’s achievement of tactical surprise, the first phase of the battle did not go well. General Montgomery’s plan had laid it down that, starting at 2200 on 23 October after an unprecedentedly heavy bombardment of the enemy’s field and anti-tank artillery positions, XXX Corps and X Corps were to take the enemy’s forward defence line, a mile behind the forward edge of his western minebelt, by 2355 on 23 October and establish a bridgehead to the west of the second minebelt before dawn on 24 October. In the event, although the bombardment was ‘extraordinarily accurate’ and highly effective,
only about half of XXX Corps’s infantry reached its objective by daylight on 24 October and X Corps’s armour had nowhere succeeded in breaking through. During the next two days the infantry largely completed the capture of its bridgehead, and the armour succeeded in establishing itself a short distance beyond the infantry: but by 26 October the armour had still not broken through to open country beyond the bridgehead. At that point, because the offensive was flagging, the Eighth Army commander changed his plan, maintaining attacks in some sectors but otherwise withdrawing some formations and going over to the defensive for a week while they prepared for a further large-scale assault.

During 24 and 25 October, while the enemy’s policy of launching counter-attacks with smallish groups of tanks enabled the British aircraft, tanks and guns to inflict heavy casualties on him, intelligence performed valuable services first by keeping the counter-attacks under close observation by air and from Y and secondly by establishing that the enemy was not concentrating his armour. Eighth Army had reckoned on an immediate move forward of 90th Light Division from the position 15 miles west of Alamein, where it was guarding against a seaborne landing, and on the concentration of all of the DAK by D + 1 through the diversion of 21st Panzer Division and the Ariete Division from the south to join the 15th Panzer Division and the Littorio Division in the north. But on 24 and 25 October the RAF’s first-light tactical reconnaissance of the battle area, all the more effective in that the known weakness of the GAF in fighters allowed it to be carried out, unescorted, established that none of the enemy’s outlying armour had moved. And throughout 25 October, and again on the morning of 26 October, General Montgomery’s intelligence staff was able to assure him that it had still not moved.

The fuel shortage had led Rommel himself to lay down the policy before going on sick leave in September. But after his return to north Africa on the evening of 25 October he abandoned it. In an attempt to restore the position in the north he ordered 15th Panzer Division and the Littorio Division to counter-attack early on 26 October against the dangerous salient that was being created at the northern end of XXX Corps’ bridgehead. When the counter-attack was frustrated by artillery fire and RAF attacks, he decided to move 90th Light Division forward and, at 2100 on 26 October, ordered 21st Panzer Division to move north with one-third of the Ariete Division and a half of the artillery from the southern sector. He was aware that having moved 21st Panzer Division, he would be unable to move it back to the south for lack of petrol. His personal Kampfstaffel (Kasta 0 B), a battle group of assorted arms normally responsible for protecting Panzer Army HQ, was ordered north at the same time.

Except that Y by the evening of 26 October had detected the northward move of a battle group, Eighth Army obtained no advance notice of these moves. During 27 October, moreover, while it learned from a signal timed 0626 from GC and CS that 90th Light was moving up and being relieved by the Trieste Division at Daba, it remained uncertain for some time about the move of the southern armour. At 1315, however, Y located 21st Panzer Division’s HQ: it was on the northern front with 90th Light Division now somewhere to the north of it.

Once the uncertainty had been cleared up, Eighth Army was alerted to the danger of an early enemy counter-attack. This was all the more expected
because the Enigma had disclosed in the early hours of 26 October that Rommel had resumed his command the previous evening. Neither the Enigma nor Y gave any tactical warning of Rommel’s first counter-attack, in the late afternoon of 27 October, but it was broken up by air attack and artillery fire with heavy losses. About mid-day on 28 October RAF bombing of the enemy’s concentrations foiled Rommel’s second attempt to counter-attack, his concentrations having been detected by tactical air reconnaissance. This was Rommel’s last attempt to take the initiative, and its defeat was the turning-point of the battle.

During the lull in the fighting between the evening of 28 October and the renewal of the main British assault on 2 November the Enigma left no doubt about the parlous state to which the enemy had been reduced. By midnight on 28 October the British knew that Rommel had at 1300 requested Kesselring to send GAF reinforcements in view of the ‘extremely critical situation’ and that, ‘in view of the extremely tense fuel situation of the Panzer Army’, Kesselring had ordered the GAF to transport fuel to Africa ‘day and night down to the last crew and the last aircraft’. In the evening of 29 October they received the Panzer Army’s day report for 28 October: this described the situation as ‘grave in the extreme’, fuel stocks at the front being down to 1.3 consumption units, serviceable tanks being down to 81 German and 197 Italian, and there being signs that very strong British forces were preparing to break through in the north.

Sigint had contributed directly to the sinking of further tankers since the opening of the battle, and thus to the multiplication of the enemy’s difficulties. By the early hours of 25 October GC and CS had signalled to the Middle East the details of the Proserpina’s route, together with the fact that she carried 4,500 tons of fuel, and in the evening of 26 October it reported that she was ablaze and that in the same air attack an accompanying ship had been blown up. The second ship, the Tergeste, had carried 1,000 tons of fuel and 1,000 tons of ammunition. Early on 28 October, together with reports of the dangerous fuel situation brought about in the Panzer Army by the loss of the Proserpina and the Tergeste, the decrypts alerted the Middle East to the fact that the Luisiano, the next ship in the Axis supply programme, whose route, cargo and escort arrangements had been known for some days, would leave Navarino at 1600 that day with 2,500 tons of army fuel. At 2200 she was sunk by the RAF and her loss – though not the fact that Rommel regarded it as ‘shattering’ – was confirmed by the Enigma in the early hours of 29 October. It was known by then that the Tripolino, with a cargo ‘of decisive importance for the situation at the front’, and the Ostia, with a large quantity of ammunition, were preparing to sail from Benghazi to Tobruk. On 1 November the RAF sank both ships, GC and CS have supplied in good time the details of their routes and sailings. Their loss was followed on the same day, again as a result of timely information from GC and CS, by the sinking of two Italian naval auxiliaries, brought in to augment the emergency supply of fuel and ammunition. This completed the dependence of the Panzer Army on the air transport of fuel from Crete to airfields in the Tobruk area and on land transport from Tobruk to the front, and increased the effectiveness of the intensified attack which the RAF made on those transport routes in the final stage of the land battle.

On the morning of 29 October, on hearing of the loss of the Luisiano, Rommel seriously considered a general withdrawal but decided that, as this was ruled out by fuel shortage, he must make one more attempt to fight off the
attack and prepare to pull back as many as possible of his tanks and weapons to Fuka, but only if retreat was forced on him. At the same time he decided to make redispersions to counter the expected British thrust on the assumption that it would come in the north, along the coast road towards Sidi Abd el Rahman. Of these decisions, and of the appreciations which underlay them, Eighth Army learned nothing before the evening of 29 October, when the Enigma reported that the Germans were expecting the break-through to come towards Sidi Abd el Rahman. Nor was it until the early hours of 31 October that the Enigma divulged that Rommel was effecting the most important of his redispersions by withdrawing 21st Panzer Division, hitherto strengthening the front about 15km south of Sidi Abd el Rahman, to operate as a mobile counter-attack force in the north: it was to be relieved in the line by the Trieste Division. When this last intelligence was received the British were preparing to break through on the night of 1-2 November on that part of the front where the Italians were relieving 21st Panzer Division. General Montgomery, who had initially intended to make the break-through along the coast road, had changed its direction to the point further south on 29 October, apparently because during the night of 28-29 October Y and POW had enabled GS Int to establish, on the basis of its knowledge of the composition of 90th Light Division, that the whole of the division had reached its new position and was now deployed across the direction of the projected British thrust towards Sidi Abd el Rahman.

In the event the British attack did not hit the Italians, as expected initially and claimed afterwards. 21st Panzer Division had left behind a battalion from one of its Panzer Grenadier Regiments to stiffen the Trieste Division: and Rommel had split the Trieste Division and 15th Panzer Division, interspersing their formations in a further attempt to maintain the 'corsetting' of his weaker forces. These facts had not been reported by the Enigma. Nor did the combined resources of field intelligence - tactical air reconnaissance, captured maps, POW and Y, the last of which was now functioning as well as it was ever to do in the course of the war - suffice to provide accurate and up-to-date information about the whereabouts of the various battlegroups into which the enemy had divided his main formations. As always in battle conditions, it had also proved impossible to keep track of the enemy's tank strengths. The renewed British assault met German tanks in greater numbers than had been expected.

In other respects Eighth Army knew from the Enigma that every circumstance was favourable. At breakfast on 1 November, more than 12 hours before the start of the attack, it received the decrypt of the Panzer Army's day report of the evening of 31 October. This contained the news that Rommel had ordered 'powerful elements' of 90th Light Division and 21st Panzer Division to renew on 1 November the full-scale attacks which they had been making in the north to relieve PGR 125, and thus advised the British that these forces would be tied down some distance from the area chosen for their own attack. And by also stating that there were 'no definite signs so far of an attack by further British forces on the remainder of the front', it further reassured them that in the course of preparing their attack they had maintained the element of surprise.

Despite these advantages - and largely as a result of the fact that, owing to uncertainty about the enemy's order of battle and the fighting quality of the German tank crews, the offensive met greater resistance than had been expected - the final break-through was achieved only at great cost. The infantry
had reached its objectives on time; despite difficulties created by scattered mines, which were virtually unplotable, the work of locating the enemy’s minefields and defended positions had been well done, mainly by PR. But the armour, the anti-tank guns and the artillery which the enemy had in situ obstructed the planned breakout of the armour from the infantry bridgehead until the DAK counter-attacked. The outcome was the fiercest and most prolonged tank engagement of the whole battle, with heavy casualties on both sides.

Weight of numbers decided the issue: by the evening of 2 November Rommel’s losses were so heavy, the DAK being down to 35 serviceable tanks, that he was forced to retire to the Fuka position. But Army Y did useful service first by contributing to the delaying of the DAK’s counter-attack and then by giving good warning of it. The delay was brought about by the dislocation of the enemy’s communications, partly by the use of airborne jamming against his wireless channels, but particularly by a heavy RAF attack on the DAK’s advanced battle HQ in the early hours of 2 November which destroyed its telephone communications and slightly wounded the DAK commander, and this followed from Y’s success during 1 November in locating the HQs of the enemy’s principal formations including the DAK. The orders for the counter-attack in a signal to 21st Panzer Division were intercepted by Y at 0911 on 2 November and appropriate instructions had been passed to XXX Corps and the New Zealand Division before 1000. Their interception was a good example of the tactical value of Y: although the orders had been transmitted as early as 0700 in the GAF’s liaison officers’ Enigma (Scorpion), which was being deciphered at Cairo, Cairo was unable to forward the decrypt to Eighth Army before the counter-attack took place, and it was not until the evening that GC and CS sent the substance of it to the Middle East.

During the night of 2-3 November Enigma decrypts reporting the enemy’s assessments of the fighting reached Eighth Army in a steady stream. At noon on 2 November the Panzer Army had reported that the situation was tense in the extreme: all German mobile forces were committed, leaving the rest of the front denuded: the great British superiority in armour made the outcome uncertain: British tanks had broken through and were constantly being reinforced, and armoured cars were attacking HQs and lines of communication in the rear areas. At 1730 the Fliegerfuhrer had considered the situation as ‘threatening in the extreme’: about the same time Kesselring had described it as one of ‘most extreme crisis’. More explicit and more striking was an emergency situation report to OKW in the early evening in which Rommel had announced that his army was exhausted. ‘The army will therefore no longer be in a position to prevent a further attempt by strong enemy tank formations to break through, which may be expected tonight or tomorrow. An ordered withdrawal of the six Italian and two German non-motorised divisions or brigades is not possible in view of the lack of MT vehicles ... But also the mobile troops are so intricately involved in the battle that only a part of them will be able to extricate themselves from the enemy. The stocks of ammunition still available are in the front area, while there are no stocks worth mentioning in the rearward area. The slight stocks of fuel do not allow of a movement to the rear over great distances. On the one available road the army will certainly be attacked night and day by the Royal Air Force. In this situation, in spite of the heroic resistance and the excellent spirit of the troops, the possibility of the gradual annihilation of the army must be faced.’
Rommel’s report was sent from GC and CS at 0555 on 3 November. At 0835 GC and CS sent the substance of a later decrypt of 2 November. This had announced that Rommel was preparing to retire fighting step by step from 3 November, withdrawing his infantry divisions during the night of 2–3 November, and that the Fliegerfuhrer was to move units to rear airfields in conjunction with the withdrawal. It had added that fuel stocks at the front were down to 1.7 consumption units, that the complete removal of the ammunition depot at El Daba seemed impossible and that stocks in Matruh and to the west were very small.

Early in the afternoon of 3 November Rommel received from Hitler an appeal or an order to the effect that he must hold out, ‘not yielding a step and throwing in every weapon and every man available’; Rommel ‘could show no other road to his troops than the road leading to death or victory’. GC and CS decrypted this signal early on 4 November, but did not transmit its contents to the Middle East until the afternoon and then only to the C-in-C. When Rommel received it he had already been ‘relieved and surprised’ by reports that Eighth Army had not yet renewed its offensive, as he had expected it to do, but seemed to be engaged in reorganising and replenishing. And on receiving it he cancelled the orders he had issued for the withdrawal of his infantry and decided that after dark his armour should only move back a few miles in order to improve the chances of further resistance.

During 3 November plans for cutting off the enemy’s forces were drawn up in the belief that Rommel would be withdrawing, fighting step by step, from 3 November, as the Enigma had announced that morning. The Enigma vouchsafed no information about Rommel’s decision during the afternoon to change his plan and to make a further stand: and the intelligence obtained from other sources was inconclusive until, at 0538 on 4 November GC and CS sent out the decrypt of an announcement made by the Panzer Army at 1900 on 3 November that its motorised forces would not withdraw unless the British broke through with superior forces. Thereafter, the fact that little traffic was observed on the coastal road confirmed that the enemy’s withdrawal remained suspended during most of 4 November. At 1000 the British armour came up against the re-formed screen with which Rommel was masking Sidi Abd el Rahman and Daba. By mid-day Rommel had asked Hitler’s permission to withdraw: at 1730, not waiting for an answer, he ordered all his forces to withdraw at once except the DAK, 90th Light Division and the remains of the Italian armour, which were ordered to retreat at dark. Although his orders were not intercepted, Army Y soon detected preparations for withdrawal by 15th and 21st Panzer Divisions and other formations, and by 1845 it had established that 33rd Recce Unit was retreating to Fuka and that 15th Panzer Division was to pull back 70 km, probably to the same destination.

The fact that, even so, Eighth Army failed to cut off all of what remained of the Panzer Army has been attributed to the slowness of the British armour, which, to the surprise of the enemy, halted for the night at darkness on 4 November when it was well beyond the bulk of Rommel’s forces. In the event, although the remains of the Italian XX Corps were caught between Daba and Fuka at noon on 5 November, losing about 40 tanks, mostly Italian, the rest of Rommel’s forces reached Fuka by the morning of that day, and although he first thought of making a stand there, Rommel decided at 1400 to pull back 50 miles further west to Matruh. At about the same time – 1340 on 5 November – 7th Armoured Division was sent to try to cut off the enemy between Fuka and
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Matruh, and 1st Armoured Division was ordered to make a wide sweep, starting at once and moving through the night so as to be able to attack on Matruh on 6 November. Twenty miles west of Fuka 7th Armoured Division stumbled on 21st Panzer Division, which was halted for lack of petrol, and destroyed 16 of its few remaining tanks, and numerous guns. But 1st Armoured Division, slow to start and itself delayed by running out of petrol, was still 20 miles south of Matruh when, in the evening of 6 November, unable to attack because it had again exhausted its fuel, it saw what was left of the Panzer Army, about 1,000 vehicles, moving away from it in the distance.

Sigint cast no further light on the enemy’s plans or future movements until the afternoon of 6 November. Moreover, although Eighth Army then learned from the Enigma that Rommel was preparing to stand at Halfaya, where Italian formations were being brought up to protect the southern flank, it is improbable that this intelligence in any way assisted the British pursuit force which, moving from Matruh on 7 November, dislodged the enemy from Halfaya and narrowly missed intercepting him at Capuzzo on 10 November. Nor did Y add anything of value after notifying Eighth Army on the evening of 4 November of the enemy’s preparations for withdrawal and his references to Fuka.

It remains to add that during 5 November, that most crucial day of the pursuit, when most of the Panzer Army was within range of the RAF’s airfields, the RAF made little use of its complete control of the air to bomb a disorganised enemy whose retreat was confined to a single escape road. Rommel had expected and feared an all-out RAF effort. But to the astonishment and to the irritation of the pilots, sorties by the RAF’s bombers and fighter-bombers, 350 during 3 November, were reduced to 120 during 5 November. According to the RAF narrative of the campaign, the reduction was necessitated in part by the RAF’s supply problems, which were dominated by the desperate need to seize airfields near Benghazi as soon as possible in order to cover the next Malta convoy, and in part by the expectation that the GAF was about to send strong reinforcements to north Africa - an expectation which produced the order that the RAF’s primary mission from 5 November must be to provide fighter cover for the van of Eighth Army’s pursuit and which thus inevitably reduced bomber activity. The narrative adds that this expectation was based on ‘previous experience’ and respect for the exceptional flexibility of the GAF. During 4 and 5 November, however, the Middle East authorities received explicit intelligence about the state and intentions of the GAF, GC and CS informed them early on 4 November that the GAF was preparing to transfer forces to the western Mediterranean for use against the large convoys it had detected in Gibraltar: early on 5 November they learned that on account of the mounting threat at Gibraltar, not yet identified by the enemy as preparations for the Allied landings in north-west Africa, bombers previously transferred to Crete from Sicily had been ordered back to Sicily; and during the course of 5 November the decrypts, while providing them with that day’s strength return from the GAF in Africa, and showing them that only 5 fighters were serviceable, continued to yield no evidence that reinforcements were on the way.
After failing to cut off Rommel’s forces at Capuzzo on 10 November 1942, Eighth Army might still have prevented them from withdrawing to Tunisia and exerting a powerful influence on the Tunisian campaign. Up to 19 November it might have cut the coastal road ahead of them, at a point south of Benghazi, if it had not delayed before ordering a strong enough force southwestward across the desert. If it had not delayed till 14 December before attacking at Agheila, and then till 15 January before assaulting Rommel’s next defence line at Buerat, it might on each of these two further occasions have overcome the difficulty of cutting him off. This difficulty was substantial: Eighth Army’s own supply problems mounted as it advanced; Rommel displayed his accustomed ability on the one hand in delaying his retreat and, on the other, in extricating himself when attacked. Perhaps, indeed, it was insurmountable. But General Montgomery was fully apprised by the Enigma, by air reconnaissance and by Army Y of the state of Rommel’s forces and, more important, the Enigma gave him advance notice of Rommel’s intentions.

On 11 November air reconnaissance showed that the enemy was evacuating Bardia and Tobruk. At this point, given the probability that fuel shortage and his dependence on such fuel as lay at Benghazi would force him to hug the coast, Eighth Army briefly toyed with the idea of sending armoured cars by the shorter route across the desert to cut him off. GOC X Corps went further and suggested that he should himself take this shorter route with a larger force. Air Marshal Tedder, AOC-in-C Middle East, also urged such a move by substantial forces and offered to supply them with transport. But General Montgomery had ruled on 10 November that his main bodies should not move west of Capuzzo lest they should outrun his ability to maintain them and court the risk of another of Rommel’s counter-attacks. He hoped to overwhelm Rommel at Agheila, where he expected him to make his next stand. Nor was he deflected from this plan when he learned from the Enigma during 10 and 11 November that 21st Panzer Division was down to 11 serviceable tanks, that 15th Panzer Division had no tanks left and that the Panzer Army had only one quarter of an ammunition issue and fuel for only 4–5 days.

In the next few days the Enigma decrypts revealed considerable alarm in the Panzer Army − and on the part of Hitler − that the British would make a south–westerly drive across the desert to cut off its retreat south of Benghazi. The decrypts also directly contributed to the sinking on 13 November of a tanker bound for Benghazi from which on 10 November the Panzer Army had been expecting early relief. In the early hours of 16 November a special situation report from Rommel for Hitler showed that the fuel situation was ‘catastrophic’ and that the Army was virtually immobilised, and partly for these reasons and partly because its alarm about the British advance was subsiding, the Panzer Army had decided that it would not pass through Benghazi till 19 November. The following morning, two more tankers having been sunk by then with the assistance of Sigint, the decrypts reiterated that the Panzer Army was virtually immobilised in the Benghazi area. On the morning of 18 November it was learnt that Rommel had decided to evacuate Benghazi that evening, abandoning its ammunition stocks, because British armoured cars had been sighted south of Benghazi. X Corps had been ordered to send two columns of armoured cars across the desert on 15 November to harass the enemy south of Benghazi. But this diversion apart, Eighth Army continued to follow up the enemy’s retreat along the coast with light forces until, later on 18 November, General Montgomery ordered X Corps to strengthen its southern
thrust and proceed at 'utmost speed' to cut off the enemy. The order came too late: on 19 November the Panzer Army slipped past X Corps's armoured cars on its way to Agheila.

How far GHQ Eighth Army delayed the order for a strong southerly thrust from anxiety about its own supply difficulties, and how far it did so from confidence in its ability finally to overwhelm Rommel when it assaulted the Agheila position, is difficult to determine. It is clear, however, that its confidence was high. The Allied forces which had landed in Tunisia were now beginning to advance south-east; and on 14 and 15 November the Enigma revealed that the German authorities were switching to Tunis not only replacement battalions originally destined for the Panzer Army but also the transport aircraft which had hitherto supplied the Panzer Army with fuel. Since Malta was being replenished — the long-awaited convoy arrived there intact on 20 November — and since Tripoli was about to become Rommel's only remaining port, it in any case seemed unlikely that the Panzer Army would receive much in the way of fresh manpower, tanks and fuel. On 13 November, and again on 16 November, Eighth Army emphasised these favourable developments in its intelligence summaries. And from 18 November its expectations seemed to be fully justified by further Enigma decrypts. On the evening of 18 November GHQ received Rommel's reply to a directive in which Mussolini had ordered him to defend Tripolitania on the Agheila line. Rommel stated categorically that he could defend the position, which was only slightly mined and void of natural flank defences, only if he was given artillery replacements (notably 122 heavy anti-tank guns) and 50 Pzkw IV tanks, if the GAF was strengthened, and if his fuel and ammunition situation could be fundamentally improved in the two or three weeks before the Eighth Army was likely to attack. On 19 November he added in a further signal decrypted on 22 November that unless he also received more motor transport his non-motorised Italian formations would suffer 'the fate of their comrades at Alamein'. On 24 November, Hitler having backed up Mussolini’s decision that Agheila must be held 'in all circumstances', Rommel warned him that it was unlikely that he could hold it for any length of time and that 'the probability of the annihilation of the remaining elements of the army... must therefore be faced'. To the Prime Minister, who drew General Alexander's attention to the decrypts of Rommel's signals, another decrypt of 24 November also seemed to be 'of profound importance': it stated that the Panzer Army's fuel would be exhausted in a few days.1

Comforting though it was, this intelligence, coupled with the appreciation that Rommel was unlikely to receive the replacements and supplies he had requested, cannot but have alerted Eighth Army to the considerable risk that if he was subjected to a long-prepared direct assault, the enemy, while standing during the remainder of the pursuit the Prime Minister's scarcely suppressed impatience was revealed in further signals to the C-in-C Middle East as follows:

6 December 1942: 'Presume you have read the Boniface [Ultra] numbers QT/7789 and QT/7903 which certainly reveal a condition of weakness and counter-order among the enemy of a very remarkable character.'

27 December 1942: 'Boniface shows the enemy in great anxiety and disarray at Buerat...'

2 January 1943: 'Boniface 1897/T of 13 December shows enemy will certainly get away his now immobile troops...
as long as possible, would again retreat and make good his escape as soon as
superior force was brought against him. Nor did this risk decline in the next
ten days. Sigint did not reveal that early in December, after a visit by Rommel
to Berlin, Mussolini and Hitler had agreed that preparations might be made for
a retreat to Buerat, 250 miles west of Agheila and half-way to Tripoli; but it did
disclose that soon after return to Africa on 3 December Rommel, though
protesting at first, had concurred in a decision already taken by Bastico, C-in-C
Libya, to withdraw the Italian infantry formations to Buerat. By then, however,
General Montgomery had made his plans. After ‘wondering whether by bluff or
manoeuvre on the open flank I could frighten the enemy out of his positions’,
he issued on 29 November the orders for a frontal attack: it was to take place on
the night of 16–17 December together with a wide outflanking movement by
the New Zealand Division to a point 80 miles south of Agheila from which it
might cut off the enemy in the rear. Starting on 11–12 December, the
outflanking movement was to be accompanied by bombardment and infantry
raids against the enemy’s forward positions with a view to distracting his
attention from the flank.

The intention to pause until 16–17 December was dictated in part by the
supply difficulties of Eighth Army’s forward troops and in part by General
Montgomery’s insistence on building up an overwhelming superiority for his
assault. During the pause, Eighth Army made a study of the terrain and of the
enemy’s order of battle, fixed defences and gun positions that was hardly less
thorough than that which had preceded the battle of Alamein, and Army Y
provided full and accurate details about his order of battle. At the same time,
however, the Enigma confirmed that Rommel’s requests for supplies and
reinforcements for his much reduced forces would not be met. On the one
hand the Axis authorities were now giving priority to supplying their forces in
Tunisia; on the other hand, the Allies maintained their successful campaign
against Axis shipping. Although the amount of shipping sent to Tripoli was now
restricted by the presence of warships at Malta, three-quarters of it was sunk
during November. By 5 December five shiploads of stores for the Panzer Army
were waiting in Italy, but only two medium-sized ships were available.
Furthermore, heavy RAF and USAAF raids on Tripoli sank further ships and
disrupted port activity. By 6 December supplies for Tripolitania were having to
be sent through Tunisian ports: on 16 December Tripoli was closed to traffic
and all supplies for the Panzer Army were diverted to Tunis and Bizerta.

On 5 December the Enigma disclosed the complete strength and supply
return for the Panzer Army and the GAF for 1 December. The Panzer Army,
now reduced to 54 tanks and to a little Italian armour (42 medium tanks), had
no reserves of fuel and was desperately short of ammunition. The GAF had fuel
for only one day’s operations and could not undertake adequate reconnaiss-
ance. On 8 December further decrypts informed Eighth Army that the GAF
throughout Libya was ‘immobilised’ and that the Panzer Army had sufficient
fuel to enable it to pull back from its forward positions to its main defence line,
but not enough to permit it to counter-attack. On the evening of that day
Eighth Army finally received Rommel’s announcement of his intentions:
against the British assault, expected at any minute, he would hold out as long
as possible, but would retire in the face of strong pressure.

On 9 December Eighth Army, feeling that ‘time was getting short’,
discussed the measures it would adopt if the enemy showed ‘definite signs of
withdrawal’. But no such signs had been obtained by the early hours of 12
December when Eighth Army launched the raids on the Panzer Army’s outposts that had been planned with the intention of distracting attention from the outflanking march of the New Zealand Division, which was now timed to begin on 13 December. The Panzer Army, taking these raids to be the start of the British attack, at once started to withdraw. At 1030 on 12 December, when British patrols had reported that the enemy was thinning out, General Montgomery ordered the New Zealand Division to speed up, and brought forward Eighth Army’s main assault by 48 hours, to the night of 14–15 December. His change of plan came too late. The New Zealand Division managed to catch the rear of 15th Panzer Division, but otherwise the Panzer Army, its movements charted in detail by Army Y, escaped unscathed to the Buerat lines, to which it had completed its withdrawal by 28 December. Rommel’s subsequent comment on his escape is perhaps worth repeating: ‘Experience should have told [the British commander] that there was a good chance that we should not accept battle [at Agheila]. He should not therefore have started bombarding our strong points and attacking our line until his outflanking force had completed its move and was in a position to advance on the coast road in timed co-ordination with the frontal attack’. General Montgomery reached the same conclusion at the time. His plans for the assault on the Buerat position called for simultaneous frontal and outflanking attacks without preliminary probing. They have not on that account avoided severe criticism. He decided to ‘plan for the Buerat battle on the basis of ten days’ heavy fighting, using four divisions, and calculated that the necessary dumping would take some three weeks. I therefore intended to resume the offensive in mid-January’. When reported to Whitehall this delay produced so much impatience that on 27 December the Prime Minister sent the following personal and most secret telegram to General Alexander: ‘Boniface [the Enigma] shows the enemy in great anxiety and disarray at Buerat, and under lively fear of being cut off there by an enveloping movement from the south which he expected might become effective as early as December 26. Reading Boniface after discounting the enemy’s natural tendency to exaggerate his difficulties in order to procure better supplies, I cannot help hoping that you may find it possible to strike earlier than the date mentioned . . . Thus the great honour of taking Tripoli would probably fall to the Eighth Army’. But his intervention had no more effect on Eighth Army’s plans than did the fact that Enigma soon added to its reports on Rommel’s situation a clear statement of his intentions.

On 31 December Eighth Army learned from the Enigma the outcome of a protracted debate between Rommel and his superiors. He was determined to get his army to Tunisia before his line of retreat and supply west of Tripoli was cut in his rear; the Axis High Command, anxious to deny the Allies the shipping route through the Mediterranean by reinforcing Tunisia, was determined that he should delay Eighth Army’s advance at all costs. The outcome was a compromise: repeating the tactics he had used at Agheila, Rommel was to withdraw his non-mobile troops to the Homs–Tarhuna line, between Buerat and Tripoli, to which his motorised divisions would retire after holding the Buerat line for as long as possible. During the first week in January, while Army Y detected the fall-back from Buerat of his Italian formations, the Enigma showed that the enemy was expecting two attacks about 13 January – one by Eighth Army on Buerat, the second by US forces from Gafsa against Rommel’s lines of communication on the coast – and was regarding a
forestalling attack on Gafsa as ‘of decisive importance in the Panzer Army’s struggle for survival’. On 2 January the decrypts reported the outcome of a further discussion: Rommel had proposed the despatch of 21st Panzer Division and 580th Reconnaissance Unit to the Sfax/Gabes area and his superiors had approved the move on condition that 21st Panzer Division left its 34 tanks with 15th Panzer Division, and provided that Rommel still imposed as much delay as possible on Eighth Army in order to give time for preparation of defences at Mareth.

Thereafter Army Y and the Enigma traced the westward move of 21st Panzer Division and kept an accurate tally of the Panzer Army’s tank strength. When Eighth Army attacked at Buerat on 15 January with between 7 and 8 divisions and 700 tanks it knew that it was faced by the equivalent of one and a half German divisions with 34 tanks and 6 Italian battalions with 57, the tanks left behind by 21st Panzer Division being at the Homs–Tarhuna line for lack of fuel, and that the enemy still lacked sufficient fuel and ammunition for heavy fighting. It is scarcely surprising that Rommel withdrew immediately. But perhaps, to quote one official account of the desert campaign, ‘it is surprising that after the enemy commander had declined action [at Agheila] it should be thought probable that he would choose to defend the much weaker position at Buerat.

General Montgomery was not to be presented with another opportunity to cut off the enemy’s retirement. After his withdrawal from Buerat Rommel fought a number of rearguard actions with the object of delaying Eighth Army’s advance, but Eighth Army had to content itself with repeatedly dislodging him, and its entry into Tripoli on 23 January 1943 was but a stage in a long and onerous pursuit that was not to end before the old Panzer Army was rounded up in Tunisia.
PART III
Roosevelt and Churchill decided on the invasion of French North Africa (Operation Torch) on 24 July 1942 after a prolonged debate about the practicability of a cross-Channel invasion in 1943. The debate had revolved around differing strategic assessments. These were influenced less by detailed intelligence, which could give little guidance on future contingencies, than by temperament and predilections. A JIC assessment of 1 June to the effect that there might be an early shift on the eastern front to the advantage of the Soviet forces had encouraged the US Chiefs of Staff in their preference for a cross-Channel invasion. It had not impressed the more cautious authorities in Whitehall, whose views were recapitulated by the JIC on 16 July. Whatever happened on the eastern front, Germany would be able to withdraw sufficient forces to western Europe to make an Allied landing there in 1943 a highly hazardous undertaking; this would be even more the case if she were not attacked elsewhere during the winter of 1942–43. On the other hand, a descent on North Africa at the earliest possible date would provide much needed relief for the Soviet armies and improve the prospects for a cross-Channel invasion in 1944.

In the JIC’s first assessment of the intelligence bearing on Operation Torch, on the other hand, the arguments were supported by a mass of detail. Issued on 7 August, it concluded that the French forces in North Africa would resist to the point where they could plead force majeure, but collapse rapidly in the face of a resolute attack; that Spain would successfully resist a German move to Gibraltar and the use of her territory by the Axis air forces; and that, as Italy would not use her main fleet beyond the range of land-based air cover, immediate Axis resistance to the landings would be limited to Italian submarines, between 16 and 20 German U-boats and Axis bombers from Sicily and Sardinia. As for further retaliation by the enemy, all would depend on the date of the landings and the speed of the Allied advance. Germany would be reluctant to assume the extra commitment of occupying Vichy France. It was unlikely that she would transfer air forces to Tunisia unless she moved ground forces in. Her capacity to move troops in was estimated to be no more than 14,000 light infantry by air within two weeks and one division by sea, which could be fully operational within four to seven weeks, provided the Allies landed before mid-October, and she might hesitate to commit such a limited force if the Allied advance was rapid. After mid-October she would be withdrawing substantial forces from the eastern front for rest and refitting, and the situation would change.

The British Joint Planners accepted these conclusions, but they did so on the assumption that the landings would be made before mid-October. They insisted that the number of German divisions could rise from one to four within 14 weeks if the enemy was not forestalled; and in order to be sure of forestalling him they further urged that the key points in Tunisia must be
occupied within 26 days of D–4, when the Allied expedition would pass Gibraltar, and if possible within 14 days. They accordingly advocated that the landings should take place as near as possible to Tunis and Bizerta, as far east as Bone. But the US authorities preferred that simultaneous landings should be made in the Mediterranean and at Casablanca, if necessary at the expense of landing no further east than Oran, and even though this would delay the expedition till early in November. They feared that in the interval between landings in the Mediterranean, which would be possible early in October, and the landing in Casablanca, for which troops could not be ready until early in November, the Germans might trap the forces landed in the Mediterranean by mounting air attacks against Gibraltar from southern Spain.

Whitehall’s efforts to persuade the US Chiefs of Staff that the German threat from Spain was far smaller than the danger of allowing the Axis to get a foothold in Tunisia had failed by the end of August; and that danger loomed all the larger, in Whitehall’s view, because, while the conclusion that the French forces in North Africa would resist only to the point at which they could plead force majeur had rested on a wealth of information from US embassies and contacts in North Africa, it had also rested on the assumption that they would be subjected to resolute attack. On the other hand, the JIC calculated that if the French offered all-out resistance it would take the Allies three months merely to secure the bases and lines of communication for an advance into Tunisia. General Eisenhower shared this anxiety: he warned the Combined Chiefs of Staff that the expedition would turn out to be insufficiently powerful if it met with either French or Spanish resistance.

The outcome was a compromise by which, on 5 September, the US authorities, while continuing to veto landings nearer to Tunis, agreed that landings at Casablanca and Oran by US troops should be supplemented by an Anglo-US landing at Algiers. At the same time, additional precautions were adopted against the Vichy and the Spanish threats. The estimates of possible Vichy air opposition were greatly increased; the invasion convoys were assault-loaded with infantry in the lead, against the possibility of heavy opposition from Vichy ground forces but at the expense of delay in disembarking the Allied mobile forces that would advance into Tunisia; and among the tasks of the increased Allied air support forces, priority was still given to seizing bases from which an Axis advance through Spain could be resisted. But the final plans by no means adopted the worst case hypothesis with respect to the degree of opposition to be expected from the Axis in Tunisia, and this was despite the fact that the compromise still compelled the acceptance of 8 November as the earliest date for the landings.

The plans still laid great emphasis on the need for urgency in pushing on into Tunisia. But whereas in August the JIC and the Joint Planners had qualified their estimates of Axis intervention with the proviso that Germany might be able to bring up substantial forces if Torch were delayed beyond early October, this warning was not renewed when the final plans were being drawn up in October. Although the JIC revised its earlier appreciation to the extent of recognising that Germany would probably occupy Vichy France, little provision was made against her intervention in Tunis. No air forces were allocated for reconnaissance and attack against the arrival of sea-borne troops. The strategic bombing plan envisaged operations only against targets outside North Africa, particularly southern Spain, but made no bombers available against Tunis and Bizerta. The naval plan envisaged surface ship operations from Malta against
troop convoys, but none was mounted before December. So marked, indeed, was the decline in anxiety about the threat of Axis intervention that, when the threat from Spain had failed to materialise and it had become evident that French resistance would not be prolonged, the President and the Prime Minister were confident that the Allies would soon be established in Tunisia. Nor was the euphoria confined to the political leaders. The Air Ministry’s account of Operation *Torch* reveals how widely it was shared when it laments that ‘the military promenade to Tunis which the Allies had anticipated became a soldiers’ battle reminiscent of World War One’.

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If the Allies had by October persuaded themselves that the expedition would meet with no great difficulties once it was safely disembarked, they were far from confident that it would escape detection during the ocean passage, and during its progress from Gibraltar they had to accept that it would be unable to avoid severe attacks.

With regard to the passage across the Atlantic, formidable risks were indeed involved in taking hundreds of merchant vessels and warships across thousands of miles of ocean at a time when the number of U-boats in service had reached an unprecedented figure, when the U-boats had left the American seaboard and were again registering pronounced successes against Atlantic convoys — and when GC and CS and its US Navy counter-part remained unable to break into the U-boat Enigma. The risks were all the greater because it had to be assumed — and it soon became known — that the preparations which necessarily preceded the departure of that part of the expedition that was to sail from the United Kingdom could not be concealed from an enemy who was aware that something was afoot. During the first three weeks of October the GAF flew a daily reconnaissance of the south coast ports. From the middle of the month it reconnoitred the assembly of the convoys in the Clyde, and the Enigma disclosed that its reconnaissance of Greenock on 22 October had detected an increase from 8 to 43 ships in the past week. At the end of September, moreover, intelligence showed that the Germans had instituted a daily GAF reconnaissance of Gibraltar and alerted their reporting agents in the area after receiving reports of British intentions in the western Mediterranean and rumours of a Malta convoy. The First Sea Lord had good reason to warn the Prime Minister that ‘the U-boats might well prove extremely menacing’ to ‘the most valuable convoys ever to leave these shores’. This warning was based on the appreciations of the OIC, which calculated that if the enemy got wind of the departure and destination of the convoys 50 U-boats could be deployed against them by the end of October, and another 25 by 6 November.

In the event, the Mediterranean portion of the expedition, numbering some 340 ships, passed through the Straits of Gibraltar between the evening of 5 November and the morning of 7 November as yet unscathed. This outcome was all the more remarkable in that during their passage to Gibraltar the enemy had sighted the convoys no less than five times. A FW 200 had sighted the carrier force on 31 October; during 2 and 3 November U-boats four times reported the assault convoy when it was steering for Gibraltar some 600 miles to the westward of the Straits. The outcome must be attributed to some extent
to good foriuc, though it also testified to the effectiveness of the steps taken to improve the security of British naval cyphers and Wl communications. OIC had correctly appreciated on 26 October that a group of boats had arrived in the Cape Verde-Azores area. These boats would have contributed the chief threat had they not made contact with a Freelown-UK convoy on 27 October off Madeira; their savage attack on this convoy had lasted till 31 October and had taken them far to the north by the time the Torch expedition was sighted during the approach to Gibraltar.

If intelligence thus made little direct contribution to the safe passage as far as Gibraltar, it greatly assisted those who formulated and carried out the Allied deception measures. That these measures were successful may be seen from the fact that German forces in north-west Europe remained on alert and none were moved to the western Mediterranean before the beginning of November. They owed their success largely to the fact that the German intelligence machine was now, as the British had been in the first year of the war, incapable in the absence of reliable intelligence of discriminating between the many rumours and reports it was receiving about enemy intentions. As well as seeking to tie down Axis forces in Europe, the deception plan aimed at concealing the destinations of the expedition both before and after it had passed Gibraltar, it played on the knowledge that the Germans were on the lookout for Allied landings in Norway and on the Channel coast as well as in the Aegean and in north Africa; and when the build-up at Gibraltar could no longer be concealed the plan explained these developments as being intended for the relief of Malta or for a descent on Sicily or southern Italy. The existence of these enemy anxieties was established by the high-grade Sigint, which throughout the summer and autumn made frequent references to the threat to Norway and north-west Europe and showed that the Axis was conspicuously worried by the threat to Tripoli, Benghazi and the Aegean. It need not be doubted, moreover, that, had the deception measures been ineffective, a whole range of Sigint sources - Abwehr, C 38m and Axis diplomatic decrypts as well as the army, air and naval Enigmas - would have established that the enemy was not being deceived.

If so turned out that, instead, Sigint and PR enabled the intelligence authorities to dismiss reports from other sources that might otherwise have suggested that the cover plans had failed. At the end of September an RAF aircraft carrying a courier with details about the Torch build-up crashed off the Spanish coast; the Abwehr decrypts revealed that an attempt had been made to recover papers from the aircraft but without success. From 7 October MI was using reliable intelligence to dismiss rumours as they arose. On 19 October it commented on reports which alleged that the Germans were despatching troops and preparing for air attacks to meet a descent on north Africa, that they had requested free passage through Tunisia and Algeria to Morocco for four divisions which had already moved to the Tunisian border and that they were making preparations to occupy French airfields on the Franco-Spanish frontier. MI pointed out that the first two reports were belied by the Enigma and that PR provided no confirmation for the third.

Long before the convoy passed Gibraltar, on the other hand, the Allies were fully aware that, as they had expected, the enemy was on the alert against developments in the Mediterranean. They knew that he had received the news that a large convoy was approaching Gibraltar from the Atlantic on 11 October - this was the first Torch supply convoy. On 21 and 28 October, after they had
learned that the Italians had noted ‘very heavy W/T communication of an operational nature between Malta, Gibraltar and the Admiralty’ and that Kesselring thought a Gibraltar–Malta convoy ‘possible’, the GAF Enigma told them that, on orders from Hitler, nine U-boats in the western Mediterranean had been deployed on a line from Cartagena to Oran to intercept Allied convoys and that, on orders from Kesselring, the GAF had been put at short notice in anticipation of a movement from Gibraltar. And by the end of October, as the days passed without the expected Malta convoy operation, it became obvious that the Axis was beginning to suspect that the concentration of shipping at Gibraltar was in preparation for Allied landings in the Mediterranean, and that the GAF in the western Mediterranean was being heavily reinforced. On 2 November RAF Y, confirmed by the GAF Enigma, disclosed that I/KG 60, a Gruppe of Ju 88s that had specialised in anti-shipping operations, was moving to the Mediterranean from Banak in north Norway. And on 4 November the Enigma added that I/KG 60 and another Ju 88 Gruppe, III KG 26, had been ordered to the western Mediterranean. On 5 November the same source revealed that all GAF bombers that had been detached to the eastern Mediterranean from Sicily were to return there when Kesselring issued the code-word ‘Gibraltar’ and that the GAF was moving yet a third Gruppe of Ju 88s, III/KG 30, from Europe to Sardinia and 25 Ju 87 dive bombers from Italy to Sicily.

At the same time, intelligence showed that while the reports reaching the enemy now included some that were uncomfortably close to the truth, he remained uncertain of the destinations of the Allied convoys after they had passed into the Mediterranean. On 26 October a German agent’s report from Turkey quoted a US diplomatic source as saying that an Allied attack on Libya from French north Africa was possible at some later date; and by 3 November GC and CS had decrypted a report of 30 October from a German agent in Lisbon to the effect that the Allied naval concentration at Gibraltar incorporated 70,000 troops and foreshadowed an attack on Spanish Morocco and French north Africa, timed to coincide with landings at Casablanca and Dakar. On 5 November another decrypt disclosed that the Italian consul at Punta Delgada had reported to the Italian Naval Attaché at Lisbon that an American convoy had passed the Azores bound for Africa. On 2 November, however, the GAF circulated in the Enigma a report from ‘a trustworthy US source’ that an invasion of Italy was planned for that month. On 5 November the Enigma showed the GAF command suspecting either that the battle of Alamein, then reaching its climax, might point to the expedition’s objective, or that the Allied objective might be the Aegean. On 7 November it was learned that the German Military Attaché in Madrid had reported that the Spanish authorities thought that the intended expedition was to be an attack on Rommel’s rear and that French north Africa or Italy were improbable targets: the Germans forwarded the report without comment to Rommel. And at midday on 7 November, the Enigma having disclosed that GAF reconnaissance had established the strength and composition of the Allied force during 6 November, GC and CS decrypted an appreciation of the same day by the German naval authorities.

As late as 4 November – this was revealed after the war – OKM had held

\*it was learned after the war that the Italians by the end of October had a shrewd idea that the Allied destination was French north Africa, but that their anxieties were overruled by the Germans.\*
that Malta supply convoys were the most likely explanation of the Allied build-up at Gibraltar; and it had discounted landings in the Mediterranean in the immediate future on the ground that the build-up included relatively few landing craft and passenger liners. In the appreciation of 7 November, however, it warned that the Allied force could be off Cape Bon at 1500 on 8 November if its intention was to break through the Sicilian channel; and that its strength and composition were such that ‘apart from supplying Malta, the possibility has to be taken into account of a landing in the Tripoli-Benghazi area or in Sardinia or Sicily’; and it added that the Allied movement derived further significance not only from the British land advance from Egypt but also from the fact that Allied air force and air-landing troop concentrations had been sighted in Palestine, Syria and Cyprus. This decrypt was obtained from a recent addition to GC and CS’s sources—the naval traffic in the Porpoise key of the Enigma. From now until the end of the Tunisian campaign and beyond Porpoise was to be read continuously and currently, and, despite the fact that by no means all of it could be intercepted, it was to constitute an additional important fount of intelligence about trans-Mediterranean shipping.

It was presumably as a result of the enemy’s uncertainty—an uncertainty that was sustained by deception measures which included sailing the fast Algiers convoy on a deceptive course and adopting W/T ruses based on the knowledge that the enemy had come to associate certain British W/T behaviour with preparations from a Malta convoy—that after their first contact with the convoy the U-boats in the western Mediterranean were ordered to withdraw to the eastward. Of this decision the Allies, lacking the U-boat Enigma, remained unaware at the time, as they did of the advantage they derived from the fact that the convoys had reached Algiers and Oran before the U-boats were ordered to reverse course at 0830 on 8 November. Before being withdrawn the U-boats had been severely hampered by the heavy anti-submarine escort accompanying the convoys and by intensive Allied air patrols; they had made only two attacks and had succeeded in damaging only one ship. And this ship, torpedoed but not sunk just after entering the Mediterranean, was the sole Allied casualty. Force H, steaming to the north of the convoys to ward off intervention from the Italian and French fleets, drew off the bulk of the Axis air effort.

There was little opposition during the landings and there is little doubt that topographical intelligence on the defences, and on the landing beaches and the general terrain, was of high quality. Indeed, in all the accounts of the landing operations, including those of the accompanying naval and air bombardments and certain of the air landing operations, there is only one reference to a serious obstacle whose existence was not included in the intelligence reports. This was encountered by landing craft approaching a sector of the beach at Les Andalouses, near Oran, where a sand-bar unlocated by air photography or preliminary reconnaissance caused losses and delay.

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The reactions of Vichy’s forces to landings conformed closely to the JIC’s expectations. At Algiers fighting ceased on the evening of 8 November on orders from Darlan; Oran surrendered on 10 November, and Casablanca the next day, after bitter fighting; by 11 November, after first repudiating it, Petain
had by personal cypher given covert approval to the cease-fire which Darlan had negotiated with the Allied forces during 10 November; and on 13 November, the Vichy leaders in north Africa having come to an understanding among themselves as to the extent to which they would collaborate with the Allies, Darlan concluded a provisional settlement with General Eisenhower.

Allied Force HQ (AFHQ) - the main body of which did not move from Gibraltar to Algiers until 25 November, following the signature of a more formal agreement with Darlan - was well supplied with intelligence on these developments at a time when poor communications and local confusion restricted the information it was obtaining from its own subordinate HQs. It received from GC and CS a stream of decrypts of operational signals and situation reports from the French naval authorities at the landing ports, together with occasional messages to those authorities from Vichy, these being decrypts from the main French naval cypher which the British had acquired at the time of the defeat of France and which GC and CS had since read currently with only occasional interruptions. In addition, the group which had been attached to AFHQ from GC and CS to exploit the French Air Force codes and cyphers at Gibraltar supplied from that source, and from plain language transmissions, regular situation reports from Algiers to Vichy and valuable operational intelligence. GC and CS provided extensive intelligence about the reactions of the French government from decrypts of the signals from the Sicherheitsdienst’s agent at Vichy. On 9 November the Allied authorities learned from this source, and from the decrypt of a report from the Japanese Ambassador in Berlin, not only that the Toulon fleet had not sailed by 8 November, and was being deterred from sailing by its lack of aircraft carriers, but also that the Germans had approached the Vichy authorities with an offer of military support in north Africa and that Petain had agreed to their intervention in Tunisia. Between 13 and 16 November they obtained from the same source detailed reports of the vacillating course that was being followed by the Vichy government after its receipt of the news that Darlan had concluded an armistice and Germany had decided to occupy its European territory.

The German decision to occupy Vichy France and Corscia, an eventuality which the JIC had allowed for at a late stage in the planning of Torch, was disclosed in the Porpoise decrypts within hours of its implementation at midnight on 10–11 November. At the same time, the fact that the JIC had been right in predicting that no threat would develop from or through Spain was being suggested by the absence of Sigint indications of Axis preparations, and it was soon to be confirmed by Axis diplomatic decrypts, not to speak of Spanish assurances to the British government. On 13 November GC and CS decrypted a report from Madrid to the effect that Germany had assured the Spanish government that she would not demand right of passage for her armed forces; and on 19 November it informed AFHQ that Ciano had told the Japanese that, as Spain’s attitude was negative, Germany and Italy were unlikely to move against her at present. By then, moreover, GAF Enigma decrypts had established that the GAF was taking over major air bases on the French Mediterranean coast for defensive reasons.

These developments had little immediate bearing on the course of the Allied operation. As for their longer-term consequences, intelligence failed to disclose that the German Army had used ten divisions for the occupation of France, but Sigint made it plain that the occupation was making heavy
demands on the overstretched resources of the GAF and it provided useful information about Axis efforts to acquire French warships and to take over merchant shipping in French ports. On 15 November a decrypt in the Home Waters naval Enigma instructed the occupying forces to handle the French fleet at Toulon considerately; it was followed on 30 November by one carrying Hitler’s order of 27 November to the effect that ‘owing to the uncertain attitude of the French’ the fleet was to be seized. By then, however, the Allies had received the rumour that the fleet had been ordered to scuttle and on 28 November the GAF Enigma reported that the ships were sinking. The first decrypts about merchant shipping in French ports had meanwhile become available on 17 and 18 November; they had revealed that the Germans had taken over Danish, Norwegian and Greek ships in Marseilles and that OKM was making preparations to acquire further shipping space, in the next few days the decrypted reports of the German agent in Vichy contained the news that Laval was prepared to release additional tonnage at once for the Tunis supply route.

The Allied authorities scarcely needed intelligence to alert them to the enemy’s interest in acquiring additional merchant ships. Within hours of his taking it, they had learned of his decision to commit air and ground forces to Tunisia. At about 1700 on 9 November the French colonel commanding El Aouina, the main airfield just outside Tunis, flew into Algiers with the news that 40 German bombers had arrived there. This first intelligence of the German intention to intervene was confirmed the same evening by signals from GC and CS warning the Allied commanders that the GAF would move dive-bombers and fighters to Tunisia during 9 November and that the Germans were establishing a sea transport office in Tunis. On 10 November the Enigma and RAF Y reported the transfer of GAF units to the west and central Mediterranean and to Tunisia from every front including Russia, and the GAF Enigma revealed that Vichy had agreed to the establishment of a GAF HQ in Tunis. On 11 November PR from Malta identified large numbers of transport aircraft and gliders at Trapani, the most westerly airfield in Sicily, and on 12 November, having seen nothing there in the morning of 9 November, it reported the presence in Tunis of 100 German and 20 Italian aircraft. On 11 November a message from the German Naval Command, Italy, in the Porpoise Enigma informed a German S–boat flotilla which had been ordered to Tunis from Sicily that as well as occupying France and Corsica, the Axis intended to form a bridgehead in Tunisia.

AI’s advice to the JIC had been that the GAF was unlikely to operate more than 515 aircraft against Torch, since reinforcements would be taken only from western Europe and facilities in Sicily and Sardinia were limited, and that, ‘whether or not an attempt is made to move land forces into Tunisia, it is not considered likely that... the enemy would operate air forces in Tunisia (with the possible exception of some fighter aircraft if land forces are moved in) ...’ In the event the number of GAF aircraft operating against the Allied forces exceeded the figure of 515 by 12 November; and by 12 December, after a stream of transfers from north Norway and Russia as well as from western Europe, no less than 850 German aircraft were operating against the Allied forces, out of a total of 1,220 in the Mediterranean theatre as a whole, and the GAF was operating strong ground attack forces (fighter-bombers and dive-bombers) from all-weather airfields in Tunisia itself. Together with the despatch of Italian Air Force units to Tunisia, another eventuality which had been ruled out by the JIC, the GAF’s measures gave the Axis air superiority during the
later stages of the race for Tunis, whereas the Torch air plan of October had provided for an Allied air superiority of two to one over the expected Axis scale of opposition. Nor was it solely because the GAF established numerical superiority that it played so large a part in halting the Allied advance. AI, armed with the plentiful evidence from Enigma of its low morale, fatigue and general ineffectiveness in the Libyan and eastern Mediterranean theatre, had reckoned that the GAF would be ‘at a low ebb’: ‘it will be a force without depth and in need of a period for re-equipment: difficulty will be experienced in making forces available for sustained operations in a new theatre of war’. But the fighting quality displayed by the GAF during the Tunisian campaign was of a high order.

The GAF also played a vital part in the early stages in ensuring the rapid move of German forces to Tunisia by providing protection for the Axis reinforcements convoys and by the operations of its transport aircraft. By as early as 10 November, by transfers from Russia as well as from bases and training schools in Germany, the GAF increased the number of transport aircraft in the Mediterranean to 673, when it had earlier stood at 205, and it was not least as a result of this impressive, indeed astonishing, achievement that Allied estimates of the extent to which Germany would be able to transfer troops and equipment to Tunisia were falsified.

Müller’s advice to the JIC had been that 14,000 lightly-armed troops might be moved in by air within 14 days of the decision to send them; the Joint Planning Staff had reduced this estimate to 8,000–10,000 men who would be of low category and without motor transport. The number of German troops to arrive within 14 days was indeed 10,800. But they included small units of the kind that had proved their effectiveness in desert warfare – crack paratroopers and Panzer Grenadier regiments of high quality – as well as low quality troops originally intended as replacements for Rommel. Moreover, they were accompanied by heavy equipment including motor transport. As for the predictions about the arrival of German troops by sea, the Joint Planning Staff had taken the view that it would be six to seven weeks before one division could be operationally effective in Tunisia, whereas the JIC had assessed this delay as likely to be from four to seven weeks. In the event, the Commander and HQ staff of 10th Panzer Division arrived by air on 24 November, 16 days after the Allied landings, and the first armoured elements of the division, coming by sea, had disembarked by 29 November and had gone into action at once. To complete the account, the JIC had concluded that the Axis would not send Italian troops to Tunisia, but in fact Italian troops arrived both overland from Tripoli and by sea.

The Allies received prompt, full and completely reliable intelligence of the rate of the Axis build-up and of the extent to which it was exceeding their expectations. Much of the intelligence was received from the GAF Enigma, for Kesselring commanded all three services in Tunisia and until mid-November the ground forces there were under GAF command. The GAF cover was particularly full since GC and CS had made special arrangements to ensure the rapid solution of the GAF Enigma key (Locust) used by Fliegerkorps II, the formation based in Sicily and Sardinia.1 In addition the IAF high-grade book

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1From operation Torch onwards arrangements to facilitate such priority treatment were put on a permanent basis and the system by which GC and CS’s priorities were guided by the needs of future Allied operations worked almost without friction down to the end of the war.
cypher, which GC and CS continued to read until the spring of 1943, was useful and Porpoise provided valuable shipping intelligence in the first few weeks, as did the C 38m once the Italians had organised themselves in the wake of the Germans. Mainly from these cyphers, which were being read without delay, but also from Malta-based PR and from SIS agents in Tunisia reporting via Malta, who supplied AFHQ and First Army with valuable reports from 11 November, it was known from 10 November that troops and equipment were arriving by air. The Enigma revealed on that day that elements of Panzer Grenadier Regiment 104, belonging to 21st Panzer Division, had been ordered to Tunisia from Italy on 9 November, while PR detected the unloading of light tanks from aircraft. On 11 November the Enigma referred to the formation of a 'recce company T' composed of armoured cars and machine gun carriers. On 12 November it disclosed that Para Regiment Hermann Goring, like Panzer Grenadier Regiment 104 a formation of high quality, was being sent to Tunisia. And from 12 November the warning of 9 November to the effect that the Germans were setting up a sea transport office in Tunis was followed by the first Enigma references to the actual arrival of ships. The arrival of two ships carrying troops and a military cargo which included 17 tanks and motor transport was reported on 12 November, the expected arrival of two further ships with troops on 14 November was disclosed on 13 November, and on that day GC and CS sent out the first of a long series of Enigma decrypts giving the daily unloadings at Tunisian ports. On 14 November the Enigma announced that four more ships, some with troops, were due by 17 November, and the SIS organisation in Tunisia warned AFHQ that tanks had been disembarked. Further Enigma decrypts of 14 November indicated the intended scope of the army build-up. They disclosed that General Nehring, who had been Commander DAK until he was wounded at Alam el Haifa, had arrived as Senior Army Commander and that his Corps was to comprise, in addition to the scratch German division into which the ground forces already in Tunisia had been grouped, 'the Italian divisions' and 'later further divisions'.

Evidence of the continued arrival of troops and equipment by air and sea, and of the transfer of further GAF units to Tunisia from the Mediterranean and beyond, continued to flow in from highgrade Sigint sources. On 15 November, when they disclosed that all air transport space had been diverted from Rommel to Tunisia since 9 November and reported that 3,000 troops had already arrived, they provided a long list of the units that were in process of being diverted from Rommel: they included Panzer Abteilung 190, a unit long promised for 90th Light Division. On the same date they referred to the possible despatch of Panzer Abteilung 501, the Tiger tank unit also long promised to Rommel. On 17 November they revealed that elements of the Italian Superga Division had been disembarked with 557 vehicles on 15 November. On 16 and 17 November they announced the arrival of numerous cargoes of 88 mm guns, motor transport, fuel, ammunition and other bulk cargoes, including two ships carrying 26 tanks. Other decrypts disclosed that a large-scale movement of fighters and fighter-bombers to Bizerta, including FW 190s, had begun on 15 November; like the Me 109G, which had already been reported as arriving, the FW 190 outclassed anything the Allies had in north Africa at that time, but, despite this early warning, there was delay in releasing the latest types of Spitfires for the Mediterranean, with the result that the GAF’s superiority was 'unnecessarily prolonged'. On 17 November it was learned that the whole of KG 76 – 90 bombers – was in the course of being
transferred from the Caucasus. By that time the shipping intelligence had provided sufficient detail—about dates of sailing, ports of departure and arrival, routes, cargoes and escorts—to establish the general pattern of the enemy’s supply system. From 21 November it revealed that, in addition, troops were being ferried over in Italian destroyers and that stores were being brought in by unconventional ships—auxiliary sailing vessels, landing craft, ferries and a new type of small and versatile military transport vessel designated KT (Kriegstransportschiff).

Meanwhile, on 19 November, the Enigma and SIS’s agents had established that an Italian force had crossed into Tunisia from Tripoli with 21 tanks to secure the coastal road through Sfax and Gabes. Nor was it long before more disturbing intelligence was received about the Axis army build-up. On 23 November the Enigma disclosed that the commander and HQ staff of 10th Panzer Division—a seasoned formation—had arrived in Tunis by air. During 23 and 24 November it showed that three of the four Tiger tanks of Pz Abt 501 had arrived in Bizerta under conditions of great secrecy; and on 26 November GC and CS decrypted a signal from Kesselring to Nehring relaying Hitler’s order that the purpose of the Tigers was to turn the tide of battle and that Nehring was so to use them. In addition, the first regular tank return for the force in Tunisia revealed that 30 German tanks were serviceable on 24 November. A decrypt of 28 November established that armoured elements of 10th Panzer Division had arrived by sea on 27 November; it was a signal from Kesselring of 27 November insisting that, to ensure that these troops were available for operations without delay, the deck cargo of all ships arriving in Tunis was to be unloaded at once, if necessary by night.

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After the event General Anderson, the commander of the Eastern Task Force, called (British) First Army after the assault, maintained that, in the absence of Allied landings east of Algiers, the race for Tunis was lost before it had begun, and Admiral Cunningham, the naval commander of the expeditionary force (NCXF), took the same view. Other accounts have suggested that the Allies might have won the race, instead of losing it by the narrowest of margins, if their settlement with the Vichy leaders in north Africa had not been delayed by hesitations and disagreements on the part of the French. Neither the distance from Algiers to Tunis, however, nor the delay in reaching an accommodation with the French would have been of much moment if the Allies had prevented the German intervention—or if they had succeeded in limiting its scale and effect.

All concerned, in Whitehall no less than in Algiers, were slow to grasp the significance of the intelligence that was available about Axis movements into Tunisia by sea and air from 10 November. Apart from the fact that British submarines in the western Mediterranean, disposed north of Sicily since the beginning of the month against possible attacks by hostile surface fleets, were redispersed against the enemy’s supply route to Tunisia on 11 November, no action was taken for over a week to rectify the failure to provide in advance for the interdiction of traffic to Tunisian ports and airfields. The first expression of anxiety came from Admiral Cunningham on 19 November; he then asked
British Intelligence in the Second World War

AOC-in-C ME in Cairo whether the RAF could bomb the Bizerta supply line, as ‘we have no aircraft’. Thereafter proposals and decisions came thick and fast. On 20 November the Chiefs of Staff ordered Malta’s bombers to suspend attacks on the Tripoli route and give top priority to stopping reinforcements to Tunisia, to bombing Tunisian airfields and to intercepting enemy transport aircraft; and on 22 November they decided to reinforce Malta with torpedo bombers. On 22 November the Admiralty proposed that a surface ship striking force should be based on Bone; and on 24 November, after the Enigma had disclosed that the enemy was now sending Rommel’s supplies via Tunisia, it urged that this force should be supplemented by a similar one based on Malta. The Torch plans had envisaged the creation of such force at Malta, but had made it dependent on air cover; until this intervention by the Admiralty the naval authorities in the Mediterranean had judged that air cover was inadequate. On 23 November a conference at AFHQ decided to divert some of the heavy bombers of the Twelfth USAAF to assist the drive on Tunis by bombing the harbours in Bizerta and Tunis; and on 3 December General Eisenhower called for US heavy bombers from the UK to increase the attack on enemy ports and communications.

Weeks passed before some of these measures had any effect. Torpedo bombers did not reach Malta till December; nor was it until the middle of that month that the submarines, severely handicapped by heavy GAF activity, scored their first success. The others produced results with less delay, RAF attacks from Malta on enemy transport aircraft and on their terminal airfields, attacks which made use of high-grade and low-grade Sigint notifications of GAF movements, supplemented by PR, were inflicting appreciable losses by the end of November. The first effective heavy bomber raid on the harbours of Bizerta and Tunis took place on the night of 23 November; the Enigma disclosed that two ships had been sunk, and thereafter the frequency and scale of such raids created considerable problems for the Axis. And successes from operations by British surface ships followed early in December.

Force K was reformed at Malta on 27 November from three cruisers and four destroyers taken from the escorts of the latest convoy to Malta. Force Q, three cruisers and two destroyers, was based at Bone from 30 November, as soon as adequate air protection could be provided. By 28 November they were receiving instructions based on the high-grade Sigint from the Admiralty. On that day the Admiralty alerted NCXF, Malta and the flag officers afloat to the crucial importance of C 38m decrypts which showed that on 1 December one convoy of four ships was due at Tunis and a second, of six ships, was due at Tunis and Bizerta, and which gave the routes for both convoys. On 1 December, after the C 38m decrypts had disclosed that the arrival of the six-ship convoys had been put back by 24 hours. Force Q sank all four ships of the Bizerta section, together with an escorting destroyer. On the night of 2–3 December, off Sfax, Force K sank three ships from the four-ship convoy, which had by then apparently been diverted to Tripoli, together with a further ship and a destroyer from a Tripoli-bound convoy of which the decrypts had provided full details during 28 November. Another success, one that was at this stage as important as the winning of a land battle on the Tunisian front, followed on 4 December. Sigint then established that the SS Menus had blown up with a cargo including 17 Pzkw III and 17 Pzkw IV tanks in the area where HMS Manxman had mined the gap between two Axis minefields after earlier decrypts had disclosed the precise area of Axis minelaying between 21 and 26
November. The significance of the loss of the *Meries* may be judged from the fact that the Enigma had shown that the total of serviceable German tanks in Tunisia on 30 November was 64.

Although they continued to operate on most nights, Force K and Force Q had no further success till the night of 20–21 December, when Force K sank one ship off Djerba. As a result of their operations, the enemy had stopped sending his convoys across at night until he had completed the extension of his minefields, and while his convoys were crossing by day the GAF escorts acted as a deterrent to Allied intervention. When he had extended his minefields he resumed night convoys; but his extensive minelaying, of which Sigint provided the exact whereabouts between 5 and 11 December, severely restricted the activities of Force K and Force Q. Nor did British mines cause further casualties during December. But regrettable as it was, the decline in the effectiveness of the surface ships was less important than the fact that their short-lived successes had come too late to affect the course of the land fighting. Had their operations begun but a few days earlier, and had they prevented or delayed the arrival of the armoured elements of 10th Panzer Division, the Allies would have broken through to Tunis. As it was, not a single Axis ship on the run to Tunisia was sunk during November and, the more so as the Allied bombing of Tunis and Bizerta and of the Tunisian airfields had also begun too late to bring about an appreciable interruption in the flow of Axis supplies before the end of that month, the enemy was just able to save the situation on land by driving First Army out of its advanced positions near Tunis on 2 December.

* * *

Since the enemy had established powerful air forces in Tunisia, and was able to get supplies to the chief airfields and the major ports, the Allies laboured under a grave disadvantage in the land fighting. The Axis lines of land communications were short: the Allies had to advance a great distance, and bring up reinforcements and supplies, on inadequate roads and railways, and to do so in the face of determined air attack on a scale for which they were quite unprepared. It may well be that in these circumstances their advance could not have made better speed even if they had made better use of such intelligence as was available to them. At the outset, indeed, the unexpected news that GAF units had arrived in Tunisia acted as a check on the Allied commanders at Algiers even while it underlined for them that ‘the greatest possible speed was essential in advancing east to forestall the German and Italian moves’. On the evening of 9 November General Anderson considered a simultaneous attack on Bougie and Bone for the following night; and landings by airborne troops at Bone, Bizerta and Tunis on 11, 12 and 13 November were also contemplated. But partly because of the intelligence about the GAF in Tunis and partly because of uncertainty about the attitude of the French – subsequent official accounts of the campaign differ as to the relative importance of these arguments – these projects were abandoned. The earliest Allied move was the despatch by sea of a force from Algiers to Bougie, 300 miles west of Tunis, early on 11 November.

This expedition ran into difficulties. Probably on the basis of the first
report to reach the SIS station at Algiers from its agents in Tunis – it was received on 11 November and warned that the French did not intend to resist the Axis – it was advised soon after sailing that, contrary to earlier expectations, the French might not welcome it. Instead of making for Bougie harbour, it accordingly disembarked on the beaches. Although Algiers had been informed on 10 November from GC and CS that the GAF had ordered reconnaissance of coastal waters east of Algiers and attack on any Allied force that might make for Bougie and Philippeville, it proved impossible to provide air cover for the expedition. During the disembarkation, a more protracted operation than had been envisaged, it was attacked by the GAF and lost valuable ships carrying stores and equipment for the overland advance. A second Allied thrust – the seizure by paratroops of the airfield at Bone to coincide with a seaborne landing and the arrival there of an overland force – was no more fortunate. The departure of the overland force from Algiers was delayed by uncertainty about the attitude of the French. When Bone was occupied on 12 November it was at once subjected to devastating GAF attacks.

The first forces properly equipped for moving overland began to disembark at Algiers on 12 November from the first follow-up convoy: they included a contingent of 6th Armoured Division (Blade Force) which was to be the main striking force. On 15 November First Army began its advance on Tunis in three groups – one along the coastal highway from Bone, and, advancing along two different axes to the south of it, two groups of Blade Force. The spearhead of the coastal force, which was without tanks, made very rapid progress towards and across the Tunisian frontier until it was held up by a German force, which it reported as containing tanks and lorried infantry, at Djebel Abiod, 40 miles west of Bizerta, on 17 November. By that date Blade Force had reached Souk Ahras, 400 miles from Algiers and about 100 miles west of Tunis and Bizerta. In the meantime, a battalion of British paratroops had landed near the Tunisian frontier and had joined up with Blade Force; and American paratroops, landed near Tebessa, had penetrated to Gafsa, where they were to be stopped by Italian troops. On 18 November, however, General Anderson ordered the commander of 78th Division, who controlled the advance, not to commit his whole force until the greater part of it was concentrated in the forward area in preparation for renewing the drive on Tunis and Bizerta on 22 November.

The decision by First Army’s commander to pause and concentrate was taken while he was still at Algiers. When he took it he had received not only considerable intelligence about the continued arrival of German troops and aircraft, but also several Enigma decrypts disclosing the enemy’s operational intentions. On 14 November the first of these had reported that Nehring had on the previous day ordered his ad hoc force forward to a line from Bone to Tebessa, where it was to block road crossings. On 15 November an order from Kesselring to Nehring had indicated that the German ground forces did not intend to remain on the defensive: it demanded that the occupation of territory not occupied by the British should be followed by mobile reconnaissance in preparation for attacks on Bone and other British-held areas. On 16 November further decrypts had disclosed that a German battle group was advancing from Bizerta towards Djebel Abiod and that the GAF had reported that the Allied force in that area had no AFVs. On the following day the Enigma reported signs of enemy alarm at the advance of this force: the German naval authorities were preparing to evacuate Tunis and Nehring was warned that the Allies might drop paratroops there. But it was announced that the Allied advance had been
stopped by GAF attacks. It was presumably the news that the advance had been
cHECKED, coming on top of the shock of learning that a German battle group
with tanks and vehicles had reached the area, so many miles from its
disembarkation ports, that produced General Anderson’s decision to pause and
concentrate.

On 21 November General Anderson, who had left Algiers for the forward
area on 19 November, renewed his decision to remain on the defensive ‘because
of shortage of supplies, lack of air support and bad signals communications’.
He added that ‘information about the enemy was scanty’, and it is clear that the
Allies now suffered the consequences of inadequate intelligence preparations.
The British and US Air Commands – Eastern Command (RAF) and Western
Command (USAAF) – had each been provided with a new and independent PR
unit: but the unit formed for Eastern Command, No 4 PRU, lost most of its six
Spitfires and all its ground and interpretation equipment in the GAF raid on
Algiers on 20 November, within a week of its arrival from Gibraltar. Eastern
Command’s tactical reconnaissance squadrons had not benefited from a
lesson learned in the Western Desert and were not equipped for photography.
Army Y was too disorganised to make up for the lack of PR and air
reconnaissance, and it was not until February 1943 that it began to produce
intelligence of operational value. In these circumstances, General Anderson’s
information about the battle situation was limited to reports from his own
troops and to the Enigma decrypts: but reporting in the forward area was also
poorly organised until the arrival of V Corps in December, while the benefit
General Anderson might have received from the Enigma was greatly reduced
by the fact that after leaving Algiers he was constantly on the move and in poor
signals communication with AFHQ. To make matters worse, his senior
operational intelligence officer had been left behind in Gibraltar and did not
arrive until the end of November.

General Anderson had been sent on an improvised link from GC and CS
intelligence both about the uninterrupted flow of Axis reinforcements and
supplies to Tunisia and about the land front, but apart from the fact that he
would have received it with long delay, he may not have received all of it. If he
had received it he would have learned from this source that Nehring was
consolidating a front between Djebal Ahiod and Medjez el Bab, a key junction
and river crossing on the road to Tunis, and occupying Djedeida, a key point
ten miles from Tunis, but was showing no signs of resuming the attack. In
addition, from his contacts with the French he would have known that the
French Tunisian Division, which had been temporising with the Germans
while it edged westward in the hope of making contact with the Allies, had
declared for the Allies on 19 November but had then been attacked by the
Germans and driven out of Medjez el Bab on 20 November. From the reports
that were reaching him from the SIS network in Tunisia he also knew by 19
November that a force of 1,500 Italians had crossed into Tunisia from Tripoli
with 21 tanks: and from the GC and CS signals he could have learned that other
Italian troops were being sent from Tunis to join up with them and that, in
order to strengthen the Italians, Kesselring had despatched a small German
detachment to Sbeitla, a road junction south–west of Kairouan. And on 21
November he should have received an appreciation from AFHQ which correctly
assessed the objective of these last developments as being to guard the coastal
road between Tunis and Tripoli against the US paratroops who were patrolling
from Tebessa, so as to prevent the Tunis position from being turned and to
allow Rommel to withdraw. On the evening of 22 November, however, he
reported to AFHQ that he must return to Algiers 'to appreciate fully the latest
news which has reached me here only in the form of rumours'.

It was agreed at the conference he attended in Algiers on 23 November that
as 'the rapid build-up and the numbers of armoured vehicles and defensive
weapons which were believed to be at the enemy's disposal greatly exceeded the
estimates of the pre-invasion planners', First Army should be strengthened for
its advance on Tunis by mobile US units - artillery, light and medium tanks,
tank-destroyers - from Algiers and Oran, and that fighter and bomber
squadrons of Twelfth Air Support Command, the ground-support elements of
the Twelfth US Army Air Force, should be shifted east 'in small numbers' to
reinforce the RAF. But by no means all of these reinforcements had arrived
when the advance was resumed on 25 November after a pause of six days, and
those coming up from Oran arrived only in the last stage of the offensive. It is
easy to see that the Allies were now on the horns of a dilemma. On 20
November AFHQ's intelligence staff and MI in Whitehall had agreed in
estimating that some 7,000 German and 3,000 Italian troops had already
arrived, with 50 tanks, and that a further 8,000 Germans and 7,000 Italians
would arrive shortly, with 80 more tanks, making a total of 25,000 men and
130 tanks. During 23 and 24 November Enigma disclosed that the commander
and staff of 10th Panzer Division and the first Tiger tanks had arrived. The
arguments for moving forward with the minimum of further delay, before the
enemy's position had further improved, must therefore have been powerful. On
the other hand, there were arguments for delaying the advance until First
Army had received all the agreed reinforcements, and perhaps for increasing
those reinforcements. But these were weakened by a continuing tendency to
underestimate the enemy's capacity for speed and improvisation. Whereas
General Nehring had in fact accumulated 24,575 troops - 15,575 German and
9,000 Italian - by 25 November, General Eisenhower's Chief of Staff was on 24
November assuming that the number of Axis troops in Tunisia had as yet risen
only to 12,000.

Whatever may be thought of these respective arguments, the Allied
advance on Tunis was subjected to a series of checks; and the most crucial of
them arose when Blade Force encountered the leading elements of 10th Panzer
Division, with 34 tanks, at Djedeida on 28 November, before all the US
armoured follow-up had arrived. The drive for Djedeida was brought to a stop
by constant GAF attack and resolute defence by the leading elements of 10th
Panzer Division. It failed again when it was renewed on 29 November: in an
Enigma decrypt of 30 November the Germans claimed to have destroyed 30 out
of 50 Allied tanks. On the evening of 29 November the commander of 78th
Division was given permission to call off the attack for a few days pending the
provision of increased air support.

About the intentions of the enemy's ground forces there had been hardly
any Enigma decrypts since the resumption of the Allied advance. With
Nehring's assumption of command the Germans had introduced a new Enigma
key for the communications between the army in Tunis and Berlin, Rome,
Kesselring and Rommel. GC and CS broke this key (which it named Bullfinch)
towards the end of November but by then the Allied advance was virtually at an
end. Moreover, most of the operational Enigma traffic of the forces in Tunisia
passed on MF networks in yet another key (Dodo): and as it was intercepted
with difficulty in the UK and no provision had been made for intercepting it
near the theatre, this traffic was read only on one or two days during the whole of the Tunisian campaign. In these circumstances the number of decrypts about the enemy’s ground situation had been few compared with what was customary in the desert. The most dramatic of the decrypts was the situation report of the evening of 25 November in which Nehring announced that he had been withdrawing all day, that he had already used up all available reserves and that it was ‘therefore doubtful if Tunis can be held for long if the enemy continues his attack on 26 November with the same superiority’. It had been sent out from GC and CS at 0823 on 26 November. But Kesselring’s reply, which would have been still more useful, to the effect that Nehring was to withdraw only to an inner perimeter line round Tunis running through Djedeida, had not been decrypted and transmitted to the Allied commands until 28 November, and it was not until 1134 on that day that GC and CS had been able to send out the news that the leading elements of 10th Panzer Division had reached Tunis.

It was from decrypts of the GAF Enigma that on 30 November, when they were intending to resume their own assault as soon as possible, the Allied commanders learned of the German decision to go over to the offensive. Early that day they were informed that Goring had ordered Kesselring to see that the Tunis bridghead was extended to the west and south-west as soon as possible, to prevent the Allies from building up superior forces. And at 0452 on 1 December they were warned by GC and CS in a special priority signal that 10th Panzer Division had at 2000 the previous evening been ordered to attack at Tebourba at dawn. As to whether or not First Army was able to profit from the warning, which gave considerable details about the location of the attack, there is no record. Either way, the German attack, which began at 0800, was wholly successful: by 3 December First Army had been roughly handled and driven well clear of Tebourba. This withdrawal effectively ended the Allied command’s attempt to take Tunis before the onset of the rains.

Reporting on the setback on 3 December, General Eisenhower insisted that the advance need not be abandoned ‘provided we can prevent Axis ground reinforcement...something we have not been able to do’, and announced his intention of bringing out US heavy bombers from the UK to operate against enemy ports and communications. Urgent efforts to step up the air attack from Algiers on the Tunisian supply route followed in the next few days, as did urgent appeals to Alexandria, Malta, Cairo and Whitehall for assistance. Like the first, belated, recognition in November of the importance of cutting the supply route, these measures were to no avail. The Allied attack on the route underwent no marked improvement before the second half of December. By 12 December, on the other hand, two more German counter-attacks had overtaken General Eisenhower’s hope of resuming the offensive on 9 December and had driven his forces back almost to Medjez el Bab. After a series of postponements, some of them imposed by the difficulty of bringing up supplies in increasingly bad weather, he then fixed on 24 December as the day for the advance. But on that day, after the failure of preliminary attacks on the German Army’s new and strongly defended perimeter, he put off the attempt to take Tunis until the weather improved.
CHAPTER SIXTEEN

The End in Africa

During the weeks following the suspension of the Allied advance in Tunisia the volume of enemy supplies and reinforcements reaching Tunisia continued to be a source of great anxiety. On 9 February General Eisenhower reported that the Axis was still getting 75 per cent of its requirements into Tunisia, and he warned that ‘the termination of the Tunisian campaign depends on the extent to which we can disrupt enemy lines of sea communications’. The warning was based on the knowledge that after registering an improvement during December 1942, when intelligence had shown that over a quarter of all Axis ships sailed for Tunisia were sunk, and with them nearly half of the known fuel and ammunition cargoes, Allied successes against the traffic had again declined. It was not until March that the Allies succeeded in administering a serious check to the Axis flow of supplies.

There were several reasons for their failure to achieve this before the land fighting was resumed. The weather was bad, especially during January. The enemy’s defence measures were effective. His strength in the air and his extensive mining restricted the British surface ship operations to attacks on the coastal traffic off the east coast of Tunisia, and severely hampered air and submarine operations. For some of his supplies, moreover, he made increasing use of smaller – and safer – ferry craft; from the last week of January, for example, on Hitler’s orders, as the Enigma showed, tanks were shipped only in these craft and only from Sicily. Not less important was the fact that the confused state of the command structure of the Allied air forces did not permit an efficiently co-ordinated attack on the Axis supplies before the middle of February, when all Allied air forces in the Mediterranean were subordinated to a single commander. Until March, when Cairo’s specialist staff was transferred to Algiers, the decisions were being taken without assistance from an intelligence group which specialised in the study of the supply situation and the selection of shipping targets. But shortage of intelligence was not among the problems, as is shown by Whitehall’s response to General Eisenhower’s request for more air reconnaissance at the beginning of January. It disputed the need for larger reconnaissance forces ‘in view of other sources of information’.

Of these other sources of information, the high-grade cyphers – GAF Enigma, the Porpoise Enigma and the C 38m – were the most valuable, though they were supported by the SIS and PR. Taken together, these sources provided a virtually complete record of the shipping making for and arriving at Tunis and Bizerta from Italy and Sicily. As before, Sigint gave advance notice of the movements and routes of almost all the ships; in addition they now gave better information about cargoes. By the end of January 1943 GC and CS was supplying full details of 60 per cent of all cargoes – a less perfect service than it had provided during the desert war, but impressive nevertheless. From the beginning of January, the first month in which Rommel, also, was wholly supplied through Tunisia, an increasing amount of high-grade intelligence was obtained about the movement of supplies by road, rail and sea from Tunis and
Bizerta to Sousse, Sfax and the smaller ports in central and southern Tunisia, and the decrypts confirmed that this local traffic was suffering from Allied air attacks. But these attacks could not be decisive so long as the enemy kept up the flow of supplies into Tunisia.

The fact that the Axis was succeeding in doing this was known from Army Enigma decrypts as well as from the shipping intelligence. At the beginning of January they disclosed that the monthly target for German deliveries was 60,000 tons but that the actual rate of delivery was barely meeting current needs; that fuel, also, was sufficient only for current use; and that ammunition shipments had built up stocks for only a fortnight’s full-scale operations by three divisions. On the other hand, they showed that at least 49,600 tons of stores were landed, German plus Italian, during February, as compared with 40,000 in the previous December. The source of the information about these deliveries was a series of daily unloading returns for Tunis and Bizerta. GC and CS began to decrypt these in December: from the end of December it decrypted them virtually every day, thus providing a continuous commentary on the enemy’s general supply position.

Thanks mainly to the Army Enigma - though on these subjects the decrypts were again supplemented by the SIS, POW interrogation and captured documents - there was similarly no shortage of intelligence about the enemy’s order of battle and the arrival of enemy ground reinforcements in Tunisia. It was known that the forces in Tunisia had been reorganised as Panzer Army 5 (Pz AOK 5) under General von Arnim in mid-December, and that it then comprised an impromptu division under General von Broich, 10th Panzer Division, the Italian Superga Division and numerous smaller units. During January the Enigma established that Panzer Army 5 was to receive a Corps HQ, 334th Division, the Hermann Goring Division - a GAF formation that had developed from a GAF regiment and was later to become a full Panzer division - and other units including 999th Afrika Brigade, which was also to acquire divisional status before its arrival. Early that month the SIS reported the arrival of the first elements of 334th Division: and by the end of the month the Enigma showed that 21st Panzer Division had been subordinated to Panzer Army 5 after arriving in the Sfax area. In the absence of references to other arrivals before March, when the Enigma was to report that the Hermann Goring Division and 999th Brigade had begun crossing to Africa, it was thus known during February that Panzer Army 5 comprised four German and one Italian divisions.

For information on the growing military capability of these formations AFHQ depended on calculations of the number of troop reinforcements that were arriving by air and in Italian destroyers, and on deductions from Enigma reports on the state of the enemy’s guns and ammunition. The movements of the troop-carrying destroyers, begun in December, were fully covered by C 38m decrypts. On the air transport programme, the GAF Enigma and GAF and IAF low-grade traffic provided considerable information, though it was not complete. From time to time Enigma decrypts of manpower and ration returns provided a check on the calculations. AFHQ’s manpower estimates in fact attained a high degree of accuracy. It estimated the number of German troops under von Arnim, including GAF personnel, as being 75,4000 at the end of January, whereas the actual total was 74,000. On 13 February - the eve of the German offensive - high-grade decrypts checked and supplemented the calculation by disclosing that total strength in the Panzer Army 5 areas was
110,000 men, including 20,000 GAF and naval personnel and 33,000 Italians. On the tank strength of the individual units AFHQ was less well informed; nor was any overall tank return for Panzer Army 5 decrypted between 17 December and 28 January. But AFHQ was able to calculate from the daily unloading reports for Tunis and Bizerta that the total number of serviceable tanks had increased to 140 by the end of December and to 200 by the end of January, when the decrypt of an overall return for 28 January showed that the figure stood at 194. Tank returns always listed the number of Pzkw VI (Tiger) tanks separately: 11 of the 194 were Tigers. On 21 January the Enigma disclosed that OKW was dissatisfied that, because of lack of crew training, the Tigers in Tunisia were not achieving the 'decisive effect' of which they were capable. From the same signal, in which OKW ordered intensified training, intelligence obtained the first reference to the Pzkw V (Panther) tank: the signal announced that on Hitler’s orders Tigers and Panthers were to be shipped in larger numbers 'in coming months'.

Despite the anxiety they felt at their inability seriously to reduce the flow of the enemy’s supplies and reinforcements, the Allied authorities did not suppose that this was permitting him to build up his capacity to the point at which he would be able to take the offensive on any large scale, but only that it was adding to the difficulties they would encounter when they themselves resumed their attack. On 30 January 1943 General Eisenhower concurred in the text of an appreciation of 4 January sent to him from London by the JIC which concluded that the Axis forces, while they might carry out local attacks on a limited scale, would remain on the defensive. On 9 February he judged that any attacks the enemy might launch would have 'limited objectives'. In the few days before the Axis attack on 14 February the intelligence staffs at AFHQ and First Army believed that the enemy was 'over-stretched, and he would improve his defence positions, and at present husband his few mobile reserves'.

In the light of what was known of the supply position and the rate of reinforcement, this was not an unreasonable conclusion. It may be noted, indeed, that some German authorities, knowing still more about those subjects, shared it. As late as 7 February von Arnim told Warlimont, then on a visit from OKW, that his army was unfit for large offensive operations on account of lack of ammunition, fuel and transport, and Warlimont on his return to Germany reported that the Axis position was 'a house of cards' as a result of the supply problem. These exchanges were not revealed to the Allies at the time, but their intelligence was not at fault when it depicted the Axis supply situation as being precarious.

Even so, the supply position had not invariably been an infallible guide to the enemy's intentions: and it was no doubt with this consideration in mind that in the first half of January the British Chiefs of Staff counselled against General Eisenhower's plan to despatch US II Corps from Tebessa to the coast at Gabes and Sfax on 22 January. The rationale of the plan was General Eisenhower's view that in the interval before he could resume the offensive - an interval he thought might last two months - he must limit the build-up of the Axis bridgehead by cutting the land route between Rommel and the main Tunisian ports, as well as by intensifying the attack on the Tunisian supply line. The Chiefs of Staff urged, instead, that he should concentrate on bringing forward the date at which he could take the offensive in the north: they thought it unwise to assume either that the enemy would wait as long as two months before himself attacking from Tunis in force or that Rommel would be
unable to act effectively against an American thrust to the coast.

On 13 January the Enigma justified the second of their arguments. It disclosed that the Axis High Command had requested the strengthening of the Sfax area and that Rommel proposed to send 21st Panzer Division there, and by 15 January Ultra recipients, of whom the most important were then assembled at the Casablanca conference, had learned that 21st Panzer Division was already on the move. It is safe to assume that this intelligence did much to persuade the conference to cancel II Corp’s projected advance.

In support of the first argument of the British Chiefs of Staff – their anxiety that the enemy would go over to the attack in Tunisia if the Allies delayed their own offensive – there was as yet no positive intelligence. The Axis command during December and January was more concerned first that Rommel should impose the maximum delay on Eighth Army and then, while he was struggling to reach the Mareth line and to consolidate there, that a serious thrust might develop from the Allied forces in the Gafsa/Tebessa area. It was not until late in January that the enemy’s thoughts turned to launching a strong spoiling attack on those forces. And even when this attack was launched in mid-February the Axis had still not got as far as thinking of extending it into an operation for turning the flank of the Allies’ general position in Tunisia.

From the third week of January it became apparent that the Axis command structures were being changed. The reorganisation of the GAF commands was simple enough and fully covered by the Enigma. Fliegerführer Afrika amalgamated his forces with the southern elements of the GAF in Tunisia on 25 January. On 11 February he assumed command as Fliegerkorps Tunis, with HQ near Gabes, and at the same time Fliegerführer 2, in northern Tunisia, and Fliegerführer 3, in command of the forces in the south, were subordinated to him. The army changes were more complex and the decrypts on the subject being unusually difficult to interpret, the Allied commanders in Tunisia did not receive a summary of them till 9 February. As well as announcing that Bastico had laid down his command on 30 January, that Panzer Army 5 had been subordinated for operations to Comando Supremo in Rome with effect from 26 January, and that Kesselring would ensure that German influence was exercised on Comando Supremo’s orders, the summary assumed that von Arnim had already taken unified command over Panzer Army 5 and Rommel’s army. In one of the decrypts Hitler had indeed so ordered on 26 January. But numerous decrypts of signals originated by Rommel down to 20 February established that he remained in charge at least of his old army.1

Even without the attendant confusion, it would have been difficult to deduce anything of value about the enemy’s intentions from these command changes:

To the extent that it did take place, however, the Axis reorganisation seriously incommoded GC and CS by disrupting the pattern of the enemy’s routine signals. GC and CS had managed during December 1942 and January 1943 to maintain a high level of success against the Bullfinch settings of

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1 In October 1942 Rommel’s Panzer Army Africa had been re-named German–Italian Panzer Army. On 20 February 1943 it became First Italian Army under General Messe. For some time before and after this date there was confusion among the German signallers as to what name they should use and they often described the Army as Panzer Army Rommel. In this account First Italian Army is used from February onwards.
Panzer Army 5 and against the settings (Chaffinch) used by Rommel’s Panzer Army at army level and above. Following the lapse of Bastico’s command at the beginning of February 1943, breaks into these settings became less and less frequent, with the result that the Enigma threw little light on the enemy’s intentions. This development was to some extent offset by the fact that GC and CS read the Fish setting (Herring) that was introduced in December 1942 for traffic between Rome and Panzer Army 5 from January 1943 for three months and then, after a brief interruption, from April 1943 until the end of the Tunisian campaign.

The difficulty that was experienced with the Enigma settings made it especially unfortunate that Allied Y and tactical reconnaissance had not yet overcome the problems created for them by insufficient advance preparations. Moreover, they were impeded by complications and changes in the Allied command structure. During the third week of January General Eisenhower decided that the commander of the First Army must ‘co-ordinate’ the British and the US forces, and on 26 January, overcoming the objections of the French, he put General Anderson in command of all Allied forces on the Tunisian front. Although they were unavoidable, such changes contrived to keep the field intelligence staffs less than efficient at the work of collecting and co-ordinating the results of air reconnaissance, POW interrogation, agents reports and Y - work which was difficult enough in operational conditions at the best of times and which could not be done effectively in the absence of a stable organisation and clear channels of communication.

Over and above these considerable handicaps a further problem made it difficult to form an accurate appreciation of the enemy’s intentions. The enemy’s plans were being developed with frequent changes of mind and a large element of improvisation within an uncertain structure of command and against the background of confused local fighting that had gone on since mid-January in the mountainous area of the French-held sector of the Allied front. On 28 January, as part of a programme for strengthening the Axis front in the centre and south, von Arnim was instructed by Comando Supremo to undertake the destruction of the US forces in the Tebessa area as a sequel to a planned attack on Faid and then to seize the Gafsa basin. 21st Panzer Division overwhelmed the French garrison at Faid on 30 January, but von Arnim had doubts about the further stages of the plan. On 4 February Rommel, in a memorandum to Comando Supremo, repeated his earlier proposal that both Panzer armies under a unified command should make a concentrated attack against Gafsa before Eighth Army could attack Mareth. Rommel’s plan was rejected as impracticable; instead, he was ordered on 8 February to attack Gafsa with such elements of the two Panzer armies as were not absolutely indispensable for other tasks, and he was told that his object must be primarily the destruction of enemy forces and only secondarily the taking of territory. On 9 February Kesselring, von Arnim and Rommel met to discuss the most recent instructions and to settle their differences; and as the latest reconnaissance reported that the US forces were leaving Gafsa, they agreed on a revised plan for two limited offensive-defensive operations that would be related but carried out under separate command. 10th and 21st Panzer Divisions would first join forces to destroy the US forces in the Sidi Bou Zid area west of Faid: this was operation Frühlingswind. 21st Panzer Division would then join a battle group from Panzer Army Rommel in an attack on Gafsa (operation Morgenluft) while 10th Panzer Division moved north to attack in the area west of Kairouan. It was
settled that operations *Frühlingswind* should start between 12 and 14 February. This is a brief summary of what the Allies learned after the event about the chief developments on the Axis side. At the time, as a result of the difficulties already discussed, the Enigma provided evidence about them that was so incomplete as to be wholly misleading.

An intimation of the enemy’s general plan was obtained on 26 January from the decrypt of a signal from Kesselring of 24 January. This said that the Axis must regain the initiative as soon as possible by operating from the south of Panzer Army 5’s front in the general direction of Tebessa and also, perhaps, from the Mareth zone. It added that Rommel’s army would have to be rested and refitted as rapidly as possible to ensure the defence of the Mareth line against an attempt by Eighth Army to interfere. On 30 January there followed two further decrypts. The first was from an unidentified authority, thought by GC and CS to be in Tunis. It stated that two divisions were not enough for an operation against Tebessa and that, although two divisions would be enough for an attack against Gafsa, they were not available: 10th Panzer Division could not be spared from the north and the rest of 21st Panzer Division (presumably that part of it which had not been used to take Faid) was not ready for operations. The second, from the GAF authorities, stated that in their opinion Rommel was having doubts about an attack on Gafsa. On 1 February, from the decrypt of a signal from Fliegerführer Afrika of 31 January, GC and CS obtained full details of a forthcoming operation involving both 10th and 21st Panzer Divisions west and south-west of Kairouan to advance the main defence line in the Ousseltia–Fondouk area.

This operation, code-named *Kuckucksei*, was to be carried out by Korpsgruppe Fischer (Fischer was the commander of 10th Panzer Division) with powerful elements of 10th Panzer Division, including a Tiger Gruppe, and by 21st Panzer Division. From Medjez el Bab and Faid respectively, they were to move up to given assembly areas, ‘probably’ from dawn on 2 February. From there on ‘A-day’ Korpsgruppe Fischer would attack the Allied positions, and attempt to take them in the rear, while 21st Panzer Division and Fliegerführer Afrika shielded it against Allied intervention from the south-west.

These details about operation *Kuckucksei* had also been issued on 30 January in Panzer Army 5’s day report, which was decrypted on 3 February. On 8 February, moreover, the Enigma confirmed that the enemy was still intending to carry out the operation by disclosing that GAF reinforcements were to be sent to Kairouan to operate in support of Panzer Army 5, probably on 10 February, in an offensive west and south-west of that place. Two days earlier the Allies had learned from another decrypt that there was some disagreement among the Axis commands: in a signal to Kesselring on 6 February Fliegerführer Afrika had complained that neither Panzer army believed it could release the necessary forces for the Gafsa undertaking, and had requested that they should be given explicit orders to take Gafsa while the situation was ‘still favourable’. But between 8 February and 14 February, the day of the German attack, the Enigma gave no indication that *Kuckucksei* had been superseded by *Frühlingswind* and *Morgenluft* on 9 February: the signals giving the intentions to carry out these two operations were not decrypted until late on 14 February. Nor did the other intelligence sources make up for the deficiencies of the Enigma, information from PR, tactical air reconnaissance, Army Y, POW and the Allied ground patrols being either non-existent or insufficient to correct the appreciation that on the northern front the enemy
intended to carry out operation *Kuckucksei* through Fondouk, rather than the operation which Rommel and von Arnim were now planning against Sidi Bou Zid.

On 13 February the Enigma disclosed that HQ 21st Panzer Division was to move forward that day and indicated that the following day was to be A-day for an operation by Panzer Army 5. This was the basis for ‘the word . . . flashed from First Army HQ late on the 13th that an attack would be made by the enemy the next day’. First Army’s warning was a general one: the Enigma did not state where the attack would come. Nor were the Allies quick to discern the enemy’s intentions when, beginning in the early hours of 14 February, 10th Panzer Division and 21st Panzer Division moved against Sidi Bou Zid. During the morning of 14 February US 1st Armoured Division and II US Corps HQ did not regard it as a major offensive and requested only ‘modest reinforcements’. As late as the evening of 14 February, when Combat Command A of US 1st Armoured Division had retired badly mauled, with the loss of 44 tanks, and other US formations had been surrounded, it was thought that the enemy had employed only 21st Panzer Division. Partly on this account and partly, no doubt, because of the lingering influence of the *Kuckucksei* decrypt, AFHQ and First Army HQ reasoned that 10th Panzer Division remained to the north, ready to attack in the Ousseltia-Fondouk area. Nor did the Enigma save them from the consequences of inadequate field intelligence during the following day: it did not mention 10th Panzer Division between 12 February and 16 February, and even then it disclosed only that 10th Panzer Division was to receive fighter cover from Kairouan. General Eisenhower was still under the impression that 10th Panzer Division had not been committed when, on the evening of 15 February, he agreed with General Anderson that US 1st Armoured Division’s Combat Command B must be retained in the north.

By that time the Allied counter-attack on Sidi Bou Zid had been repulsed with heavy US losses. In addition the Allied commanders had known from the Enigma since the morning of 14 February that Panzer Army Rommel considered that it could begin the Gafsa undertaking on the morning of 16 February only if the weather did not hold up the ‘previous attack elsewhere’ of 21st Panzer Division. On the evening of 14 February, as a result of this decrypt, General Anderson had ordered the US forces at Gafsa to retire to Feriana, adding that they need not expect to be attacked for another 36 hours. On the evening of 15 February, in the light of a further decrypt and of the repulse of the counter-attack at Sidi Bou Zid, General Eisenhower and General Anderson agreed that the whole Allied front line should be pulled back while the threat of an enemy attempt to outflank it from the south was countered by a strong concentration of armour in the Sheitla-Shiba area. The further decrypt, sent out from GC and CS on the evening of 14 February and consisting of a directive from Comando Supremo dated 11 February, had stated that, immediately following the attack by Panzer Army 5 on Sidi Bou Zid, First Italian Army with a mobile Battle Group from Panzer Army 5 was to make a pincer thrust towards Gafsa and, dependent on the development of the tactical situation, to continue its attack on Tozeur after securing the Gafsa basin, while Panzer Army 5 itself concentrated, by a fairly strong thrust on its right wing, on extensively harassing the Allied concentration in the Sidi Bou Zid area.

The Allies carried out a drastic withdrawal to a new line running through Shiba, Kasserine and Feriana on the night of 16 February. By that time Rommel had ordered his southern Battle Group, which had taken Gafsa late on
the previous night, to press on to Feriana, and von Arnim had started 10th and 21st Panzer Divisions for Sbeitla. At Sbeitla the main Axis advance was delayed by Combat Command B, First Army’s sole remaining coherent armoured formation in the southern sector, which on 15 February General Anderson had decided to bring south from Maktar, 50 miles to the north, where it had been masking Fondouk. On 17 February 21st Panzer Division drove Combat Command B out of Sbeitla, the southern Battle Group took Feriana and Rommel proposed to von Arnim that they should advance together with the two Panzer divisions to capture the huge American depots at Tebessa and then move north to turn the Allied position in Tunisia. At midnight on 17–18 February von Arnim replied that no further considerable advance was possible because of supply difficulties and that 10th Panzer Division had already been ordered to Fondouk to carry out a modified version of Kuckucksei west of Kairouan. During the morning of 18 February, however, on learning that patrols of 21st Panzer Division and the southern Battle Group had met at Kasserine and that Axis air reconnaissance had shown that the Allies were not yet assembling for a strong counter-attack, Rommel appealed direct to Comando Supremo for authority to take 10th and 21st Panzer Divisions under his command and advance at once on Tebessa. His request was approved at midnight on 18–19 February, though with the major modification that he must in the first instance advance on Le Kef, an important communications centre for First Army. He began attacking through Kasserine on 19 February.

Of these developments on the Axis side the Allied command received a good deal of Enigma about the movement up to Gafsa, and its decision to evacuate Feriana on 17 February was influenced by a decrypt of 16 February in which First Italian Army announced the intention of pushing on from Gafsa to Feriana. From a further decrypt, sent out to it in the afternoon of 16 February, it could have deduced that the southern thrust might run out of fuel if it penetrated beyond Feriana; this gave it the news that fuel stocks available for 21st Panzer Division and the southern Battle Group on 15 February had been sufficient for 100–150 kms ‘if the fighting is continued to the west’. In the same decrypt the Quartermaster of First Italian Army had added that the carrying out of the ‘special undertaking’ was assured provided it was over in two days. But until 17 February, beyond what was being reported by their own troops, the Allies had next to no intelligence from the rest of the Axis front. On 16 February GC and CS had decrypted Panzer Army 5’s day report for the previous day: it reported the destruction of 97 tanks at Sidi Bou Zid and the capture of numerous prisoners together with documents giving the entire US order of battle. During 17 February the Enigma had disclosed that 10th and 21st Panzer Divisions were proceeding on 16 February to an unidentified position and, though AFHQ still thought that its ‘main strength’ had remained near Kairouan, Army Y had at last located a portion of 10th Panzer Division near Sbeitla. Nor was it until 17 and 18 February that, in the light of a series of

*The difference between intelligence about the southern battle group and the rest of the Axis front was due not only to the greater difficulty which GC and CS had with the Bullfinch (Panzer Army 5) than with the Chaffinch (First Italian Army) Enigma settings, but also because the Phoenix settings as used by First Italian Army for communications below army level were more easily decrypted than those for Dodo, the equivalent settings used by Panzer Army 5.*
decrypts of GAF Enigma signals from Fliegerfuhrer Tunis, they were able to do more than guess at the nature of the special undertaking.

(on the morning of 17 February the first of these signals told them that the Fliegerfuhrer had informed Kesselring the previous day that an advance on Feriana and Tebessa, to put Allied air bases out of action, was possible. On the evening of 17 February the next signal showed that the GAF had been ready since that morning for operations against Tebessa, Le Kef and on the northern front in support of a further advance. In a third signal, sent out by GC and CS early on 18 February, the Fliegerfuhrer reported to Kesselring on the evening of 17 February that a further advance was possible as air reconnaissance had disclosed that the Allies were withdrawing. On the afternoon of 18 February he informed Kesselring that Rommel wished to advance with 21st Panzer Division to a position which, GC and CS could not identify, but that Panzer Army 5 had refused to give up any troops; this decrypt reached the Allied commanders the same evening.

The Fliegerfuhrer’s signals were interspersed with decrypts of signals from Rommel. Just before midnight on 17-18 February GC and CS decrypted a signal from him announcing that his intention for his Panzer Army on the following day was ‘to hold the position reached’. On the evening of 18 February the Allied commands received the decrypt of his day report for 17 February. It expanded on the previous signal by stating that his intentions for 18 February were to hold his bridgehead at Thelepte and to withdraw considerable elements to Mareth, and it announced that ‘there seemed to be no possibility either of continuation of the attack on Tebessa or even of holding the area Thelepte–Feriana for any length of time’. But it also announced that decisions about the southern Battle Group depended on Panzer Army 5’s situation in the Sbeitla area, it added that 21st Panzer Division had 65 serviceable tanks. But Rommel’s proposal to von Arnim of 17 February for a joint advance, and his proposal to Comando Supremo of 18 February for an advance by 10th and 21st Panzer Divisions under his own command, were not decrypted until the afternoon of 19 February, and Comando Supremo’s authorisation for the second of these proposals was not decrypted till the evening of 20 February.

While the Axis command hesitated between midnight on 17 February and midnight on 18 February, when Rommel received permission to advance to Le Kef, the Allied command ordered immediate measures for the defence of the pass at Kasserine and the reinforcement of the southern sector. British armour − 6th Armoured Division and 1st Guards Brigade − was despatched from the northern sector to the Sbiba–Thala area and US 9th Division’s artillery: was ordered to move up from Morocco. During this period, in addition to what the Allies learned from the signals from Fliegerfuhrer Tunis and Rommel about their plans and their uncertainties, they were informed by the GAF Enigma that 10th Panzer Division was moving north-east through Fondouk on the morning of 18 February but that a southern Grouppe of Panzer Army 5 was advancing on Kasserine. But while the threat from Kasserine was clear enough, and while the Allies thus knew that it would be a day or more before 10th Panzer Division could join up with any advance, they had no firm intelligence about Rommel’s immediate intentions, and in particular about the direction in which he would make his main thrust, until, some time after midnight on 19–20 February, they received the decrypt of Fliegerfuhrer Tunis’s situation report for the evening of 19 February. This disclosed that the GAF’s orders for 20 February were to carry out reconnaissance southwards from Le Kef and to
be ready to support 21st and 10th Panzer Divisions.

On the morning of 19 February Rommel had ordered the southern Battle Group to advance through Kasserine and Thala to Le Kef while 21st Panzer Division made for the same objective through Sbiba, and had summoned 10th Panzer Division back from Fondouk to Sbeitla to await developments. 21st Panzer Division was halted by the greatly superior Allied strength at Sbiba. The southern Battle Group failed to achieve a surprise attack on Kasserine on the morning of 19 February, the American defenders of the pass having been alerted by the British Y party attached to US II Corps, but thereafter made progress through the pass. Rommel having decided to use 10th Panzer Division to reinforce its advance, an all-out attack at 1630 on 20 February succeeded in capturing the pass. On the morning of 21 February Rommel waited in preparation for an Allied counter-attack. On the morning of 20 February, meanwhile, the planned take-over of command of the Allied forces by the newly-formed 18th Army Group under General Alexander had taken place, and he had decided to concentrate the Allied armour south of Thala, astride the road from Kasserine, to bring up Combat Command B from Tebessa to Thala, and to stiffen the defensive position with further armour, artillery and infantry from the northern sector. With regard to these decisions it has been said that, had Rommel in fact turned west towards Tebessa, the Allies would have been caught badly off balance, but it has also been claimed that 'there never was much doubt' that Rommel would thrust towards Thala rather than against Tebessa. It may well be that this was clear enough from the course of the fighting since the previous morning; and there is no evidence to show whether the decisions were influenced by the receipt, hours before, of the decrypt giving the GAF's intentions for 20 February. But the omission of any reference to Tebessa in that decrypt makes it not improbable that the decrypt helped to persuade General Alexander's intelligence staff that Thala–Le Kef was 'the vital area'.

About midnight on 20–21 February, from the decrypt of Comando Supremo’s reply to Rommel’s request of 18 February, the Allied command received confirmation that 10th and 21st Panzer Divisions were to make for Le Kef ‘in the first instance’. From the same decrypt they learned that the scope of the enemy’s objectives greatly exceeded what intelligence had led them to expect. It announced that, since the ‘low fighting value’ shown by the Allied troops offered a unique opportunity to gain a decisive success by cutting off British V Corps or compelling the Allied forces in the south to withdraw, Panzer Army 5 was to prepare to attack on the front in northern Tunisia so as to tie down the Allies there while Rommel advanced, and that, since no major British attack at Mareth was expected for at least a week, only minimum mobile reserves need be kept there. It was followed by the decrypt of Rommel’s orders for his further advance, which reached the commands from GC and CS about noon on 21 February. 21st Panzer Division was to attack through Shiba to Ksour. 10th Panzer Division, ‘at only half battle strength since considerable elements were still operating elsewhere’, was to attack along the road to Thala. The southern Battle Group was to advance towards El Hamma on the fork road to Tebessa. But when this intelligence was received, while 21st Panzer Division remained blocked on the Sbeitla–Sbiba road, 10th Panzer Division, elements of which had already been identified by Army Y among the forces that were attacking through the Kasserine pass, was fighting its way to Thala.

By the end of the day 10th Panzer Division had been repulsed, after heavy
fighting, by the larger Allied force that had been assembled in the Thala area. At the same time, Combat Command B, recalled to Tebessa and strengthened by other US forces from the Ousseltia area, had checked the subsidiary thrust which Rommel had sent towards Tebessa; and by 22 February the southern Battle Group was sustaining heavy losses. On the evening of 22 February Army Y, which was at last beginning to make a useful contribution, intercepted an order to withdraw addressed to one of its leading units. This was the first indication to be received of the general Axis withdrawal on which Rommel and Kesselring had decided during the afternoon. Other indications followed. At 0145 on 23 February, with quite remarkable speed, GC and CS issued the decrypt of Comando Supremo’s order, timed 2130 on 22 February, for the attack to be halted and for the withdrawal of Rommel’s forces to their starting positions. During the remainder of 23 February Army Y and air reconnaissance provided plentiful evidence that the withdrawal was in progress.

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Despite General Eisenhower’s ‘anxiety to take instant advantage of the fleeting opportunity for trouncing the enemy before he could recover from his embarrassing position’ – an anxiety which led him to assure the commander of US II Corps on the evening of 22 February that ‘he was perfectly safe in taking any reasonable risk in launching local counter-attacks that could be properly supported by his artillery’ – II Corps was, to quote the US official history, ‘extraordinarily hesitant’ in making use of this intelligence. It was not until late on 23 February that it gave orders for a general counter-attack to be mounted on 25 February. By that time the enemy had withdrawn through the Kasserine bottleneck and Rommel, as he had agreed with Kesselring on the afternoon of 22 February, was concentrating in southern Tunisia for an attack on Eighth Army which would catch it off balance while it was assembling its forces for an assault on the Mareth line.

GC and CS excelled itself in giving good notice of Rommel’s new intention. On 25 February it decrypted the day report for 22 February in which he gave his reasons for the sudden abandonment of the westward offensive: Allied reinforcements, bad weather, difficult terrain, low Axis fighting strength – and the fact that the situation at Mareth made it necessary to collect his mobile forces for a swift blow against Eighth Army before it had completed its preparations. More important – for it had all along been obvious that the enemy had to take account of the danger at Mareth, and Comando Supremo’s calculation that a British attack there was not expected for at least a week from 18 February had been decrypted on 20 February – GC and CS provided details of the preparations and plans for the assault on Eighth Army’s positions at Medenine.

On 23 February a directive from Comando Supremo laid it down that, to ensure unified control of future operations, Army Group Africa was to be formed under Rommel at once, and that Rommel would decide when the command of the Army Group was to be handed over to von Arnim. Decrypted and sent out to the Allied operational authorities on 25 February, it went on to say that, in addition to an offensive by von Arnim in the north, Army Group Africa would, on completion of the withdrawal from Kasserine, ‘smash the
attacking spearheads of Eighth Army in the first days of March’, and that for this purpose 10th Panzer Division was to be prepared at Sfax and the remainder of the motorised formations at Gabes.

On 26 February Rommel asked First Italian Army to make a reconnaissance in preparation for an encircling attack on Medineine, 20 miles south of Mareth, by two to three Panzer divisions: this request was decrypted on 27 February. As outlined in Rommel’s report of 27 February, which was decrypted on 28 February, his plan was to attack at the latest on 4 March with 10th, 15th and 21st Panzer Divisions; 10th and 21st Panzer Divisions were to move south from Gabes well inland so as to ‘deceive Allied air reconnaissance’. Apart from a fuel return for Army Group Africa which showed on 1 March that Rommel had fuel for at most three days – enough to do great damage in a surprise spoiling attack, but not for another offensive on the scale of Kasserine – these two decrypts were the last to throw light on Rommel’s plans. But they were of decisive importance. As late as 26 February Eighth Army had no more than equivalent of one division up forward at Medenine; most of its armour was with X Corps at Benghazi and General Montgomery, who was planning an Alamein-type offensive against the Mareth line for 20 March, estimated that 7 March was the earliest date at which XXX Corps could be made ready to meet an enemy attack. But after rushing up guns and tanks during three days and nights of feverish activity beginning with the receipt of the decrypts on 27–28 February, the strength of XXX Corps at Medenine had been quadrupled by 4 March, and when Rommel eventually attacked with 160 tanks and 200 guns he was opposed by 400 tanks, 350 field guns and 470 anti-tank guns. By then, too, the RAF had brought its forward strength up to double that which was known to be available to the enemy.

4 March passed without incident. Nor was it until the morning of 6 March that GC and CS sent out to Eighth Army the thrust-line for the German attack and the news that it was to begin at 0600 that day. This decrypt was despatched at 0563 and would have been received after the battle had begun. Already, however, it had been apparent on the eve of the assault that it would be delivered on the morning of 6 March: Army Y had detected the movement southward of Rommel’s forces. Air sightings of 10th Panzer Division and other armour had by 4 March suggested that his main thrust would come from the west, from the southern end of the enemy line. Thereafter conflicting evidence was received from various sources as to the direction from which Rommel would attack. In the end the British artillery was ‘so positioned that the majority of our guns could bring down concentrations upon the enemy from whatever sector he attacked’.

Had Rommel defeated Eighth Army at Medinine the whole sequence of future Allied moves in the Mediterranean would have been set back but, in the event, his forces sustained very heavy losses. By the end of the morning, as the Enigma soon disclosed, he had decided to break off on account of the superior artillery and unexpected strength of the British defences. Surprise—jiaad been indispensable for the success of his plan, and Rommel had indeed attacked in the belief that Eighth Army was unready.

Rommel handed over to von Arnim and left for Germany on 9 March. The Germans did not make the news public, nor was it until after the middle of March that it surfaced in the Enigma decrypts. To avoid gossip that might endanger the security of Ultra, the decrypts were not forwarded to the commands, where the intelligence staffs were left to conjecture at the end of
March and the beginning of April from the evidence of a captured document and Army Y that Rommel might have been recalled before the battle of Mareth.

General Montgomery’s plan for the battle of Mareth called for a frontal attack on the line by the infantry of XXX Corps, designed to make a gap through which the armour would head for Gabes and Sfax, and for a powerful confining move by the New Zealand Corps – the New Zealand Division augmented by 170 tanks – which would debouch into the main battle area through the gap between Djebels Melab and Tebaga. An extension of the enemy’s defences across this gap – code-named Plum in Eighth Army – had been detected by PR coverage of the formidable defences of the line and the exceptionally difficult terrain around which they had been constructed. Moreover the Long Range Desert Group had carried out ground reconnaissance of the rough country west of the Matmata hills, at the inland extremity of the Mareth line, and had established that this outflanking route to the Plum gap, though difficult, was not impossible.

During the last two weeks of the preparations it remained uncertain how the enemy intended to respond to the coming attack, though the Enigma made it clear that he expected it. The Allied authorities estimated, correctly, that the enemy had lost 50 tanks at Medenine and a further 50 on First Army’s front, and knew that he was getting few replacements; their estimates were confirmed on the first day of the battle when Enigma disclosed that on 19 March 21st Panzer Division had 74 tanks, 10th Panzer Division had 57, 15th Panzer Division 38 and the Centauro Division 27: a total of 196 tanks. But they could not rule out the possibility that he would go over to the attack before Eighth Army was ready. At the same time, they were equally anxious lest, as at Agheila and Buerat, the enemy would abandon his line as soon as Eighth Army attacked in strength. At the end of January the Enigma had disclosed that Rommel, when instructed to stand at Mareth, had pointed out the danger of being outflanked, and had pressed to be allowed to fall back on the Akarit position. Except that PR detected the beginning of a new defence line along the Wadi Akarit, however, no further intelligence was obtained about the enemy’s intentions until the eve of the assault; the Enigma made no reference to the fact that on his return to Germany Rommel had renewed his pressure for the immediate withdrawal of the ‘marching’ formations to Akarit and had again failed to get his way.

Not until the evening of 19 March did the Enigma begin to resolve some of this uncertainty. The decrypt of Army Group Africa’s day report of 19 March disclosed that 10th Panzer Division was to remain near Kairouan as Army Group reserve till further notice, while 21st Panzer Division and HQ DAK were to move as mobile reserve to a position south-west of Gabes. This information assured the Allied commands that 10th Panzer Division would be unable to reach the Mareth line until a day or more after Eighth Army’s assault, though they remained uncertain whether, as they now hoped, the enemy would commit his armour against US II Corps’s advance, which had taken Gabes on 17 March. On the evening of 20 March, however, a few hours before beginning its frontal assault, Eighth Army learned from the decrypt of a report of the
previous day from General Messe that the enemy intended to stand at Mareth. In this signal Messe, expecting Eighth Army to attack in three or four days’ time, said that he expected a main frontal attack, a powerful outflanking attack by armoured and motorised troops and a simultaneous attack in superior force from the Gafsa area, but that ‘faced with this situation I once more confirm my intention to defend the Mareth line to the uttermost’. He added that he was making provision for a withdrawal to Akarit line ‘should stubborn defence seem to be leading to complete annihilation’.

At midnight on 20–21 March, after much evidence from Y and Enigma, and from observation of his activities, that the enemy was concerned for his Mareth flank, another Enigma decrypt disclosed that the GAF had sighted New Zealand Corps, on the afternoon of 19 March, well on its way to the Plum gap. Arriving in sight of the gap at last light on 20 March, the Corps made contact with the Italian forces there on the following day, captured an important height during the night of 21–22 March, but its commander, General Freyberg, then decided not to push forward. During 21 March the Enigma had revealed that 21st Panzer Division had moved from Gabes to ‘behind the Mareth front’, Y had established that a battery of 88 mms normally belonging to 21st Panzer Division had been sent to the gap, and Eighth Army’s intelligence staff had concluded that 21st Panzer Division would be following it. It may be presumed that General Freyberg’s decision to delay his assault on the Plum gap was taken in the light of this intelligence as well as of the fact that by the morning of 22 March Eighth Army’s frontal assault had not yet made a break-through.

The frontal assault, preceded by an artillery barrage as at Alamein, had begun at 2315 on 20 March. The point of attack — the sector on the enemy’s left that was manned by the Italian Young Fascist Division — had been selected in the light of accurate information from Y, POW, captured documents and the Enigma about the enemy’s deployment in the line. But the attempt to deflect the enemy’s attention from the threatened sector had come to nothing, not least because the German field Sigint organisation, in what it considered to be its most important achievement, had obtained advance information of the Allied plans. Diversionary raids during the night of 16–17 March had, as so often before, fallen foul of unsuspected minefields, and shortly before the opening of the assault Eighth Army had learned from the Enigma that the Young Fascists were being stiffened by German troops. By the morning of 22 March, slowed down by the arrival of further German reinforcements, the infantry had made a partial lodgement, but it was then beaten back by a counter-attack by 15th Panzer Division; good notice of this counter-attack was given by Y and air reconnaissance, but it proved impossible to break it up. By nightfall on 22 March Eighth Army had accepted that the frontal attack had failed, and in the early hours of 23 March General Montgomery decided on a change of plan. Going over to the defensive on the Mareth line, he threw his main weight into the outflanking move, sending 1st Armoured Division round the Matmata hills, ordering 4th Indian Division to open up a shorter route around the enemy positions, and calling for an assault (Supercharge II) by the New Zealand Corps and 1st Armoured Division at the Plum gap.

Soon after making the change of plan Eighth Army learned from the Enigma that it could continue to discount intervention by 10th Panzer Division. It was informed early on 23 March that it had been ordered to join with the Centauro Division in restoring the position on US II Corps’s front, where the Americans had been attacking since 20 March. 10th Panzer Division
counter-attacked at El Guettar at 0630 on 23 March, but was repulsed after
suffering heavy losses by US 1st Infantry Division, which had received precise
warning of the enemy's intention from the British Y unit with US II Corps. For
the next fortnight the Enigma and Army Y, which was now providing an
excellent service, regularly revealed that 10th Panzer Division was being held
in the El Guettar area and was for the most part in dire straits. On the other
hand, Eighth Army also knew that it could not expect relief from a further
thrust made by US II Corps to the coast through Maknassy. II Corps's advance
was held up by the fanatical resistance of a small German force that was
identified by Enigma and Army Y as comprising Reconnaissance Unit 580 and
the unit - Kasta OB - which had been Rommel's bodyguard. Y and POW later
showed that this force was being strengthened by reinforcements from
northern Tunisia.

On Eighth Army's front the Enigma showed during 24 March that the
enemy, realising that powerful forces were assembling for a major attack on
the Plum gap, had sent 21st Panzer Division and 164th Division to that area,
with orders to counter-attack only if they were attacked, and was doubting
whether he could hold the thinly-occupied main defence line. During 25
March, as was disclosed by air reconnaissance and DF, 15th Panzer Division
was also transferred from Mareth to the gap and there were further important
Enigma decrypts. 164th Division, in command in the sector, reported that 21st
Panzer Division might not be strong enough to recover the high ground that
had been lost, appreciated that it might be impossible to repulse Eighth Army's
expected mass tank attack and requested reinforcements and air support. A
GAF decrypt announced that FW 190 reinforcements were being sent from
Italy. And in the evening 164th Division was told that if it became too
hard-pressed it might withdraw to El Hamma and to the north. But not until
26 March, when the RAF in any case first noticed signs of a general withdrawal,
did Eighth Army learn that the enemy had decided to pull his infantry divisions
back from the Mareth line to the Akarit position, thus converting the task of his
forces in the Plum gap from all-out resistance into a temporary holding action
to cover the withdrawal. An Enigma decrypt received on the afternoon of 26
March disclosed that von Arnim had made this decision on 24 March against
opposition from Kesselring and Messe, his main reason being that he might
need the forces in the gap to reinforce those that were holding up US II Corps
at Maknassy.

The withdrawal denied Eighth Army, once again, the opportunity to cut off
the enemy's main body. Beginning on the night of 25-26 March, 24 hours
earlier than originally intended, it was already in full swing when 4th Indian
Division arrived behind the Mareth positions, and the opening of Supercharge
//, ordered for 25 March, had meanwhile been delayed by the local command-
ers. Their knowledge of the identity and condition of the forces opposing
them was complete: it included the fact that 15th and 21st Panzer Divisions
possessed only 73 serviceable tanks, less than a quarter of their own. But they
judged that in view of their shortage of field artillery the strength of the
enemy's defensive positions made a frontal attack impossible, and that an
outflanking move would take ten days.

It was in these circumstances that the AOC Western Desert Air Force
proposed a massive preliminary air strike against the enemy's gun positions,
defence posts and land-line communications. This strike, involving practically
all the tactical aircraft in the theatre in an operation hitherto without parallel,
took place during daylight on 26 March. Its immense effectiveness depended on the preparation for the pilots of details about a large number of precise targets. The information came from 'air photographs and other intelligence', the other intelligence being RAF Y.

The armoured advance started late in the afternoon on 26 March. By daybreak on the following morning it had passed through the defile to El Hamma. It was then held up by 15th and 21st Panzer Divisions and the enemy’s anti-tank screen for two days during which the enemy’s infantry completed the withdrawal to Akarit. 15th and 21st Panzer Divisions withdrew late on 28 March, their intention to do so having been disclosed by the Enigma early in the day. On 29 March Eighth Army occupied Gabes.

On 30 March General Montgomery decided against continuing the advance, electing to build up his strength for a later attack which was eventually launched on the night of 5-6 April. At the time he made this decision his intelligence staff had received the decrypts of several Enigma reports of 28 March from Army Group Africa. One stated that the fighting on all fronts had consumed its reserves; a second that the supply situation was desperate and that ‘a few hours might make all the difference’; a third that the holding of the front depended on the immediate arrival of supply ships. In more detail, it knew from Y that 15th Panzer Division was down to either 3 or 9 tanks, but it had no information about 21st Panzer Division’s latest losses; and, influenced, perhaps, by another Enigma decrypt which had ordered Italian labourers to be sent from Akarit to develop a position at Enfidaville, it believed that the enemy would hold the Akarit line only temporarily. On the other hand, the main strength of US II Corps was still being held up at Maknassy, and a further Allied attempt to break towards the coast behind the Akarit line had been halted by the Germans at Fondouk since 27 March.

In the first few days of April intelligence provided further details about the state and location of the enemy forces. The Enigma showed that 15th and 21st Panzer Divisions had withdrawn their tanks to a point halfway between Gafsa and Gabes from which they might intervene at either Akarit or Gafsa. It also showed that they together possessed only 23 tanks by 30 March, a fact which led Eighth Army intelligence to conclude that the two divisions were ‘probably no longer effective’. By 5 April, however, Y and air reconnaissance had located 21st Panzer Division at El Guettar on US II Corps’s front, in company with 10th Panzer Division and Panzer Abteilung 501, a fact which suggested that the enemy might still make a strong attack there but was not expecting an immediate attack at Akarit. As for the forces at Akarit, POW taken at Mareth had left no doubt that the Italians had little fight left, and the Enigma had confirmed that 164th Division had suffered severe losses and revealed that 90th Light Division was the only unmauled formation in the line. On 2 April an Enigma decrypt gave the tank strengths of the German forces in the whole of Tunisia for 30 March. 10th Panzer Division and Panzer Abteilung 501 had between them 78, including 8 Tigers; 15th Panzer Division had 10; 21st Panzer Division had 13; and beyond that, in Panzer Army 5, there were only 9 tanks, including 5 Tigers. A total of 110 tanks.

By the time it opened its attack on the Akarit line on the night of 5-6 April, Eighth Army had built up a force of well over 500 tanks; and its hopes of delivering a knock-out blow were high when, before dawn on 6 April, its infantry succeeded in making a two-pronged penetration of the enemy’s positions. Later that morning, however, 90th Light Division counter-attacked
and partially closed the breach before the armour of X Corps had begun to move in, and in the afternoon X Corps’s advance was checked by a counter-attack from 15th Panzer Division, the enemy’s only available reserve. Y had given good notice of both of the enemy’s counter-attacks. General Montgomery then prepared to complete the armoured break-through on the morning of 7 April, preceding it with heavy air attack and artillery bombardment. But before the attack was resumed, air reconnaissance and Y were reporting the withdrawal of ‘all elements’ from Akarit, as also of 10th and 21st Panzer Divisions and all other enemy forces from the El Guettar-Maknassy area. The Allies had renewed the attack from Fondouk towards Kairouan on 4 April in anticipation of this withdrawal, but no prior warning of the retreat had been obtained from any source. The Enigma decrypts about the retreat did not become available until 8 April.

On 10 April the Enigma decrypts reported that large parts of 21st Panzer Division, of 164th Division and of 90th Light Division were able to withdraw only on foot, without their heavy equipment, for lack of fuel, and that unless the fuel situation could be improved they might not be able to reach the Enfidaville line. When British IX Corps with 6th Armoured Division reached Kairouan from Fondouk, however, in the afternoon of 10 April, 10th and 21st Panzer Divisions had already passed through on their way north. Though leaving much equipment behind, the greater part of Messe’s army succeeded in reaching Enfidaville from Akarit by 13 April.

The success of the Axis in once again extricating the bulk of its forces was a source of serious disappointment to the Allies. On 28th March, at the height of the battle of Mareth, the Chiefs of Staff had stressed in a signal to the commanders in Africa that it was essential to bring the Tunisian campaign to an end in April so that convoys could again be routed through the Mediterranean and full use be made of ‘the limited shipping at our disposal’. By that time, by increasingly heavy attacks on the enemy’s bases in Sardinia and Sicily, which included Sigint-based intruder raids, the Allied air forces had all but eliminated the GAF’s threat to Allied supply convoys to such ports as Algiers and Bone. At the end of March the Enigma disclosed that practically all the aircraft of the three Gruppen of KG 26 - the torpedo-bomber unit which had led the assault against the Allied shipping - had been made unserviceable. In April Allied losses dropped to five ships, all sunk by U-boat. From the middle of April, as Eighth Army moved north of Akarit, it became possible to supply it, also, from the western Mediterranean ports, and thus to begin reducing the amount of shipping sent round the Cape. But every delay in clearing the enemy from north Africa prolonged the strain on Allied shipping.

On 7 April, on the other hand, the day on which the enemy began his retreat, the Chiefs of Staff, in a report to the Combined Chiefs in Washington on the possibility that the Axis might be preparing a large-scale evacuation from Tunisia, had stated that the need to prevent this was already ‘engaging the earnest attention of the North African Command in all its branches - naval, military and air’.

In the view of the British Chiefs of Staff the enemy had not only not yet
decided to evacuate his land forces; he would decide against doing so from the wish to retain a foothold in north Africa for as long as possible. This appreciation proved to be correct: on 16 April, after discussion with the Axis commanders, OKW ruled against a large-scale evacuation and decided that not even the withdrawal of specialist personnel was to be contemplated. Although the Enigma decrypts made no reference to this discussion or to its outcome, they left no doubt that the GAF was still making every effort to retain a fighter and fighter-bomber force in Tunisia. This may have influenced the Chiefs of Staffs appreciation. But the appreciation was based mainly on the fact that the Axis was not concentrating small craft and on the plentiful Sigint evidence that it was continuing to do its utmost to get supplies and reinforcements to Tunisia.

After the first week of April this evidence became all the more telling in that, in his effort to keep Tunisia supplied, the enemy now met with rapidly increasing difficulties. During March he had responded to the reorganisation and intensification of the Allied attacks on the supply lines by making still greater use of ferries and landing craft – especially of the custom-built KT ships of about 800 tons – for his more valuable cargoes. Although Sigint provided full details of their sailings, such craft were harder to sink on passage than were the bigger ships, and the Allied bombing of ports interfered less with their loading and unloading. In this way, and by dint of more frequent sailings, the enemy succeeded in unloading 43,125 tons of cargo in Tunisian ports in March, compared with 49,600 in February. Even so, Sigint showed that of the merchant ships reported to have sailed for Tunisia in that month the proportion sunk on passage or in port rose to 50 per cent, as compared with less than 20 per cent in February. It showed, further, that no cargo at all was unloaded in Tunis on 16 days of the month – including the period from 23 to 30 March, when no ships docked in any Tunisian port – and that of the fuel despatched by sea only 30 per cent got across, the bulk of the remainder being in a tanker that was damaged and forced to turn back towards the end of the month. In these circumstances the enemy was being forced to rely for the transport of fuel, as of troops, on naval vessels and transport aircraft.

Post-war figures show that in April as a whole the Allies destroyed 41.5 per cent of the seaborne cargoes despatched to Tunisia; the tonnage disembarked in Tunisia fell from 43,125 in March to 29,233 tons. Enormous risks now attended the crossings. How great these were was illustrated early in the month. Sigint having disclosed details of a five-ship convoy that was due in Tunisia on 6 April, the day of the British assault at Akarit, one of the ships (a tanker carrying 2,000 tons of fuel) was sunk before the convoy had collected, a second ship was torpedoed soon after the convoy had sailed, two others were blown up off Bizerta, and the arrival in Bizerta of the single survivor was delayed till 17 April. As Sigint showed, only four ships of over 3,000 tons succeeded in reaching Tunisia, and the enemy was thus depending more than ever on air transport when the Allied air forces opened a sustained campaign against his large and heavily escorted air transport convoys and against his transport aircraft on airfields in Sicily and Tunisia.

The intelligence used during the planning and execution of this campaign (operation Flau) came partly from the GAF Enigma, which gave details of cargoes, variations of the convoy routes, flight cancellations and other enemy defensive measures. Even more important, however, was the interception by RAF Y of the tactical signals of the air transport systems of the GAF and the
IAF. From the study of this traffic the intelligence staffs derived their familiarity with the points of arrival and departure, the time taken to unload and turn round, the normal routes and the strength of the escorts. The campaign began with an attack on a convoy of transport aircraft on 5 April. Until 17 April it was carried out by Allied aircraft operating from bases in northern Tunisia and Algeria, and by that date it had destroyed about a quarter of the total Axis transport fleet – over 100 aircraft. On 17 April it was taken over by the fighters of the Western Desert Air Force: operating from newly occupied bases between Akarit and Enfidaville, these completed what, with pardonable exaggeration, has been described as ‘the annihilation of the enemy’s transport fleet’. More prosaically, the GAF’s transport fleet in the Mediterranean area, 263 aircraft at the beginning of the month, had lost 157 aircraft by 27 April, and the Allies had also destroyed Italian transport aircraft and a large number of operational aircraft that the enemy had pressed into service for the ferrying of fuel and ammunition. Whatever the enemy’s total losses – one estimate is that they amounted to 432 aircraft – this reduction of the German transport fleet, coming on top of that effected at Stalingrad, crippled it for the rest of the war. More immediately, the operation intensified the strangulation that was now rendering the enemy’s supply position in Tunisia critical. At the beginning of April it was estimated that the GAF transport fleet was bringing in 250 tons of fuel daily, and the total daily delivery by air was perhaps about 400 tons. On 10 April the Allies learned from the Enigma that Kesselring had warned that unless they received 400 tons of fuel daily the retreating German formations might not be able to reach the Enfidaville line. On 26 April the Enigma disclosed that, on Goring’s orders, transport flights to Tunisia were henceforth to take place only at night: a change of policy which brought the Allied operation to an end, but which also greatly reduced the scale of Axis air deliveries.

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It was in the knowledge that the enemy’s supply position was deteriorating rapidly but that he nevertheless intended to prolong his resistance that the Allied forces planned the final stage of their advance. This opened when Eighth Army assaulted the Enfidaville line on 19 April and First Army and US II Corps, four corps in all, began to move on Bizerta and Tunis from the south, south–west and west on 22 and 23 April.

Eighth Army failed to gain its objectives, which were first to prevent the Panzer divisions with First Italian Army from joining forces with Panzer Army 5 on First Army’s front and then to cut off First Italian Army’s retreat by lunging across the neck of Cape Bon. Meeting with fanatical resistance, it was reduced to keeping up local attacks until 29 April. On the day of the assault, however, Y detected that part of 10th Panzer Division was moving to the Plain of Tunis from behind the Enfidaville line, leaving only 15th Panzer Division there with about 15 tanks, and AFHQ had by then put together other indications that the enemy might be planning an attack against First Army’s preparations. On 17 April a POW had alleged that the Hermann Goring Division would attack in the near future and that as that was the freshest of the German divisions, and was known to be up to strength except that on the
evidence of the Enigma it lacked its armoured regiment, ‘it might reasonably be employed in a spoiling attack’ south of Medjez el Bab. On 20 April AFHQ suspected that 21st Panzer Division, as well as 10th Panzer Division, might be involved, and 18th Army Group noted that the movement of enemy artillery might be connected with the attack. The attack was delivered early on 21 April, in the area that had been predicted by AFHQ, by the Hermann Goring Division, the armoured component of 10th Panzer Division (7th Panzer Regiment) and Panzer Abteilung 501. Using a total of 80 tanks, including the few remaining Tigers, it temporarily threatened the artillery preparations for First Army’s advance but was brought to a halt within hours after losing 25 tanks.

On 22 April the main Allied advance on First Army’s front was launched as planned. On the following day Y disclosed that the enemy was transferring 15th and 21st Panzer Divisions to this front: and on 24 April the GAF Enigma revealed that Fliegerführer Tunis had called for reinforcement by 20 Me 109s. But it was estimated from Enigma returns that the Germans had less than 100, serviceable tanks, that the Fliegerführer had 115 serviceable aircraft and little chance of receiving reinforcement, on account of Axis fears of attack elsewhere in the Mediterranean, and that the enemy’s combat strength was about 60,000 men. The Allies advanced with 1,400 tanks and over 300,000 men and the Mediterranean Air Command disposed of 3,241 aircraft, of which the bulk could be used in Tunisia if needed. But by 26 April, having driven the enemy back several miles in some of the fiercest fighting of the whole war, the Allied thrusts had ground to a halt.

On 29 April 18th Army Group and Eighth Army both acknowledged that they had been checked. Y had by then established that the enemy had moved his last remaining tanks (two German reconnaissance units and some Italian AFVs) from the Enfidaville front: the Enigma had on 28 April confirmed the arrival of a new German armoured formation, Panzer Abteilung 504, and shown that it was already operating with the Hermann Goring Division: and on 30 April the C 38m disclosed that Italian destroyers were still arriving in Tunis with full complement of troops. Together with the enemy’s increased expenditure of fuel and ammunition, however, every additional reinforcement he received intensified his supply problem, and from the end of April, while the Allies paused until 7th Armoured Division and 4th Indian Division were brought round from Eighth Army to join First Army in a renewed drive on Tunis, this finally reached crisis proportions.

On 28 and 29 April the Allied commands learned that Army Group Africa expected ‘a complete supply breakdown’ if sea supplies did not at once improve. This information was obtained from the Porpoise decrypts from the German Naval Command. On 29 April Army Group Africa’s decrypts furnished the details: such supplies of fuel and ammunition as were still arriving by sea were being immediately absorbed by the urgent needs of its formations, whose fuel Holdings were now sufficient only for distances varying between 6 and 37 miles. On the same day the GAF Enigma disclosed that the fuel situation was so catastrophic that the GAF could no longer find the 35 gallons a day that it needed to operate its radar. By 4 May, according to a Porpoise decrypt, the Army Group could no longer guarantee to get rations, water and ammunition to the troops, and the SIS and Army Y disclosed that the enemy had no reserves and that medical staff were being put into the line. The last Axis merchant ship to reach Tunisia arrived on 3 May: Sigint had given no notification of her sailing. But it was after receiving advance warning from Sigint that the
destroyers of Force K sank the *Campo Basso* off Cape Bon on 4 May, and that on 5 May the USAAF sank the *San Antonio*, 6,000 tons, on her way from Naples to Tunis, off Sicily. These were the last two merchant ships to try to reach Tunisia, though smaller craft continued to ply and, as was disclosed in the GAF Enigma on 6 May, the German Naval Command was planning to use even U-boats to ferry fuel.

It was in this way that the Allies brought about on 6 May a sudden collapse of Axis resistance. When they renewed the advance on that day von Arnim was unable to organise defence for lack of fuel, and on 7 May, when units of First and Eighth Armies burst into Tunis and US II Corps entered Bizerta, GC and CS was decrypting a signal from the Quartermaster of Army Group Africa which announced that supplies of ammunition were no longer to be sent as he lacked the petrol to move them.

It was similarly the desperate supply position which prevented the considerable Axis forces which remained in the mountainous country south and south-east of Tunis from moving into Cape Bon to prolong their resistance or attempt evacuation. From 8 May when the German radio announced that the African campaign was over and that Axis troops would be evacuated in small boats, 10 destroyers, greatly aided by the full intelligence available from the C 38m about the enemy’s minefields, constantly patrolled the waters off Cape Bon: operation *Retribution*. But air reconnaissance detected no sign of preparations for a general evacuation, and GC and CS provided further reassurance. On 8 May the decrypt of a telegram from the Japanese Ambassador in Rome disclosed that Mussolini had told him that evacuation was not possible.

Von Arnim’s report of his surrender, the last Army Enigma message from Africa, was decrypted on 12 May. Messe also surrendered on 12 May. Their troops, both Italian and German, had fought to the last. The Enigma later showed that only 632 officers and men had been evacuated by air and sea. A final count of prisoners showed that the number taken was somewhat under 250,000 and the intelligence authorities came in for criticism for under-estimating: they had calculated that the number would be 200,000. Whatever may have been the reasons for the discrepancy, it was in the last resort thanks to the intelligence authorities that the problem of feeding the extra 50,000 was solved without great difficulty. As a result of the provision by GC and CS of regular Sigint notification of the sailings and the cargoes of the Axis supply ships, and of the efficiency of the Allied forces since February in using this intelligence to select priority targets for their anti-shipping attacks, Axis food dumps held plentiful supplies.
CHAPTER SEVENTEEN

The Air War in Western Europe in the First Half of 1943

The GAF resumed its offensive against the United Kingdom on 17–18 January 1943 when it flew 100 bomber sorties over London and at once followed up this first major attack on the capital since January 1941 with a daylight raid by escorted fighter-bombers. The new campaign continued throughout the first half of 1943, small, infrequent and invariably ineffective night raids, distributed against a wide range of targets, being supplemented by weekly daylight attacks by fighter-bombers against London and coastal towns and, from the beginning of April, by fighter-bomber raids at night. The long-range bombers, out-dated and manned by inexperienced crews, sustained heavy losses, as did the fighter-bombers in their night operations. The daylight operations by the fighter-bombers continued to be more effective but they became infrequent from June, when the greater part of the units involved were again drawn away by the needs of the Mediterranean.

The Enigma gave good notice of the new offensive by disclosing from the end of 1942 that GAF units that had been called away to other theatres in the previous autumn were returning to France and that bomber Gruppen were being re-formed there. Order of battle intelligence provided reasonably accurate forecasts of the scale of the coming threat. The JIG calculated that the fighter-bomber daylight raids were unlikely to involve more than 30–40 sorties over a period of three days: this was roughly the size of the weekly raids carried out by the fighter-bombers from March 1943. It forecast that the bomber force would be able to sustain between 15 and 20 sorties every 24 hours until the summer months and 30 sorties thereafter. In fact the bombers carried out raids about every ten days using about 50 aircraft in each attack. The Enigma also disclosed that from the beginning of March the German authorities, dissatisfied with the results of the offensive, began to make determined but in the end unavailing efforts to increase its effectiveness.

By that time the Enigma decrypts were referring with growing frequency to the GAF’s shortages, especially in manpower. In the middle of February they had disclosed that the GAF had ordered the transfer of all men aged 35 or below from staff posts to fighting units. A week later a decrypt had revealed that Luftflotte 3, the formation in charge of the offensive against the United Kingdom, was being handicapped by shortage of personnel. By 17 March, on the other hand, it had not only emerged that Goring had interviewed the commander of Luftflotte 3 about the failure of his aircraft to press home their night attacks between 1 and 10 March: it was also clear that some effort was being made to lighten Luftflotte 3’s difficulties. On 7 March the Enigma showed the GAF making enquiries for bomber crews with experience of operations over the United Kingdom. By 16 March it had reported that three Gruppen of FW190 had moved to airfields in Belgium and Holland, specified as advanced landing grounds for fighter-bombers, and that supplies of incendiaries and of large HE bombs of a new type were to be sent to Belgium and
France. On the following day the Enigma revealed that a Colonel Peltz had been appointed to a special post of Angriffsführer England from 1 April to take charge of bombing attacks on the United Kingdom. In April the Enigma added the further news that three officers were being recalled from Russia to carry out under Peltz’s command experimental flights with a new aircraft: this was later discovered to be the Me 410 fast bomber. These measures failed to put new vigour into the bombing offensive before June 1943 when Peltz and a part of his command were transferred to the Mediterranean.

As in 1942 the effectiveness of the offensive was much reduced by the fact that the counter-measures authorities had acquired such familiarity with the equipment and procedure of the GAF’s navigational beams that they were able to take immediate action against them whenever the GAF tried to use them for operations.

The new Knobbein frequencies were rarely active during operations after January. The Y-Gerät system was used only by single aircraft before May, when POW revealed that it was being operated with complicated procedures designed to evade jamming, but it was used only sporadically and POW interrogations showed that the jamming was being effective.

Intelligence was otherwise of little tactical assistance to the defence organisations. The daylight raids usually achieved surprise. In the night raids the bombers and fighter bombers were rarely intercepted before dropping their bombs. As a result of stricter radio discipline on the part of the GAF, Cheadle and Kingsdown were now able to add little to the information provided by radar.

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While the GAF’s offensive was faltering there was a steady increase in Bomber Command’s operations over Germany, and these derived some benefit from more effective aids to navigation and bombing. A modified form of ‘Gee’ was brought into use in February 1943. From January 1943 the first device designed specifically as a bombing aid was used by the Pathfinder Mosquitoes: known as ‘Oboe’, it was not jammed by the enemy until November 1943, and then without serious effects. H2S, an airborne radar to aid both navigation and bomb aiming by producing a cathode ray tube picture of the terrain beneath the aircraft, was also coming into use from the end of January.

With the arrival of the new equipment and the accompanying development of new bombing tactics the Air Staff hoped that area bombing would give way to selective night attacks on precise targets, whereas Bomber Command continued to believe that more effective area bombing of cities and towns remained the most profitable – indeed, the sole practicable – policy. In the early months of 1943 this was a growing difference of opinion that remained unresolved. Photographic reconnaissance, and to a smaller extent night photographs, were still the only reliable sources of visible evidence about bomb damage; up to the opening of the Battle of the Ruhr in March the evidence they produced was insufficient to permit firm conclusions on either the value or the limitations of the new aids and tactics.

On 21 January the Casablanca directive of the Combined Chiefs of Staff defined the strategic aim of the bombing effort against Germany in such away
as to show that they agreed in seeing it only as a prerequisite, though an essential one, to land operations against Germany. The Casablanca directive stated that its 'primary object will be the progressive destruction and dislocation of the German military, industrial and economic system, and the undermining of the morale of the German people to the point where their capacity for armed resistance is fatally weakened'. Within that definition it listed as the prime objectives, in an order of priority that should be varied only by reference to weather conditions and tactical feasibility, the U-boat construction yards, the aircraft industry, transport, oil plants, and other war industries.

Intensive raids were carried out against the U-boat bases and construction yards between the beginning of February and the beginning of April 1943 with inconclusive results. And from early in March 1943, this evidence reinforcing its continuing scepticism about the value of attacks on precision targets, Bomber Command availed itself of the discretion as to the feasibility of targets that had been left to it by the Casablanca conference to move into the Battle of the Ruhr.

The Battle of the Ruhr, which absorbed most of its night-bombing effort during the next five months, opened on 5 March when, in a raid on Essen, 'Oboe' and other new aids were used for the first time to guide a large force (442 aircraft) to its target. The battle lasted till 25 July, by which time 15,504 aircraft sorties had dropped 42,349 tons of bombs with the loss of 718 aircraft. Estimates of the damage done, based on the PR and night photographs, testified to a marked increase in the accuracy of the bombing and associated it mainly with the operational effectiveness of 'Oboe'. But these estimates could measure only visible damage: the number of houses and factories destroyed and, by deduction, the number of people rendered homeless. In the absence of reliable intelligence, such as reports direct from Germany or comprehensive references in Sigint sources, the effects of the recognisable damage on the enemy's economy and morale remained matters of speculation. All that could be said with certainty was that the severe damage done to the towns in the main centre of German heavy industry was not sufficient to prevent a general rise in the enemy's armament production at the time.

As well as becoming more cautious in their estimates of the damage done by the bombing offensive, the Whitehall authorities were forced to recognise that the tactical counter-measures that had now been adopted against the enemy's radar and night-fighter defences were not yet off-setting the increasing efficiency of the GAF's expanding defence organisation. The introduction of these counter-measures inaugurated, from the end of 1942, the running battle against extensions and improvements to the enemy's systems which continued down to the end of the war. It was a battle in which the Enigma and the study of the night-fighter R/T traffic by GC and CS provided most of the intelligence. And in the first half of 1943 this evidence, backed up by Bomber Command's operational reports, indicated that the initial counter-measures had at most achieved some limited success during short periods of surprise.

Still more decisive evidence to the same effect was provided by Bomber Command's casualties, which became heavier and heavier as the Battle of the Ruhr proceeded, and by the fact that the growing strength of the enemy's night-fighter force was driving its bombers to operate at higher altitudes and on darker nights. The enemy's actual strength in twin-engined fighters (mostly night-fighters) on the western front having risen from 180 to 349 between the beginning and the end of 1942, it increased further to 478 by July 1943 and was
to reach 682 by the following October. This increase was made possible by the
great expansion of aircraft production which had been inaugurated by Speer
and Milch in 1942, and it took place despite the high priority the expansion
programme gave to the output of single-engined (day) fighters. By July 1943
the total first-line strength of the GAF, raised to 5,396 aircraft as compared
with 4,000 at the end of 1942, included 1,800 single-engined fighters (1,250 at
the end of 1942) and 666 twin-engined fighters (495 at the end of 1942).

Although Whitehall considerably underestimated the rate of increase in
the enemy’s aircraft production programme during 1943, its order of battle
intelligence amply explained the experiences encountered by Bomber Com­
mand. It showed that by April 1943 Germany’s fighter strength was 44 per cent
higher than in December 1941. It showed, further, that the GAF had radically
altered the distribution of its fighter forces. In August 1942 38 per cent had
been deployed on the western front as against 43 per cent in Russia; by April
1943 these percentages had become 45 and 27 respectively. As for the
twin-engined fighter force in the west which directly opposed the night
operations of Bomber Command, Air Intelligence, which had estimated in
November 1942 that it stood at 365 aircraft, assessed its strength in July 1943
as 470 aircraft (actual figure 478). Intelligence about the German Flak
organisation revealed a comparable increase in the total deployment of guns
and searchlights and a comparable concentration in the Reich at the expense of
other theatres from the beginning of 1943.

It was in these circumstances, as the outcome of an intensified search for
more effective techniques and tactics against the enemy’s defences, that in July
the decision was finally taken to resort to the use of ‘Window’. The introduction
of this device – the dropping of metallic strips to produce false signals on
enemy radar – had been delayed since the spring of 1942 for fear that if the
Germans did not already understand its principle, its exploitation would give
them knowledge of a counter-measure which would turn to the disadvan­
tage of the Allies. As it happens, the Germans were experimenting with a
similar system (Düppel) and were faced with the same problem: such was their
anxiety for the effects it would have if used against their own defences that they
suspended their trials and took other precautions to prevent the existence of
Düppel from coming to Allied notice. Nor was any firm intelligence obtained
about Düppel before May 1943, when the Chiefs of Staff decided that in view of
Bomber Command’s mounting losses, and considering the decline of the threat
from German bombing, ‘Window’ should be brought into use in July.

In the Allied daylight offensive the chief development was the steady
increase in US precision bombing of industrial and military targets. From the
beginning of 1943 Eighth Air Force extended its raids from the occupied
territories to the fringes of Germany itself: its first attack on Germany was a
raid on the U-boat facilities in Wilhelmshaven on 27 January 1943. From April
1943 it began to penetrate deeper into Germany – and thus to undertake an
increasing proportion of its raids without fighter escort – and to place greater
emphasis on the destruction of GAF fighters, in May the Trident conference in
Washington agreed that the task of the daylight campaign should continue to
be the reduction of the GAF’s fighter forces by engaging fighters and attacking
fighter production plants.

By July 1943 the determination with which US Eighth Air Force extended
its raids ever deeper into Germany forced the GAF to make the defeat of the
day-bomber its first concern. From the same date, on the other hand, the fact
that an increasing number of its raids were taking place without fighter escort raised US casualties to an alarming level, and in October, recognising temporary defeat, US Eighth Air Force was forced to suspend operations until it had acquired longer range fighters. Its offensive was not to be resumed until February 1944.

One reason why the offensive was maintained for so long in the face of mounting casualties lay in US Eighth Air Force’s continuing lack of a reliable method of checking the claims of its bombers to have destroyed enemy fighters. Fighter Command had become more cautious in its assessment of its own claims by the end of 1942: in the first half of 1943, when it claimed to have destroyed 249 enemy fighters, the number actually destroyed was 235. But US Eighth Air Force’s estimates of the casualties it had inflicted on the GAF continued to be enormously exaggerated. In the summer of 1943 its estimate of the number of enemy aircraft it had destroyed in the first 12 months of its operations exceeded the British estimate of German aircraft casualties on the western front from all causes in the same period. As late as October 1943, in the second great raid on Schweinfurt which brought its offensive to a close, it claimed to have destroyed 186 fighters for the loss of 60 of its own bombers: but the GAF’s casualties in the raid totalled only 38. Until then it clung to the belief that, partly as a result of the enemy’s heavy casualties and partly because of the heavy damage it was inflicting on German aircraft production, the GAF’s day-fighter force was not merely overstretched, but was in its death throes. In fact, largely because of its under-estimation of the increase in the rate of German aircraft production during most of 1943, Air Intelligence’s calculations of Germany’s front-line strength in day-fighters in the west were falling behind actuality. It estimated that it was 600 in July and 780 in September, whereas the true figures were 810 and 964; nor was it till November that it retrospectively raised the estimate for July to 740.

The Enigma evidence on redeployments and the low-grade Sigint evidence on order of battle left no doubt, however, that the GAF was being forced to give high priority to combating Eighth Air Force’s offensive. In March 1943 Sigint showed for the first time that the day-fighters in Germany were being reinforced at the expense of the Russian front. In April this movement was accelerating and formations were being drawn in from the Mediterranean as well as Russia. In May it emerged that the GAF in Russia was being forced to rely on obsolete fighters. In June the Enigma disclosed that a large proportion of the day-fighters in France and Belgium was retreating to German bases. In August two more Gruppen were being withdrawn to Germany from the Orel sector on the eastern front at a time when the fighting there was at its height. It was soon to appear, moreover, that the daylight offensive was forcing the Germans to undertake the dispersal of their aircraft factories. The dispersal put the industry in a better position to withstand the offensive when it was resumed in February 1944: but it delayed the planned increase in Germany’s fighter production to an extent that contributed significantly to the outcome of the later air battles.
CHAPTER EIGHTEEN

The War at Sea in the First Half of 1943

In December 1942, when the Arctic convoy sailings were resumed, it was known from the Enigma that the GAF had transferred all its offensive forces from Norway to the Mediterranean, that of the main units of the German fleet only two cruisers, the Hipper and the Köln, remained in the north, but that the number of U-boats in the theatre had grown to 25.

Throughout the winter the Enigma continued to provide reliable evidence as to how many U-boats were on patrol, together with a considerable amount of information about their patrol positions. As before, the Admiralty timed the sailings of the convoys and adjusted the strength of their escorts in the light of this intelligence. The foul weather and the narrowness of the northern waters left little scope for evasive routing and, as before, the escorts received little tactical benefit from the Enigma once the convoys had sailed. Even so, the U-boats had sunk only a dozen ships by the end of March 1943.

At the end of January the enemy attempted to revive the air threat to the convoys. The Enigma disclosed that two Gruppen of JU 88 bombers had returned to north Norway and would be used against the next convoy. Their attack was ineffective, and in a signal decrypted on 26 January Fliegerführer Lofoten complained of their inadequacy and asked for torpedo-carrying aircraft. The Enigma showed that he received no further reinforcements.

Though much reduced by the withdrawal of the Tirpitz, the threat from the surface ships had by no means disappeared. On 20 November the Enigma had disclosed that the Germans had ordered the Hipper and the Köln to operate against the first of the new cycle of west-bound convoys (QP 15), but had cancelled the sortie on account of the weather. A week earlier it had warned that the light cruiser Nürnberg was leaving the Baltic, and given the time at which she would pass Bergen. An RAF strike had failed to find her between Bergen and Trondheim: the news that she had been delayed by bad weather, together with the fact that she had moved to Trondheim on 17 November, was not divulged by the decrypts until 18 November. By 24 November the Enigma had indicated that, like the Nürnberg, the Lützow, the Prinz Eugen and the Schaumburg had been taking part in exercise attacks on convoys, and might soon be following her. But no further intelligence was received until 11 December, when Enigma signals of 9 and 10 December revealed that one large and three small warships had been due to pass Bergen northbound on the previous day. It emerged late on 11 December that the formation was proceeding to Vestfjord and, on 13 December, that the large ship was the Lützow and that she had arrived in the Narvik area on 12 December.

Although the Germans intended to send the Lützow to the Atlantic, they planned to do so only after attacking the next Arctic convoy: her movement along the Norwegian coast was accordingly not accompanied by evidence of enemy reconnaissance of the Denmark Strait. Even so, the C-in-C Home Fleet re-established the Denmark Strait patrol and sent HMS Anson to Iceland. At the same time, it was decided to proceed with the decision to resume the Russia-bound convoys without delay. Convoy JW 51A sailed on 15 December; it
arrived at Kola on Christmas day without being sighted. JW 51B, however, following on 22 December, was sighted by U-boat south of Bear Island about noon on 30 December and the *Hipper* and the *Lützow*, whose move to Altenfjord on 19 December had been disclosed by the Enigma, at once sailed to intercept it.

JW 51B was accompanied by six destroyers and five other escorts under HMS *Onslow* and covered by the cruisers *Sheffield* and *Jamaica*, which had taken JW 51A through to Kola. Admiral Burnett, commanding the cruisers, knew that the *Lützow* had reached Altenfjord, that the German squadron there could be expected to intervene, that two U-boats were at sea in the area and that two others were in the vicinity of the ice-edge. During 28 and 29 December he had been informed by Ultra signal of the details of the ice-edge, as reported by these U-boats, and of the fact that on 28 December the Germans knew of his own departure from Kola and were expecting shipping through the Bear Island Channel. On 30 December he received only one Ultra signal: it told him there were strong indications that up to 0045 on that day the German Admiral Commanding Cruisers was still in Altenfjord. As luck would have it, moreover, no Enigma was decrypted during 31 December, so that at 0830 that day, when the German force was close to the convoy, he did not know it had sailed or, indeed, that the convoy had been reported by a U-boat on 30 December.

In the ensuing engagement, one in which the forces on both sides were impeded by the poor visibility and atrocious weather, the German force crippled the *Onslow* and the *Achates*, which later sank, and also sank a minesweeper before the British cruisers reached the scene at 1130, but it then suffered an early hit on the *Hipper* and the loss of a destroyer before withdrawing at 1200, and the convoy’s only casualty was damage to one merchantman. The Enigma of 31 December, broken about midnight, confirmed that the German force had consisted of the *Hipper*, the *Lützow* and six destroyers, and that one of the destroyers had been sunk. Early in January 1943 the Enigma disclosed that the *Lützow* was undamaged, but nothing was learned about the *Hipper* till 18 January when the Naval Attache Stockholm reported that she had been hit. An ‘officer-only’ Enigma signal, decrypted after a delay of three weeks, confirmed on 24 January that her No 3 boiler room had been flooded by a hit from one of the British cruisers.

Following this engagement the *Lützow’s* Atlantic cruise was cancelled, and the *Hipper* was withdrawn with the *Köln* to the Baltic. Nothing was learned of the *Lützow’s* change of plan, but on 25 January the Enigma and the SIS ship-watchers warned that the *Hipper* and the *Köln* were leaving Altenfjord for Narvik and the Enigma indicated that no immediate movement beyond Narvik was intended. The RAF had made special preparations for search and attack by the time the Enigma disclosed at about midnight on 4–5 February, after several days of uncertainty, that the ships were to leave Trondheim that night. But despite the preparations and the timely warning, the weather prevented an attack. The *Hipper* and the *Köln* reached the Baltic on 6 February.

Their withdrawal from Norway, in part an immediate consequence of the engagement of 31 December, also reflected the fact that Hitler’s dissatisfaction with the performance of the surface ships had precipitated his replacement of Raeder by Dönitz and a decision to bring the main units back to Germany and suspend all work on, and new construction of, capital ships. While remaining adamant against further new construction, Hitler was later persuaded by
 Dönitz’s promise of success within three months to restore highest priority to surface ship action against the Russian convoys. Dönitz then decided to bring ineffective ships back to Germany, to keep the Scheer and the Prinz Eugen in the Baltic because of serious fuel shortage, but also to begin a more vigorous campaign with the remaining ships as soon as the Schamhorst had joined the northern squadron.

Except that a Japanese diplomatic decrypt revealed towards the end of January 1943 that Hitler had decided to give priority to U-boats at the expense of capital ships, Whitehall received no intelligence about these exchanges with Dönitz until March. Early in March, however, an Enigma decrypt disclosed that crews of surface ships were being medically examined to see if they were fit for U-boat service. By the end of March the interrogation of U-boat POW had produced further evidence that a comb-out of surface-ship crews was taking place, beginning with the smaller ships.

Despite the evidence that fuel and manpower shortages were affecting the surface ships, the Home Fleet assumed that Dönitz’s appointment would be followed by greater enterprise in the use of the German main units. On 8 January, moreover, after giving several indications that the Schamhorst was engaging in fleet exercises in the eastern Baltic and might leave the Baltic before the ice formed, the Enigma announced that she and the Prinz Eugen had returned to Gdynia and that ‘final decisions’ were to be taken that day. On 9 January emergency signals to them suggested they were already moving and on 10 January the Enigma referred to the existence of a special operation and to minesweeping in such a way as to indicate that they might be passing through the Great Belt. Submarines had been deployed off south Norway, Coastal Command was flying special patrols and the Home Fleet was ready to make a destroyer sweep there, and also to send a squadron on to Iceland to guard against a possible break-out into the Atlantic or an attack on the next Russia-bound convoy, when the Schamhorst, the Prinz Eugen and destroyers were sighted off the Skaw steering north-west at 1300 on 11 January. The German formation turned back on intercepting the RAF sighting report. But this remained unknown until the forenoon of 13 January, when the Enigma disclosed that the Schamhorst had returned to Gdynia, and an intensive and anxious search for the Prinz Eugen went on until the Enigma added on 15 January that she had returned with the Schamhorst.

A second unsuccessful attempt to move these ships to Norway followed later in January. The Enigma again gave good notice. As early as 20 January a signal from C-in-C Fleet on board the Schamhorst revealed that he would repeat the attempt when the weather was suitable. Decrypts on the following day stated that the Schamhorst and the Prinz Eugen would exercise until 23 January; and on 23, 24 and 25 January further decrypts established that they were leaving the Baltic. Coastal Command PR sorties and strikes were planned in advance, and all else was ready when the ships were sighted off the Skaw at 1415 on 25 January. Again the enemy turned back on intercepting the sighting report: and again there was a period of suspense until – this time with less delay – the Enigma disclosed in the early hours of 26 January that the operation had been cancelled. It added, on this occasion, that the ships had been making for Narvik.

By that time convoy JW 52 had reached Russia without loss, and the Enigma had by 24 January given the assurance that the remaining surface ships in the north – the Lützow and the Nürnberg – would not sail against it.
But on 19 February, four days after the sailing of the next convoy, JW 53, the Enigma disclosed that the GAF had reconnoitred Scapa Flow on 17 February and planned intensive reconnaissance for the convoy: and on the following day it added that reconnaissance was taking place of the sea areas between Scotland, Norway and Jan Mayen. On 10 and 27 February, and again on 3 March, the Enigma also carried unusual instructions to U-boats to report on British air and sea patrols and radar cover in these areas. The enemy in fact made these arrangements in connection with his attempt to pass a blockade-runner through the Denmark Strait but the OIC, having no intelligence about this unusual plan until the end of March, necessarily associated them with a further attempt to send warships from the Baltic to Norway, and possibly into the Atlantic. And the Schamhorst did indeed pass through the Great Belt in the evening on 6 March. On this, her third attempt, she evaded the British surveillance, and it was not until 11 March that the Enigma established that she had reached Narvik.

On 10 March, when the Enigma established that the Schamhorst was at sea off Norway on the previous day but had not yet excluded the possibility that she was making for the Atlantic, it became clear from GAF Enigma decrypts about reconnaissance arrangements that another warship, possibly the Lützow, would soon be moving. The next day, when it learned from the naval Enigma that a number of signals using a special cypher that was unreadable at GC and CS,1 had been exchanged between the Lützow, the Tirpitz and German naval commands on 10 March, the OIC judged that the Tirpitz would be associated with the forthcoming movement; by the beginning of February the Enigma had disclosed that the Tirpitz had completed her principal repairs and the Naval Attaché Stockholm had reported that she was preparing to leave Trondheim, and on 27 February an agent had reported that she was exercising in Trondheim. Later on 11 March the OIC received a report from the agent that she had passed the entrance to Trondheim fjord at 0830 that morning, course unknown, together with further decrypts concerning GAF escort on that day for a movement between Trondheim and Narvik. On 14 March the Enigma did indeed disclose that she had joined the Schamhorst, the Lützow and the Nürnberg in the Narvik area.

Although the Admiralty could not rule out the possibility that the enemy had concentrated his ships in preparation for a breakout into the Atlantic — a possibility which prompted the US Navy to assemble a task force in Casco Bay (Maine) and agree to place it under the command of C-in-C Home Fleet if a breakout took place — the OIC noted on 24 March that the Germans had no tankers at sea. By then, moreover, it had received positive indications of an intention to use the ships against the convoys in the Arctic, where the hours of daylight were now rapidly lengthening. On 22 March it learned that the Tirpitz, the Schamhorst and the Lützow had moved on from Narvik to Aftenfjord, and on 24 March the Enigma disclosed that the enemy believed that a convoy had sailed for Russia and was flying reconnaissance patrols to look for it. In these circumstances the Arctic convoys were again suspended after the arrival of RA 53 in the second week of March.

Until the Arctic convoys were resumed in November 1943 the movements of the German main units, though remaining a major preoccupation, produced

1This was the fleet cypher called Neptun by the Germans and Barracuda by GC and CS.
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few alarms. At the end of April the *Nürnberg* was withdrawn to the Baltic, the reason being her uneconomical fuel consumption. Although there was no indication of her departure from Narvik, where she had been seen by PR on 27 March, the Enigma gave sufficient notice of her departure from Trondheim to enable Coastal Command to sight her twice, but an attempted strike against her came to nothing. On 7 May on the suspicion that the *Scheer* had left the Bight, reconnaissance of the Norwegian coast was ordered; but it was cancelled before it was carried out and PR then established that she was still in the Baltic. On 13 May the Enigma disclosed that the entire squadron in Altenfjord — the *Tirpitz*, the *Scharnhorst*, the *Lützow*, 5th and 6th Destroyer Flotillas and 5th Torpedo Boat Flotilla — had been brought to three hours’ notice on the strength of a false report that a convoy had left Kola; two weeks later the Enigma added that the squadron would only sail if it had firm evidence based on air reconnaissance. On 18 June the OIC had no choice but to issue a warning that the enemy might be attempting a break-out into the Atlantic when, following an increase in GAF reconnaissance towards the Denmark Strait, DF bearings on a signal in the cypher used by the German C-in-C Fleet (Barracuda) placed it at sea north of North Cape. By 21 June, however, no further evidence having emerged, it was concluded that the enemy must have been on exercises.

* * *

Direct attacks continued against the enemy’s coastal shipping throughout Europe. As before, however, direct attack air on this target was hampered by the lack of suitable strike aircraft until April 1943, when the Strike Wing of torpedo aircraft, formed in November 1942, began to operate effectively. Even after that date, moreover, direct attack continued to produce less good results than the aerial minelaying operations of Bomber Command. In the last five months of 1942 the minelaying programme, more successful than ever before, had accounted for 93 enemy ships as compared with 18 sunk by direct air attack. In the first half of 1943 it produced still better results. The total number of German ships sunk by mine in the twelve months ending June 1943 was 275, most of them in the Baltic; in the same period 68 ships were sunk by direct air attack, and the RAF in 10,767 sorties lost 369 aircraft in direct attacks as compared with 283 minelayers in 6,055 sorties. To a far greater extent than the direct attacks, the minelaying operations depended for their effectiveness on Sigint; they were guided almost entirely by the research carried out by the OIC and GC and CS on Sigint evidence about the enemy’s swept ways, shipping channels and minesweeping capabilities. Not less important, it was from Sigint, and above all from the naval Enigma, that the Admiralty obtained the indisputable evidence of the scale of enemy losses which had fully persuaded the RAF of the effectiveness of minelaying by the end of 1942 and which now encouraged Bomber Command to maintain the programme in the face of considerable casualties and despite its other commitments.

The operational offensive against enemy coastal shipping was supplemented by successful diplomatic action to reduce the iron ore trade from Bilbao to the Biscay ports. The possibility of attacking the shipping on this route was limited, but much was known about it from the British Naval Attaché
Madrid, and it was as a result of his intervention with the Spanish Authorities that the amount of ore shipped fell from 70,000 tons a month in the spring of 1943 to 22,000 tons in June 1943. This reduction followed the decline of one million tons, according to MEW’s calculations, in Germany’s imports of Swedish iron ore during 1942, as compared with 1941, as a result of Swedish obstruction and of Germany’s growing shortage of shipping. At the beginning of March 1943, however, MEW attributed the shortage mainly to the heavy losses of ships and disruption of shipping brought about by Allied operations. In June the MEW reported that new construction remained negligible by comparison with current losses and that the enemy’s shipping resources were continuing to fall behind his military requirements and his first-priority economic needs.

Meanwhile, the German attack on shipping in British coastal waters had all but ceased. Minelaying and air attacks on shipping dwindled away from the beginning of 1943, the GAF concentrating its exigous resources on fighter-bomber attacks on British coastal towns. It was otherwise with the offensive striking forces which Great Britain could make available in the Channel: their increase now played an important part in putting an end to German efforts to send auxiliary cruisers to sea by the Channel route. After the destruction of Raider B off Cherbourg in October 1942, the Germans succeeded in the following month in moving Raider A up-Channel. The Enigma gave warning that she was at sea off Le Havre, but bad weather saved her from being attacked. In February 1943 they made another attempt to pass a raider down-Channel, but were frustrated. On 13 January - the result of the continuous reading of the Enigma, which had again, from as long ago as the previous December, provided the essential advance intelligence - Tago (Raider K) was so badly damaged by air attack off Boulogne that she had to be withdrawn to the Baltic. She was the last raider to try to break out.

The difficulty the Germans encountered in getting the ships to sea was not the sole reason why they abandoned raiding by auxiliary cruisers. Now that the operational U-boat fleet was expanding fast and able to operate in distant waters, it was ceasing to be worthwhile to convert and man the ships. Furthermore, those raiders that had succeeded in getting to sea in the first half of 1942 were meeting with less success as a result of the improvement in Allied precautions and the growth of Allied activity on the oceans. For the same reasons, finally, they were leading a more hazardous existence. Of the three that were operating after the middle of 1942, the Stier (Raider J) was sunk in an engagement with an American liberty ship in September 1942 and the Thor (Raider E) was destroyed by fire in Yokohama in November. The third - the Michel (Raider H) - survived until October 1943, when she was sunk by a US submarine off Yokohama.

To the declining success of the raiders, as to their destruction, intelligence made next to no contribution. In view of the fact that the Enigma key used by the raiders was unbreakable, there continued to be little evidence about their movements. Against Axis blockade-runners, in contrast, the Admiralty now benefited from a considerable increase in intelligence from Sigint sources. From the autumn of 1942 Japanese diplomatic decrypts provided advance information about the blockade-running programme. From the beginning of 1943 advance notice of the movements of some of the ships, obtained from the U-boat Enigma, contributed directly to Allied success against them.

The Admiralty received advance warning from the Japanese diplomatic
cypher that the Germans were planning an expanded programme of blockade-running between Europe and the Far East for the winter of 1942–1943. By 28 September 1942 this source had disclosed that ten tankers were preparing to leave Biscay for Japan to collect 150,000 tons of vegetable oil that was vital for the maintenance of Germany’s food ration. But until the beginning of 1943 it continued to know nothing about the routes used by the blockade-runners on the high seas, and the warnings it received from the Enigma, PR and the SIS of Biscay arrivals and departures continued to be imprecise or delayed. The fact that operations against the blockade-runners met with greater success from the middle of November 1942 thus owed less to intelligence than to a combination of good luck and increasing Allied activity at sea.

Although the Enigma revealed the movement of escorts from the Biscay ports on 1 November, intensive search by Coastal Command and submarines failed to prevent the arrival of three inward-bound ships in the next few days. And although the Enigma promptly disclosed the arrival of these ships, it did not disclose until 7 November that two outward-bound ships had sailed on 5 November. But one of them was sunk by a US warship on 21 November – the first interception since 1941 – and just before and after that date other ships fell victim either to ill-luck or to increased Allied operational activity. In the middle of November two ships about to leave for the Far East were sighted and attacked in the Gironde by Coastal Command and prevented from sailing. At the end of the month another outward-bound ship was sunk when she ran into one of the Torch convoys, and on 12 December yet another scuttled on running into a north-bound convoy from Gibraltar. On 7 December a party of Marine commandos, well briefed from PR and SIS sources, attached limpets to four ships in the Gironde, putting them out of action for several months.

These losses disrupted the blockade-running programme from Biscay for nearly three months. On 22 December the decrypt of a signal from the Japanese Naval Attaché in Rome disclosed that the Germans had postponed further sailings to Japan; and during January and February 1943 no ships left Biscay. Then, early in March, the decrypt of a signal from the Japanese Naval Attaché in Berlin reported that four ships were to leave Biscay at the end of the month under strengthened air and U-boat escort. It was followed by the arrival of four German fleet destroyers in Bordeaux about 8 March and by an increase in FW 200 reconnaissance of the approaches to Biscay from mid-March.

No further intelligence had been received when an outward-bound blockade-runner was sighted on 29 March. Identified as the Himalaya from PR photographs, she returned to La Pallice. Later on 29 March the Enigma indicated that three other blockade-runners had been preparing to leave Biscay on 28 March. Not till 4 April, however, did PR of the Biscay ports establish that these ships had sailed: all three cleared Biscay, only one of them being sighted. On 9 April the RAF detected that the Himalaya had sailed again. There had again been no advance notice of her movement, but on 11 April the Enigma disclosed that she had been ordered to return to port so as to draw attention away from an inward-bound ship. She was attacked by the RAF on 10 April and never sailed again. She was the last ship to attempt the outward passage in the 1942–1943 programme.

Although intelligence remained unable to give advance notice of departures from Biscay, there had been a considerable improvement since the end of 1942 in intelligence about the whereabouts of the blockade-runners on the high seas. GC and CS’s success in breaking the U-boat Enigma key (Shark), and
thus in decrypting signals to the Atlantic U-boats for the first time since the previous February, had opened up a source of information about the movements of individual ships. The Shark decrypts disclosed the approximate positions of the ships in advance by prohibiting attacks by U-boats on single merchant ships between certain dates in stated areas. From time to time, moreover, U-boats were ordered to rendezvous with blockade-runners, and on these occasions the decrypts gave the assumed name and a detailed description of the disguise adopted by the ship as well as exact positions.

It was on the basis of this type of intelligence that, although two of the three ships which got through Biscay early in April reached the Far East, the third (the Portland) was sunk by a Free French cruiser in the south Atlantic on 13 April. From the beginning of 1943, moreover, the Shark decrypts proved invaluable for operations against blockade-runners bound for Biscay from the Far East. On 31 December 1942, when no ship had reached Biscay since early November it was learned from the decrypts that an inward-bound ship escorted by U-boats would cross 10°W at about 2000 on 1 January. An air search followed which sighted the ship (the Rhakotis) and homed HMS Scylla on to her. She scuttled. On 14 February the Enigma disclosed that U-boats had been forbidden to attack independents within the passage area between 10° and 35°N up to 23 February, and by 17 February it had added that the ship in question was the tanker Hohenfriedberg, which was known to have left Singapore on 19 December. By 25 February it had provided her approximate position, no less than seven U-boats having been ordered to rendezvous with her and bring her in 'at all costs'. On 26 February she was sighted by intensive air patrols and sunk by HMS Sussex.

The next casualties to inward-bound blockade-runners owed nothing to intelligence. The now familiar restrictions on U-boats, this time for the period up to 26 March, were again decrypted on 1 March. But one of the ships thus provided for, the Dogger Bank, had made faster time than the Germans expected: she was thus already north of the restricted area when on 3 March—though this was not known till the end of the war—she was sunk by a German U-boat. A week later the Karin scuttled on being intercepted by US warships in 7°S, but no intelligence had been received about her departure for Europe: indeed nothing was learnt of her movements until, on 27 March, U-boats were told that they might meet her. On 29 and 30 March, however, the Enigma decrypts led directly to attacks on two inward-bound ships. On 29 March the Shark decrypts contained U-boat sightings of a ship off Greenland together with orders to U-boats to refrain from attacking her: HMS Glasgow sank the Regensburg north of Iceland the following day. This was the first attempt to pass a blockade-runner through the Denmark Strait since 1939. On 30 March Shark disclosed that the four German destroyers in Biscay had left port to rendezvous with an inward-bound blockade-runner and that a U-boat had met the ship in 41°N 38°W. This ship, the Pietro Orsolo, was sighted by air on 31 March, when the submarine Shad was ordered to take station at the entrance to the known swept channel across Biscay. On 1 April, as was subsequently revealed by the Enigma, the Shad scored hits on the ship and on one of the destroyers. But she failed to stop them reaching the Gironde, where PR confirmed their arrival.

The Pietro Orsolo, the first blockade-runner to reach Europe since the beginning of November 1942, was also the last ship to reach Europe in the 1942–1943 season. By the beginning of April the Enigma showed that the
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Germans, unaware that she had been sunk on 10 March, had ordered the Karin to return via the Denmark Strait, and the Home Fleet maintained patrols there for some weeks in case other ships attempted that route. None did. From the beginning of April precautions were increased in the Biscay area also, in the belief that at least one more inward-bound ship was at large. On 9 April, when PR showed that the four destroyers and the Himalaya had sailed, it was conjectured that the destroyers would pick up an inward-bound ship on dropping the Himalaya. On 10 April the day on which the Himalaya was bombed and ordered back to port, the inward-bound ship was sunk by HMS Adventure, who had been diverted in an attempt to intercept the Himalaya. Identified as the Irene (ex-Silva Plana), she was the last ship in the enemy’s 1942-1943 sailing programme to attempt the inward passage.

At the end of April 1943 MEW noted that the 1942-1943 blockade-running programme had been conspicuously less effective than that of the previous year. It estimated that whereas up to June 1942, mostly since January of that year, Germany had received between 55,000 and 60,000 tons of cargo from the Far East, she had received only 28,500 tons of rubber since the autumn of 1942, less than one-third of what she had tried to import, and that Allied successes against the blockade-runners had cost her about 30,000 tons of rubber, 25,000 tons of oils and fats and smaller quantities of tin, tungsten and tea. Between the autumn of 1942 and April 1943 17 blockade-runners left Biscay, of which ten made the passage, three turned back and four were sunk; but only five of the 17 sailings occurred after the end of 1942, only two of the five succeeded and intelligence played some part in stopping two of the sailings and sinking the third ship. In the same period 15 ships attempted the passage from the Far East. Of these seven were sunk and four recalled; but of the seven losses no less than six occurred after the beginning of 1943, after which date only one ship got through. And four of the six sinkings were brought about directly or indirectly by the fact that it was above all against the inward-bound blockade-runners that, thanks mainly to the breaking of the Shark Enigma, the beginning of 1943 had seen a striking improvement in the supply of operational intelligence.

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Useful as it was against the blockade-runners, the breaking of the Shark Enigma was of far greater importance for the contribution it made, at a crucial juncture, to the struggle with the U-boats in the Atlantic.

The operational consequences of GC and CS’s inability to read the U-boat traffic after the beginning of February 1942 had been limited while the U-boats had been concentrated close to the eastern seaboard of the Americas. From July 1942, however, the sinking of Allied ships in convoy again reached a serious level. In August, September, October and November 1942, respectively, 50, 29, 29 and 39 ships were lost in attacks on convoys, in addition to 51, 58, 54 and 70 independents. From November 1942, moreover, the strain on Allied merchant shipping and escorts was enormously intensified by the demands of the Tunisian fighting; instead of obtaining the use of the Mediterranean after a quick campaign, the Allies were forced by the success of the Axis holding operation in Tunisia not only to continue to use the Cape route, but also to sail
extra convoys to north Africa and find escorts for them at the expense of the north Atlantic convoys. To make matters worse, the opportunities of the U-boats on the north Atlantic route were thus expanding at a time when, as the Admiralty estimated by the beginning of 1943, the number of operational U-boats had reached nearly 230 and the number in commission was about double that figure.

In all these circumstances, Whitehall was apprehensive from the end of 1942 that unless they could be reduced appreciably, sinkings by the U-boats would continue to outstrip the construction of new Allied tonnage, and that the available UK-controlled shipping and the new tonnage promised by the US would together be insufficient for the minimum imports — 27 million tons per annum — required to maintain rations and sustain industry in the United Kingdom. On 22 November 1942, the OIC commented that the U-boat campaign was ‘the one campaign which Bletchley Park are not at present influencing to any marked extent — and it is the only one in which the war can be lost unless BP do help. I do not think that this is any exaggeration’.

It by no means follows from the Admiralty’s impatience that GC and CS’s success in reading the U-boat Enigma in December actually played a decisive part in defeating the campaign against the convoys which was unleashed in December 1942 and called off in May 1943. The presumption, to quote a German historian of the U-boat war, that but for that success, ‘the turning point in the Battle of the Atlantic would not have come as it did in May 1943 but months, may be many months, later’ is naturally powerful. There is, for one thing, the fact that, while total sinkings by U-boats were increasing again until the Shark key was broken, they thereafter declined: November 1942 turned out to be the month in which the U-boats sank more merchant shipping than in any other month in the war. Furthermore, although half a year was then to pass before the U-boats retreated from the convoy routes, and although they came close to gaining the upper hand before they retreated, the very fact that the struggle was so prolonged and so finely balanced suggests that the ability to read their communications must have been an asset of crucial importance to the Allies. The Admiralty did not doubt at the time that this was so. In March 1943, in personal signals for the CNO in Washington about Ultra security precautions, the First Sea Lord stressed how anxious he was that ‘we should not risk what is so invaluable to us’, and in April, resisting the US proposals for using the Shark intelligence for attacks on the rendezvous points of the supply U-boats, he argued that ‘if our Z [Enigma] information failed us at the present time it would, I am sure, result in our shipping losses going up by anything from 50 to 100%.’ But the battle which was fought in the Atlantic between December 1942 and May 1943 was the most prolonged and complex battle in the history of naval warfare, and its outcome clearly hinged on many factors.

There is no difficulty in understanding the value the Admiralty placed on the decrypts. That they were so numerous and informative was a consequence of the U-boat Command’s control of the north Atlantic offensive, a control which was even more rigorous now than in 1941. Not only did returning U-boats always signal their expected time of arrival; every outward-bound U-boat reported on clearing Biscay or, if leaving from Norway or the Baltic, after crossing 60°N. Except when a U-boat sailed for a special task or a distant area, it received its destination point and its operational orders by W/T after it had put to sea; these were matters which had to be settled in the light of the
latest situation and of which all U-boat at sea had to be informed. No U-boat
could deviate from its orders without requesting and receiving permission, and
without requesting and receiving permission none could begin its return
passage. In every signal it transmitted the U-boat was required to quote its
present position: if it failed to do so, or if it did not transmit for several days, it
was ordered to report its position. To each of its signals, again, the U-boat was
expected to append a statement of the amount of fuel on hand. As well as
determining the order to a U-boat to return to base, this information enabled
the U-boat Command to exercise detailed supervision of the refuelling of
U-boats from supply U-boats at sea. For this undertaking it signalled the
refuelling rendezvous well ahead of time and issued precise instructions as to
which U-boats were to be serviced by what amounts at what hours, and on
completion the supply U-boat confirmed that the orders had been carried out
and reported the state of its remaining supplies.

The control of the U-boat Command over the U-boats while they were
searching for and attacking convoys was no less complete. It ordered the
formation and re-formation of the patrol lines between specified geographical
positions at regular intervals, addressing by name each U-boat commander
who was to take a place in a line and giving him his exact position in it. It
informed each line of U-boats what to expect in the way of approaching convoys
and, in addition, supplied for the attention of all U-boats at sea a steady stream
of situation reports and general orders. When a convoy was sighted the
Command decided the time, the direction and the order of attack. The exercise
of this degree of remote control meant that over and above the homing signals
they transmitted on medium frequencies for the benefit of other U-boats,
U-boats in contact with the target had to transmit on high frequencies detailed
descriptions of the situation.

To carry the enormous burden of wireless traffic generated by this system
the U-boat Command developed a signals network which, for complexity,
flexibility and efficiency, was probably unequalled in the history of military
communications. By the same token, however, it could not prevent the
interception of the traffic or conceal its signals routines from the attention of
Allied Traffic Analysis and, from the time when GC and CS broke the Shark key,
it presented the Allies with an unprecedentedly rich flow of operational
intelligence. The failure of U-boats to respond to requests to report their
positions provided a nearly infallible guide to U-boat casualties. From their
reports of the amount of fuel on hand their type could be identified when it was
not already known. Above all, the Tracking Rooms\textsuperscript{1} possessed a reliable basis
for estimating the number and whereabouts of all U-boats at sea and for
establishing the intentions of the U-boat Command. Nor was their knowledge
limited to the mere texts of the decrypts. These were in such continuous supply
that in the Tracking Rooms, as at GC and CS, there were men who acquired so

\textsuperscript{1}The OIC helped to set up a Tracking Room in Washington early in 1942. The Canadian
authorities did not share in the combined Anglo-American programme for breaking the Shark
settings but their intercept stations and D/F organisation had made an indispensable contribution
to the Allied north Atlantic Sigint network since the early days of the war. In May 1943 as well as
receiving the intelligence summaries issued by Whitehall to the naval commands at home and
overseas, the Tracking Room in Ottawa began to receive a full service of Enigma decrypts and from
that time it carried on a completely free exchange of ideas and information by direct signal link
with the Tracking Rooms in Washington and the OIC.
great a familiarity with the temper, habits and character of the U-boat Command staff and of the individual U-boat commanders that they could anticipate what the enemy would and would not do - could judge which of his U-boat commanders were least effective, and even detect misunderstandings between the staff and the commanders before the enemy had cleared them up - and route Allied convoys accordingly.

In one respect, however, and one that constituted a serious handicap for so long as the Allies valued the Enigma chiefly for the contribution it made to their ability to route convoys clear of the U-boat positions, the knowledge of the Tracking Rooms was far from perfect on account of delays in breaking the settings. On 13 December 1942, when GC and CS reported that it had broken the Shark key by means which led it to believe that the traffic would soon be read with some regularity, its confidence had not been misplaced. By the beginning of 1943 in partnership with the cryptanalytic branch of the US Navy Department, which made an ever-increasing contribution to the joint effort, it had all but completed its mastery over the Shark settings. During the first half of 1943, however, while the traffic was read with delays that were sometimes less than 24 hours, days when the settings proved to be unusually stubborn were not uncommon. By 17 February the settings had not been broken for ten days in January, and no traffic had been read since 10 February. And between 10 March and the end of June the settings for a further 22 days were either not broken at all or broken only after a long delay.

To make matters worse, the need to decode the disguise that was added to all geographical positions referred to in the Shark decrypts created uncertainty and further delay from time to time.

Delay in reading and in elucidating the Shark signals reduced the contribution of the decrypts to effective evasive routeing for a number of reasons. A convoy could at best cover 240 miles in 24 hours, whereas the U-boats might cover between 320 and 370 miles. A delay of as much as three days in learning that U-boats had been ordered to move to new positions could thus mean that the intelligence was received too late to be of use in diverting convoys. Moreover, it became increasingly likely that this would be so because there was a steady increase in the total number of operational U-boats, and because the proportion operating on the northern convoy routes rose still more sharply. At the end of 1942 25 were operating between Iceland and Newfoundland and 40 in the Biscay–Gibraltar–Azores area, but on the northern routes alone the number on station rarely dropped much below 60 after the beginning of March 1943. At the same time, and most particularly from the beginning of March, the Allied convoy cycles had to be shortened to carry the increasing flow of American troops and war material to the United Kingdom. And if the combination of increasingly numerous U-boats and increasingly frequent convoys progressively accentuated the need of the Allies for up-to-date intelligence about U-boat movements and dispositions, another development, one that was not so obvious at the time, told in the same direction. The German Navy’s cryptanalytic service (the B-Dienst) was supplying the U-boat Command with accurate intelligence about convoy movements.

Throughout 1942 the B-Dienst had achieved considerable success against the British Naval Cypher No 3, known to the B-Dienst as the convoy cypher. On 15 December 1942 changes introduced to this and other British cyphers interrupted the German programme; nor is there any doubt that the improvement in the Allied position in the battle of the Atlantic during the next few
weeks owed as much to this enemy setback on the cryptanalytic front as it did to GC and CS’s success against the Shark key. By February 1943, however, after switching most of its cryptanalytic effort on to it, the B-Dienst was again breaking the convoy cypher. Thereafter, until 10 June 1943, when Naval Cypher No 3 ceased to be used, it was again able to read on most days the daily Admiralty U-boat disposition signal and could thus forecast the areas through which the convoys would probably be routed. In addition, it regularly read other convoy traffic, not excluding the orders diverting convoys which the Allied commands were basing on the decrypts of the Shark traffic: and it did so on occasions so quickly that it was providing movement information from 10 to 20 hours in advance. An authoritative German history of the U-boat war makes it clear that nearly all the U-boat dispositions ordered in this period were based either directly on the B-Dienst’s decrypts or, when these were delayed or incomplete, on the knowledge of convoy periods and routes which the U-boat Command had built up from its study of earlier decrypts.

Between February and June 1943 the battle of the Atlantic hinged to no small extent on the changing fortunes of a continuing trial of cryptographic and cryptanalytic resourcefulness between the B-Dienst and the Allies. It was a struggle in which the Allies prevailed in the end. In part they owed their victory to the fact that from the beginning of 1943 GC and CS’s decrypts of ‘officer-only’ signals from the U-boat Command in the Shark key presented positive proof that the B-Dienst was reading the convoy cypher. It was as a result of these revelations that on 10 April 1943 the Admiralty took emergency action to advance the date for the introduction of the stop-gap measures it had prepared. In the U-boat Command suspicions about the security of the Enigma were being revived at this time, but, unlike the Admiralty, it was ultimately persuaded, once again, that these suspicions were unfounded. It must be emphasised, however, that it was not until June 1943, too late to influence the outcome of the great convoy battles, that the Admiralty was able to replace Naval Cypher No 3 and finally put an end to the benefit the U-boat Command had for so long derived from the B-Dienst.

In the light of these many considerations — the delays that accompanied the reading of the Enigma; the increasing frequency of convoys; the growing number of U-boats; the extent to which the U-boat Command was itself being helped by Sigint — it is easy to see why convoys continued to fall victim to U-boat attack in the months after the Shark key had been recovered. It is easy to see, indeed, that the value of the Enigma must be judged not by its failure to ‘For it, as for the Allies, it was difficult, in a series of movements as complicated as those that made up the battle of the Atlantic, firmly to associate the enemy’s orders and dispositions with the enemy’s possession of Sigint unless he explicitly referred to decrypts in signals that were themselves decrypted. But the B-Dienst was not able to read the Allied Ultra traffic, which, like the Enigma ‘officer-only’ signals that were being decrypted at GC and CS, was used for disseminating the products of cryptanalysis. The U-boat Command, after again requesting an investigation into whether its disappointments might be due to the insecurity of the Enigma, accepted the assurance that the cypher could not have been compromised and concluded that the Allies were obtaining their intelligence about U-boat dispositions by other means — partly from French agents of the SIS, but mainly through the use of ASV and DF. The Enigma showed that whereas at the end of December the Command was urging the U-boats to disregard Allied radar as being ‘ineffective’, it was on 5 March, as a result of its suspicions, ordering them to ensure that their patrol lines were concealed from Allied airborne radar.
eliminate disasters to convoys, but by the extent to which it reduced the frequency and the scale of the disasters. It may be added that since a large proportion of Allied shipping losses was sustained by a few convoys, and so much so that the severe mauling of a convoy was the equivalent of a lost battle on land, its value would still have been enormous even if its influence had been decisive only from time to time. But its influence was more pervasive than this.

By no means all of the many convoys that escaped detection between 1 January and 31 May — nearly a half of those that sailed — owed their escape directly to the Enigma. Some were successfully diverted when the decrypts were running late, just as some were sighted when the decrypts were virtually current. Whether or not a gap in the breaking of the Shark settings coincided with a redisposition of the U-boat patrol lines was a matter of sheer chance, and not even advance intelligence about U-boat movements could guarantee that convoys would not be sighted by U-boats on passage. By no means every convoy that was sighted by U-boat in these months suffered heavy losses: nine out of the 38 that were contacted got through unscathed. Like the convoys and their escorts, the U-boats were hampered by operational conditions. The winter of 1942-43 was exceptionally violent, the ice coming down almost as far as Newfoundland and hurricanes and severe gales prevailing throughout the north Atlantic. Not less important, they had to contend with the convoy escorts and with the fact that the increase in their own numbers was being countered by significant additions and improvements to the Allied defences. But if the battle in the north Atlantic was more than a duel between the cryptanalysts and intelligence staffs of the two sides — was an unremitting struggle in terrible weather conditions to sink or save ships — one conclusion still stands out when its course is reviewed up to the end of March 1943. But for the contribution of the Enigma to evasive routeing, the planned mass assaults of the U-boats would have achieved in January and February 1943 the enormous success that they secured only in March.

* * *

The decline in the number of Allied ships sunk in convoy in December 1942 — 19 were lost compared with 39 in November 1942 — owed something to the fact that U-boats had been diverted from the north Atlantic against operation Torch. It clearly owed something to other factors also, for on the one hand the diversion had taken place from the middle of November and, on the other hand, the number of U-boats between Iceland and Newfoundland, which had dropped from 17 to 10 between 2 November and 16 November, had climbed back to 21 by 14 December. Equally clearly, these other factors did not include the Enigma: the first break into the Shark settings did not come till the middle of the month, and on 25 December no settings had been broken for the previous six days. From the evening of 26 December, GC and CS succeeded in reading the U-boat traffic for the period from noon on 25 December to noon on 1 January virtually currently. This short period of near-currency began too late to avert the month’s biggest setback. Convoy ON 154, sighted on 26 December, lost no less than 14 ships.

On the other hand, the fact that the settings were broken with considerable regularity, if with more or less delay, for the next five weeks made a
decisive contribution to the further decline in U-boat successes that occurred during January 1943. By 18 January the number of U-boats on the north Atlantic convoy routes had increased sharply to 40, from 25 in the early days of the month. For the greater part of January, however, they swept and re-swept the north Atlantic and found nothing. The number of Allied ships they sank in convoy dropped to 15; the number of independents to 14. So great, indeed, was the success of Allied evasive routeing that (though this was not to be discovered till after the war) the U-boat Command concluded in its log for 2 February that ‘the fact of a continued partial compromise of our intentions must for a time be taken into account’ and decided to adopt ‘loose, mobile dispositions, widely spaced, which the enemy will not be able to evade as he would a contracted, fixed disposition’.

The change in the north Atlantic situation was all the more marked in that the most serious attack on convoys during January took place in the south. Up to the middle of December 1942 the U-boat Command had had no success against the convoy routes to north Africa despite concentrating a large number of U-boats against them. But of the 15 ships sunk in convoy in January no less than seven were lost from TM 1, a convoy of tankers bound from Trinidad to Gibraltar for Tunisia which was sighted by chance by a U-boat in transit.

The enemy’s success against TM 1 was a salutary reminder of the danger that still faced north Atlantic convoys despite the decryption of Shark; it was pointed to at the time as ‘indicative of what was still to be expected on the N Atlantic lanes’. At the same time, it may have played some small part in inducing the U-boat Command to keep more U-boats on the New York–Gibraltar route than on the route to the United Kingdom during February and March — a decision which substantially reduced the threat in the north Atlantic during those months. From the middle of January, moreover, the Allies frequently diverted convoys with the aid of current or nearly current Enigma decrypts; and this was not the least reason why the U-boats scored only two further successes against convoys between the US and Gibraltar or the north African ports and why the more substantial of these did not occur until the middle of March.

The consequences of this poor performance by the U-boats for the fighting in Tunisia were significant enough. The division of the U-boat effort in the Atlantic meant that the number of U-boats on the north Atlantic route, where their opportunities were markedly greater, were markedly fewer than would otherwise have been the case. During February, even so, the daily average of operational U-boats in the Atlantic as a whole reached 116 and the number in the north Atlantic rose from about 40, the number reached soon after the middle of January, to about 60. Nor was this the sole reason why they were more successful than in the previous two months, sinking 34 ships from the convoys as compared with 19 in December and 15 in January. The German naval cryptanalysts had by now brought their success against Allied convoy cypher traffic in this area to the high level at which it was to remain till June; they provided exact intelligence about a number of convoys in time for the U-boat Command to act on it. The U-boat Command, seeking to close the gaps in its patrol plans which had become apparent in January, adopted a new strategy in the north Atlantic from the beginning of the month, one which concentrated on intercepting the eastbound convoys at an early stage by having advance, mobile and widely-spaced patrol lines make frequent sweeps south-westward from 30°W. Yet the Allied losses were nearly all sustained by only two
convoys because the Shark decrypts continued to make an effective contribution to evasive routeing. For most of the month the delays in breaking the
Shark settings, although seldom less than 24 hours, were well within the limit beyond which the decrypts ceased to be of operational use in evading planned
U-boat patrol lines.

The decrypts came too late, even so, to help to avoid sightings by stray
U-boat or guard against sudden U-boat redispositions when these were
ordered on the basis of German intelligence. It was on this account that the
Tracking Rooms, operating with what amounted to a half-knowledge of the
current situation, diverted convoy HX 224 away from the U-boats in the
western Atlantic at the end of January only to have it contacted by U-boats
further to the south-east. And whereas HX 224 escaped with the loss of only
two ships because the U-boats were not expecting it, on 4 February convoy SC
118 ran into a patrol line of 21 U-boats which, though it was hastily formed,
had advance intelligence about its route. SC 118 was heavily protected: some of
the U-boats had been brought up over considerable distances and they carried
out a large part of the operation within the range of Allied air cover. Three of
the U-boats were sunk and two seriously damaged. But they had sunk 13
merchant ships by 9 February - fewer than the U-boat Command had hoped for
from so many U-boats, as the Shark decrypts disclosed, but sufficient to provide
another foretaste of what would happen if evasive routeing failed again.

The attack on SC 118 was the first significant U-boat success since the end
of December. The next was deferred till 20 February. During 18 February,
while the U-boat Command was using later intelligence in an effort to intercept
convoy ON 166, the Shark decrypts for the 24 hours to noon were not available.
And although they became available with a delay of less than 24 hours, they
came too late. ON 166, sighted in the forenoon of 20 February, was powerfully
attacked up to 25 February, 14 of its ships being sunk for the loss of one U-boat.
The U-boat Command secured no further success on this scale until the second
week of March. Convoy ON 167, the only other convoy to be attacked in this
interval, was sighted by chance on 21 February and lost only two ships to an
improvised group of U-boats.

From the contrast between the results of the encounters with HX 224 and
ON 167 and, on the other hand, the heavy losses sustained by SC 118 and ON
166, we can see now what was concealed from the Allied authorities at the
time. The effectiveness of the U-boat assaults was far higher when they were
delivered from positions taken up on the basis of advance intelligence than
when they had to be improvised in response to chance sightings of convoys that
had not been expected or had been turned away. It is accordingly important to
note that the battle on the intelligence front turned significantly against the
Allies from the beginning of March. The B-Dienst continued to supply good
convoy intelligence to the U-boat Command. But the Shark settings were read
with greater than average delay for all but three of the first ten days of the
month, and between 10 and 19 March the decryption of the traffic suffered the
longest interruption that GC and CS had experienced since the beginning of
the year.

The Shark setback probably goes far to explain why the U-boats intercepted
a convoy on the southern routes between the US and Gibraltar where, except
for a chance sighting which had led to the loss of three tankers at the end of
February, they had had no success since early January. The B-Dienst helped
them to make contact with convoy UGS 6 on 12 March when the effort to divert
it had failed for lack of tolerably recent Enigma intelligence about their orders and dispositions. Even so, some 20 U-boats succeeded in sinking only four of its 40 ships; in a running battle across the Atlantic which lasted till 19 March the US escorts, helped by ship-borne radar, repeatedly drove off shadowing U-boats and frustrated mass attacks.

For the battle on the northern routes the consequences of the interruptions experienced in breaking the Shark settings are more difficult to assess. They certainly deprived the Allies of any reliable basis for the evasive routing of the convoys. On the other hand, there are good grounds for thinking that, just as the defence of UGS 6 foreshadowed the not too distant time when the convoy escorts would establish a decisive superiority over the U-boats, so the month of March marked another crucial turning point – that at which, as a result of the frequency of convoys, the number of U-boats at sea and the activities of the B-Dienst, the Allied authorities were ceasing to be able to affect the battle by successfully diverting convoys even when the U-boat Enigma was currently available. After March the U-boats would still be sighting convoys more frequently than before – as frequently as one every four days – despite the fact that the delay in decrypting the Shark traffic had by then been reduced to the levels that had previously obtained. But they would not longer be pressing home their attacks.

At the beginning of March, a month in which the OIC’s estimate of the U-boats in the north Atlantic rose to the record number of 66 and the Allies convoyed twice as many ships as in February, the increase being largely due to the stepping up of the flow of US troops and war material to the UK, the U-boats were deployed in the north according to the strategy adopted during February. While two groups patrolled in mid-Atlantic to complete the encirclement of any convoy that was detected, 30 swept every available route north of 50°N in the western forward area in the effort to secure the early interception of eastbound convoys. Good luck and poor visibility deferred till 6 March the detection of convoy SC 121, but the convoy lost 13 ships between 7 and 11 March. HX 228 fared less badly. Sighted on 10 March after good B-Dienst intelligence had frustrated the attempt to divert it in the light of Shark decrypts for 5–7 March, it lost four merchant ships and one of its escorts, and the escorts sank two U-boats. ON 170 fared better still: shore-based and ship-borne DF helped it to evade the U-boats that were waiting off Newfoundland. But the attempt to divert HX 229 on the same kind of information during 14 and 15 March was unsuccessful and its detection on 16 March was followed by the biggest convoy disaster of the war. The U-boat Command had already moved the western patrol line to intercept the convoy; it now ordered up the two reserve groups of U-boats from the mid-Atlantic, and as they streamed towards HX 229 they also encountered SC 122. By 20 March 21 ships from the two convoys had been sunk for the loss of one U-boat. On 22 March, after digesting the Shark decrypts for the period from 15 to 19 March that had begun to reach it since 19 March, the OIC noted that the two convoys had been attacked ‘by the largest pack of U-boats which has ever been collected into one area for the same operation’.

In what remained of March there were no further serious encounters. In that month as a whole, however, the Allies had lost 42 ships from the Atlantic convoys, compared with 28 in February, while the number of U-boats sunk by convoy escorts or by aircraft operating in support of convoys had dropped back from 17 in February to only six. By this time, moreover, it was clear that the
attempt to cripple the U-boat offensive by bombing the U-boat pens in the Biscay ports and the U-boat construction yards in Germany had had little, if any, effect. The emergency air offensive against these targets which was mounted at the end of January was abandoned at the beginning of April.

Looking back on these experiences later in the year some members of the Admiralty staff thought that in March it had ‘appeared possible that we should not be able to continue convoy as an effective system of defence’ and judged that ‘the Germans never came so near to disrupting communications between the New World and the Old . . .’. At the time, the First Sea Lord attributed the crisis to the ‘failure of evasion based on DF intelligence. The Atlantic is now becoming so saturated by U-boats that the practice of evasion is rapidly becoming impossible’. This was a prophetic judgment. Evasive routeing based on Direction Finding, a euphemism for the Enigma decrypts, would not after the end of March regain the influence on the battle that it had exerted in the first two months of 1943. But no less prophetic were the First Sea Lord’s further remarks. He found grounds for cautious optimism in the fact that the weather was improving, that support groups and escort carriers from Tunisia and the supply route to north Russia were being re-deployed to the Atlantic and that, still more important, more aircraft were becoming available. And it was indeed as a result of additions and improvements to the Allied defences that the U-boats, which had been kept at bay during January and February but had seemed set to win during March, would be defeated during the next two months.

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The improvement of the Allied defences included some developments which increased the ability of the convoy escorts to undertake intelligence on their own account. Since July 1942 so many escort vessels had been fitted with seaborne HF/DF that by the beginning of 1943 it was a standard item of equipment - and one which enabled them in good conditions to locate for themselves, and with greater accuracy than was possible from shore-based DF stations, the sighting reports and homing signals transmitted by U-boats. Except in heavy seas, moreover, when it was less reliable than HF/DF, the escorts had the advantage of being able to locate U-boats with the shorter-range but more accurate 10 cm radar: most of them were fitted with this by the beginning of 1943, when more and more of Coastal Command’s aircraft were also acquiring it, whereas the U-boats, which had been fitted with search receivers against the old 1.5 metre radar, had no protection against it.

The impact upon the convoy battle of HF/DF and centimetric radar, as also of the new weapons - improved depth charges and the first ahead-firing weapon (Hedgehog) - which had been coming into use since the beginning of the year, increased as more escorts became available, and particularly when it became possible to form support groups and provide escort carriers (CVEs). Support groups had first been formed in the autumn of 1942, with the object of destroying U-boats once they had been located near convoys, but like the CVEs, which had also become available in the autumn, they had been absorbed by operation Torch by the Arctic convoys and by the Tunisian campaign. At the end of March, however, CVEs started accompanying Atlantic convoys, and new
support groups were formed round destroyers from the Home Fleet. By that
time, also, very long-range (VLR) shore-based aircraft (Liberators) were
beginning slowly to close the great gaps south of Greenland and north of the
Azores which, beyond the range of air cover, had hitherto been the favoured
operating areas for the U-boats; and as the number of such aircraft increased,
so did closer collaboration between the aircraft and the surface escorts extend
the efficiency of both.

With the arrival of these additions to the defence forces the Allied escorts
and patrols, supplementing their growing ability to contain and throw off the
attacking U-boats, began to make a decisive advance in the more positive
direction of sinking them when they pressed their attacks. In November 1942
U-boats were being destroyed at only one-third of the rate at which they were
being constructed. There was no change in the next two months: 13 U-boats
were sunk in December, six of them on the convoy routes: 11 in January 1943,
of which five were accounted for by the convoy escort or aircraft operating in
their support. In February matters improved. 17 U-boats were sunk on the
convoy routes together with six others, as against 25 new U-boats taken into
service. And despite a relapse in March - 16 U-boats sunk, and only six of them
in the convoy battles - the OIC was able to report on 24 May 'for the first time
in any 3-month period ... a net decrease in operational numbers', 56 having
been sunk as against 51 which had started their first war cruise.

At the same time, if the number of ships sunk in convoy dropped to 25 in
April from the critical level reached in March, April saw no reduction in the
number of U-boats in the north Atlantic: there was, instead, a reduction of the
U-boat effort on the US-Gibraltar routes. The B-Dienst continued to serve the
U-boats well. As in March, on the other hand, evasive routeing continued to be
ineffective despite the fact that the decrypting of the Enigma now suffered from
less serious interruptions. Even though the decrypts made some successful
diversions possible, the U-boats contacted many convoys - as many as in the
time and with their numbers they could conceivably have attacked on any
scale. Nor did these conditions change before the end of May, the month in
which the U-boats still claimed 26 ships from convoys, but in which they were
at last forced out of the north Atlantic.

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The first intimations of what was to be the outcome of these developments had
appeared in the Shark decrypts in February. Inexperienced U-boat commanders
- a growing band - had then occasionally reported torpedo failures, made
exaggerated claims and betrayed signs of timidity, particularly fear of air
attack, and there had also been a noticeable increase in the occasions on which
U-boats developed incapacitating defects during their outward passage of the
Bay of Biscay. But it was from the last days of March that, both in the course of
convoy operations and from the decrypts of the comments made on the
operations by the U-boat Command, the Allies obtained the first substantial
evidence of a decline in U-boat morale.

40 U-boats attacked convoy HX 230, which was sighted on 27 March, but
they were beaten off by the escorts, which included for the first time both an
escort carrier and support groups, and succeeded in sinking only one straggler.
Convoy SC 123 was sighted at the end of March but its escorts, again reinforced by a support group, passed it safely through the U-boat patrol line. On 4 April convoy HX 231 was sighted. When ordering the U-boats to attack it the U-boat Command stressed for the first time the importance of attacking on the first night: on 4 February, during the attack on SC 118, it had assured them that this was not important as the 'heavy blow' would come later. After the engagement it expressed itself dissatisfied that so many U-boats had sunk only six ships and reprimanded them for excessive use of wireless. Four days later convoy ON 176 ran into a group of U-boats, but it lost only two ships. On 11 April, when convoy HX 232 was sighted, the U-boat Command again voiced the suspicion that the U-boats were not pressing home their attacks; having ordered two groups to form up in readiness for this convoy it called on them to display 'the healthy warrior and hunter instincts'. These signals were decrypted too late to save the convoy, but it lost only three ships, all on the first night of the attack. On 15 April an outward-bound U-boat sighted convoy HX 233 despite the fact that it had been routed away from the U-boat patrol line: four other U-boats managed to attack it: but the convoy lost only one ship and the escort, reinforced by a support group, sank one of the U-boats. The next attempt to divert a convoy was frustrated by B-Dienst intelligence, which enabled the U-boat Command to put a group in contact with HX 234 on 20 April. In the course of moving up to HX 234 the U-boats also contacted during 20 and 21 April convoys ONS 3 and ON 178. But in the attacks on all these convoys three U-boats were sunk for the loss of four merchant ships.

In what remained of April there were no more U-boat successes in the attacks on convoys. Since the beginning of the month the decrypts of signals from the U-boats had contained increasingly frequent references to their fear of air attack and to the efficiency of the Allied surface escorts in following up aircraft sightings. More recently they had also disclosed that the U-boat Command was seriously perturbed by these reports. From the middle of the month, while enjoining the operational patrol lines to maintain strict W/T silence, it had instructed some U-boats to make dummy signals to simulate the presence of U-boat groups. By 19 April it was conceding that the U-boats could not effectively use pack tactics against convoys which had air support. This confession constituted a considerable retreat from the new tactics it had adopted at the beginning of the month when, in order to bring them into a position to make quick surprise attacks, it had ordered the U-boats to sweep ahead on the surface. It had discovered, indeed, that the new tactics had made the U-boats all the more vulnerable to air attack. On 19 April the OIC drew attention to the 'incipient decline in U-boat morale', and on 26 April it stressed that a lack of boldness had spread to most of the U-boat commanders.

From the beginning of May the total number of U-boats at sea was approaching its peak: on 10 May the OIC estimated it at 128, 'the highest ever known', no less than 98 having sailed during April, most of them during the second half of the month. Of this total, the number identified on the north Atlantic routes still exceeded the 60 mark on 3 May, and although their exact positions were not then known, the Shark settings having proved intractable since 26 April, there was enough Enigma intelligence to show that the U-boat Command was more than ever intent on so disposing them as to eliminate all chance of missing the eastbound convoys. On the basis of the available information and an appreciation of the new pattern of patrol lines it was estimated on 1 May that by 3 May all routes would be blocked from 53°N, 48°W
around to 46°N, 38°W. By 1 May, moreover, the U-boats had already sighted convoy ONS 5 at the northern tip of their patrol lines, and on 1 May itself, with help from the B-Dienst, they made contact with convoy SC 128. But if reliance could no longer be placed on evasive routeing, it was also the case that the U-boats were no longer exploiting their sightings. ONS 5 lost one ship before they lost contact with it on 1 May; from 1 May to 4 May they searched in the vicinity of convoys ONS 5, HX 235, SC 128 and ON 180 without success; and on 2 May the U-boat Command admonished them: 'With 31 boats something can and must be accomplished.

By the time the decrypt of this signal was in Allied hands the U-boats had done something to restore their flagging fortunes. Resuming contact with ONS 5 on 4 May, they sank 12 of its merchant ships in a long and complicated battle. But they achieved this success, their last on this scale, at the expense of seven U-boats sunk and five damaged. The extent of the loss and damage they sustained was disclosed by the Shark decrypts, which also produced further evidence that their fear of aircraft and the surface escorts was on the increase.

In the next encounter, the attack on convoys HX 237 and SC 129, the odds swung even further against the U-boats. The U-boat dispositions were known from the Shark traffic and the convoys were being routed accordingly. But it was also known that evasive routeing was being frustrated by the B-Dienst. This detected the diversions in such good time, and enabled the U-boat Command to concentrate so large a force of U-boats that on decrypting the Command's orders Allied intelligence concluded that 'no U-boat group operation ... was so evidently guided by continuing intelligence of the convoy movements'. With 36 U-boats assembled against them the convoys should have been enveloped with ease, and had conditions been what they were in March they would have sustained appalling losses. But in a straight fight with the surface escorts, the escort carrier's aircraft and shore-based aircraft between 7 and 14 May the U-boats sank only two merchant ships in return for the destruction of two U-boats and severe damage to several others.

At the end of the battle the U-boats, temporarily dispersed in small groups to evade detection, were admonished by the U-boat Command: 'We can see no explanation for this failure'. In the Tracking Room in the OIC it was clear that the failure had 'provided further evidence that U-boat efficiency and morale were declining'. Nor did it have to revise this conclusion in the light of the two convoy battles that took place in the next few days - the last such battles of the whole war. By 17 May it had learned from Shark decrypts that U-boat patrol lines were being re-formed and it was trying to route convoy SC 130 through a gap between the lines. With 33 U-boats lying in wait, the convoy was nevertheless sighted on 18 May. But its escorts destroyed five U-boats and the convoy lost no ship. In the course of the encounter the U-boat Command was scathing about its 'inexperienced captains'; but it also ordered the U-boats to make dummy transmissions as a means of hiding their true movements, and in further signals on 18 and 19 May it admitted that 'the enemy had gained a few lengths on us in his efforts to deprive the U-boat of its most important attribute, its invisibility'. A group of 22 U-boats had meanwhile been formed to catch convoy HX 239. The convoy was routed south of them on the basis of Shark intelligence but, the B-Dienst having detected the diversion, it was sighted on 22 May. The previous evening the U-boat Command had exhorted the U-boats in the following signal: 'If there is anyone who thinks that combating convoys is no longer possible, he is a weakling and no true U-boat
captain. The battle of the Atlantic is getting harder but it is the determining element in the waging of the war . . . In the ensuing battle, however, the U-boats suffered so heavily that on 23 May the U-boat Command decided to withdraw them to avoid further damage. On the following day, when the number of U-boats sunk in the attacks on SC 130 and HX 239 had risen to eight and neither convoy had sustained any loss, Donitz issued a series of signals to the U-boats explaining the reasons for their withdrawal and giving them new disposition orders. He attributed their withdrawal ‘primarily to the present superiority of the enemy’s location devices and the surprise from the air which these have made possible’. ‘All my efforts are directed towards the improve­ment of our own location, of counter-measures against the enemy’s location and of our flak armament’. ‘Practical results will reach the front in the shortest possible time’. Until then ‘the present situation . . . must be tided over by special precautionary measures both on passage and in waiting positions. In its log for the same day the U-boat Command recorded that ‘the situation in the North Atlantic forces a temporary withdrawal to areas in which there is less danger from aircraft’. All but a few of the U-boats – which were left behind and ordered to transmit dummy signals to delay the Allied discovery of the retreat – were sent by the disposition order of 24 May to the area 600 miles south-west of the Azores in the first instance.

Confirmation of their victory was briefly withheld from the Allies by the fact that the Shark signals of 24 May were not decrypted for a week, and the true significance of the signals was even then obscured for a few more days by delays in decoding the disguised references to the new dispositions. As early as 2 May, on the other hand, GC and CS had decrypted a significant telegram from the Japanese Ambassador in Berlin. In January he had reported that Hitler had hopes of the new U-boat offensive on account of the improvement in U-boat capabilities. Now, however, the Ambassador reported that Hitler was complain­ing that because the war had started too soon ‘we have been unable to dominate the seas’.
The Eastern Front in the First Half of 1943

Whitehall grew steadily more confident from the beginning of 1943 in its assessments of the prospects on the eastern front. In December 1942, when the Torch landings had been followed by the beginning of the Soviet counter-offensive, the JIC had suggested that Germany might seek peace with Russia when, on top of her difficulties in Russia, she was faced with the Allied clearance of north Africa - and had warned that Stalin might welcome a peace overture by the spring of 1943 if the Russian advance had not matched his hopes and the Allies had not followed up their Mediterranean initiative. In the middle of March 1943, when the Germans were counter-attacking in the Kharkov area in an effort to stabilise the front, the JIC felt that 'the prospect of a German defeat of Russia has receded to vanishing point'. By 28 April it was confident that even if Germany gained territory in any further fighting, the point had passed at which she could hope to obtain a peace settlement with Russia: she was doomed to face a third winter of fighting on the Russian front.

The growth of confidence was hardly surprising, such was the glare of publicity attending the disaster at Stalingrad and subsequent German setbacks, and it was not a process to which intelligence made much contribution. Diplomatic, rumours to the effect that the German Army was criticising Hitler, or that Hitler was admitting that 'it would have been convenient... if the war had started at least five years later... or that Italy and the other satellites were losing heart, did not improve on reasonable inference. An item of intelligence like the decrypt of an Enigma message containing a Führer directive of 27 February which stated that there had been cases of a serious lack of discipline during the recent retreats, and ordered that future offenders were to be shot without court martial, added little to what was public knowledge. But improvements were still being made to the intelligence from the Russian front, and these ensured that the British assessments, as well as becoming more confident, became more precise about Germany's strategic options and more accurate about her operational intentions.

By the beginning of March 1943, before they stemmed the Soviet offensive and succeeded in stabilising their line in the Kharkov area, the Germans recognised that they must adopt a defensive strategy on the eastern front for the rest of the year; the threat of an Allied cross-Channel invasion was regarded as being too serious to permit another all-out offensive and it was doubtful whether such an offensive could in any case succeed in view of Russia's ever-growing strength. At the same time, Hitler, vetoing withdrawal to a shorter line in Russia, was especially determined to hold on to the Crimea: and

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1 According to decrypts of telegrams from the Japanese Ambassador in Berlin Hitler had tried to bring Japan into the war with Russia in August and September 1942 and again early in 1943, but had been rebuffed on each occasion. On 2 May 1943 the Ambassador reported that Hitler had recently told him that he had made peace proposals to Russia at the end of 1942, but that the Russians had summarily rejected them.
early in March, the position in the Kharkov sector remaining perilous, OKH and Hitler agreed that after the thaw, and before the western Allies could mount an offensive against the Soviet salient in the Kursk area with the object of shortening the German line and reducing the threat of a Russian advance into the Ukraine. Throughout the spring of 1943 the German view of the position was closely matched by Whitehall’s assessments.

In the middle of February the JIC calculated that in the winter fighting to date Germany had lost 40 divisions from the total of 200 (including those of her satellites) with which she had begun. After allowing for additional divisions transferred from France to Russia, her net loss on the eastern front was already some 25 divisions: but taking into account what part she would lose of her army in the Caucasus she would be left with at best a total of 160 divisions (the actual number was 159) which would be weaker and less well equipped than the 180 with which she had held her front in the winter of 1941–42. And they faced some 200 Russian divisions even assuming that Russia’s losses had been as great as Germany’s. By 22 February, when it calculated that Germany had lost 14 divisions at Stalingrad, it had raised her total number of divisions in Russia to 176 and had lowered the number of divisions in France to 30, as compared with 39–40 at the beginning of 1943. German documents were later to prove that 17 divisions moved from France to Russia between November 1942 and February 1943 and that 3 divisions had moved from Russia to France en route for Tunisia.

As for the GAF in Russia, apart from transport aircraft the Russian counter-offensive of the winter of 1942–1943 produced no transfers to the eastern front. Before the counter-offensive began AI had detected from the Enigma a large movement in the opposite direction. On 20 November 1942 it had estimated that some 410 aircraft (including 270 long-range bombers and 120 single-engined fighters) had left Russia for the Mediterranean since October, the bulk of them since the beginning of November: as a result the number of aircraft in Russia (550 bombers, 420 single-engined fighters and 80 twin-engined fighters) was then less than the number in the west and the Mediterranean (720 bombers, 730 SEF and 430 TEF). By December, however, the number of aircraft on the Russian front was thought to total some 2,000, and during January 1943 it was calculated that this figure had shrunk to 1,715. In the middle of February the JIC estimated that the maximum strength of the GAF in Russia was 2,000 aircraft as compared with 3,000 in the summer of 1942. The Soviet Air Force, by comparison, was between 4,500 and 5,000 aircraft; though it was inferior to the GAF technically and in administrative efficiency, it was certainly adequate for support of the land forces.

The JIC argued that although Germany could save a limited number of divisions by withdrawing to the shortest possible line – through Poland and along the rivers Niemen, Bug and Dniester – such a withdrawal would endanger her hold on the Balkans and so increase her defence requirements there as to absorb more divisions than she had released. It accordingly concluded that unless the current and the Sea of Azov went against her, she would try prepared positions in the northern and central sectors, and in the south would want to retain the Crimea in order to avoid Russian bombing of the Romanian oil.

In March the Germans succeeded in stemming the Russian offensive and in stabilising the front in the Kharkov area, and before the end of the month
Whitehall had received the first indications that they were preparing a counter-attack against the Kursk salient. But by 28 April the JIC, uncertain whether Germany or Russia would attack first, was nevertheless quite sure that if Germany took the offensive, shortages of manpower and resources, particularly oil, aircraft and motor transport, would prevent her from exploiting any success she might achieve. It reached this conclusion after making a detailed comparison of the military and industrial strength of Germany and Russia. In making the comparison it was still handicapped by knowing much less about Russia than about Germany, particularly where military strengths and order of battle were concerned. But it now possessed evidence from decrypts of the Enigma traffic of the GAF’s Sigint organisation of the existence of considerable Soviet reserves, in striking contrast to the absence of German reserves in Russia and elsewhere, and it found the Soviet situation superior to Germany’s in every respect except food supply.

The general accuracy of Whitehall’s assessments reflected increasing successes against German cyphers, which continued to be by far the most important sources of intelligence about the Russian front. Except in the Crimea and the Caucasus, where the Porpoise naval Enigma key was as valuable for its information on the ground fighting as for its naval intelligence, the GAF Enigma remained the most regular source of information about the enemy’s ground forces, as well as about the GAF. Of the GAF keys, the general (Red) key continued to be the most productive, but additional specialised keys continued to appear and to be broken soon after their appearance: to name but a few, keys for GAF liaison officers in the Crimea (named Porcupine at GC and CS) and the Donets area (Hedgehog to GC and CS) by February 1943: a key for use both by Fliegerkorps and by liaison officers in the southern sector (Hedgehog II) from March: keys for Fliegerkorps I (Ermine) and Fliegerkorps VIII (Skunk), which were added to that of Fliegerkorps IV (Hornet) by the middle of the year: and, by then also, the key (Orchid) used by Luftgau XXV, the GAF administrative organisation in the Rostov area. From the beginning of 1943, moreover, GC and CS more than made up for the loss of the Army key (Vulture) at the end of 1942, and for its continuing ability to read other Army Enigma keys on the Russian front, by two other advances.

In the autumn of 1942 GC and CS had begun systematic research on the decrypts of Enigma traffic (known to it as Mustard) passed by the GAF’s Sigint organisation in Russia. Up to this date the Mustard decrypts, though voluminous, had been difficult to understand for several reasons including the fact that they were full of obscure geographical references. But from early in 1943 GC and CS was able to issue regular accounts of German appreciations of Soviet dispositions and intentions which were of great value both because they supplemented the still small stock of information obtained from Moscow about Russia’s forces and for the light they threw on Germany’s preoccupations. From the same date the work of intercepting and decrypting Germany’s non-morse teleprinter transmissions reached the point at which GC and CS, though still unable to read all of the intercepted traffic, produced decrypts of the highest operational significance. The earliest of the links to be identified had been intercepted in November 1942 and they were read with some regularity almost at once. These were those which connected OKH with Army Group E in the Balkans (Codfish to GC and CS) and with Seventeenth Army in the Crimea (Octopus). From the spring of 1943 GC and CS also read the link between OKH and Army Group South in Russia (Squid), the link between OKH
and Memel (Trout) and the link used by the GAF mission in Romania (Tarpon). Though less voluminous than the Enigma, and more difficult to decrypt, this traffic made a valuable contribution to Whitehall’s knowledge of the strategic situation on the Russian front: it revealed the planning, the appreciations and the supply difficulties of the German commands.

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The Soviet offensive to free the Kharkov area began on 1 February 1943. By the middle of February it had taken Kursk, Belgorod and Kharkov, and Hitler had had to fall in with Manstein’s request that Army Group Don should withdraw to the defensive line of the Mius, west of Taganrog. By then, however, the Soviet armies were out-running their supplies and operating beyond the range of effective air support. On 19 February Army Group Don, now renamed Army Group South, counter-attacked from Krasnograd, south-west of Kharkov. It re-took Kharkov on 12 March, Belgorod on 18 March, and then came to a close with the Germans in the area bounded by the Mius and the Donets on much the same line as that which they had held in the winter of 1941 – nearly 500 miles back from Stalingrad.

Apart from disclosing on 15 February that an infantry regiment from Army Group A in the Caucasus was being transferred to Dniepropetrovsk by air, Sigint gave Whitehall no advance warning of Army Group South’s counter-offensive. In the course of the next three weeks, however, the Enigma threw considerable light on the objectives of the German attack and on the effort that was put into it. By 1 March it had shown that the Germans hoped to destroy the Russian forces that were still south of the Donets and then advance on Kharkov; somewhat later it reported that they intended to turn north after taking Kharkov, presumably to eliminate the Kursk salient. It established that the attack was involving divisions recently arrived from France, and was being supported by a concentration of air striking power that represented, as Whitehall fully realised, a remarkable recovery by the GAF. ‘All the indications’ had suggested to Al that the retreat from the Don and the Caucasus had disorganised the GAF and seriously reduced its strength and serviceability: but the level of support it provided to Army Group South’s counter-attack, the last operation in which Germany resorted to the principle of close army-air co-operation with which she had gained her victories in the west in 1940 and in Russia in 1941, showed that the GAF had succeeded in overcoming its worst problems, at least for the time being. On the other hand, it was clear from Sigint that it had done so at the expense of other sectors of the eastern front, without recalling aircraft from the west and the Mediterranean: Al calculated that the Kharkov operations were absorbing more than half of the total bomber and close support forces available in Russia.1

No doubt for this reason, in the belief that the point must soon be reached when the GAF would have to be rested for refitting and redistribution,

1 After the event it calculated that by the beginning of February some 950 of the total of 1,800 aircraft that were available on the eastern front, including the far north, had been concentrated on the Don sector – 53 per cent of the total compared with 36 per cent two months earlier.
Whitehall held that, although the Russian effort was also flagging, the German counter-offensive would be short-lived. In any case, it argued, the thaw and the mud would rule out any advance beyond the Donets. And so it proved. By 25 March it was obvious from the German communiqués that, except in the Crimea and the northern Caucasus, the fighting was dying down.

In the Caucasus by the end of February the Germans had halted the Russian advance to Novorossiisk and stabilised the front sufficiently to enable them to complete the evacuation of Army Group A across the Kerch Straits by the end of March. At the end of March they were preparing a counter-attack on the Russian bridgehead at Novorossiisk.

During the second half of February the Porpoise Enigma had made it plain that Hitler attached the highest priority to the defence of the Crimea. In decrypts dated 18, 19 and 21 February he had impressed on Dönitz that 'the Kerch task', critical for the whole of the eastern front, was the most important the navy had faced since the Norwegian campaign, and the naval authorities had ordered that the Crimea was to be held. By 28 February another signal had been decryption which set out the German programme for sea transport in the Black Sea for the next two months. On 8 March, moreover, the GAF Enigma disclosed that the Germans were planning the construction of bridges across the Dnieper and the Bug which would shorten the supply routes to the Crimea by some hundreds of miles.

On 30 March, as soon as the Germans had shored up their position in the Kharkov area, the GAF Enigma reported that the bulk of the dive-bomber and bomber units in southern Russia, estimated by AI at about a half of the total of the 900 aircraft available in the area between Orel and the Sea of Azov, were to be concentrated in the Crimea. The next day a Porpoise decrypt disclosed that the Germans intended to clear up the Russian bridgehead at Novorossiisk at the end of the first week of April with an attack involving three divisions and 'the mass' of Fliegerkorps VIII; on 3 April from the same source it emerged that an earlier decision to leave Novorossiisk in Russian hands had been reversed under pressure from the German naval authorities. The British Military Mission in Moscow was instructed to advise the Soviet authorities of the German intention on 2 April.

Sigint gave no further warning of the German attack, which opened in the middle of April. By 4 May, however, Porpoise and the GAF Enigma had established that, the GAF having failed to establish air superiority, the German ground forces were back at their starting points after suffering severe losses in men and tanks. Thereafter, until well into June 1943, Russian pressure forced the GAF to maintain a high level of activity in the Crimea and from such GAF Enigma decrypts as at the end of May which showed that three KGs — about 300 bombers — intended for the Kursk front were being transferred to the Kuban and Taganrog, Whitehall realised that the GAF’s effort was having adverse effects on the German build-up for an offensive in the Kursk area. AI later calculated that in the spring and early summer of 1943 GAF sorties over the Kuban had averaged 400 a day — a larger effort than that which the GAF was making in Tunisia.
At the end of June Sigint indicated that the Germans struggle to hold the Crimea had been in vain: the decrypts then reported that the Germans were expecting the Russian landings in the eastern Crimea that were before long to cut off the Kerch Straits and the Taman peninsula. Still earlier the decrypts had shown that the GAF could not keep up its recent exceptional effort. On 17 June the Enigma disclosed that some 30 Ju 87 dive-bombers were being transferred from the Crimea to Athens. On 28 June it showed that 10 twin-engined fighters had been moved from the Crimea to Italy. From as early as mid-May, moreover, the same source had made it clear that, as and when the situation in the Crimea allowed, the GAF was withdrawing close support forces to the Kharkov area.

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In the Kharkov area the Germans had originally hoped to attack in the middle of April, but had repeatedly postponed their offensive. One reason for the postponements had been the diversion of the GAF to support the fighting in the Crimea. Another had been the difficulty of concealing the preparations from the Russians. Unimpressed by German deception measures which pointed to an attack in the Donets area, the Russians constructed a formidable defensive zone inside the Kursk bend: this activity induced Hitler to defer the offensive until his forces had received the new tanks (Pzkw V Panther and Pzkw VI Tiger) and the new Ferdinand self-propelled gun.

Whitehall had obtained the first intelligence about the German preparations in the third week in March, when the evidence - GAF Enigma decrypts about the movement of Panzer divisions on the central sector of the eastern front and a reorganisation of GAF commands which brought Fliegerkorps VIII back to the Kharkov front for close support operations - had suggested that the objective might be to cut off the Russian salient between Kharkov and Orel and that the offensive might be timed for about the end of April. On 13 April, in a decrypt ordering GAF Command East to bring up advance detachments earmarked for the offensive, the GAF Enigma referred to the operation by its code-name (Zitadelle) for the first time. Six days later the same source disclosed that Luftflotte 4 was sending forces allotted to Zitadelle to GAF Command East. At that stage it seemed clear that the operation involved an attack from the Smolensk-Orel area against the north side of the Kursk salient, but it was uncertain whether the attack was to be an army offensive or to be confined to the GAF. But at the end of April GC and CS decrypted a comprehensive appreciation of Russia’s strengths and weaknesses, produced in connection with Zitadelle and signed by von Weichs, C-in-C Army Group South, which confirmed that the German intention was to cut off the Soviet forces in the Kursk salient by attacking from the Orel and the Kharkov areas in a pincer movement and making an important subsidiary attack against Kursk from the east. This decrypt was derived from GC and CS’s reading of the Squid link between Army Group South and Army Command, and it constituted the earliest example of the great addition to operational intelligence of the highest importance about the eastern front that the non-morse decrypts were to make for the rest of the war.

The substance of the decrypt was passed to Moscow on 30 April, together
with estimates of the enemy’s divisional strengths in the various sectors of the Kursk salient and the warning that the German attack was intended in the near future. On 3 May, however, by which time MI had received Sigint references to the presence of Second Panzer Army in the Orel area and of Fourth Panzer Army in the Kharkov area and had deduced that the subsidiary attack against Kursk from the east would be made by Second German Army, AI did not think that the necessary fighter aircraft for Zitadelle could be transferred from the Crimea before the middle of the month. By mid-May it had evidence of a GAF build-up in the Kharkov sector, where it had located 800 out of the total of 1,830 aircraft on the eastern front, but it still judged that the close-support force in the sector, some 300 to 320 aircraft, remained too small for a major offensive, and it seemed that the operation would be further delayed. AI knew that the build-up of a close support force was being held up by the fighting in the Kuban, which was absorbing 120 out of the total 190 single-engined fighters that were available south of Orel, and it noted that, because the GAF was being held back by the pressing needs of other fronts, there was no evidence that fighters or other aircraft were being sent in from Germany or elsewhere. On 14 May the JIC team at the Washington conference produced an appreciation which quoted the presence in the sector south of Orel of 20 of the 22 Panzer divisions in Russia and the GAF build-up near Kursk as showing that Germany intended to bite off the Kursk salient, though it was sure that the offensive would be limited - not on the scale of those of 1941 and 1942 - and it could not predict when fighting would begin. Nor was it long before these appreciations were confirmed by Sigint. The next reference to Zitadelle occurred in a GAF decrypt of 22 May which dealt with the aircraft to be used by Luftflotte 4 in that operation but which also disclosed that aircraft were to be transferred for another operation named Eule; on 28 May the GAF Enigma disclosed that the aircraft allotted to operation Eule were being transferred to the Kuban and Taganrog.

On 31 May the CIGS, then at Algiers with the Prime Minister, thought a great battle in Russia was imminent; he felt that Russia would attack if Germany did not do so. But on 21 May the Head of the British Military Mission had reported that the Russians would await a German attack, being strongly placed for resistance in positional warfare. In June the GAF Enigma, far from reporting the transfer of reinforcements to the Kursk sector, disclosed the movement of aircraft from Russia. Two Gruppen of single-engined fighters left the Leningrad front for north-west Germany, the defence of which had already required the transfer of 40 fighters from Russia in March. Two ‘operational command stations’ were moved from south Russia to Italy. In a further response to the Allied preparations for amphibious operations in the Mediterranean and to the Allied deception measures which accompanied the plan for the attack on Sicily, dive-bombers and twin-engined fighters were moved from the Crimea to Athens and Italy on the eve of the Kursk offensive. On 20 June, in the light of this evidence, AI doubted whether Germany would undertake any major operation in Russia before she had gauged the scale and purpose of the next Allied thrust in the Mediterranean. On 23 June the JIC, attributing the German delay in launching the offensive to the sudden Axis collapse in Tunisia, the continued Russian pressure against Taman and the intensification of the Anglo-American strategic bombing of Germany, agreed that Germany had been forced into a policy of ‘active defence’ in Russia at any rate until she could work out the extent of her growing commitments in the Mediterranean and the
The Eastern Front in the First Half of 1943

Balkans. By then – indeed since the end of May – a number of diplomatic and SIS reports, some of them obviously reflecting German propaganda, had stated that Hitler had decided to defer the next, and the decisive, offensive in Russia until the spring of 1944.

Except that AI derived some indication of the imminence of *Zitadelle* from the cessation of the GAF’s preparatory bombing of industrial and communications centres in the Kursk sector which had begun during May, intelligence gave no advance notice of the opening of the much delayed German offensive, of which the southern prong began on 4 July 1943, the northern thrust on the following day. In the south the Germans had nowhere penetrated more than ten miles by 6 July when Fliegerkorps VIII found itself unable both to support the German armour and to deal with the steadily increasing opposition of the Soviet Air Force. By 9 July – the day before the Allies landed in Sicily – the southern German advance was stopped some 90 miles short of the thrust from the north, which had failed to make progress after advancing six miles on the first day. On 12 July a Soviet counter-attack developed into one of the largest tank battles of the war. It was one in which the heavy German armour (Panther and Tiger) had little advantage over the Soviet T 34 and the outcome remained undecided when, on 13 July, Hitler called off the offensive and ordered the transfer of a number of divisions, including the SS Panzer Korps with Army Group South, to western Europe. By that time the Russians had opened an attack on the Orel salient, north of Kursk in the German rear, against which the GAF was unable to provide the Army with adequate support.

On the progress of the fighting Whitehall’s intelligence was limited to GAF Enigma and what was supplied by the Russians to the British Military Mission. The GAF Enigma was not very illuminating. Not until 10 July did it make it clear that the Germans were carrying out operation *Zitadelle*. Thereafter, while it enabled AI to work out that Luftflotten 4 and 6 were probably employing in the Orel–Belgorod area 1,000 aircraft, a half of the total GAF strength on the Russian front – and a half, also, of the Russian estimate of that strength – it disclosed little about the state of the battle until 22 July, when AI reported that the Soviet counter-attack against Orel had probably achieved a considerable victory by forcing the GAF to reduce its concentration against the Kursk salient. Although they had withheld until 15 July the news that they were themselves counter-attacking at Orel, the Soviet authorities had begun to be forthcoming about the Kursk battle on 9 July. when the British Military Mission reported that the General Staff was ‘reasonably confident’. On 10 July the Mission reported that the General Staff had concluded that the fighting value and the equipment of the German divisions was much reduced, as compared with earlier offensives; on 13 July that it was ‘confident’ that the German plan had failed. Thereafter the Mission had frequent meetings with the General Staff and by 23 July it was able to send Whitehall an extended commentary on the Russian handling of the battle. On the following day – when the Orel fighting was still at its height – Stalin publicly announced that the German plan for a summer offensive had been ‘completely frustrated’.
PART IV
CHAPTER TWENTY

The Soviet Fronts from the Summer of 1943 to the Summer of 1944

The Russian counter-attack against Army Group South in the Kursk salient early in August took the Germans by surprise. They abandoned Kharkov on 23 August and by the end of September the Russians had forced them to pull back beyond the Dnieper and to evacuate the Taman peninsula across the Kerch straits. In October they held the Russians to the south of Kiev; but further south they lost Zaporozhe, Dniepropetrovsk and Melitopol while further north – having lost Smolensk in September – they were unable to stem the Russian offensive towards Vitebsk which cut the rail communications between Army Group Centre and Army Group North. In November they held Vitebsk with difficulty but lost Kiev and Zhitomir. By the end of that month they had retaken Zhitomir but had failed to retake Kiev. At the end of the year the Russian thrust from Kiev threatened to separate Army Group South, which had by then lost the northern half of the Dnieper, from Army Group Centre.

What London and Washington learned from the communiqués about the course of the fighting was supplemented by a steady supply of Sigint. Of the Enigma keys, the GAF general key (Red) and the naval keys in use in the Black Sea (Porpoise and, from October 1943, Grampus) were again the most valuable. Of the Fish links, GC and CS was by May 1943 reading those with Army Group South (Squid), with Army Group A and Seventeenth Army (Octopus), and with the GAF mission in Romania (Tarpon) and the German authorities in Memel (Trout); and the link with Army Group Centre (Perch) was broken in August. These links produced a steady rise in the volume of Sigint, and more than made up for the fact that GC and CS had no success at this stage against the army Enigma keys on the eastern front and broke few of the GAF keys. As before, however, the Soviet authorities supplied little information. They continued to be reserved about their own plans and intentions. About the German forces they confined themselves mainly to providing occasional retrospective analyses of battles, some of which included technical intelligence about enemy tanks.

The reticence of the Soviet authorities made it difficult for Whitehall to predict the onset of the battles, but Whitehall’s intelligence about the German forces enabled it to follow the day-to-day fighting on the eastern front in considerable detail without great delay. It also received from time to time enemy assessments of the broader strategic outlook. It learned on 9 August, from a SIS report from Switzerland, that ‘the highest German authorities’ recognised that they had underestimated Russian strength and feared that they might not be able to prevent a break-through. By 16 August Sigint had established that Army Group South lacked reserves and was having to be reinforced from other parts of the front, and another SIS report had claimed that the Germans had decided to construct a fortified line from Riga to the Black Sea. This line was again referred to, this time as the Ostwall in a Japanese diplomatic decrypt from Berlin towards the end of September, when
the Military Intelligence Branch (MI) surmised that it might run along the rivers Bug and Dniester. Meanwhile, GAF and Porpoise Enigma decrypts had revealed that the German evacuation of Taman had been in progress since the first week of September, while by 19 September GAF Enigma decrypts and an Abwehr decrypt had foreshadowed the German decision to withdraw to the Dnieper.

If intelligence showed that the German Army was stretched to the utmost, with many divisions below establishment, it left no doubt that the German Air Force was in a still more parlous state. During September the Air Ministry calculated that the first-line strength of the GAF on the entire eastern front was 1,550 to 1,600, compared with 2,000 in July, and that in most units serviceability was no higher than 50 per cent; and it pointed out that the concentration of most of this force south of Kharkov had left the Kiev–Smolensk front with ‘totally inadequate’ air support. The Air Intelligence Branch (AI) attributed the GAF’s weakness in Russia mainly to the over-riding claims of the defence of the Reich and of the fighting in other western theatres. Another factor, as AI noted in October, was that whereas Germany was drawing on obsolete and obsolescent aircraft, the Russians were building modern planes and benefiting from US and British production. These conclusions were to be amply borne out: fighters withdrawn from the eastern front in the autumn of 1943 to bolster the defence of the Reich were never to be replaced, and the continuing demands of the ground fighting in Russia made it impossible for the GAF to carry out its plans for withdrawing dive-bomber and fighter formations for re-equipment with modern types.

On 2 October 1943, in the light of the available intelligence and of Soviet reports that the Germans were withdrawing only when forced to do so, the JIC concluded that the enemy had resisted the Russian offensive with all available forces, but had done so to no avail, and it judged that he might be driven back as far as the line Bug–Dniester–Priepet marshes if the Russians kept up their hammer blows during the next few weeks, while the weather held, and might be unable to hold even that line throughout the winter. During October several diplomatic reports from Sweden, Switzerland and Turkey claimed that the Germans had already decided to withdraw to the Ostwall, described as a line that was being developed in depth from Riga to Odessa, and they received some confirmation from a Japanese diplomatic decrypt. This gave details of such a defence line and reported that the retreat was not going according to plan because of Russian pressure: it added that according to Ribbentrop Hitler had spoken of having to withdraw on the eastern front ‘in addition to sparing 24 divisions for the Mediterranean theatre’. At about the same time, however, Sigint disclosed that of four additional divisions brought in to meet the Soviet attacks in the Kirovograd area after the fall of Zaporozhe, three had come from other fronts – 24th Panzer Division from Italy, and 376th and 389th Infantry Divisions from France and the Low Countries.

On 15 November, after the Soviet capture of Kiev, the JIC forecast that the Soviet forces would maintain the offensive throughout the winter, and that until the thaw of 1944 Germany would have no choice but to withdraw as slowly as possible. It made this appreciation in the course of a debate with the US JIC, which suspected that Germany was falling back to shorter lines in order to release five to ten divisions from Russia and which was pointing out that relatively small withdrawals from Russia would constitute a considerable accretion of German strength on other fronts. The JIC did not agree. Drawing
on Sigint which by mid-November had provided still more evidence to confirm that divisions were being transferred to the eastern front by disclosing the presence there of 1st Panzer Division from the Balkans, of SS Division Adolf Hitler and 76th Infantry Division from Italy and of 25th Panzer Division from France, it estimated that these arrivals had raised the number of offensive divisions from 167 to 174, of which the number of Panzer divisions had risen from 17 to 20: and it pointed out that neither the new arrivals nor the reinforcement of the Dnieper front by between 28 and 30 divisions from other sectors of the eastern front had enabled Germany to stem the Russian advance.

As for the coming months, the German divisions, many of which were on average 40 per cent below strength, would be further weakened in a fighting withdrawal; in the absence of German reserves, all would require re-organisation and re-equipment; and the GAF was unable to make up for the Army’s numerical inferiority to the Russians. The JIC’s conclusion was that until the spring of 1944 Germany would move divisions from Russia – and then only two or three – only if she was confronted by disastrous developments in south-eastern Europe, and that in the spring, when she would have to decide whether she was more threatened in the east or west, she would probably decide to withdraw only depleted divisions from the eastern front.

It did not yet know that on 3 November Hitler had already issued a directive laying down that priority was to be given to the western front. But it was soon to learn that on 24 January 1944 he had told the Japanese Ambassador that he was having to conduct the war in Russia on the principle of not jeopardising the defence of the west: the need for increased preparations against the western invasion was now adding itself to the consequences of Italy’s collapse, which had called for the reinforcement of Italy and the Balkans by 35 German divisions at the expense of the eastern front.

The next Russian offensive, begun in January 1944, struck against the Leningrad area and in the Ukraine. In the north it had threatened to envelop the whole of Army Group North by mid-February, when Hitler was forced to allow withdrawal out of Russia to the Ostwall. Further south, administering heavy defeat on the German armies, it had reached Galicia and the Romanian and Czechoslovak borders by the beginning of April, and by the middle of April another thrust across the Perekop isthmus and from Kerch had compelled the German forces in the Crimea to evacuate from Sevastopol. During this fighting Whitehall continued to obtain good intelligence from the Sigint sources, to which GC and CS added after the opening of the offensive the Enigma key of Seventeenth Army in the Crimea (Owl), which was read regularly after February 1944, and a new Fish link with Army Group A (Stickleback), which was read from February 1944.

In December 1943, before the offensive began, the decrypts, especially of signals from the naval liaison officer with Army Group A, had disclosed that following the failure of the German effort to retake Kiev, the Soviet armies had regained in a few days’ fighting much of the ground they had lost to the German counter-offensive. From the GAF Enigma Whitehall also knew that although the Germans had thrown into the counter-offensive two-thirds of
British influence in the Second World War

their total air strength on the eastern front, the GAF had been ineffective: largely because so many fighters had been withdrawn to Germany, but also because, as the Enigma showed, there was a growing shortage of long-range reconnaissance aircraft, if had been frittered away in unescorted bomber and dive-bomber daytime raids in close support operations made at the request of local military commanders and following no general plan. On 20 January 1944. summing up the voluminous intelligence received since the opening of the Soviet advance, the JIC appreciated that out of a total of 2,100 Axis first-line aircraft on the eastern front, of which at least 1,100 were obsolete or obsolescent, some 1,775 were German, and two-thirds of these 1,775 had been concentrated in the southern sector for the past six months. It also estimated that the German Army on the Russian front totalled about 4 million men in some 209 divisions, many much reduced in strength and equipment if not as yet in morale, of which 95 (including twenty-two Panzer divisions) were in the south and 67 (four Panzer) in the centre; in July 1943 88 (nine Panzer) had been disposed in the centre and 65 (ten Panzer) in the south. It knew that these forces had no reserves and estimated that they faced a Soviet Army of some 7-8 million men, high in morale and steadily improving in fighting value, and a Soviet Air Force of at least 5,000 mainly modern operational aircraft.

This JIC paper opened with the familiar warning that in relation to the Soviet forces it was 'subject to a wide margin of error because we have so little intelligence about Russian strength and intentions, and at this critical time no information official or unofficial from Moscow other than communiques'. But the JIC had some evidence from Sigint that Russia had built up concentrations against all the German Army Groups and that her offensive was taking place in 'a series of co-ordinated thrusts in widely separated sectors with the object of fully exploiting the German inferiority in numbers, their supply difficulties and lack of reserves'. It knew from the same source that Germany intended to hold the Crimea as a fortress, was clinging on to the eastern tip of the Dnieper bend and the Nikopol bridgehead despite the fact that her forces there were in grave danger, and would be unable to reinforce the much reduced Army Group North against what if expected to be a major Soviet offensive on the Leningrad front. And it concluded that she would have no choice but to avoid encirclement by carrying out a fighting withdrawal with such counter-attacks as she could manage without dangerously weakening her forces elsewhere, especially in France.

During the course of the Soviet offensive Sigint provided, as usual, little detailed intelligence about the fighting on the front held by Army Group North. The GAF Enigma made it clear that the GAF in that sector, comprising some 250 first-line aircraft after being reinforced from the centre and the south, was 'totally inadequate', particularly in fighters, and that its performance was singularly weak', if also revealed that although Army Group North was receiving ground reinforcements from the south, its losses were not being made good from the end of January. But most of the decrypts from this sector dealt less with the fighting than with the question of which line the enemy would withdraw to. From early in January they indicated that the Germans were intending to hold the line Narva–Lake Peipus: this conclusion was supported by SIS reports, and in mid-February the decrypt of a telegram from the Japanese Ambassador in Berlin disclosed that on 8 February authorities there had been nervous as to whether that line could be held. By 15 February the SIS had learned that the Finns had been told that Germany was preparing
to withdraw to, and hold, the line of the 1939 Soviet frontier. The Soviet advance was then within five hundred miles of Gdynia, the German Navy’s most important base for refitting main units and working-up U-boats.

Sigint threw still less light on the first phase of the Soviet advance south of Priepet, between Army Group Centre and the left flank of Army Group South. Beginning on 27 January the offensive reached the river Styr, well inside Poland’s 1939 borders, by the end of the month; this was not reflected in the decrypts until 24 February.

About developments on the front held by Army Group South the more voluminous flow of Sigint began with a long appreciation dated 8 January by the Army Group’s intelligence HQ. It disclosed that the Soviet forces were shifting their attack from the southern to the northern sector, from which they were expected to develop encircling movements to the north and the south: presumably on the strength of this decrypt MI concluded on 13 January that the Germans risked another Stalingrad if they did not quickly decide to withdraw from the Kiev–Dnieper bend. Another decrypt from Army Group South’s intelligence staff revealed on 28 January that the Russians had completed the encirclement of elements of the German Eighth Army in the Cherkassy pocket. Decrypts of Luftflotte 4’s reconnaissance reports for 28 January, received on the following day, told the same story. The German efforts to supply and relieve the surrounded divisions – estimated by the Soviet General Staff to be ten in number, and reported as seven in a Japanese diplomatic decrypt – were well covered by Sigint. On 13 February it disclosed that they had been ordered to try to break out, and it later reported that 12,000 men had been brought out. On 29 February two diplomatic decrypts, one from the Japanese Ambassador in Berlin and the other from the German Foreign Ministry, showed that the Germans were claiming that most of their forces had got away. But the Soviet claim to have destroyed ten divisions (55,000 men killed and 18,000 taken prisoner) was accepted by Whitehall on the strength of negative evidence from Sigint: most of the ten divisions named in the Soviet claim disappeared from the decrypts for several months.

In the extreme south, where a Soviet offensive beginning on 27 January took Nikopol on 7 February and Krivoi Rog on 22 February, the Fish decrypts supplied many German assessments of Soviet intentions. On 20 February they showed that the Germans were expecting the Russians to advance on Krivoi Rog and attack from Kirovograd in a pincer movement that would be the start of far-reaching operations towards the Bug between Voznesensk and Nikolayev. Decrypts reporting on the delays which held up this further offensive until 6 March revealed that the Germans were expecting it at any moment. On 6 March itself GAF Enigma signals emphasised that the Russians were concentrating and holding back their armour, and that the Germans were again deducing that the Soviet objective was to smash Sixth Army and break through to the Bug northwards of Nikolayev.

Once the Russian advance had begun Sigint about Sixth Army’s front became prolific, not least because a series of reports from the naval liaison officer with Army Group A on Sixth Army’s plight were decrypted. On 9 March he warned that Sixth Army was in danger of being encircled; on 13 March he reported that it was almost entirely surrounded, and that the Soviet forces might well seize the Bug crossings on the north of Nikolayev before it could fight its way out. On 20 March he reported that the Soviet advance was across the Bug and threatening Nikolayev "in order to be able to carry out [the]"
strategical intention of a thrust towards Odessa'; and warned that Army Group A would be in grave danger if the Russians, who were already across the Dniester at Yampol, were to develop from there a deep thrust in the area between the Dniester and the Pruth that was held only by weak Romanian covering forces. Three days later, announcing that this thrust had begun, he foresaw the development of operations which might encircle Sixth and Eighth Armies, 'thus finally eliminating resistance on the southern wing of the eastern front'. By that date MI 14 had concluded from a mass of detailed decrypts about the course of the fighting that Sixth Army had already sustained very serious losses, although it could not fully confirm the Soviet claim to have routed ten divisions (including one Panzer), to have heavily defeated eleven (including two Panzer divisions) and to have inflicted severe damage on four others.

On 27 March Fish and GAF Enigma decrypts disclosed that Soviet forces had crossed the Pruth in several places and that for Sixth Army’s withdrawal the High Command of the Army (OKH) had set a ‘final line’ at the bridgehead Odessa–Tiraspol. On 30 March the decrypt of a signal of 29 March had shown that Army Group South and Army Group A were being re-organised and had been ordered to retreat to a planned defence line in Romania. On 30 March the decrypt of a signal of 29 March had shown that Army Group South and Army Group A were being re-organised and had been ordered to retreat to a planned defence line in Romania. From further decrypts the German intentions emerged in great detail in the next few days. The Army Groups had been redesignated as Army Group North Ukraine, comprising First and Fourth Panzer Armies, and Army Group South Ukraine, comprising Sixth and Eighth German Armies and Third and Fourth Romanian Armies.

Sigint which covered the progress of the Soviet advances against Army Group South Ukraine disclosed Sixth Army’s intention to begin the evacuation of Odessa on 10 April and traced the withdrawal of Sixth and Eighth Armies to the line of the Dniester, and westward through Jassy to the Carpathians, which the Germans were to hold from the middle of April until the following August.
decrypts, as were the efforts of Fourth Panzer Army to assist the encircled forces to break out and of Luftflotte 4 to supply First Panzer Army and the relieving forces. First Panzer Army, comprising six Panzer divisions, one Panzer Grenadier division, one artillery division and ten infantry divisions, got away some 200,000 to 300,000 men, but had to abandon most of its equipment and heavy weapons.

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From the middle of April there was a lull in the fighting on all sectors of the eastern front except the Crimea. In that sector, where Hitler had vetoed evacuation, the Russians launched an offensive on 8 April across the Perekop isthmus and the Lazy Sea bridgehead in the north and from Kerch in the east, and it was not long before the decrypts indicated preparations for withdrawal in the face of a rapid Russian advance. On 10 April GC and CS decrypted Seventeenth Army commander’s orders for a withdrawal, presumably to Sevastopol, and a Grampus decrypt showed that he was ignoring the cancellation of his order by Berlin. The numbers of troops arriving in Sevastopol and awaiting evacuation were disclosed by the decrypts at regular intervals until 18 April, when they reported that Seventeenth Army’s twelve divisions (five of which were German) were badly battered and were left with only 30 per cent of their artillery and 25 per cent of their anti-tank guns. A decrypt of 18 April disclosed that Hitler, learning that Seventeenth Army intended to hold Sevastopol only until embarkation was completed, had forbidden the evacuation of any fit troops; another of 27 April showed that he had rejected an appeal by Seventeenth Army commander against this order, though it did not reveal that he had dismissed the commander. Early in May it became evident from the decrypts of returns from the Sevastopol port authorities that he had agreed to the withdrawal of Romanian troops, but the decrypt giving his reluctant consent to complete evacuation did not come until 9 May.

The evacuation was covered in great detail by Sigint. It was carried out by the Navy and the GAF, the decrypts showing that 121,000 men were taken off by sea and 21,500 by air. The GAF did what it could to protect the evacuation, transferring one Gruppe of heavy fighters from Germany, two Gruppen of long-range bombers from the central sector of the eastern front and some 80 other aircraft – torpedo-bombers and fighters – from the western Mediterranean, the Balkans and Austria.

Germany’s difficulties on the Dniester and in the Crimea were accentuated by Allied interference with shipping on the Danube, which carried her bulk-supplies for those sectors of the fronts and was needed for the withdrawal of her forces as well as for carrying imports of oil and other essential industrial raw materials. On three nights in the middle of April and in four further raids in May, No 205 Group RAF laid 531 mines in 152 sorties, and in May and June US bombers attacked ports and installations on the river. The Germans

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1It was learned after the war that OKW informed Hitler in the middle of May that the mining had not only held up 10,000 tons of ammunition for the Dniester front but had also contributed to the halving of imports of Romanian oil.
CHAPTER TWENTY-ONE

The Capture of Sicily, the Italian Surrender and the Allied Landings in Italy

In January 1943 the Combined Chiefs of Staff decided to undertake the invasion of Sicily because intelligence about the state and order of battle of Germany’s forces still ruled out the cross-Channel invasion in the summer of 1943. The JIC estimated that, should Germany have fallen back to a shortened line in Russia and be on the defensive in the Mediterranean, she would be able to oppose landings in France with 1,500 aircraft and 41 divisions, of which 15 could be committed within two weeks. A second front in France could not be contemplated until her resources had been greatly reduced. The attack on Sicily, which would help to reduce them, might also topple Mussolini’s régime and force Italy out of the war; but this was a subsidiary consideration. An Italian industrialist had recently approached British agencies in Berne with the suggestion that the Allies should assist Italian generals who were prepared to form an anti-Fascist army. The Allies agreed that such slight military advantage as might be derived from talking to the generals was outweighed by the disadvantage of having to give undertakings to them.

In the outline plan for the invasion of Sicily (Operation Husky), drawn up by the British Joint Planning Staff in the autumn of 1942, the JIC had estimated that the landings would encounter attack by some 795 aircraft, of which 545 would be German, unless steps were taken in advance to cut back the scale of opposition and eliminate bases in the Sicily-Sardinia-Pantellaria area, and that the Italian garrison in Sicily – three infantry divisions, one regiment of medium tanks and three battalions of light tanks – might be reinforced after the end of the fighting in Tunisia by 3 to 5 field divisions, of which 2 or 3 might be German. These calculations dictated the proposed scale of the expedition – 8 divisions – and the recommendation that it should be divided between a British force in the Catania area and a US landing on the west coast with the object of taking Palermo. The Joint Planners had urged that a single landing in the Catania area should be contemplated only if intelligence established that the strength of the enemy’s ground forces was less than the JIC had allowed for.

The Mediterranean Commands accepted the JIC’s estimates, but General Montgomery in command of the Eastern Task Force pressed for a strengthening of the assault in the Catania area at the expense of abandoning the drive to Palermo. He had got his way by the time the final plan was approved by the Combined Chiefs of Staff on 13 May. One of his arguments was that while the Enigma had established that the Germans were preparing to defend the island, and had specified that the Hermann Goring Division was to be sent there, it was impossible to predict how many reinforcements they would bring in before the invasion, the date of which had been fixed for 10 July.

This uncertainty was reduced from the middle of May. The SIS and OSS had accepted by then that the police and counter-intelligence systems in Sicily were so effective that espionage would be of no value. Most of the Italian
high-grade army keys were no longer readable, so that the examination of mail addressed to Italian POW was the principal source of intelligence about Italy’s preparations. But GC and CS identified a new Army Enigma Key (Albatross) in Sicily in May and broke it about 50 per cent of the time from 2 June: GAF Enigma decrypts yielded intelligence about army formations; and, still more important, GC and CS broke the Fish link between OKH and the German High Command in Italy (Bream) at the end of May.

In the third week of May, from these sources, the Allies learned that the German troops already in Sicily had acquired divisional status as the Sicily Division, with its HQ at Caltanissetta in the centre of the island, and that it was to be reorganised as a two-regiment Panzer Grenadier (PG) Division, its third regiment being kept for reinforcement of particularly threatened points on the coast. Between 20 June and the beginning of July the decrypts showed the Hermann Goring Division arriving with 18,000 men, 96 guns and 53 tanks, but minus its third infantry regiment. Before it arrived, the knowledge that the Chief Quartermaster to Kesselring, the C-in-C South, was arranging for supplies for two divisions to be equally divided between bases in the Trapani–Palermo area and bases north and north-west of Catania had made it clear that the German defence of the island was to rest on having one division in the east and one in the west; and by the end of June it was established that the Hermann Goring Division was to be in the east, with its HQ probably in the Paterno area south of Mount Etna. At the same time, it emerged from further references to the use of the third regiment of the Sicily Division that the enemy judged Catania to be the most threatened area. On 8 July (D – 2) last-minute intelligence showed that at the beginning of the month the Sicily Division had been transferring its Tiger company, with about 15 Tiger tanks, to the Hermann Goring Division, and that the Sicily Division was being re-named 15th Panzer Grenadier Division.

In the Allied appreciations issued on the eve of Husky the two German divisions were shown as being divided into four battle groups, disposed so as to act as stiffeners to the Italian divisions. It was calculated that the number of Italian coastal divisions had remained at five, though it was thought that they had been strengthened by the transfer of artillery and machine gun units from northern Italy; they varied in quality, but the one facing the Eighth Army’s assault area was known to be poorly equipped. It was known that the Italian field divisions had been increased from three to four, making a total of six enemy field divisions in all. From many POW reports about their armament, training and morale it was judged that only one of the Italian field divisions, the Livorno Division, was at all formidable. From their dispositions, as from the German evidence, it was clear that while the enemy expected the south-east and the east to be most likely areas for the Allied landings, he was not discounting a landing in the west: it was known that the Italians were organised into two Corps under the Sixth Army, XII Corps holding the western half of the island and XVI Corps holding the east. Although to the end they remained subject to some uncertainty, these order of battle estimates were substantially correct.
The Capture of Sicily and Italy's Surrender

If the Allies knew that they could not hope to surprise the enemy by the location and relative weight of their landings, they knew, too, that they could not conceal the timing of their assault. Sigint showed that the German and Italian air forces between them maintained an 'entirely thorough' reconnaissance coverage of the whole Mediterranean: it had to be assumed that 'any large seagoing force is unlikely to escape detection and a warning would be received in ample time'. Only by persuading the Axis that Sicily was not the objective of the expedition, or not its sole objective, could these handicaps be off-set.

The attempt to do this was all the more necessary in that Sigint showed that the enemy was presupposing that Sicily was the obvious Allied target. At the end of February 1943, when he was allowing that a landing on a fairly large scale was possible as early as March, the GAF Enigma disclosed that he thought the most threatened areas were Sicily, Crete, Sardinia and Corsica, in that order. From an analysis of the Sigint received during March it was deduced that, while he was uncertain whether the attack would come before or after the fall of Tunisia, he continued to think Sicily its most likely objective. A month later it was clear that the Germans had all but excluded all areas other than the western Mediterranean in the light of their observation of Allied military, naval and air concentrations in Gibraltar, Malta and the north African ports. Though allowing for a limited attack on Crete, they believed there was no threat to the Balkans: in the western Mediterranean they continued to think Sicily the most probable Allied objective.

It was in these circumstances that, to reinforce deception measures already in progress in the Middle East, the Allies developed their strategic deception plan (Operation Mincemeat). Early in May a corpse in British uniform was washed ashore on the Spanish coast bearing a letter which indicated that the Allies were planning an assault in Greece (named Husky) and that the idea of using Sicily as the cover target for this operation had been rejected in favour of using it as cover for another operation (Brimstone) for which the target was unspecified. Although it was not the only factor influencing Germany's dispositions - her anxiety about the possibility of an Italian collapse was no less important - Sigint established that the plan had a considerable, if declining, effect, not least because it chimed with Hitler's fears for the Balkans. On 14 May GC and CS decrypted a signal from OKW to Kesselring and other German commanders in the Mediterranean: it conveyed the 'absolutely reliable' information that large-scale Allied landings were being mounted both in the eastern and the western Mediterranean, the objective of the former (cover name Husky) being the Peloponnese. Until the beginning of June there were other decrypts indicating that the enemy expected early Allied action against southern Greece as well as in the western Mediterranean. But after the Allied capture of Pantellaria on 11 June the Sigint evidence left no doubt that although not ruling out a simultaneous descent on the Peloponnese or Crete, he was convinced that the biggest danger lay in the western Mediterranean. On 27 June GC and CS decrypted an order of the day from Kesselring to all German forces in the Mediterranean: it said that the hour of decision was at hand and they must be prepared to protect the homeland 'on Italian soil'. In the western Mediterranean, as the Sigint showed, the Axis authorities remained to the end unable to exclude a threat to Sardinia or southern Italy, but in the week before D-Day they regarded Sicily as the most probable Allied objective.

Enigma decrypts of 5 July showed that the GAF had deduced from PR of
the north African ports that some 250,000 tons of merchant shipping was about to leave with 120 landing craft and a large escort force and presumed that some of it was destined for the eastern Mediterranean. By 8 July it was known that the Italian Admiralty had estimated on the basis of the known dispositions of landing craft that the Allies had embarked some seven divisions in north African ports, about one division in Malta and \( \frac{1}{2} \) divisions in the eastern Mediterranean, and that Kesselring, on the evidence of allied air raids and other indications that the offensive was imminent, had ordered increased vigilance. Another decrypt ordered a first state of readiness at 1630 on 9 July following the sighting of 150 to 200 vessels north of Malta and Gozo: this alert applied only to Sardinia and the Allies did not decrypt the signals in which, following GAF sightings of convoys travelling at high speed near Pantellaria, the Italian Command in Sicily concluded that an invasion of the Gela–Catania area was imminent and ordered a preliminary alert at about 1900.

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A week before D-day AI’s estimate was that 990 German aircraft were in the central area out of a total of 1,260 for the whole of the Mediterranean, and it noted that the increase during recent weeks, mainly in single-engined fighters and fighter-bombers, had been achieved by diversions from other fronts, mainly western Europe, and by the formation of new units with aircraft direct from the factories. The actual strength of the GAF in the central Mediterranean on the eve of \textit{Husky} was 960 aircraft. AI’s estimate of the total strength of the IAF was 1,695 aircraft of which 880 were in the central Mediterranean. The actual total was 1,500 aircraft of which about 700 were in the central Mediterranean and another 100 or so in Albania and Yugoslavia.

There was little Sigint evidence to support these estimates in the case of the Italian Air Force. The IAF’s high-grade cyphers were no longer readable, and its medium and low-grade W/T traffic was insufficient to give a reliable guide to its order of battle. In the case of the GAF, on the other hand, high-grade Sigint was again abundant after the temporary lull following the end of the Tunisian fighting. The GAF general Enigma key (Red) was decrypted currently. The key used by the GAF ground organisation in Italy (Primrose) was read regularly and often currently, as was that used by Fliegerkorps II for army–air liaison traffic (Locust). About half of the traffic in two other keys, that used by Luftflotte 2’s bomber units (Squirrel) and that used by the transport organisation, Fliegerkorps XIV (Mayfly), was read, some of it currently. It was the fact that GC and CS decrypted most of the strength and serviceability returns transmitted in these keys that explains the accuracy of the estimates of GAF strengths.

GAF bomber strength in the Mediterranean was not increased after the end of May. By the beginning of June, moreover, the Enigma indicated that the bomber units previously based in Sicily were being withdrawn to the mainland, and during the first week of the month it showed that some of them were moving from central Italy to northern Italy and southern France. The withdrawal reduced the GAF’s counter-attacks. Such was the degree of air superiority achieved by the Allies by D-day that, whereas it had been assumed that 300 ships might be lost to air attack off the beaches, in fact only twelve were destroyed.
The withdrewal of the bombers was made in response to the Allied air offensive in which, in its first phase up to 3 July, the bombing of the principal airfields and ports in Sicily, Sardinia and central and southern Italy was supplemented by raids against northern Italy carried out from the United Kingdom by Bomber Command and against eastern Mediterranean targets by bombers from the Middle East. But the number of GAF fighters and fighter-bombers in Sicily and Sardinia continued to be increased until 3 July, when the Allied air offensive, entering on its final phase and concentrating against land, sea and air communications with and within Sicily, achieved some reduction of their strengths. On the evidence of the Enigma Sicily had 185 fighters and 79 fighter-bombers by 3 July and Sardinia had 81 fighters and 68 fighter-bombers. On the same evidence the number of fighters in Sicily was down to about 135 on the eve of Operation Husky and the fighter-bombers had been withdrawn. There were 130 fighters and fighter-bombers in Sardinia, but the serviceability of the 55 or so fighter-bombers was down to 35 per cent compared with 55 per cent on 3 July. It was clear, moreover, that fuel shortages had frustrated the intention to build up a main concentration of fighters in Sardinia, where total fuel stocks were by 6 July sufficient for only two days of restricted operations. These estimates may be compared with what is known about actual German strengths at the time: some 300 fighters in Sicily and the Toe of Italy, with 70 in Sardinia, and some 130 fighter-bombers.

The pre-Husky air offensive was guided by PR as well as by Sigint, high and low-grade. It was clear that only two of the airfields in Sicily remained entirely serviceable by D-day – Sciacca in the south-west and Milo in the extreme west – and that some, including Palermo, had been practically abandoned. But it was also clear that the enemy resorted to the construction of emergency landing strips: including these, the nineteen airfields believed to exist in Sicily at the start of the planning for Husky had increased to over thirty by the end of June. Thus the important Gerbini system near Catania, comprising a major airfield and satellite landing grounds, had nine satellite landing grounds by the end of June and had three more added to it in the week preceding the invasion; and though it was the target of many attacks, it was never put out of action entirely. As for the rail traffic on Sicily, this had been virtually brought to a standstill by D-day through the destruction of rolling-stock and repair facilities. Only 9 July the HQ of Fliegerkorps II at the Hotel San Domenico at Taormina was raided by Spitfires; it had been located by Sigint as well as by the Polish Intelligence Service, and Sigint showed that the damage done by the raid had dislocated the GAF effort on the day of the landings.

The quality of the intelligence provided about the invasion beaches in Sicily, for which PR was the chief source, is difficult to assess. At the end of June, after a visit to Algiers, the Director of Military Intelligence (DMI) reported to the JIC that inadequate beach intelligence had been, and still remained, the chief obstacle facing the planners. After the landings, however, tributes to the excellence of the beach photography, particularly the very low altitude photography carried out by the RAF, were equally widespread. The discrepancy is in all probability largely explained by the fact that although the PR cover became very good, it did not do so in time to reduce uncertainty and anxiety during detailed planning, much of which had to be completed by D-30. But this was not the sole problem. The naval C-in-C commented in his despatch on Husky that 'the estimation of beach conditions and gradients by air photography and study of wave velocities have now reached a fine pitch of
efficiency: but where sand bars exist there is no present substitute for swimming reconnaissance. This was a reference to the Combined Operations Pilotage Parties, who were taken into the beaches by submarines from the end of February to supplement the work of PR. Despite the heavy casualties incurred during March and April, this hazardous method of collecting beach intelligence was again used with good results during the dark period at the end of May and the beginning of June.

In view of the fact that the Italian high-grade naval cyphers were unreadable, PR was also the main source of intelligence about the strength and distribution of the Italian Fleet. Each port harbouring warships was photographed daily and even the meancst port was photographed at least once a week. The results showed that the strength and distribution of the Italian Fleet on the west coast of Italy remained much as had been expected in the original Husky plan, so that the Allies had to provide large naval covering forces for their expedition at the expense of the Home Fleet, but Comando Supremo had already decided in May to commit it against the Allied invasion only if an exceptionally good opportunity presented itself. On 10 July PR reported that two battlehips in La Spezia were outside their baffle and that three of the cruisers had steam up; on 12 July it reported signs that the battleships at Taranto were ready to sail. But no ships moved until, as was disclosed by the Enigma and the C38m, two cruisers were despatched to bombard Palermo on the night of 6-7 August, and again on the following night. They turned back on the first attempt after a brush with destroyers and on the second after being sighted by aircraft.

In the final Allied invasion plans the object of the seaborne and airborne assaults was the capture of the airfields in the south-east and of the ports of Syracuse on the east and Licata on the south coasts with a view to establishing a firm base from which to take Augusta and Catania and the Gerbini group of airfields. Eighth Army, comprising XIII Corps (5th and 50th Divisions) and XXX Corps (51st Highland Division, 1st Canadian Division and 231st Infantry Brigade), was responsible for capturing Augusta, Catania and the Gerbini airfields from landings at Syracuse and Pozallo. US Seventh Army, comprising II Corps (1st and 45th Divisions) and 3rd Division operating directly under General Patton, was responsible for capturing Licata and the airfields in its neighbourhood and for protecting the left flank of the Eighth Army in the Ragusa area. Once the armies were established across the south-east corner on the line Calania–Licata General Alexander intended to bring about the reduction of Sicily by cutting the island in half, seizing the road network in the centre and leaving only the northern coast road open to the enemy.

Despite the lack of tactical surprise and the hazards of combined operations, all the Allied assault forces secured their beachheads. Against opposition described as ‘slight or negligible’, XIII Corps on the right secured positions round Cassibile and Avola and took Syracuse on the evening of D-day, by which time XXX Corps was firmly established in the Pachino peninsula. Forty-five miles to the west US II Corps suffered more severely from poor weather and encountered tougher opposition, but by the end of D-day was
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...holding beachheads around Scoglitti, Gela and Licata.

At the time of the landings the enemy’s ground forces were disposed as follows. A Battle Group under Colonel Schmalz with elements of the Hermann Goring Division and a regiment from 15th PG Division covered Catania. The Napoli Division was in the south-east corner with the rest of the Hermann Goring Division and the Livorno Division on its right in the area Caltagirone-Caltanissetta. The two other Italian field divisions and the main body of 15th PG Division were in the west of the island. Early on 10 July the Commander of the Italian Sixth Army decided to recall 15th PG Division to Caltanissetta to protect his right flank; he also ordered a counter-attack on 11 Corps’s beachhead at Gela and the reinforcement of the Syracuse sector to prevent Eighth Army from breaking out into the Catania plan.

Eighth Army’s intelligence summary for 10 July noted that 15th PG Division was moving back from the west by 1900 on that day. This information was almost certainly provided by air reconnaissance; it was not until 14 July that GC and CS was able to inform the Allied commands that it had been moving to the Caltanissetta area on the evening of 10 July to protect the Axis right flank. But the decrypts of orders issued at 2300 on 10 July for operations by GAF ground attack aircraft against the Gela beachhead at first light on 11 July were signalled by GC and CS at 0231 on 11 July: the news that a German Battle Group was moving south from Catania through Lentini followed immediately; and an hour later GC and CS reported that at 1715 on 10 July Kesselring had instructed the Hermann Goring Division to attack at once, Hitler having ordered all forces to be brought into operation immediately to prevent the Allies from establishing themselves.

The counter-attack on Gela on 11 July failed after hard fighting and on 13 July, while US Seventh Army advanced northwards to Vizzini, north-west towards Caltanissetta and west towards Porto Empedocle and Agrigento, Eighth Army took Augusta and launched its main thrust towards Catania across the Simeto river. Meanwhile, on 11 July Hitler had ordered that HQ XIV Panzer Corps should move from southern Italy to give unified direction to the German units in Sicily, and that those units should be reinforced by 1st Parachute Division, flown in from Avignon, and 29th Panzer Grenadier Division from Calabria. But on 13 July, following the Italian collapse at Augusta, he defined the German task as being ‘to delay the enemy advance as much as possible and bring it to a halt in front of Mount Etna along a line running approximately from San Stefano via Aderno to Catania’, and while confirming the transfer of 1st Parachute Division, ordered that 29th PG Division should be held at Reggio di Calabria until the prospects of maintenance across the straits of Messina had become clearer.

From 13 July Sigint became plentiful. In addition to the cyphers already mentioned, notably the Red and Locust keys of the GAF, the Albatross army Enigma key and the Bream traffic, the German naval Enigma key (Porpoise) provided a good deal of intelligence about the ground fighting as well as adding to the shipping intelligence derived from the C 38m.1 Moreover, although it

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1The C 38m was now decrypted in the Mediterranean theatre for the first time. As part of the preparations for Husky, a small party of cryptanalysts from GC and CS was attached to C-in-C Mediterranean’s HQ at Algiers to exploit on the spot Italian low-grade tactical codes and cyphers which had hitherto been exploited only at GC and CS and at Alexandria. When the party arrived at
was little used as yet, a high-level Army key (named Puffin) was now introduced for communications between OKH and German forces in Italy and Sicily, and GC and CS broke it for the first time on 23 July. There was thus no lack of Sigint, about either the enemy’s intentions or the state of affairs on the battle-front, for transmission to the Allied commands. In addition to transmitting to the principal commands in Tunisia and north Africa, GC and CS transmitted directly to Seventh and Eighth Armies when their commanders moved into Sicily.

On 14 July it became clear that the enemy was abandoning western Sicily; the decrypts of that day included orders to the supply staff at Palermo to expedite the evacuation of the supply base in west Sicily by every possible means. These were followed by orders early on 15 July for the immediate evacuation of all GAF ground elements in the Palermo area; a report that Trapani harbour had been blown up at noon on 15 July and Milo evacuated; an order in the evening of 15 July that all landing craft not on urgent supply traffic were to be sent from the Messina Straits to Palermo 'for important return cargoes'; and orders on the morning of 16 July for the orderly evacuation of western Sicily.

At the same time, it was established that the enemy intended to reinforce eastern Sicily. Instructions to the Rations Office at Reggio to expect 29th PG Division and HQ XIV Panzer Corps, together comprising about 14,000 men, within the next few days were decrypted on 13 July. Soon after midday on 14 July the Allied Command learned that for the present only a detachment of 29th PG Division (one battalion of 15th PG Regiment, one heavy infantry gun platoon, one light battery and three Panzer reconnaissance troops) would go to Sicily that day, and that by Hitler’s orders this detachment was to be used to protect the flank and rear of Battle Group Schmalz. The announcement that HQ XIV Panzer Corps would be moving on 15 July was decrypted on 16 July. The fact that on 17 July its staff was to be routed via Taormina to battle HQ six kilometres east of Randazzo was passed to the Allied commands at 1349 on 18 July.

Between 13 and 17 July Sigint showed the Axis forces to be under heavy pressure on the whole front. But by 16 July the immediate crisis was over. A frail but connected German front had come into being. The Allied thrust for Catania across the Simeto river had failed and the attempt to reach the town through Paterno and Misterbianco was to fare no better during the next three days. Eighth Army’s Intelligence Summary of 19 July remarked that, except in the west, where the city of Palermo and two Italian divisions awaited capture, 'the complexion of the battle has now changed. Instead of the speedy capture of beaches and ports we are engaged in a slower slogging match to gain bridges and crossing with valuable airfields as the prize'. The arrival of XIV Panzer Corps HQ suggested that 'the enemy is far from selling out of his remaining bridgehead in Sicily with the great natural advantages of the Etna position and the defensive line he holds in front of it'.

Seventh Army took Palermo on 22 July. On 23 July it was ordered to thrust
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eastward with maximum strength to assist Eighth Army’s advance against the enemy’s defensive positions. The eviction of the enemy from these positions involved heavy fighting until Catania fell on 5 August, when the enemy began a step by step withdrawal to a shortened bridgehead position on a line from six miles south of Cape Orlando across Mount Etna to a point twelve miles north of Catania.

During this phase of the campaign the high-grade Sigint disclosed the arrival of 29th PG Division and the assumption by this division of responsibility for the northern sector of the front. On 27 and 28 July, however, decrpts of 26 July disclosed that no more motor transport or troops were to be ferried to Sicily at present other than personnel of 1st Parachute Division. The high-grade Sigint also disclosed the withdrawal from Sicily of the GAF’s close support forces, which began on 16 July and was completed by 22 July. But it provided little intelligence that was of tactical value to the Allied forces: and the same was true of Army Y. Except that it provided details about the activities of the Hermann Goring Division during the last week of July, Army Y during the Sicilian campaign was unable to fulfil the high expectations aroused by its performance during the desert campaigns and in the later stages of the Tunisian fighting: by such measures as more frequent changes of field codes and keys, new map reference systems and more complex call-sign systems the Germans and the Italians had greatly improved the security of their field communications.

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On 26 July OKW ordered Kesselring to prepare for the eventual evacuation of the German forces, and plans were drawn up for this operation by 1 August. In the event the main evacuation was delayed by the need to counter the Allied advances. But the German Army retreated to successive defensive positions, holding each for a short time and disengaging a proportion of troops at each stage for embarkation, and over 12,000 men, 4,500 vehicles and 5,000 tons of equipment were withdrawn to the mainland by this means between 1 August and the night of 11 August, when the main evacuation began. The Italians, organising their evacuation separately, followed a similar policy, preliminary withdrawals beginning on 3 August, the main evacuation taking place from 9 August. By 17 August, when the Allies entered Messina, some 60,000 German troops had been transported safely and the Italians had brought away some 75,000 men.

There was no firm Sigint on the subject until 6 August, when GC and CS informed the Mediterranean commands that on 4 August the Hermann Goring Division had asked that assault boats and inflatable rafts should be sent to Catona, 4½ miles from Messina across the Straits. That evening Eighth Army’s intelligence summary noted that ‘evacuation measures include calling for names of personnel of the Hermann Goring Engineer Battalion trained in the use of assault boats’. But AFHQ remained sceptical about the imminence of evacuation. Its intelligence summary for the week ending 7 August, issued on 10 August, found ‘no adequate indications that the enemy intends an immediate evacuation of the Messina bridgehead’. A certain amount of surplus material had probably been evacuated and it was likely that advance plans for
an eventual evacuation had been put in hand. For both prestige and strategic reasons, however, it was ‘anticipated that the enemy will continue to defend the north eastern tip of the island’.

By the time this appreciation was issued its conclusions had been invalidated by further intelligence. On the evening of 8 August, by which time decrypts of Enigma signals from Kesselring and from the German naval authorities in Sicily had established that the gradual withdrawal of the Axis front to shortened bridgehead positions had been proceeding according to plan since 6 August, GC and CS decrypted a signal in which XIV Panzer Corps stated on 6 August that priority delivery of fuel was essential for the coming heavy demands on the entire ferry system and a signal giving the Italian naval authorities in Messina instructions about the removal of stores. On the same evening Eighth Army’s intelligence summary noted that PR photographs of the previous day had confirmed that ferries to the mainland were full while those moving to Sicily were empty.

At midnight on 10 August, nearly twenty-four hours before the main German evacuation began, the commands received the information from German naval Enigma decrypts that fourteen landing craft were on passage to the Straits of Messina for ‘a special operation’ and that eight were being brought down to Naples from the north as a reserve. And on the evening of 11 August, on the basis of PR evidence, Eighth Army’s intelligence summary described the evacuation as being in full swing, employing about 75 ferry craft under cover of fierce Flak. Thereafter, PR and Sigint both recorded the progress of the operation. In the early hours of 12 August GC and CS informed the commands in an emergency signal that the GAF had ordered the concentration of fighters over the operations area of XIV Panzer Corps and the Straits of Messina. During 14 August Army Y detected the move of the HQ of the Hermann Goring Division to the mainland, and during the night of 14–15 August high-grade decrypts reported that the evacuation had proceeded well up to the evening of 13 August, the ferry service having proved more efficient than expected.

It will be clear that the intelligence authorities at AFHQ were slow to appreciate the significance of the available intelligence, which was sufficient to enable those at Eighth Army HQ to draw the correct conclusions as early as the evening of 6 August. Since 15th Army Group was relying on AFHQ’s assessments, this would explain why on 11 August, when Eighth Army’s intelligence staff was confident that the evacuation was in full swing, General Alexander informed the CIGS that ‘the general impression, and only an impression, is that the Germans may withdraw across the Straits shortly’, why it was not until the afternoon of 13 August that the Tactical Air Force was told that ‘evacuation is held to have begun’, and why General Alexander’s signal to Air Chief Marshal Tedder, stating that ‘it now appears that evacuation has really started’, did not follow until 14 August. As early as 3 August General Alexander notified Admiral Cunningham and Air Chief Marshal Tedder that there were signs that the enemy was preparing to withdraw to the mainland and promised timely advice about when they should strike. ‘We must’, he added, ‘be in a position to take advantage ... by using full weight of navy and air power. You have no doubt co-ordinated plans to meet this contingency’. In the event, although timely intelligence was available, timely advice was not provided.
Following the early success of the *Husky* landings, having concluded that the Allies ought to take calculated risks to exploit their advantage with such of their Mediterranean resources as had not been earmarked for withdrawal, the Combined Chiefs of Staff had advised General Eisenhower on 16 July to consider a landing in the Naples area instead of in Calabria or against Sardinia. And on 26 July they had ordered him to mount the assault at the earliest possible date. Like the order to prepare for the evacuation of Sicily which Kesselring received on the same day, their decision was precipitated by the dismissal of Mussolini from office on 25 July.

The Allies, who had hitherto rebuffed informal approaches from individuals acting on behalf of Italian generals, had no firm evidence of the readiness of the new Italian Government to negotiate or surrender. As to how Germany would react if the Italians entered into negotiations, they had some reason to believe she was preparing to take over the Italian positions in the Balkans, but there was no evidence as to what she would do in Italy itself until General Castellano, Chief of Staff to the Italian Chief of General Staff, made contact with the British Ambassador in Madrid on 15 August. He had full authority from Badoglio to say that, if Italy could reach agreement on armistice terms, she would fight with the Allies against Germany, and he insisted that Germany would not withdraw from southern Italy without a fight. There were already thirteen German divisions in Italy and more were likely to arrive. This information was at once forwarded to the Allied leaders at the Quebec Conference and they decided that negotiations should proceed: the knowledge that Germany had succeeded in withdrawing her divisions from Sicily was already creating misgivings about the prospects for the Allied landings. Nor did these misgivings decline in the next few days. By 20 August Sigint had confirmed Castellano’s warning about Germany’s intention to reinforce her divisions in Italy. It had established that sixteen divisions, including the four withdrawn from Sicily, were in mainland Italy or were due to arrive there, and that a newly-formed Army Group B was to control those in the north. The latter were to comprise 76th, 94th and 305th Infantry Divisions under LXXXVII Corps; 44th Infantry Division and Brigade Doehla under LI Mountain Corps; and SS Division Adolf Hitler, 24th Panzer Division and 65th and 71st Infantry Divisions under an unspecified SS Panzer Corps. On 20 August Whitehall received from the AFHQ officers who had met Castellano on 19 and 20 August a list of the German divisions that he knew to have been in or intended for Italy on 12 August. Except that it included two SS divisions and made a mistake in the numbering of 65th Infantry Division, it tallied with the Sigint evidence.

Castellano had provided further information: there were several thousand SS troops in Rome, which was also threatened by 3rd PG Division and 2nd Parachute Division, and the Germans intended to defend Sardinia and Corsica and to make the Genoa–Ravenna position their main line of resistance, defending the line of the Po if the Genoa–Ravenna line was penetrated. At the same time, he had left it uncertain whether Italy would accept the terms the Allies had presented to him. After making arrangements to return to Sicily for further discussions about the end of August, he had then left to consult his government.

It was in these circumstances that on 24 August the Quebec conference finally accepted AFHQ’s plans for landings by Eighth Army across the Straits of Messina (Operation *Baytown*) and by US Fifth Army in the Gulf of Salerno (Operation *Avalanche*) and laid down the objectives of the campaign in Italy:
‘First phase - the elimination of Italy as a belligerent and the establishment of air bases in the Rome area and if possible further north. Second phase - seizure of Sardinia and Corsica. Third phase - maintenance of unremitting pressure on German forces in north Italy and the creation of the conditions required for Overlord and of a situation favourable for the eventual entry of our forces into southern France’.

It did so after hearing that AFHQ, while it believed that ‘the German intention seems to be to deny us the Po valley by holding a line Pisa–Rimini’ and that ‘it looks as if they intend to withdraw their divisions in southern Italy to the north’, was not confident about these forecasts and was, moreover, anxious that even if Germany did not bring down the new divisions from the north, she might endanger Avalanche by concentrating against it the divisions she already had in the south.

AFHQ spelled out this threat in more detail on 31 August. In reply to an urgent request for an appreciation of the consequences for Avalanche of the latest intelligence reports of German dispositions in Italy, it estimated that the initial opposition - one armoured division and possibly two or three parachute battalions - would be increased by D + 5 to two and a half armoured divisions (one and a half of them weak), one and a half Panzer Grenadier divisions (equal to one full-strength Panzer division) and one parachute division; between D + 5 and D + 10 this force might be further increased by one armoured division and one weak PG division. MI thought this estimate optimistic in assuming that the Germans would not release any divisions from the north: they might bring down one armoured division and one PG division, in which case they could have three armoured divisions and four and a half others in action by D + 10, and by D + 17 the margin in their favour might be at least IV3 divisions.

Both of these appreciations were based on full and accurate intelligence about the German Army’s order of battle in southern Italy. By 28 August the high-grade Sigint had disclosed that a new Tenth Army (AOK 10) had taken control of XIV and LXXVI Panzer Corps, that LXXVI Panzer Corps had 29th PG Division, 1st Parachute Division and 26th Panzer Division in Calabria and Apulia, that XIV Panzer Corps had 15th Panzer Division at Gaeta, the Hermann Goring Division at Caserta and 16th Panzer Division at Salerno, and that 2nd Parachute Division and 3rd PG Division were in the Rome area. As for northern Italy, where it was known from Sigint that Rommel had been appointed C-in-C Army Group B, Enigma decrypts had by 30 August referred to the arrival in the Parma–Piacenza area of advanced elements of XXXIX Panzer Corps with 18th Panzer Division and 14th PG Division, thus raising the number of divisions in or destined for mainland Italy (excluding Sardinia) to eighteen.1 But as to how Germany would use her forces in the rapidly changing situation, no further

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1This Panzer Corps and its divisions were eliminated by MI 14 from the German order of battle in Italy in October when it was established that Army Group B had been using a new Enigma key (named Shrike at GC and CS) to pass signals simulating their presence in Italy when they were in fact on the Russian front. It later transpired that the purpose of the deception was to impress the Italians that German strength in Italy was to be greater than was actually intended. This was the first of several occasions on which the Germans used the Enigma to pass false information to their own forces for security or deception purposes. On none of these occasions were they assuming that the Enigma was insecure. Nevertheless, this first occasion caused considerable alarm at GC and CS.
intelligence was received before the Allies landed at Salerno. On 29 August OKW approved the proposal from Kesselring, who remained C-in-C South, that LXXVI Panzer Corps should withdraw gradually northwards to a line from Scalea on the west coast to Taranto and Brindisi, and on 6 September it ordered Rommel to remain north of the Apennines. But these orders were not decrypted. Nor was it known at the time of the landing at Salerno that under the German plan for the contingency of Italy’s desertion (Operation Achse) German troops were to be removed from Sardinia and Tenth Army to be pulled back to the Rome area. Not until the day of the landing, however, when it was too late to make terms for Italian assistance, did the Allies complete a settlement with the Italian government.

Castellano had returned to Sicily on 31 August to request information about the strength and whereabouts of the Allied landings and to report that his government could not agree that the armistice should be announced before it was sure that the landings had been successful. His request had been refused and his government’s condition rejected: to help the Italians to defend Rome the Allies had, however, undertaken to mount a hazardous additional airborne operation, for which the President and the Prime Minister had given their approval on 1 September. On 3 September, when Castellano had succeeded in obtaining only ’implicit acceptance’ of the Allied terms from Badoglio, and the Allies had accordingly cancelled their offer of an armistice, Badoglio had finally authorised Castellano to sign the terms, but the Italians had requested the cancellation of the airborne operation on the grounds that it would only provoke more drastic German action, and they had also pleaded that the announcement of the armistice would only precipitate the German occupation of Italy and the creation of a quisling government. General Eisenhower had agreed to cancel the airborne operation but had insisted that he and General Badoglio should broadcast a few hours before the Salerno landing. They did so on 8 September.

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The Germans offered little opposition to the Eighth Army’s landing in Calabria on 3 September. The GAF effort fell off rapidly after the first day: the high-grade Sigint showed the enemy making a planned withdrawal; and it gave no sign that the divisions in the Gaeta–Salerno area were being moved south. Since the middle of August, on the other hand, the same source had established that the Axis expected another landing further to the north, and it was clear that the Allies could not expect Operation Avalanche to achieve surprise. On 1 September the Allies received an appreciation of 28 August by the German naval authorities. This pointed out that the Allies had assembled forces in excess of what would be required for attack on Sardinia or Corsica and that, while southern France could not be excluded, southern Italy was probably the objective: it also expected the attack in the near future. Thereafter, as the decrypts showed, the intensification of Allied air attacks and GAF sighting reports of Allied convoys left the enemy in little doubt about the location and the imminence of the threat. On 8 September GC and CS was able to report that German naval forces south of Rome had been placed at half an hour’s notice and those north of Rome at two hours’ notice: that the German Navy
expected a landing in the Naples–Palinuro area; and that Fliegerkorps II’s intention for 9 September was to employ all forces against a landing in the Naples–Salerno area.

The GAF’s attack with fighter, ground attack aircraft and bombers against the Avalanche forces, which had begun during the night of 8–9 September, was covered in detail in the Enigma decrypts. The intelligence showed that the daily number of fighter and ground attack sorties began to decline after 12 September and slumped heavily after 16 September, when the enemy’s greatly overmatched close support forces began to be withdrawn to the Rome area. A feature of the intelligence about the bomber effort was the disclosure that it included anti–shipping operations by III/KG 100, a formation equipped with the new FX radio controlled bomb, and I I/KG 100, the group which had already used the new Hs 293 radio guided rocket missile with success against British naval forces in Biscay and whose transfer from Atlantic bases to Istres in southern France was reported on 7 September. Orders that bombers were to begin withdrawal from Foggia, the main bomber base, were decrypted early on 19 September.

On the response of the German Army to the landing no intelligence was obtained for more than two days. Army Y produced no information during the fighting at Salerno. During 9 and 10 September the Enigma decrypts disclosed only that the German forces in Calabria were withdrawing according to plan and that those in the Rome area were fully occupied in securing the capitulation of Italian divisions. As General Eisenhower reported on the evening of 10 September, however, the Allied Command feared that the enemy might reinforce his left flank with the troops from the south and did not exclude the possibility that he would bring some units down from the north by the east coast route.

Information that the enemy intended to use all his immediately available forces against the beachhead followed during the evening of 11 September. At 2053 GC and CS reported that the Enigma had disclosed that lack of fuel was seriously delaying the movement of units of LXXVI Panzer Corps to the Salerno front. At 2120 it transmitted to the Mediterranean commands the orders issued by Kesselring to the Tenth Army that afternoon: Tenth Army was to leave strong elements of one division in northern Calabria and a reinforced regiment in the Foggia area, but was to concentrate all its other forces in the Naples–Salerno area and throw the Allies into the sea.

During 12 September the bridgehead battle developed unfavourably to the Allies and on 13 September the situation became critical. Nor did matters improve until the night of 13–14 September, when US 82nd Airborne Division made a parachute drop in the beachhead. With this reinforcement, which was repeated on the following night and supplemented on 15 September by troops brought in by cruisers from Tripoli and by powerful naval and air support of the beachhead, the scale began to turn in favour of the Allies. General Clark had ordered this first use of the Airborne Division on the morning of 13 September. It is possible that the crisis which developed during 13 September might have been averted if, in the light of the information received on the evening of 11 September, a decision had been taken forthwith to reinforce the beachhead with US 82nd Airborne Division on 12 September. But no other intelligence was received in time to influence the course of the battle.

On 15 September Kesselring, learning that Tenth Army commander did not want to launch a fresh attack, told OKW that Allied naval and air power had
forced LXXVI Panzer Corps on to the defensive. The following day Tenth Army
admitted that Allied naval and air supremacy had prevailed, and advised that to
continue the battle would only lead to heavier losses, and Kesselring agreed.
The Allied commanders learned nothing of these exchanges. But decrypts
obtained on 17 September included reports of the fighting during 16 Septem-
ber which showed the enemy meeting strong resistance and incurring heavy
losses, and at noon on 18 September GC and CS reported the news that on the
previous day, at 1100, LXXVI Panzer Corps had announced its intention to
begin the withdrawal at dusk. The German situation reports for 17 September
were decrypted in the afternoon of 18 September: they showed the enemy on
the defensive on the whole front.

* * *

On Germany’s intentions in the Italian theatre as a whole, there was no lack of
high-grade Sigint during the battle at Salerno. It is true that during the first
two days of the fighting it remained uncertain whether she would commit the
divisions newly arrived in the north against the Allies landings. On 11
September, however, AFHQ considered that such a move was likely only in the
event of a marked German success: and on 14 September the JIC endorsed this
view and reiterated the belief that it was ‘the German intention eventually to
withdraw to the north, possibly holding as far south as Pisa-Rimini’.

These appreciations were based on the receipt since 9 September of many
decrypts which reported Germany’s reactions to the Italian armistice (Opera-
tion Achse). The earliest of these decrypts had dealt with Germany’s attempts
to seize the Italian Fleet1 and her decision to evacuate her forces in Sardinia to
Corsica. There had followed on 10 September the decrypt of a message from
the German Foreign Office to all naval attachés, who were informed that
Germany intended to hold north Italy and Corsica with Rommel in command:
that her troops in southern Italy would if necessary make a fighting retreat to
the north; and that German troops were moving into the Italian occupied
zones of France and securing the Dalmatian coast. On 11 September the GAF
Enigma had disclosed that the GAF Command and all GAF operational units in
Sardinia had been ordered to Corsica the previous evening. On 13 September
the naval Enigma had announced that the Germans had ordered the evacuation
 Signals from the German Naval Command Italy on the evening of 8 September, decrypted on 9
September, informed subordinate units that the German Army had been ordered to take over
Italian warships and merchant ships, instructed German naval units to force all Italian ships
encountered at sea to proceed to ports north of Civita Vecchia and ordered the naval authorities at
Taranto to use mining and E-boats to prevent the escape of Italian Fleet units. At noon on 9
September further naval decrypts disclosed that Operation Achse had failed at Genoa and Spezia,
the Italian warships there having sailed, and that III/KG 100 had eight aircraft ready to attack the
Italian Fleet with radio guided bombs: and an Italian report that the battleship Roma had been
sunk and the battleship Italia damaged on the afternoon of 9 September was decrypted in the early
hours of 10 September. Italian signals decrypted during 9 September had included a general
announcement from the Admiralty warning that communications might shortly be interrupted, as
German troops were marching on Rome, and ordering the Navy in the King’s name faithfully to
fulfil the terms of the armistice and sail to Malta.
of Corsica. Other decrypts had included the daily reports of Army Group B. They had revealed on 12 and 13 September that it was moving its HQ from Munich to Garda, and that its southern boundary was to be Elba–Piombino–Perugia–Civita Nova, and had shown it to be fully occupied in establishing its control: according to its report of 14 September it had by that date disarmed 340,000 Italians. By that time decrypts of Sicherheitsdienst (SD) messages had revealed that Himmler was confident that he knew of Mussolini’s whereabouts and had given the SD complete freedom of action to effect his release; and on 12 September they had added that Mussolini had been taken from Franica di Mare by air to Vienna.

During the next ten days the high-grade Sigint seemed to substantiate the JIC’s judgment, as did developments on the fighting front. As well as confirming that Tenth Army had abandoned the attempt to smash the Salerno bridgehead and the GAP* was being withdrawn from southern Italy, it reported the completion of the evacuation of Sardinia on 17 September and covered in great detail the evacuation of Corsica, which began on 15 September. On 21 September the decrypts of a report by the Japanese Ambassador in Berlin of a talk with the German Vice-Minister of Foreign Affairs stated that ‘from the first Germany had had no intention of fighting a decisive battle in the centre or the south of Italy ... even the fighting in the Salerno area had been carried out with the purpose of inflicting as great a loss as possible on the enemy with the forces already there, and once these operations were over Germany would resolutely order the retirement of her army. Rome would remain in Germany’s hands for the present but she had no idea of holding it for a long time ...’ Thereafter, although they did not disclose that Kesselring had received from Hitler during the Salerno fighting a directive ordering him to withdraw the Tenth Army to the Rome area whatever the outcome of the battle, the many decrypts reporting on the fighting in southern Italy showed that Tenth Army, eschewing stubborn resistance, was making a staged withdrawal before growing Allied pressure.

It was on this evidence that on 29 September the JIC reiterated the view that the Germans were preparing to evacuate southern and central Italy and deduced from the evacuation of Sardinia and Corsica, which exposed the German right flank, that the process of withdrawal would not be protracted. Nor was this appreciation out of line with the conclusions of the Allied commanders. On 21 September General Alexander had already issued to his army commanders his forecast of the course of operations. They would develop in four phases: consolidation on the line Salerno–Barletta; capture (by 7 October) of Naples and the Foggia airfields; capture (by 7 November) of Rome and the road and rail centre at Termini; and capture (by 30 November) of Leghorn and the communications centres of Florence and Arezzo.

Eighth Army reached Foggia on 27 September and on 2 October the Allies entered Naples, but the remainder of General Alexander’s programme was not to be achieved. When he laid it down, ‘in the well-founded belief that the bulk of AOK 10 covered by delaying forces was withdrawing to the area of Rome’, he had had no reason to suspect that within a fortnight German policy would change.

* * *
Meanwhile, at the news of Mussolini’s dismissal, Churchill had reopened discussion of the advantages that would follow from a quick operation to seize Rhodes. But he had been forced to bow to the fact that since the Germans had sent a garrison to the island, the operation would require the diversion of air and naval forces which could not be spared from the central Mediterranean. As early as 14 May Sigint had revealed that the Italians had given approval for German reinforcements. By the middle of June it was clear from the Enigma that Germany had sent in some 4,000 men with artillery, anti-tank guns and tanks — probably an ad hoc motorised division. On this evidence Eisenhower had recommended that no attempt should be made to take Rhodes; and in August at the Quebec Conference the British delegation, which was in any case intent on securing support for vigorous action in Italy, had accepted that Allied operations in south eastern Europe should be restricted to strategic bombing and supply missions for the Yugoslav and Greek guerrillas. But the Middle East Command still planned for limited operations on the announcement of Italy’s surrender: it would send an SAS detachment to Castelrosso, other detachments to other islands, notably Cos, and a small mission to Rhodes to try to persuade the Italian forces to round up the German garrison — the last to be followed by a brigade and tanks if it succeeded.

On 8 September, the day of the Italian armistice, the Italian garrison on Castelrosso surrendered to the British detachment. Between then and 16 September British forces occupied Cos, Calymnos, Leros, Samos and other smaller islands without meeting Italian resistance. On Rhodes, however, the British mission, landed on the night of 9–10 September, failed to forestall the Germans: they seized the Italian commander and on 11 September, making effective use of dive-bombing Ju 87s, secured the capitulation of the garrison, and by 16 September, as Sigint showed, they were organised as an ‘Assault Division’ for the defence of the island. Nor were the British authorities able to recover from this setback. Because the retention of the positions acquired in the other islands, not to speak of their expansion, depended on the possession of Rhodes with its harbours and airfields, the Middle East Command drew up a plan for taking Rhodes from the Germans — an operation which it had previously set aside as being beyond its resources. But even as it was obtaining permission from the Chiefs of Staff to carry out the plan before the end of October its hopes were again frustrated. The German capture of Cos on 3–4 October finally destroyed the British chances of exercising air and naval control to the extent required for an attack on Rhodes.

Despite the loss of Rhodes these chances had perhaps remained reasonable until 18 September. Even after 12 September, when Hitler ruled that the chain of islands between the Peloponnese and Rhodes must be held, OKW doubted whether the British could be ejected from the positions they had taken, and it could not spare any additional army reinforcements. But the British prospects had faded rapidly from 18 September. The GAF had by then begun to bring in reinforcements: among them, as the Enigma had disclosed by 27 September, were twenty single-engined fighters to Greece from Vienna and two long-range bomber formations, each of thirty aircraft — II/KG 51 from southern Russia to Salonika and II/KG 6 from northern France to Larissa. This intelligence was reflected in GHQ ME’s and AI’s estimates of German air strength in Greece and the Aegean at the end of September and early October: a total of 350 aircraft, including 75 fighters, 85 long-range bombers and 65 dive-bombers. Early in September, by way of comparison, the Air Ministry had estimated that the GAF
had 250 aircraft in Greece and Crete, including 60 fighters, about the same number of dive-bombers, and 20 long-range bombers, while at the end of August the actual GAF strength in the area had been 215 aircraft, excluding transport aircraft, of which 29 were fighters and 75 dive-bombers.

Germany’s success in capturing Cos owed much to the GAF’s bombing, which started on 18 September and prevented the British, who in any case lacked adequate shipping, from establishing a protected advanced base on the island for Allied aircraft. Its local air superiority throughout the area hampered the build-up of British troops and other supplies – so that only 2,700 men, 27 guns and 7 vehicles had been transported in all, mainly to Cos, Leros and Samos, by the end of September – and greatly increased the difficulties imposed on the Allied naval forces by their lack of advanced refuelling bases. And so much was this the case that it may be doubted whether the Allies would have been able to intercept the German seaborne expedition against Cos even if they had received more intelligence about it. In fact, although PR detected the arrival of shipping in Crete on 30 September and its departure on the morning of 2 October, it was assumed, in the absence of evidence from Sigint, that it was making for Rhodes.

Despite the refusal of AFHQ to divert resources from the campaign in Italy the Prime Minister insisted that every effort should be made to retain Leros and Samos. But if it had been unwise to take them in the knowledge that Rhodes could not be captured, it was still more so to try to hold them after the fall of Cos. Although the Enigma gave advance notice of Germany’s determination to re-capture Leros and Samos and provided full details of her plans, which were frequently postponed, British forces were unable to do more than delay her preparations at a heavy cost to themselves. Six destroyers and two submarines were sunk and four destroyers and four cruisers were damaged before the Aegean operations were brought to an end by the capitulation of the Leros garrison on 16 November; and the aircraft lost, a total of 113, included 50 per cent of the fighters committed.
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British contact with the resistance groups in Yugoslavia, established by the despatch of an SOE agent to Mihailovic in September 1941, had been severed during the following winter by the first Axis offensive against the guerrillas. In the interval GC and CS had broken the Enigma keys of the German army and air force in the area, and the decrypts had confirmed what the SOE agent had already reported: the Communist Partisans and Mihailovic’s Cetniks were fighting each other: Mihailovic was putting up little resistance to the Axis: the Cetniks were collaborating, indeed, with the Italian occupying forces and the Axis-controlled Croat Government. But Mihailovic had established radio contact with the Yugoslav government-in-exile in London, which had recognised him as the leader of the national resistance, and British support, which was moral rather than practical, continued to be given only to him until 1943. Apart from political considerations, there were other arguments against alienating him by making contact with Tito’s men. Mihailovic’s policy of conserving his forces until the Axis was weakened suited the Allies: he clearly hoped to acquire the equipment of some of Italy’s divisions in Yugoslavia when she collapsed; and far from collaborating with him themselves, the Germans, as the decrypts showed, were just as determined to eliminate him as they were to destroy the Partisans.

By the beginning of 1943, as the Allies prepared for landings across the Mediterranean, these arguments were weakening. SOE’s agents and Sigint, which now included decrypts of medium grade cyphers used by the Abwehr, German police formations and the German divisions, showed that the Germans were stepping up their anti-guerilla activities. It is true that while they directed these mainly against the Partisans, they were becoming increasingly suspicious of the collaboration between the Italians and the Cetniks, who continued to operate against the Partisans under Italian auspices. It was clear from the decrypts, indeed, that they knew that Mihailovic was hoping eventually to turn Italian arms against themselves and they were anxious to eliminate him against the eventuality that, if Italy fell out of the war, the Italians would join the Cetniks against them. But this did not alter the fact that Sigint established that the fighting value of the Cetniks was greatly inferior to that of the Partisans. In these circumstances Whitehall decided in March that while maintaining the mission with Mihailovic, SOE should send officers to the Partisans in Croatia and Slovenia.

If there was any hope that this step might enable the SOE to persuade the Cetniks and the Partisans to sink their differences, it was soon dispelled by the onset of open civil war between them. In this fighting the Cetniks suffered major reverses by the end of April, and they were then scattered by a German offensive. In the middle of May, when Sigint and SOE’s agents had revealed the extent of Mihailovic’s set-backs, the Middle East Defence Committee ordered him to withdraw into Serbia, leaving the non-Serbian areas in the hands of the Partisans. The Foreign Office protested against this decision, arguing that he was not a spent force: but it was defended by the Chiefs of Staff, who were
advised that Sigint left no doubt that it was the Partisans who had held down the Germans in the recent fighting and that the Cetniks were hopelessly compromised by their collaboration with the Italians. The outcome was a compromise. The ultimatum to Mihailovic was withdrawn, but the Foreign Office conceded that the Partisans might be given arms on condition that they ceased to operate against him.

During the summer of 1943 the SOE’s agents became increasingly anxious that relations with Mihailovic should be broken off and all aid switched to Tito. They emphasised the contrast between the limited sabotage activities carried out by the Cetniks and the extensive operations of the Partisans; and they produced from their local contacts the claim that some of the Cetniks were collaborating with the Germans and Nedic’s government in Croatia as well as with the Italians. This claim was not borne out by Sigint. The Abwehr and police decrypts occasionally indicated that some Cetnik leaders were offering to collaborate, as did a single Enigma decrypt at the end of August; but the Enigma showed that the Germans were still set on the destruction of Mihailovic’s forces and that in September, at the outset of their action to disarm the Italian divisions, they had arrested the staffs at his HQs in Croatia and Slovenia, in view of the uncertainty the authorities in Whitehall deferred a decision while Brigadier Fitzroy Maclean undertook a mission to Tito. But by the end of September it was clear that while the Cetniks had derived no advantage from Italy’s collapse, the Partisans had exploited it to step up their activities; and thereafter events moved rapidly in Tito’s favour. By the end of October Enigma decrypts reporting on further fighting between the Partisans and the Cetniks disclosed that, in the opinion of the intelligence staff at the HQ of the C-in-C South East, Mihailovic had suffered another severe defeat. In the middle of November the liaison officers with Mihailovic reported that they had failed in their attempts to persuade him to be more active against the Germans and recommended that, if he could not be replaced at the head of the Cetniks, the movement should be abandoned. At the same time, Fitzroy Maclean recommended that aid to the Cetniks should be discontinued and aid to Tito increased. According to Maclean’s report, the Partisans were a well-organised military force and had established effective political control in the areas they had liberated: nothing less than large-scale Allied intervention could prevent them from taking over the whole country when Germany withdrew. Mihailovic, in contrast, had no chance of uniting the country on account of his pro-Serb policy: moreover, the Partisans had so much evidence that he was collaborating with the Germans, as previously with the Italians, that they regarded him as a traitor.

For this last conclusion there was now no lack of confirmation in London. At the end of October the local signals decrypted in Cairo had disclosed that Mihailovic had ordered all Cetnik units to co-operate with Germany against the Partisans, and there were indications in the decrypts and from captured documents supplied by the Partisans that the Germans were making overtures to Mihailovic’s representatives in the belief that the order had had the approval of the Yugoslav government. More recently, GC and CS’s Enigma decrypts had shown that the German attitude towards collaboration with the Cetniks was changing. In a decrypt of 7 November the Abwehr in Belgrade had protested against an order to collect well-disposed Cetniks and employ them against the Partisans: this would be prejudicial to current military operations. On 12 November, on the other hand, the Abwehr had reported that, as a result of the
infiltration of the Partisans and of the fact that that the Balkans were to become a Soviet sphere of influence, the Cetniks in Montenegro were ‘strongly interested on Germany’s behalf’. And by 22 November another Abwehr decrypt had disclosed that the German C—in—C South East had signed a secret treaty with the commander of a Cetnik HQ in Montenegro covering a cease—fire in the Uzice area, west of Sarajevo, as a preliminary to joint action against the Partisans.

The JIC and the Foreign Office took somewhat different views of this evidence. The JIC, accepting Maclean’s assessment of the military strength and effectiveness of the Partisans, agreed that aid to them should be increased — and that supplies to Mihailovic should be discontinued in view of the fact that he was ‘encouraging or, at best, failing to prevent’ collaboration between his forces and the enemy. The Foreign Office accepted that the political and military strength of Tito’s forces was growing and conceded that Mihailovic was handicapped by his anti—Partisan stance. But it insisted that there was no proof that Mihailovic had ordered collaboration with Germany or was even conniving in the activities of his subordinates. On this account, and also because it believed that Maclean had under—estimated the personal following Mihailovic still enjoyed in Serbia, it was unwilling to break with the Yugoslav government to replace Mihailovic with a more moderate Cetnik leader.

The Foreign Office’s response did not avert an immediate decision effectively to abandon Mihailovic: he received virtually no supplies after the end of November 1943, and at a plenary meeting of the Tehran conference on 29 November the three Allied heads of government decreed that Tito must be supplied to the greatest possible extent in an effort to help to withstand the German drive to re—establish control in Yugoslavia.¹

* * *

At the news of the Italian armistice the Germans had acted quickly to put into effect the measures they had prepared in advance for securing the surrender of the Italian forces (Operation Achse). On 12 September the decrypt of a report from C—in—C South East had claimed that all the main Italian units had been disarmed. Sigint, in the form of German Army, Abwehr and SS Enigma and occasional decrypts of the Italian C 38m and Military Attaché cyphers, had indicated that the claim was somewhat premature. According to these decrypts the Italian commanders in Albania and Montenegro had surrendered on 11

¹ The amount of supplies sent into Yugoslavia up to the Italian armistice was negligible (71 tons to the Partisans; 118 to Mihailovic). The amount increased to 135 tons a month during the winter of 1943—1944, but remained well below the target of 350 tons a month on account of bad weather, the shortage of aircraft and the fact that airborne supply still had to be by parachute because of the lack of landing facilities. In the spring of 1944 the number of aircraft available to SOE was increased from 32 to 113, and 3,100 tons were dropped to Tito in the second quarter of the year. Seaborne supplies, very limited before the beginning of 1944, had temporarily outstripped those sent by air in the first quarter, but were reduced as the air supplies improved.
September; but in Montenegro two divisions had put up fierce resistance around Kotor Bay until 20 September and, further inland, two others had not been completely subdued by the middle of October, while in Dalmatia and north-west Croatia some units of the Second Italian Army, the only higher command to order resistance a outrance, had fought stubbornly around Dubrovnik, Split and Zara till towards the end of September. But by the beginning of October it was clear that most of the fifteen Italian divisions in Yugoslavia had been disarmed or dispersed. On the other hand, the Partisans had also responded quickly to the Italian capitulation. By the beginning of October they had seized Istria, an area behind Split and most of the Dalmatian islands; were profiting from the diversion of German troops by threatening the main railway to Belgrade in the area around Zagreb; and had themselves disarmed some Italian divisions and enlisted support or acquired arms from others.

From the beginning of October bulletins from the Partisans, reports from the British liaison officers and the German high-grade Sigint - above all the Sigint, which had become even more copious - had left no doubt that the Germans were making a determined effort to recover the lost ground. They had cleared the Istrian peninsula, the coastal plain east of Udine and the area around Fiume by the middle of October. On 20 October II SS Panzer Corps from Rommel's Army Group B in northern Italy, up-graded as First SS Panzer Army, had embarked on a campaign to recover the Zagreb–Ljubljana area with five full divisions, elements of five other divisions and some smaller formations - the largest force ever employed by Germany in anti-guerrilla operations. This had ended indecisively on 21 November, when First SS Panzer Army withdrew into northern Italy. But by the beginning of December it was known from the decrypts that 371st Infantry Division, recently arrived from Italy, was among the formations which Second Panzer Army - in command in Yugoslavia under Army Group F - was about to use in another offensive in the Zagreb area, and that in the Sarajevo area, where it had carried out preliminary clearing operations since early in November, V SS Mountain Corps had just launched a major attack with 1st Mountain Division (brought in from Greece) and 7th SS Mountain Division transferred from the Dalmatian coast. On the coast, moreover, recent decrypts had disclosed that the Germans, who had relieved the ports and temporarily re-captured islands as far south as Split during November and early December, were now preparing to attack the large islands between Split and Dubrovnik, where they had hitherto been held up by fierce guerrilla resistance and the lack of GAF support against Allied air attacks, and where the Allies were soon to join up with the Partisans by establishing detachments on the islands of Lagosta and Vis and an airfield on Vis. A decrypt of 1 December had given details of the assembly of landing craft for an assault on the island of Solta. Allied aircraft had destroyed the whole of this force on the following day. On 3 December GC and CS decrypted Second Panzer Army's orders of 2 December for the recapture of the other islands: they gave no dates, but laid it down that they were to be re-taken in the sequence, Brae, Hvar, Korcula, Mijet, Lagosta and Vis.

These being the circumstances in which the Allies decided to step up supplies to Tito as a matter of urgency, the decision formally to break with Mihailovic was precipitated by evidence that to save his precarious position in Serbia, he was throwing in his lot with Nedic and the Germans.

A copy of an order from Mihailovic for general mobilisation against the
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Partisans, dated 13 November, had reached Cairo on 29 November and London by 2 December. By 4 December the liaison officers with Tito’s forces had reported that some of Mihailovic’s influential subordinates were reluctant to obey, preferring to make agreements with Tito, and that desertions by his followers were forcing him to turn to Nedic for support. By the same date GC and CS had decrypted an Abwehr signal of 1 December which reported that Mihailovic was negotiating with the SS in Zagreb about the formation of volunteer bands in northern Greece, and this decrypt – the first Enigma message to refer to his personal involvement in collaboration with the Germans – was followed by one dated 2 December which confirmed the information supplied by the liaison officers. It disclosed that the Abwehr, exploiting the knowledge that Mihailovic had been alienated from Great Britain by her decision to support Tito, was furthering unofficial negotiations between him and Nedic. During the rest of December the liaison officers sent in further evidence that Cetniks were fighting with Nedic’s forces and the German Army against the Partisans in Croatia, Serbia and Dalmatia, and their reports were again confirmed by Sigint. GC and CS decrypted several Enigma messages to this effect, including one in which the Abwehr HQ in Belgrade, noting that many small Cetnik bands were reaching agreements with the Germans, reminded its subordinates that such agreements required the approval of Germany’s roving ambassador in the Balkans.

On 11 January 1944 the Chiefs of Staff recommended the withdrawal of the missions with Mihailovic, arguing that ‘even if the evidence of Mihailovic’s treachery is incomplete, there is no doubt that he is doing nothing to help in the defeat of Germany’. The final decision to implement the recommendation was delayed by hesitation in the Foreign Office, but it went into force on 19 February after Tito had made it plain that he would otherwise refuse to accept the full Allied missions which were essential if support for him was to be effective.

The missions attached to Mihailovic’s force could not make their way out at once; the last of them did not leave until the end of May. Meanwhile, the political and diplomatic effort to achieve an agreement between King Peter and Tito still delayed the dismissal of Mihailovic until 16 May 1944, when the King dismissed his entire government. But these delays were of no significance in view of the development of the military situation in Yugoslavia.

Between the beginning of December 1943 and the middle of February 1944 the main German operations were Second Panzer Army’s offensive south of Zagreb and V SS Mountain Corps’s offensive in the Sarajevo area. The decrypts showed that the former, beginning on 6 December, drove the Partisans north-eastward towards Zagreb but was called off on 22 December without having eliminated their threat to the area. In the Sarajevo area the decrypts showed that 1st Mountain Division and 7th SS Mountain Division, having narrowly failed to encircle some 9,000 Partisans by 11 December, drove them back to the banks of the river Bosna before turning to capture the Partisan capital, Jajce, on 9 January. GHQ Middle East and AFHQ found it difficult to assess the scale of the Partisan losses: but they believed that the Partisans
would recover some of the lost ground, and by the middle of February the Partisans had indeed re-captured Jajce.

Since January the Enigma had recorded a steady increase in sabotage operations by the Partisans against the railway system and similar targets, which were also subjected to heavier Allied air raids, and from mid-March the Partisans, resuming the offensive in Serbia, made progress against garrisons of satellite troops at a time when the Russian advance from the east and the German occupation of Hungary were forcing redeployment on the Germans. By the middle of April, however, they were in retreat before a German advance which aimed to eliminate Tito’s stronghold in the central mountains. It culminated on 25 May in a concerted attack on Drvar in southern Bosnia by units of the Brandenburg Division and battle groups from V and XV SS Mountain Corps, spearheaded by an airborne drop by SS paratroops. In an effort to hold up the German advance the Allies stepped up supply drops to the Partisans and air attacks on the enemy’s lines of communication. On 19 May, however, the Enigma, which had previously carried an appreciation from XV SS Mountain Corps to the effect that the Partisans would hold Drvar with all available forces, disclosed that the Germans had been discussing on 12 May a large-scale operation in XV SS Mountain Corps’s area: and on 22 and 23 May it indicated that for an important operation to be carried out in the next few days 300 men were to be accommodated at the airfields at Bihac and Banja Luka and Fliegerfuhrer Croatia was to receive temporary aircraft reinforcements. On 24 May a decrypt disclosed that an operation was scheduled to take place on 25 May. On 25 May GC and CS decrypted a further signal of 24 May in which GAF Zagreb had notified an SS Parachute Battalion that all was ready for loading.

AFHQ could have sent an alert to the British Mission at Tito’s HQ on the basis of the decrypts it had received between 19 and 23 May. It did not do so, although there is some indication that by the morning of 25 May AFHQ had prepared a general warning for transmission to the Mission that was overtaken by events. What was the reason for AFHQ’s inaction – or, perhaps, its delay? It has been suggested that it was due to unwillingness to help the Partisans. Apart from the fact that this explanation is incompatible with the efforts made to support the Partisans before and after the German attack on Drvar, it fails to take account of the policy laid down for preserving the security of Ultra. The authorities in Whitehall had decided in December 1943 that the Mission should receive no intelligence based on high-grade Sigint, the main considerations being the knowledge that the Partisan cyphers were insecure, the fact that the Mission’s own cypher was not of the highest grade and, not less important, the risk that, if taken without proper precautions, action based on Ultra might arouse German suspicions about the vulnerability of the Enigma.

After the attack on Drvar the Allied air forces helped to contain the German drive against the Partisans by launching a sustained offensive against the airfields from which the GAF was supporting it. On Sigint evidence AI estimated that the offensive, destroying 45 aircraft on the ground and damaging 96 others, virtually eliminated the GAF as a combat force in Yugoslavia. Although Tito’s HQ had to be evacuated to Bari by Allied aircraft early in June – it was subsequently established on Vis – the Partisans were able to resume active operations in July.
Meanwhile, despite the fact that Sigint covering Germany’s operations on the Adriatic coast was obtained from the GAF general Enigma key, from the key of GAF South East (Gadfly) and from the naval Enigma key (Porpoise), all of which were decrypted with little delay, the Allies had been unable to prevent her occupation of most of the important islands. On 13 December 1943 OKM had issued a revised programme for the capture of the islands lying between Split and Dubrovnik. Decrypted and disseminated by GC and CS on the following day, this specified that Korcula should be attacked on 16 December, Mljet on 24 December, Hvar on 3 January, Brae on 9 January, and that assaults should follow on Solta and, if sufficient naval forces remained available, on Lagosta and Vis. Further decrypts disclosed that the assault on Korcula was delayed by the shortage of troops and shipping, the inability of the GAF to provide fighter support, and the damage done by British attacks: for example, the RAF created considerable disruption with a heavy raid on Zara, the rear supply base, on 16 December, and on 22 December torpedo-boats sank the ex-Italian flak cruiser Niobe after she had been crippled in an air attack. But the assault went forward without Allied intervention, and by 28 December, meeting only token guerrilla opposition, the Germans had completed the capture of the island. By the end of January, making the short sheltered sea crossings at night and exploiting bad weather to avoid Allied interference, they had occupied Mljet, Solta, Brae and Hvar with little or no air and naval support but without meeting serious resistance, the Partisans having left behind only small rear-guards to fight delaying actions.

This marked the limit of German expansion down the Yugoslav coast. It was obvious that the Germans would try to take Vis, and in the middle of February 1944 the Enigma disclosed that, having earlier ruled out an airborne assault for lack of aircraft, they were preparing a sizeable combined operation against Vis and Lagosta. Before the end of February, however, after giving full details of the forces engaged, the Enigma reported that GAF objections, the weather and nervousness about the size of the Allied garrison had led to the postponement of the attack on Vis; and it later added that a detachment which had sailed against Lagosta on 1 March had been shelled by Allied destroyers. Proposals for attacks on the two islands continued to figure in the decrypts long after the Enigma disclosed that the Führer had decided on 25 April that they should be abandoned, but Sigint showed that the local German commanders had recognised before the end of March that, far from permitting any further expansion, Allied naval and air superiority already threatened their ability to defend their coastal supply routes and retain the islands they had recently taken.

Germany’s determination to seize the islands had arisen from the crucial importance of seaborne traffic to her entire supply system in Yugoslavia, as the JIC had recognised in January 1944, but her success in taking them only increased the strain on the limited air and naval forces she could provide for the defence of shipping. It greatly enlarged the opportunities for Allied attacks on the coastal supply route at a time when, with No 242 Group RAF of the coastal Air Force establishing itself in Taranto in January and increasing in strength as it moved its bases up the Italian peninsula, the Allies were expanding their anti-shipping operations. At the end of January the JIC estimated that of the 143,000 tons of merchant shipping available to Germany in the Adriatic, some 60,000 tons had already been immobilised or damaged, and that the German naval forces in the area consisted of 2 destroyers, 10
torpedo-boats, 2 corvettes, 4–10 E-boats, 8 R-boats, 3 U-boats and 7 Italian motor torpedo-boats (MAS). These estimates rested on a stream of naval Enigma decrypts giving reports on the damage done by air attacks to ships and port installations at Dubrovnik, Zara, Split and Sibenik in November and December 1943 and at Fiume, Pola, Sibenik and Trogir in January 1944. Thereafter, the Allied air offensive was intensified. With over 300 aircraft available from the end of January, and a growing participation by the Italian Air force from the spring, it was able not only to make more frequent attacks on the main ports and naval bases but also to attack the remoter harbours and ships on passage. The results of the offensive were again reflected in Sigint, the Enigma decrypts providing immediate accounts not only of the increasingly heavy raids on the main ports, but also of the many small encounters in which individual ships were sunk or damaged.

The Allied air attacks met with negligible air opposition until February 1944. Throughout the previous autumn, as the GAF Enigma had disclosed, Fliegerführer Croatia and Fliegerführer Albania, their resources cut to the bone by withdrawals to other theatres, which reduced the strength of the GAF in the Mediterranean theatre as a whole from 1,280 aircraft in July 1943 to 575 in January 1944, and denied all but temporary reinforcements by the fact that the GAF’s first concern in the eastern Mediterranean after the Italian armistice was to strengthen its position in the Ionian islands and the Dodecanese, had been quite unable to meet the many demands made upon them for the defence of the Adriatic ports, the protection of the sea routes and support of the Army’s operations against the islands and the Partisans inland. From January 1944 their ability to meet these demands was further reduced. Sigint disclosed that aircraft were being withdrawn from the Dalmatian coast for the air defence of Bulgaria in January, when Al estimated that of some 125 aircraft available in the whole of Yugoslavia and Albania only 55 were first-line aircraft. Another 40 single-engined fighter aircraft were transferred from Yugoslavia to Bulgaria and Romania in February. GAF South East was before long faced with another problem: towards the end of March the Enigma disclosed that it had been ordered to give up trained men for the defence of the Reich and to carry out a ruthless comb-out of such spare parts as could contribute to the maximum mobilisation of fighters for the home front. In May it emerged from the Enigma that the GAF had been forced to transfer fighters from Greece for operations against the Allied air-lift of supplies to the Partisans.

From mid-March, in conjunction with their plans for commando raids and landings on the islands, the Allies concentrated their Adriatic air offensive against the enemy’s naval vessels. In the last week of the month the decrypts showed that the German navy, which had seen its effective strength in the islands reduced to seven small craft, had complained that shipping along the Dalmatian coast would be at a complete standstill unless the sea and air defences were at once improved.

Allied commando raids on the islands were by then giving the Germans cause for increasing alarm. Raids against Solta and Hvar in March, against Mljet and Korcula in April, and Solta again in May had been followed by a larger-scale landing on Mljet on the night of 22–23 May. It failed to make contact with the German garrison as a result of “faulty information on German dispositions”. These operations derived little immediate benefit from the Enigma, which was rarely decrypted in time to be of tactical value. But they caused many signals to be made complaining of the lack of air support and the
shortage of ferries and transports, and some which confirmed that, despite these deficiencies, the Germans were anxious to maintain the garrisons for as long as possible as a means of delaying Allied landings on the coast. On 25 April AFHQ estimated that the raids had had the effect of compelling the enemy to use practically the whole of 118 Jäger Division on the islands to the detriment of their operations on the mainland. Between 2 and 4 June an Allied landing on Brae, staged to help Tito during his retreat, succeeded in diverting further German troops to the coast, the Enigma revealing that the enemy regarded the raid as more serious than its forerunners and was fearful that Split would be threatened if it succeeded.
CHAPTER TWENTY-THREE

From Naples to Rome

For two weeks after the battle of Salerno Germany had no plans for holding Italy south of Rome. At the end of September, however, Hitler ordered Kesselring to use delaying tactics only so far as a line from Gaeta to Ortona. He was to hold this line and, if the Allies did not attempt to break it, he was to plan to take the offensive into Apulia. These new instructions were prompted by the slow pace of the Allied advance and reports that assault shipping was leaving the Mediterranean for the United Kingdom: from this evidence Hitler deduced that the Allies aimed only at the political prize of Rome and a base from which to attack southern France or, more probably, the Balkans.

Sigint quickly disclosed the change in German policy. Enigma signals of 1 October, decrypted on 2 October, revealed that in a recent interview with Kesselring Hitler had said that it was ‘of the utmost importance’ that as little ground as possible should be given up, particularly on the left flank of Tenth Army, and had ordered active defence along the whole front. On 8 October decrypts of signals from LXXVI Panzer Corps provided firm evidence that the Germans intended to hold a line south of Rome for the winter: they gave details of the line to which the Panzer Corps was to retire during the night of 7–8 October, of a further line of resistance along the river Trigno (line *Barbara*) and of ‘the final winter position’ (line *Bernhardt*), which lay a little north of the river Sangro), as well as of sector boundaries between LXXVI Panzer Corps on the German left and XIV Panzer Corps on the German right. References to the *Bernhardt* line in XIV Panzer Corps’s sector showed that it ran through the Cassino area. Other decrypts of 7 October disclosed the 65th and 305th Infantry Divisions were being transferred from Army Group B to C–in–C South and that Hitler had told the Japanese Ambassador in Berlin that the German forces were looking for an opportunity to drive the Allies out of Italy.

This intelligence caused the Allied commands to abandon their expectation of occupying Rome early in November and reaching Leghorn, Florence and Arezzo by the end of that month. For some weeks, indeed, it induced them to give serious attention to the possibility of a major German counter-offensive in Italy. On 20 October JIC Algiers thought that a German offensive could not be precluded and that, as air support for it would be minimal, it would be more likely to come that winter than in the spring. On 26 October AFHQ feared that Germany might take the offensive.

These anxieties were not shared in Whitehall. Among the high-grade decrypts received on 19 October one had contained instructions from Keitel to the effect that first priority in transport arrangements in Italy was to be given to the movement of troops from Italy to other fronts, and in another the C–in–C GAF had sent orders to Luftflotte 4 for the movement of transport aircraft from Italy to Russia. On 29 October the JIC, assessing German strength in Italy as 22 to 25 divisions, of which five or six were facing the Partisans in Istria and Slovenia, was confident that the number could not be increased. There was no question of divisions being transferred from Russia; the contrary was more probable. No forces were likely to be moved from the Balkans. It was highly
improbable that any would be moved from France and the Low Countries. On these grounds, and because air support would be quite inadequate, the JIC was ‘convinced .. that the enemy would not feel he was in a position to launch .. a large-scale attack’.

The JIC’s appreciation was entirely accurate. Nor was it long before high-grade Sigint\(^1\) provided significant support by disclosing that Germany was transferring a number of crack divisions from Italy to the Russian front. By 7 October the Enigma had mentioned that 24th Panzer Division was under orders to move to Russia; it had established that the division was on the eastern front by 25 October. Other decrypts had referred on 26 October to the ‘transfer away’ of 76th Infantry Division and SS Panzer Division Adolf Hitler; both were identified in Russia by mid-November. On 18 November GC and CS decrypted instructions to Kesselring which showed that 16th Panzer Division was being transferred. The move to Russia of 2nd Parachute Division, which had been in the Rome area since August, was also revealed by the Enigma decrypts during November. In the first week of November the JIC could not envisage ‘any circumstances under which the enemy will be able to increase his air power in Italy to a scale in any way sufficient to support a major offensive ..especially in view of the overwhelming Allied air superiority’.

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By the end of 1943 Eighth Army had crossed the Sangro, broken through the Adriatic end of the Bernhardt line and taken Ortona, but was held up at Orsogna. Fifth Army had forced the line on a front of about 20 miles between Mignano and Acquafondata, but XIV Panzer Corps was doggedly holding new ground. The resolution with which the enemy had contested every vital feature had made it plain that, even if a serious counter-offensive was beyond his means, he remained determined to hold the allies south of Rome for as long as possible.

Intelligence threw much light on his order of battle, the state of his divisions, his supply situation and the development of his defence positions. On the last of these subjects PR provided good evidence, but with this exception the intelligence was almost entirely obtained from high-grade Sigint and Army Y. The SIS established a forward unit in Bari by October 1943 with instructions to develop an independent network and an organisation to operate in collaboration with SIM (the Italian Secret Service). It did not produce much

\(^1\)The German Army Enigma keys used in Italy were not very productive at this period owing to the static nature of the fighting and the enemy’s use of line communications. Thus the key and staff key of Tenth Army (named Albatross I and II by GC and CS) and the keys used for communications between OKH and German forces in Italy (Puffin I and II) were broken only very occasionally, and there was very little traffic from Army to Army Group and to OKH. But Army Group B’s key (Shrike) was broken four or five days a week from early in October 1943 until the traffic died out in the spring of 1944, and the shortage of high level Army Enigma decrypts was off-set by the fact that GC and CS was reading regularly with about a week’s delay the non-morse teleprinter link between C-in-C South and OKH (Bream). In addition the GAF general key (Red), which was also still read regularly and currently, provided some high level intelligence about the Army, and other GAF keys produced a great deal of tactical information about the ground fighting.
High-grade Sigint disclosed all movements of divisions from Army Group B to the battle area - the transfer of 65th, 305th and 94th Infantry Divisions in October, of 44th Infantry Division in November, and of 90th Panzer Grenadier (PG) Division, 5th Mountain Division and 334th Infantry Division (the latter to replace the much-battered 65th Infantry Division) in December. The dispositions and movements of the enemy divisions in the front line were known both from the Enigma and Army Y. On 20 November, as well as revealing the new appointment of Kesselring as C-in-C South-West and GOC Army Group C, which took over all formations of Army Group B, the decrypts carried a general appreciation from Kesselring to OKW. In it he announced that he would try to relieve the frontline divisions periodically, to conserve their strength, and that, to permit the withdrawal of 26th Panzer Division and 29th PG Division for rest and refitting and employment in a mobile role, he intended to bring up 44th Infantry' Division from Istria to the front.

During December the high-grade Sigint provided ample evidence that the Allied pressure had not been sufficient to oblige the enemy to relent in his determination to hold a line south of Rome. The decrypts of three lengthy reports from Kesselring gave details of the state of development of prepared positions along the whole front. At the same time it was clear that the enemy was managing to sustain his strength in tanks and guns. This information came from two different series of German decrypts. C-in-C South's evening situation reports sometimes included a statement on tanks from early October 1943 and ten of these were decrypted in the next month. A more important series was that issued by the C-in-C's Chief Tank Officer, the first of which was decrypted on 8 November; thereafter, though rarely decrypted completely, they were decrypted sufficiently and frequently to permit a reasonably accurate reconstruction of the situation till the end of the Italian campaign.

Intelligence on the enemy's supply situation told a similar tale. During October and November the regular decryption of day returns from the Chief Quartermasters of C-in-C South and Tenth Army showed that rations were well maintained, that stocks of ammunition, though low to begin with, steadily improved, and that, though small, fuel stocks were kept above the danger level. This was despite the Allied strategic bombing of railway communications in central Italy; the effectiveness of this, to which there were frequent references in the high-grade decrypts, was mitigated by the enemy's increasing use of coastal shipping. It was possible to calculate from the decrypts, particularly those of the naval Enigma, that during November, despite the bombing of ports and other Allied action, about 17 per cent of all deliveries to Tenth Army and 20 per cent of all fuel deliveries had been made by sea. During December it was clear that although the enemy had been unable to build up stocks, so that those of ammunition and fuel came under strain, he was managing to meet his current needs and was under no necessity to withdraw his defence line further north for supply reasons.

The overall position was summed up in the second half of December in two appreciations by JIC (AFHQ). In the middle of the month the committee appreciated that in addition to eleven divisions in the battle zone and the equivalent of four in Istria/Slovenia, the Germans had a reserve in Italy of six divisions, two of which were defensive and one, or possibly two, were still forming: this slender reserve formed a barely adequate base for the defensive
battle in the south, for which the divisions at the front were only just sufficient. But on 28 December it nevertheless concluded that the enemy had never yet been thrown so far off balance by Allied pressure as to be obliged to change his plans: he still intended to deny Rome to the Allies and to build up on each flank reserves for counter-attack.

Tactical intelligence was in plentiful supply during the hard-fought battles of the last three months of 1943, particularly after the beginning of November when a GAF Enigma key which had been first used in Sicily (known to GC and CS as Puma) became the key of the GAF liaison officers with Tenth Army. The almost daily decryption of the reviews by these officers of events on their divisional fronts made it possible to view the battlefield through German eyes. With the development of the fighting in Italy, moreover, Army Y again provided a picture of enemy activity as comprehensive as that which it had given in the Western Desert and during the later stages of the Tunisian campaign. German field security was steadily improving, so that the amount of intelligence derived from Traffic Analysis and from the interception, DF-ing and exploitation of traffic on low and medium W/T frequencies greatly declined. Fortunately, however, the rediscovery in October of the enemy’s VHF networks restored the declining prestige of Army Y. Most of the traffic was in plain language or in plain language mixed with simple alphabetical codes: it provided something like 60 per cent of the intelligence obtained from Army Y throughout the Italian campaign.

The high-grade Sigint provided regular intelligence, often in advance, about the GAF’s effort in battle reconnaissance and close support of the Army. Throughout the autumn, however, this effort was spasmodic, rising to peaks on the Volturno front in mid-October, during the struggle for the Mignano gap in the first half of November and at the beginning of December, and during Eighth Army’s offensive across the Sangro in December, but at other times falling to almost negligible proportions.

Intelligence on bomber raids against Allied bases and shipping was rarely prompt enough to be of operational value. In advance of the GAF’s most damaging blow, the raid on Bari by aircraft from northern Italy on the night of 2-3 December which destroyed seventeen ships and caused about 1,000 casualties, the Enigma decrypts provided reports on the enemy’s reconnaissance of the harbour and the airfields but did not disclose the time of the attack.

In the second week of December the GAF Enigma revealed that most of the bombers in northern Italy were being withdrawn to airfields in Germany.

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At the end of December the Prime Minister pressed for a landing at Anzio (Operation Shingle) to cut the German line of communications south-east of Rome and threaten the rear of XIV Panzer Corps, arguing that the task in Italy must be finished by the time the Allies undertook Overlord and Anvil. He secured the agreement of the President to the operation, and to the necessary deferment of the transfer of tank landing ships (LSTs) from the Mediterranean, on 28 December. AFHQ advised that by D + 3 the Germans would be able to oppose the landing with at most two divisions, some tanks and one or two
British intelligence in the Second World War

parachute battalions. This appreciation was based on excellent intelligence about the enemy’s order of battle in Italy and was to prove accurate. It is doubtful whether the elements of five divisions which the Germans managed to assemble against the Anzio landing before 26 January amounted to as much as two divisions. But it does not appear that any systematic attempt was made to look beyond the enemy’s immediate capacity to resist and to assess what his strategic reaction was likely to be until 16 January, when US VI Corps, the force made responsible for the landing, crediting the Germans with some twenty-eight battalions on the Anzio front by D + 6, went some way to foreseeing the formidable enemy build-up which eventually materialised. It was therefore fortunate that the Allies had full knowledge of the order of battle and the intentions of the German Army, Sigint having been further increased when, early in the previous month, GC and CS broke the Enigma key (Bullfinch) in which Tenth Army made its day reports to OKH.

Except by the GAF which, as the Enigma confirmed, concentrated all its close support forces against it, the Anzio landing was at first unopposed. Nor was it seriously affected by the enemy’s frequent bombing raids on the landing fleet and the beachhead. But on 31 January the attempt to take the offensive from the beachhead, begun the previous day, was brought to a standstill, and VI Corps was on 2 February preparing to defend its existing positions against a determined counter-attack. The landing had achieved tactical but not strategic surprise: and the Germans at once put into effect an existing plan for the reinforcement of Italy in the event of an Allied attack on the west coast. OKW ordered the transfer to Italy from Germany of the HQ of LXXXV Corps, three infantry regiments and some artillery and the transfer from C-in-C West of 715th Infantry Division and a battalion of Panzer Regiment 4. Long-range bombers were despatched to Italy from western Europe and Greece, and the anti-shipping bomber force in the south of France was reinforced and provided with advanced landing grounds at Bergamo and Piacenza. In Italy Kesselring recalled the operational HQ of I Parachute Corps to Grottaferrata on 22 January; and by 26 January he had assembled elements of five divisions – 3rd PG, Hermann Goring, 4th Parachute, 65th Infantry and 71st Infantry – around the beachhead. By the end of the month these forces had been strengthened by battle groups of 16th SS PG Division and 114th Jäger Division, 715th Infantry Division was coming up and 26th Panzer Division was at Avezzano under orders to join I Parachute Corps.

The return of long-range bombers to northern Italy and the reinforcement of the bomber force in southern France were reflected in the Enigma decrypts without delay and detected by RAF Y as they occurred. On 22 January AFHQ’s analysis of GAF dispositions gave the long-range bomber strength as nil in northern Italy, 60 in the south of France and 50 in Greece and the Aegean. By 29 January these figures had been changed to 65 in northern Italy, 105 in southern France and nil in Greece and the Aegean. By 5 February the number known to be in northern Italy had risen to 100 – fifteen with II/KG 76, forty-five with I and III/KG Lehr 1, forty with I, II and III/KG 30 – and there was no appreciable change after that date.

The first intelligence of the enemy’s decisions affecting his ground forces went out from GC and CS on the morning of 25 January: a report to the effect that 94th Infantry Division and 29th and 90th PG Divisions had reverted to XIV Panzer Corps, that I Parachute Corps was in command against the Allied landing, and that on Tenth Army’s front 71st Infantry Division had begun to
relieve 44th Infantry Division. Early the following day the Enigma disclosed that the GAF liaison officer attached to 29th PG Division was to join I Parachute Corps at Grottaferrata, and indicated that the relief of 44th Division had been cancelled — possibly in order to permit the switch of some or all of 71st Division to the Anzio front. Later on 24 January further decrypts showed that 3rd PG Division had been at Albano, north of Anzio, the previous morning, that the spearhead of Gruppe Gesele (which was believed to include the SS Panzer Grenadier Regiment from Leghorn) and advanced elements of 65th Infantry Division had passed through Aquapendente on the main road from Siena to Rome; and that troops were being withdrawn to the beachhead from Corps Group Hauck and LXXVI Panzer Corps as well as from XIV Panzer Corps, which had been ordered to go on the defensive against Fifth Army. On 25 January it was established that 26th Panzer Division had left LXXVI Panzer Corps and been placed at the disposal of the Army Group C with temporary headquarters at Avezzano. In the early hours of 28 January GC and CS reported that elements of 26th Panzer Division had left Avezzano to join I Parachute Corps, and by that time it was known that 715th Division was to pass through Aquapendente between 28 and 31 January together with Battle Group Knöchlein of 16th SS PG Division, which, it was learned on 29 January, was being sent to Viterbo. On the evening of 29 January the decrypt of a signal from 1 Parachute Corps gave the locations at which, over and above the divisions already employed, 65th, 715th and 71st Infantry Divisions and 26th Panzer Division were assembling. By 2 February further information about the order of battle at the beachhead had been obtained from a decrypt naming the commanders and chief staff officers of 65th, 71st and 715th Infantry Divisions, the Hermann Goring Division, 3rd PG Division, 26th Panzer Division and 4th Parachute Division, and in a signal to Goring Kesselring had reported that 4th Parachute Division would be concentrated when he was ready to attack. Army Y effectively filled in the broad picture presented to the Allied commanders by the high-grade Sigint. The VHF links of formations were heard as they arrived and the formations were usually identified well before contact identification had been made.

Kesselring and von Mackensen, commanding Fourteenth Army, had initially hoped to make a major assault on the beachhead on 1 February. Following US VI Corps’s advance on 30 January, however, they placed I Parachute Corps on the defensive, with orders to prevent any extension of the beachhead, and began to doubt their ability to dislodge the Allies without further reinforcements. Kesselring had decided to strengthen von Mackensen’s forces by bringing over the experienced HQ of LXXVI Panzer Corps from Tenth Army and replacing it with the HQ of LI Mountain Corps, brought down from central Italy; these moves took effect on 4 February. On 6 February von Mackensen reported personally to Hitler; he could open the counter-offensive about 15 February, but requested an additional experienced division. Hitler refused a division, but offered the elite Infantry Lehr Regiment from Germany, some Tiger tanks and some new weapons.

One reason for the hesitation of the German commanders was the fact that the supply situation was making it difficult to create reserves for the counter-attack: the Allies learned something about this on 1 February, when the decrypt of a signal from Kesselring of 28 January revealed that although train movements from Germany had improved, supply trains were still not reaching Rome and supply by motor transport was insufficient for daily needs.
Not less serious for them was the severe fighting on the Fifth Army front that followed the Anzio landing. In the last ten days of January the French Expeditionary Corps advanced around Monte Abate and Monte Belvedere on this front and X Corps resumed its offensive on the lower Garigliano: and in the first week of February US II Corps embarked on the first battle of Cassino. On 29 and 30 January’ decrypts of Tenth Army’s reports disclosed that an Allied penetration after hard fighting on 29th PG Division’s sector had been blocked with the last local reserves and that, after violent fighting on 44th Division’s left flank, the Germans feared that the Allies would outflank the Cassino position. Between 1 and 5 February the Enigma decrypts portrayed the desperate efforts that were being made to contain US II Corps’s advance north and west of Cassino town, which included bringing 90th PG Division into the Cassino sector from reserve. On 4 February they revealed that German Headquarters were fighting in the foremost front line. During 6 February the decrypts of further reports made on 4 and 5 February disclosed that the Germans intended to relieve the exhausted units of 44th Infantry and 90th PG Divisions by transferring 1st Parachute Division from LI Mountain Corps, on their left flank, and conveyed an unmistakeable air of crisis. On the Garigliano front Army Y’s intercepts of the prolific communications of 94th Infantry Division were valuable, as were those of 90th PG Division’s signals in the Cassino area.

The Enigma decrypts received on 6 February were the last to be obtained from the Bullfinch key. Its disappearance early in February, before the end of the first battle of Cassino, was followed by a marked decline in the amount of Sigint relating to Tenth Army’s front. But Sigint coverage of the enemy’s over-all situation, and of his preparations for counter-attacking at Anzio, was unaffected. On 3 February GC and CS provided one of the most valuable decrypts of the whole war. It was the decrypt of a signal dated 28 January which contained Kesselring’s intentions for the counter-attack on the beachhead. Kesselring reported that the timing depended on the arrival of reinforcements (namely 715th Infantry Division, two reinforced PG regiments, some artillery units, the first battalion of Panzer Regiment 4 and elements of 114th Jäger Division) and the supply of two ammunition issues. Since the necessary movements, mainly by motor transport, could not be completed before 31 January, the attack could not take place before 1 February. It would be prepared by I Parachute Corps, with HQ at Grottaferrata, under Fourteenth Army with HQ at Capranica, and I Parachute Corps would command the following formations: 65th Infantry Division (less one regiment, but with elements of 4th Parachute Division and a GAF Jäger battalion); Gruppe Gräser consisting of 3rd PG Division (less one and a half regiments, but with a reinforced PG Regiment under command); 26th Panzer Division with the first battalion of Panzer Regiment 4 and Tiger Company Meyer; the Hermann Goring Division (less its Panzer regiment, but with SS PG Regiment 35, Parachute Regiment 1 and 4th Panzer Reconnaissance Battalion). After reconnaissance patrols and counter-battery shelling (for which ammunition was limited) the main attack would be made by Gruppe Gräser and 71st Division with 26th Panzer Division echeloned behind, on a five kilometre front with the right wing just west of the Via Anziate in order to break through the Allied main defence zone in the direction of Nettuno. In the nights before the offensive, bombers would attack shipping; for the final twenty–four hours heavy bombers would concentrate on warships, and a special artillery group was
being formed in an attempt to neutralise bombardment by medium and heavy naval guns. The task of the close support air forces would be protection of the assault formations and attacks on Allied batteries: considerable fighter reinforcements were needed. If the Allies attacked first the counter-offensive would have to be developed out of defensive fighting.

On 5 February further details about Kesselring’s preparations were decrypted, including the fact that from 4 February I Parachute Corps was commanding the German right wing and LXXVI Panzer Corps the left, and in the next few days, while local German counter-attacks on the beachhead were forcing the 1st British Infantry Division to withdraw from the Campoleone salient, Sigint gave more information about the German build-up. It showed that all trains bringing in the first battalion of Panzer Regiment 4 had arrived by 2 February, and 14 of the 16 trains bringing the Lehr Artillery Abteilung; that 715th Division had taken part in the operations against the Campoleone salient; and that 26th Panzer Division had taken Gruppe Berger (of 114th Jäger Division) under command. Decrypts on 10 and 11 February disclosed that 71st Infantry Division was moving to XIV Panzer Corps in exchange for 29th PG Division from the Garigliano front. On 13 February GC and CS reported that 3rd PG Division had been expected to occupy its advanced battle headquarters that morning. Early on 14 February it added that Gruppe Gräser was being dissolved that day, leaving 3rd PG, 715th Infantry and 114th Jäger Divisions to hold its front as independent commands, and that the Infantry Lehr Regiment was in the front line of 3rd PG Division’s sector. From the afternoon of 15 February decrypts left little doubt that the enemy had made his final preparations and that the counter-offensive was imminent.

The main thrust of the counter-attack by 3rd PG, 715th Infantry and 114th Jäger Divisions had made sufficient progress by the evening of 17 February for von Mackensen to commit 26th Panzer and 29th PG Divisions to its support. By the evening of 18 February the German spearheads had almost reached the San Lorenzo–Padiglione road. But on 19 February they were caught off balance by the Allied counter-attack. Kesselring then decided to regroup before resuming the offensive on another axis, reporting that as had indeed been the case, thanks to Sigint — the Allies had correctly identified the direction of the main thrust and concentrated their forces against it. Meanwhile, stalemate had also been reached on the Cassino sector with the failure on the night of 17–18 February of the Allied effort to establish a bridgehead over the Rapido in attacks that were in part designed to prevent Tenth Army from releasing reinforcements to the counter-offensive at Anzio.

There was a delay of about twenty-four hours between the transmission of the Enigma signals and the transmission of the decrypts from GC and CS to the front. Thus the fact that 29th PG Division was being committed, reported in a GAF message late on 17 February, was signalled by GC and CS at 0404 on 19 February: and the fact that the division had crossed the San Lorenzo–Padiglione road, reported by LXXVI Panzer Corps at 0700 on 19 February, was forwarded by GC and CS at 0904 on 20 February. By the early hours of 21 February, however, the decrypts had established that the enemy’s thrust had failed and that he was expecting further violent counter-attacks. Nor was the Sigint confined to the land fighting. It revealed that fighters and fighter-bombers had been transferred from northern Italy on 16 February and that more than 200 sorties over the beachhead had been flown on the night of 16 and 17 February, as compared with an earlier average of about 60. During the
next fortnight, when bombers from northern Italy and southern France attacked the beachhead on most nights, it showed that fighter reinforcements had reached Italy from France and Germany. It also provided information, often in advance, about the enemy’s attempts to carry out seaborne attacks against shipping off the beachhead. The first warning that Italian assault craft (explosive motorboats) from Fiumicino and Italian MAS boats (motor torpedo-boats) from San Stefano were to be used against the beachhead was received on the morning of 18 February. From then until 28 February the decrypts contained frequent warnings of intended attack by MAS boats but also gave frequent notification that attacks had been postponed or broken off because of the weather.

Sigint had meanwhile given good notice of the enemy’s re-grouping for the renewal of the counter-attack on the beachhead and of the start of the attack on 29 February which was made by the Hermann Goring and 26th Panzer Divisions, by 362nd Infantry Division, brought up from coast defence duties north of the Tiber, and by part of 715th Infantry Division, transferred from the German right to the German left flank, while I Parachute Corps made diversionary attacks on the right and 29th PG Division went into reserve. On 22 February the decrypts disclosed that the Hermann Goring Division had been relieved by 362nd Infantry Division on 21 February. By 25 February they had reported that 3rd PG Division had been placed under command of I Parachute Corps and was taking over the sector held by 26th Panzer Division, and that the Hermann Goring Division was taking over a new sector. On 28 February it became clear that 26th Panzer Division was in the line between 362nd Division and the Hermann Goring Division. During 25 and 26 February Sigint established that 715th Division was moving to the left flank and disclosed that it was to preserve W/T silence until D-day. Nor was this the only indication that the regrouping was being made in preparation for another offensive. Decrypts of 25 February showed that the enemy was issuing air photographs of specified areas extending well into Allied-held territory, and decrypts of 27 February gave the location of 362nd Division’s advanced battle headquarters and of the battle headquarters of 29th PG Division. By the evening of 27 February GC and CS had issued the contents of two other decrypts of that day, reporting that ground attack aircraft would take part in ‘to-morrow’s operation’ and announcing that 362nd Division had postponed Operation Seitensprung for twenty-four hours. It was thus with some confidence that, as AFHQ reported, the Allies appreciated on the evening of 28 February that the attack would come on the following day, beginning in 362nd Division’s sector and being exploited by 26th Panzer and the Hermann Goring Divisions, and perhaps by 29th PG Division, while I Parachute Corps on the right wing and 715th Division on the left made holding attacks.

The offensive began as expected on 29 February. During 1 March decrypts of signals made on 29 February left no doubt of the enemy’s discomfiture: the left wing of 26th Panzer Division had gained 500 metres but its right wing had suffered heavy losses; advance elements of 362nd Division had reached the Crocetta crossroads, but its attack on the Colle dei Pozzi had failed and one of its battalions had been smashed on the Carano-Crocetta road: 715th Division had not yet linked up with the Hermann Goring Division’s attack: 114th Jäger Division had suffered severe casualties; the Hermann Goring Division had made only slow progress against Allied minefields and artillery fire. By 0800 on 2 March GC and CS was able to issue the news that 362nd Division had
reported the previous evening that it was withdrawing to its starting line and that part of 114th Jäger Division was also retiring. On 5 March it decrypted the Fish signal of 28 February in which Kesselring had notified OKW of his plan of operations; this confirmed that the attack had completely miscarried.

On 9 March another Fish decrypt gave part of an appreciation made by Kesselring on 1 March, when he had realised that the offensive had failed. He reported that all the divisions, but especially 65th, 715th and 114th Infantry Divisions, needed rest and that 362nd Infantry Division and 4th Parachute Division ought to be taken out of the line for training. He was constructing a defensive position and, if the Allied strength remained constant, his own forces should be just sufficient to prevent an Allied break-through; but he could not hope to eliminate the beachhead unless two new battle-trained divisions were made available. If replacements continued on the existing basis, and he had to give up no forces except the Hermann Goring Division and the Lehr Regiment, he hoped that, in addition to containing the beachhead and keeping the Allied supply ports under artillery fire, he could stabilise the Cassino front by attacks with limited objectives. If he had to give up more formations, however, and if the long-term defence of the beachhead and of the Gustav line proved impossible with the remaining forces, he would have to withdraw to 'the C position'. The construction of this position would take two months; he would adopt it only in the most extreme emergency; but it would have the merits of permitting a unified conduct of operations and of still covering Rome.

* * *

After their failure to break through on the Cassino sector on 17–18 February the Allies had planned a further attempt. While successive postponements due to weather were delaying the offensive, Sigint disclosed that 90th PG Division was being relieved by 1st Parachute Division from the Adriatic coastal sector, and Sigint and VHF intercepts established that 1st Parachute Division was arriving from 25 February. On 6 March a decrypt reported that it was complete in the Cassino area. The Allied attack began two days later with immense air and artillery bombardment of Cassino town. By 23 March it was clear that the enemy could not be dislodged, and the battle was gradually broken off. Except that it confirmed that the Germans, like the Allies, were sustaining heavy casualties during this fighting, intelligence had no influence on the third battle of Cassino. The yield of high-grade decrypts about the ground fighting was meagre, and Army Y’s exploitation of 1st Parachute Division’s VHF traffic produced only tactical reports of no great value.

While the Germans were thus succeeding in stabilising the front, with the Anzio beachhead still separated from the main Allied forces, the Allied authorities were engaged in prolonged debate about the scope of the campaign in Italy, and when the debate reached a compromise by which an advance as far as Rome was given priority over the withdrawal of troops for Operational: // in the south of France several weeks followed while the Allied armies in Italy were

'The Gustav line ran from Cassino to the mouth of the Garigliano.'
British intelligence in the Second World War

regrouped for the next advance. During this interval Allied planning derived
great benefit from Sigint. From the decrypts of Kesselring’s appreciation of 1
March it could be deduced that he would not abandon the attempt to contain
and, if possible, reduce the Anzio beachhead or withdraw at Cassino unless
‘extreme emergency’ forced him to do so, though it could not be ruled out that
Hitler might insist that he destroy the beachhead and provide the necessary
reinforcements; and it could also be deduced that, when he was forced to
retreat, he would still try to hold a line which covered Rome. By the middle of
April the decrypt evidence had indicated that reinforcements sufficient for an
attempt to destroy the beachhead had not reached him and that he was
concerned about the possibility of being outflanked by another Allied amphi-
bious operation: but there was no indication that he contemplated withdrawal.
The damage done to his communications by the Allied air offensive had
increased enormously since the beginning of April, but his supplies remained
adequate. On 21 April, however, the decrypt of a report of 15 April on the state
of the German rearward defence lines and coastal fortifications gave a general
account of the Caesar position — it ran from the west coast through a point 2Vz
kilometres south-west of Valmontone and a point 14 kilometres north-west of
Avezzano and from there to the east coast — and mentioned a Campagna
switch-line running from a point 10 kilometres south-west of Rome to Albano.

Sigint had by then disclosed that important changes had been made in the
German order of battle. On 12 May the decrypt of a signal from Kesselring to
OKW summed up the changes: XIV Panzer Corps, with 15th PG Division and
94th and 71st Infantry Divisions, was responsible for the sector from Terracina
to the Liri river and LI Mountain Corps, with 44th Infantry, 1st Parachute, 5th
Mountain and 114th Jäger Divisions, was responsible from the river to the
boundary of Corps Group Hauck, which was directly under Tenth Army. The
enemy’s mobile reserves had been disposed so as to guard against the danger of
being outflanked by another Allied amphibious operation. The Hermann
Goring Division was at Leghorn and could not be employed without OKW’s
permission. 26th Panzer Division was to take over the coastal sector south of
Tarquinia in the event of an Allied landing between Orbetello and Ostia. 29th
PG Division was north-west of Rome. And while most of 15th PG Division was
at Fondi, behind Tenth Army’s right flank, 90th PG Division, in Tenth Army
reserve, was in the Ostia area.

To the comprehensive intelligence about the German order of battle Sigint
had added some information about the fighting capacity, the strengths and
state of training of the enemy’s formations and complete AFV returns. In
November 1943 Kesselring’s command had had 283 tanks, of which 229 had
been serviceable. A return of 28 April gave the total as 403 and the number
serviceable as 310, of which 197 were with Fourteenth Army, 37 with Tenth
Army and the remainder with the Hermann Goring Division and Army Panzer
Abteilung 8 in the north of Italy. This was the last return received before the
Allied offensive (Operation Diadem) began on 12 May.

The objects of the operation, as laid down on 5 May, were to destroy the
right wing of the German Tenth Army, to drive the Tenth and Fourteenth
German Armies north of Rome and thence to pursue the enemy to the
Pisa–Rimini line, inflicting maximum losses in the process. The plan required
Eighth Army to break through at Cassino and advance to the area east of Rome,
and thence to Ancona and Florence, while Fifth Army took Ausonia and
advanced parallel to Eighth Army, and also launched an attack from Anzio
Towards Valmontone, and V Corps held its front and put pressure on the enemy if he attempted to withdraw.

From the beginning of the battle on 12 May to 4 June, when the Allies entered Rome, Sigint in large quantities was available with little delay. No less than one-third of the Enigma decrypts were forwarded by GC and CS to the front in emergency signals. Army Y was still more valuable as a source of tactical intelligence, performing as well as it had ever done in north Africa. The interrogation of POW, who were taken in fair numbers from the outset, made an important contribution to tactical and order of battle intelligence, though it is difficult to assess the precise value because intelligence was frequently ascribed to prisoners in order to disguise its origin in Sigint. Photographic reconnaissance had provided thorough coverage of the terrain before the battle and it kept a close watch on the enemy’s development of the Hitler and Caesar lines as the advance proceeded.

Kesselring, who had brought in his immediate reserves - 15th PG Division from Fondi and 90th PG Division from Frosinone - on 13th May, and who had agreed on 16 May that Tenth Army should withdraw to the Hitler line (now renamed the Senger line to avoid compromising the Führer’s prestige), decided on 17 May to move 26th Panzer Division from the Alban Hills, where it had been in reserve facing the Anzio beachhead, to his right flank, and on 18 May he ordered 305th and 334th Infantry Divisions into the battle from the Adriatic sector, replacing them with 278th Infantry Division from Istria. Army Y covered the movement of the immediate German reserves (15th and 90th PG Divisions), the southward move to the Liri valley of units from 5th Mountain and 114th Jäger Divisions, the assembly of a Battle Group to protect the southern flank of 1st Parachute Division, the evacuation by that division of Monastery Hill - advance notice of which assisted the Poles to capture some 200 parachutists - and the commitment of 26th Panzer Division. Nor was there any lack of high-grade decrypts on these and other enemy moves.

On 19 May the high-grade Sigint disclosed Kesselring’s intentions: he would use the forces withdrawn from Cassino to reinforce the Gustav and the Senger lines, pull back the right wing of Tenth Army to the Senger line, but try to hold on to Gaeta and to annihilate the Allies as they advanced up the Liri and Cassino valleys. By 25 May, however, the Allies had completed the second stage of their advance by breaking through the Senger line. On Fifth Army’s front US II Corps captured Gaeta on 19 May and Terracina on 23 May and the French Corps advanced to Ceprano after fighting a severe battle with elements of 26th Panzer, 90th PG and 30th Infantry Divisions at Pico between 19 and 22 May. On 23 May US VI Corps broke out from the Anzio bridgehead, advancing to Cisterna and joining up with US II Corps’s advance from Terracina on 25 May. On Eighth Army’s front the Canadian Corps broke through the line at Pontecorvo on 23 May and established a bridgehead over the river Malfa on the following day. On 20 May, Fifth Army’s advance having posed a threat to the junction between the German Tenth and Fourteenth Armies, Kesselring had moved 29th PG Division from the coast at Civitavecchia to Fourteenth Army’s front at Terracina. On 23 May he had ordered the Hermann Goring Division to

1This line had been under development for some time as a switch-line in case the Gustav line was breached. It ran from Terracina on the west coast through Fondi, Pico, Pontecorvo, Aquino, Piedimonte to Monte Cairo.
move south from Leghorn; two days later it was approaching Valmontone with a regiment of 92nd infantry Division, which had been forming north of the Tiber, and elements drawn from 4th Parachute and 65th Infantry Divisions on the Anzio front. By then the enemy was bringing in reinforcements from outside Italy - 16th Panzer Grenadier Division and the SS Panzer Grenadier Lehr Division from Hungary; 20th GAF Field Division from Denmark; 42nd Jager Division from Croatia to Genoa, where it was to relieve 356th Infantry Division for transfer to the south. Army Y and the high-grade Sigint provided advance information about the German redispositions.

On 3 June, having failed to block Fifth Army’s breakthrough and stabilise the front on the Caesar line, Kesselring had withdrawn the Hermann Goring Division to the Aniene river east of Rome and ordered Fourteenth Army to retire north of the Tiber. Fifth Army entered Rome on 4 June while Eighth Army followed up the retreat of Tenth Army towards Arsoli and Avezzano. The reduction and retreat of the enemy’s formations was amply recorded in the high-grade Sigint. By 7 May it had disclosed that 362nd Division, which with 715th Division had borne that brunt of US VI Corps’s attack from the beachhead, was being withdrawn into the Caesar line and placed under the command of I Parachute Corps. On 30 May it disclosed that on 27 May von Mackensen had reported that both divisions had been severely mauled, losing a considerable proportion of their infantry weapons and much of their artillery, and that there were shortages throughout Fourteenth Army. By 29 May I Parachute Corps had withdrawn 4th Parachute Division, 65th Infantry Division, 3rd PG Division and 362nd Division to specified sectors in the Caesar line. On Tenth army’s front 26th Panzer, 15th PG and 5th Mountain Divisions were planning to withdraw before Eighth Army’s advance during the night of 27 May. On 2 June LI Mountain Corps reported that 44th Infantry, 5th Mountain and 114th Jäger Divisions were all exhausted and that they had had to give up units to help XIV Panzer Corps. On 4 June LXXVI Panzer Corps reported that the fighting quality of the Hermann Goring Division had fallen very low, and on 5 June 15th PG Division was exhausted and handicapped by lack of fuel and ammunition. On 31 May another decrypt disclosed that as early as 28 May the divisions engaged in the battle had lost 75 per cent of their anti-tank weapons. These are but a few of the decrypts which contributed to the clarity with which the intelligence summaries issued by AFHQ during the Allied advance traced the course of the fighting and, despite its considerable confusion, the enemy’s changing order of battle. On the day-to-day fighting Army Y yielded even more intelligence than high-grade Sigint, and it was no doubt more valuable to the operational authorities.

Of the intentions of the GAF’s long-range bombers and close support forces, advance notice was often obtained from the Enigma, which both underlined the weakness of the enemy’s air force and paid tribute to the influence of the Allied air forces on the battle. There were frequent references to enemy requests for air support that could not be met, frequent complaints of the absence of fighter defence, and indications that ground attack aircraft were being operated as fighters. On 1 June a decrypt disclosed that all remaining German fighters were being withdrawn that day to northern Italy. On 27 May a signal from Tenth Army complained that in the absence of fighter defence and of adequate Flak protection Allied fighter-bombers were blocking all traffic, both near the front and in the rear. In a review of Allied battle tactics decrypted at the end of May Kesselring noted that delays of two to three days in re-grouping and bringing up supplies had been imposed on him by the Allied air effort.
CHAPTER TWENTY-FOUR

The War at Sea, mid-1943 to mid-1944

In May 1943, when Donitz withdrew the U-boats from the north Atlantic convoy routes, he acknowledged that Germany had suffered a serious defeat, but was confident that the withdrawal need only be temporary. German science, he believed, would soon provide counter-measures against the Allied technical advantages – notably superior radar and the consequent power of surprise air attack – to which he attributed the recent setbacks. This much the Admiralty knew from a German broadcast which publicly admitted that the U-boats had been ‘temporarily thwarted’ by ‘new Allied defensive measures’.

From the Enigma the Allies also knew that the size of the U-boat operational fleet remained formidable and was still increasing. On 31 May the Admiralty’s Operational Intelligence Centre (OIC) put the number in operational service at 240, an increase of 66 since September 1942 despite the losses inflicted on the U-boats in the interval; in June it calculated that the number was 226 and that almost as many – 208 were working up in the Baltic. It was accordingly not surprised when, on 10 July 1943, from the decrypt of a telegram from the Japanese Ambassador in Berlin reporting on an interview with Donitz, it learned that Germany expected to be able to resume ‘effective U-boat warfare’ at the end of August.

Meanwhile, until the U-boat fleet had been re-equipped with better Flak and an improved search receiver, and issued with the new acoustic torpedo, the U-boat Command continued its efforts in areas where the U-boats might expect to escape air attack. But its plan to send most of the U-boats to distant waters suffered heavily from the stepping up of the Allied offensive against U-boats on passage and in their refuelling areas. The plan depended on the ability to refuel U-boats from supply U-boats (types XIV and X B) at rendez-vous points in mid-Atlantic. Refuelling at sea had enabled U-boats to operate in distant waters since May 1942, and during the winter of 1942-1943 it had contributed heavily to the increase in the scale of the enemy’s offensive against the Atlantic convoys. In the twelve months to the end of May 1943 supply U-boats had refuelled 170 U-boats destined for distant areas and 220 of those operating against convoys, and had done so without being disturbed: although three of the refuellers had been sunk, they were all sunk while on passage. At the beginning of June 1943 the U-boat Command still disposed of nine supply U-boats. By the end of the year three further refuellers had become operational. But ten more had been sunk by then, no less than four of them between 13 and 30 July, in an intensive series of attacks by US escort-carrier task forces against the rendez-vous points and by Coastal Command and British surface ships against the U-boats on passage in Biscay and the northern transit area.

During the spring of 1943 the Allies had refrained from attacking the rendez-vous points because they had hesitated to divert forces from convoy protection – and still more because they had been fearful of jeopardising the security of Ultra by arousing the enemy’s suspicions. But in the second week of June aircraft of USS Bogue, working on clues from the Enigma and on DF bearings, happened to disturb German preparations for a rendez-vous and sink
the supply U-boat (U-118). This forced the U-boat Command to take drastic emergency measures which, when they were disclosed by the Enigma after some delay, illustrated for the first time the widespread consequences that might follow if the Allies made the refuelling areas a priority target. Together with the knowledge that German suspicions were focussed on radar, not the Enigma, this evidence no doubt influenced the decision to exploit the Enigma in an offensive against the German refuelling operations.

It may seem that the success of the offensive owed little to Sigint. The U-boat Enigma (Shark) was sometimes broken with considerable difficulty between June and September 1943. To make matters still more difficult, the U-boat Command took special steps to preserve the secrecy of its refuelling arrangements. As well as disguising all grid positions referred to, the signals relating to refuelling were usually encyphered in the Offizier setting; and U-boats in or approaching a rendez-vous area were under strict instructions to keep W/T silence. But the resulting delays by no means destroyed the operational value of the Shark decrypts. The U-boat Command usually issued its orders as much as two weeks ahead of the refuelling date, and even when the decrypts did not yield intelligence about the date and place of the refuelling they provided other intelligence - the identification of the supply U-boats, their departures and movements on passage, the location of favoured refuelling areas - which could be interpreted with sufficient accuracy to warrant the assignment of a task force.

It was on the strength of such evidence that the US escort-carriers Core and Santee were sent to join the Bogue early in July, and that on 13 July aircraft from the Core sank the refueller U-487. In the same operation the Santee sank an operational U-boat on its way to the rendez-vous. To take another example, USS Card was operating in the light of week-old Enigma evidence when she sank U-117 (a type X B supply boat) on 7 August. And when on 27 August she sank U-847, an operational U-boat which had been ordered to refuel others left stranded by the recent sinkings of supply U-boats, the Enigma had provided details of the rendez-vous several days in advance.

In the months of June, July and August 1943, in addition to three supply U-boats (U-118, U-487 and U-117), eleven operational U-boats were sunk in the American operations against the refuelling points: they were operations which benefited from the fact that several U-boats were likely to be found in the refuelling area. In the same way, the British offensive against the northern transit routes and Biscay, especially Biscay, exploited the presence of a large number of U-boats in relatively restricted areas. This offensive had faltered in the autumn of 1942, when the Germans introduced the Metox search receiver which could detect the Mark II (metre wave) anti-surface vessel radar (ASV). In March 1943, however, when Coastal Command began to introduce Mark III (centimetric) ASV, new plans were devised for a system of night and day sweeps which could be switched about and briefed as to methods of attack in the light of Sigint information on U-boat positions and tactics. The number of sightings by Coastal Command at once increased, and the U-boats, which had hitherto generally travelled on the surface by night, were ordered at the end of April to proceed submerged except for short periods by day to charge batteries. As well as slowing down the passage-time of the U-boats, this change of tactics only increased Coastal Command's opportunities. Four U-boats were sunk and three damaged in daylight attacks in the first week of May. The U-boat Command thereupon set about strengthening the Flak armament of the U-boats and
ordering them to make the passage in groups, submerged at night but proceeding on the surface by day and bringing their combined fire-power to bear on attacking aircraft. The fact that most U-boats were proceeding in groups across the Bay, together with details about their speed and instructions as to how they should conduct themselves in their joint cruises, were disclosed by the Enigma on 12 June, on which day Coastal Command first sighted a group, outward-bound. In response to this intelligence Coastal Command changed its own tactics and made a large-scale switch of its forces to the Bay offensive. By 17 June its reinforcement and its new tactics had forced the U-boat Command to cancel U-boat departures and suspend joint cruises until the U-boats had been armed with the new quadruple mounted Flak gun. Group sailings were resumed on 25 June. Of the four U-boats sunk in the Bay in June, two were sunk in the next few days by the surface ships of the Second Escort Group (EG 2) that was co-operating with Coastal Command. They included the Type X B supply U-boat U-119.

From the end of June the pitched battles in Biscay between the U-boats and British forces grew more savage. The German Air Force was drawn in to provide fighter protection for the U-boats and make fighter sweeps against Coastal Command’s patrols and, from August, to carry out glider bomb attacks against the British surface ships. On the British side the offensive was extended to the area west of Spain and Portugal when, early in July, the Enigma disclosed that U-boats had moved to patrol lines off Cape St Vincent. On the strength of this intelligence C-in-C Coastal Command enlisted the help of the RAF at Gibraltar and the USAAF in Morocco: they sank three of the U-boats and damaged several others between 7 and 9 July. In the Bay itself Coastal Command had already sunk four U-boats between 3 and 7 July: no less important, it had also forced the return to base of a supply U-boat (U-462) which had once before been damaged and forced back in June. Between 9 July and 2 August the Biscay patrols and EG 2 sank thirteen more U-boats, including three supply U-boats - U-459, U-462, on her third attempt to make the passage, and U-461. This brought the total number of U-boats sunk in the Bay since the beginning of June to twenty-one, of which four were supply U-boats.

To these figures may be added the interruptions and casualties suffered by the U-boats on the northern transit route. On that route the sailing of U-boats in groups had begun on 12 June, but it had been abandoned by the end of June following Coastal Command’s success in sinking two of the three U-boats in the first group. During July few U-boats had left the Baltic and PR had noted that an abnormal number had built up in Kiel ‘apparently being fitted with the new AA armament’. But U-847, which attempted to evade the air patrols by sailing through the Denmark Strait, struck an iceberg and was forced to return to Bergen. And on 4 August U-489, a supply U-boat which had sailed from Bergen in company with an operational U-boat, was sunk by Coastal Command. At this, sailings on the northern route were again cancelled.

Early warning of U-boat sailings was usually obtained from the Home Waters Enigma. As this did not disclose the routes to be followed through the transit areas, sightings must have owed much to the skill and patience of Coastal Command’s aircrew. But indirectly the Enigma was of enormous value. Coastal Command maintained a duplicate of the OIC’s U-boat plot, which was largely based on the Enigma, and all urgent intelligence was telephoned from the OIC as it was received. It planned its patrols and strikes on the basis of the
QIC's estimates of U-boat movements, as well as on the information obtained from the Enigma about the tactics used by the U-boats when on passage, and it kept aircraft and crews standing by for action in the light of last-minute intelligence. Delays in receiving information from the decrypts were often overcome by the speed and mobility of the aircraft, and although the surface ship groups were more handicapped by these delays, they were still able to operate on the basis of aircraft sightings.

At the beginning of August the heavy losses sustained on the transit routes forced the U-boat Command to accept another defeat. It dispersed such U-boat groups as were on passage, recalled six U-boats which had just sailed and laid it down that in future the U-boats should make the passage of Biscay along the Spanish coast, making use of territorial waters and remaining submerged by day. On 5 August it suspended sailings by U-boats which had not yet been equipped with the improved Flak and a new radar search receiver (Hagenuk or Wanze). By that time, moreover, the successes achieved by the British offensive had, together with those obtained by the US task forces in their attacks on the refuelling operations, dislocated and severely curtailed the U-boat campaign in distant areas. By the end of July, over and above the number of U-boats sunk, seven type IX operational U-boats had had to abandon their cruises and act as emergency refuellers, while six of Type VII, unable to refuel, had been forced to stop short of their planned patrol areas in the Caribbean and operate off Freetown; they had little success there. Nor was this the end of the dislocation from which the campaign suffered. In August, when the U-boat Command realised that three supply U-boats had recently been sunk in Biscay, it made emergency arrangements for U-boats operating off the American coasts in the middle and south Atlantic to be refuelled by U-117 and U-489; off these coasts, particularly off Brazil, the U-boats had chiefly concentrated since the beginning of July and had sunk most of the 37 Allied ships lost during the month, but had themselves already suffered heavy casualties in attacks by shorebased air patrols. And when the Command discovered that U-117 and U-489 had also been sunk, it was forced to recall some operational boats immediately and instruct others to curtail their patrols so as to be able to reach port without replenishment. The orders covered all U-boats except those in, or making for, the Indian Ocean; and the fate of the project to send an additional force of Type IX U-boats to operate between Bombay and the Persian Gulf (Operation Monsun) provides another striking illustration of the scale of the U-boat Command's setbacks. Eleven Monsun U-boats sailed at the end of June accompanied by their own supply boat (U-462) and carrying equipment for the construction of a new U-boat base at Penang. Only five got through to the Indian Ocean, and they did not include U-462. At the end of August, to sum up, there were only forty operational U-boats at sea, as compared with seventy-one during July, and most of them were either homeward bound for lack of fuel or outward bound on cruises limited by the impossibility of refuelling them; of the twenty-four that had been in distant areas at the beginning of the month, only three remained on patrol.

The full extent of this enemy reverse was not revealed by the Enigma at the time. Gaps and delays in reading the decrypts complicated the analysis and interpretation of the evidence. But the Enigma generally illuminated the immediate consequences of the U-boat casualties—the emergency refuelling arrangements and the progressive reductions in the numbers of U-boats on patrol—within a week. Nor was Sigint the only reliable guide: the amount of
Allied shipping sunk by U-boats in all areas fell from 245,000 tons (37 ships) in July to only 86,000 tons (10 ships) in August. It was the Enigma, however, which enabled the OIC to conclude at the end of August that since only two supply U-boats remained afloat, the U-boats would be all the more handicapped when they resumed their attacks on Atlantic convoys.

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Before resuming the attack in the north Atlantic the U-boat Command equipped the U-boats not only with improved Flak but also, in the belief that the Allied success in detecting the positions of U-boats had rested on the ability to home on radiations emitted by the Metox radar receiver, with a new search receiver, the Hagenuk. It also delayed the new offensive until it had begun to take delivery of Zaunkönig, the new T 5 acoustic torpedo to be known to the Allies as the Gnat. Nine U-boats fitted with all the new equipment sailed from Biscay late in August; eight got safely through the Bay and five were refuelled by U-460 early in September. Early in September thirteen more sailed from Biscay and six from the Baltic, none of them with the Gnat. On 15 September twenty–one of these boats were formed into the Leuthen group, ordered to take up a patrol line, 350 miles long, well to the south–west of Iceland by the evening of 20 September, and told to expect two westbound convoys shortly. It had been impressed on them that, since secrecy was essential, they must remain submerged, and in the words of the German account of the operation, ‘as an additional precaution against treachery, all positions were radioed to them in the form of reference points known only to the commanders concerned’.

Some indication of these preparations and intentions was obtained in the third week of September from decrypts of telegrams from the Japanese Ambassador reporting on a meeting with Dönitz, held on 22 September. Dönitz explained that he planned to reopen the offensive against convoys in October with new tactics which gave priority to attacks on the escorts. But even before these decrypts were received the U-boat Enigma had enabled the OIC to conclude, after a short period of uncertainty, that a group of U-boats was being formed up in the north Atlantic. On the evening of 18 September the OIC received the decrypt of the orders to the Leuthen group, from which it was unable to decide between two alternative solutions to the reference points that disguised the position of the Leuthen patrol line. By that time the Enigma had also given details of the instructions sent to the U-boats concerning the use they were to make of Hagenuk and the anti–radar decoy balloon Aphrodite and had made it clear that they were to resort to a variety of tactics new to boats on the high seas, including shooting back at attacking aircraft.

On 20 September the Leuthen group made contact with the west–bound convoy ONS 18; the OIC’s estimate of the group’s position had turned out to be 100 miles south of its actual position. In the next five days, ONS 18 having been merged with a faster west–bound convoy, ON 202, and the escorts reinforced by a support group diverted from Biscay, the U-boats sank three escorts and six merchant vessels, and damaged one escort, in exchange for the loss of three of their number and damage to six others.

Although the U-boats continued to hunt convoys for seven months from the end of September 1943, the attack on ONS 18/ON 202 gave them their last
substantial success in the Battle of the Atlantic. *Hagenuk*, their new means of defence against radar detection, and *Aphrodite*, their anti-radar decoy balloon, proved to be as ineffective as the *Gnat* torpedo. The sinking of so many supply U-boats severely curtailed the scale of their offensive. Following the occupation of the Azores in October the Allies could cover the whole of the south Atlantic with shore-based air patrols, while the greater availability of surface escorts and the proliferation of more effective anti-submarine weapons enabled the Allies to intensify the attack on U-boats found near convoys and hunt them to extinction. Not less important, in the intelligence battle between the Allies and the U-boat Command the scales had tilted decisively in the Allies’ favour.

From June 1943 the enemy found it increasingly difficult to rely on cryptanalysis as a source of information on convoys, and except for a brief period of limited success at the end of 1943, was effectively deprived of it. As the German history of the Battle of the Atlantic says, ‘never again – not even for the shortest period – did we succeed in re-establishing the same standard of decryption that existed in 1942 and up to May 1943’. On the other hand, delays in breaking the U-boat Enigma were now all but eliminated: the decrypts were occasionally held up for a few days between September and the beginning of December 1943, but from December the delay was at most 48 hours and rarely more than 24. Nor did another of the many extra precautions taken by the U-boat Command reduce the flow of Sigint. When they resumed the offensive the U-boats were instructed to follow an elaborate procedure for making their own signals on frequencies slightly ‘off their normal ones. This may have enabled them to avoid being DFd by the convoy escorts, but it would not have prevented Allied shore stations from intercepting the transmissions even if the instructions had not been decrypted from the Enigma.

It thus comes as no surprise that between the end of September and the middle of November 1943, when the U-boats were again forced to withdraw from the north Atlantic, almost every threatened convoy was successfully diverted. The exceptions included SC 143 which, early in October, was the first convoy to have its escort reinforced from an unthreatened convoy before being deliberately routed towards a group of U-boats: this was done to ensure the safe passage of a third convoy, larger and more weakly escorted. As well as being denied contact with convoys the U-boats were overwhelmed in combat with Allied forces. In their vain pursuit of convoys ON 203 and 204 and ONS 19 at the beginning of October they lost three of their number as a result of placing too much confidence in their new Flak armament. In their attack on SC 143 three U-boats were sunk for the loss of one merchant ship and one escort, in the middle of October, in an attack on ONS 20, they again suffered heavily from staying on the surface and attempting to repel air attacks with Flak: the convoy lost only one merchant ship but four U-boats were sunk by aircraft and two by the surface escorts. This experience forced the U-boat Command to order a change of tactics. From the end of October the U-boats remained submerged during daytime, thereby still further reducing their chances of finding targets, and were under orders to transmit nothing but important tactical reports. By that date the Enigma had also revealed that since the U-boats were deriving so few opportunities and such poor protection from the new devices – to which were added an attempt to sight convoys with long-range BV 222 flying boats, the equipment of the U-boats with radar against surface targets (*Hohentwiel*, a new search receiver *Naxos*) to give warning against ASV Mark III (10 cm) and the embarkation of B-Dienst
detachments which intercepted and took DF bearings on the R/T used by convoys and their escorts - the perplexity of the U-boat Command was beginning to reach neurotic proportions.

Early in November the Command made a still more radical change of tactics by abandoning the long patrol line. A line of more than twenty U-boat had been waiting to the east of Newfoundland since 24 October: despite repeated shifts of position they had failed to contact a convoy and had lost three of their number to air attack. They were now redispersed in five short lines of four U-boat with four single scouting U-boat patrolling ahead, one opposite each major gap. But their fortunes did not improve, and one more U-boat had been sunk when on 8 November they began a gradual withdrawal to the eastward and were dispersed into several small groups between Greenland and the Azores. These decisions were disclosed by the Enigma instructions, which explained that the dispersion had been adopted in order to avoid the premature detection of large patrols by Allied radar. The dispersion failed to improve the prospect of finding convoys, and the enemy on 16 November bowed to the need for a second strategic withdrawal and ordered all remaining boats on the northern trans-Atlantic convoy routes to join those operating off the Portuguese coast. In a long signal to all U-boat decrypted on 16 November, the U-boat Command offered 'consolation for the fiasco of the past month': the U-boat were tying down large Allied naval and air forces and preventing them from being used against the homeland: the difficulty of finding convoys would be overcome by increasing long-range air reconnaissance, using the new Ju 290 to supplement the BV 222 and FW 200: and from 13 November He 177s would also be made available for bombing attacks. In its log for 12 November it had summed up in still less confident words: 'The enemy has all the trumps in his hand: long range air reconnaissance constantly covering all areas and using methods of location against which we still have no sure means of warning; as a result, discovery of our U-boat and their dispositions, possibility of diverting and scattering his convoys over a vast sea area. On our side, as yet no air reconnaissance: the U-boat its own scout, with a minimum scouting range: no new means of location .... Once more, the imperative demand: long range air reconnaissance of our own, speediest improvement of our own active [radar] and passive [search receiver] devices in the field of location'.

Until the middle of January 1944 U-boat continued to operate in groups in the area off the Portuguese coast, where the U-boat Command had better information about the arrivals and departures of the Gibraltar convoys and could expect assistance from air reconnaissance, and where the U-boat, being closer to their bases, could remain on patrol for longer periods. The Enigma could not in these circumstances help to evade their attacks, but they scored few successes and suffered heavy casualties in battles with the heavily escorted convoys.

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When U-boat operations against the Gibraltar-UK convoys were brought to an end the U-boat effort in more distant waters had already faltered: and except in the Indian Ocean it was never to recover after the beginning of 1944. Following the sinking of so many re-fuellers - the number of which had again been
reduced to two by the loss of U 220 and U 460 in October 1943 – the U-boat Command had been forced to confine its forces in the Caribbean and off the Atlantic coasts of north and south America to Type IX boats, and their patrols had had to be shortened to what they could manage without being refuelled. Together with the fact that their endurance was further reduced by their need to proceed submerged, and the fact that so many of them had been lost in recent months, these restraints had during the last three months of 1943 cut the number on patrol at any one time to an average of four. They had still sunk 28 ships for the loss of two U-boats, but they were never again to do so well. In the four months from the beginning of September 1943 to the end of the year the Allies had lost in all areas 370,000 tons of shipping (67 ships) – an average of 92,000 tons (17 ships) per month, or less than one-sixth of the 627,000 tons (108 ships) sunk in March 1943. But 21 of these ships had been sunk in the Indian Ocean, most of them by Japanese submarines; the offensive by German U-boats, which had begun in June 1943, had been blunted after the end of August. In June seven German U-boats had sunk ten ships in an area near the Cape; in July and August, after refuelling from the tanker Charlotte Schliemann, they had sunk another twenty-five ships in individual operations off Mozambique, an area hitherto unexplored by the U-boat Command. By the end of August, when one U-boat had been sunk, the remainder had begun their return passage – one of them, the first operational U-boat to do so, making for Penang. They were to have been replaced by the eleven Monsun U-boats which had sailed from Europe at the end of June. But there were no offensive U-boat operations in the Indian Ocean in September: only five of the Monsun boats had survived and, as a result of the sinkings of supply U-boats in the Atlantic, they had had to refuel in the Indian Ocean before making their way to the new operational area between Bombay and the Persian Gulf.

In June Sigint had not disclosed the use of the Charlotte Schliemann until the U-boats had completed refuelling. In August it had revealed that the Japanese were to supply enough fuel for ten U-boats to a tender called Brake, but not until 13 September had it established that the Brake had carried out a refuelling operation with the Monsun boats from 8–September probably about 450 miles south of Mauritius. On reaching their operational areas, however, the Monsun boats had had little success. One was sunk on 16 October in the Gulf of Oman; the remainder had claimed to have sunk only three ships by 25 October, when they began to make for Penang. Nor did the German effort to return to the offensive in the Indian Ocean succeed before the end of the year. Five further U-boats had sailed for the area from Europe in the autumn, but four of them were sunk on passage in the south Atlantic.

By January 1944 the U-boats which had reached Penang were back on patrol in the area Ceylon–Gulf of Aden–Mauritius. The twenty-nine Allied ships sunk in this area in January, February and March constituted the highest shipping losses sustained in any theatre of war in that period, and the bulk of them were sunk by these U-boats; given the shortage of escort forces available to C-in-C Eastern Fleet, their successes would have been greater, and would have lasted longer, but for the fact that the Enigma made it possible to attack their supply ships.

During January the decrypts disclosed that the Charlotte Schliemann would carry out another refuelling operation on 11 February, and although the German system of disguising positions made it difficult to choose between three alternative rendez-vous points, she was sighted by Catalina patrols on 11
February and sunk the next day by HMS *Relentless*. When this interception was being planned the Admiralty had insisted that no warship should be within 100 miles of any of the alternative rendez-vous points on the refuelling day. It adopted the same precaution and imposed others when it gave its approval to a further attempt to disturb a refuelling operation. On 23 February the decrypts revealed that the Germans, presuming that the *Charlotte Schliemann* had been sunk, were making emergency arrangements for U-boats to be refuelled by the *Brake* on about 8 March; they later established that the rendez-vous would take place on 11 March at one or another of two positions south of Mauritius.

The *Brake* was sighted by aircraft from the escort-carrier *Battler* on 12 March, the day after the rendez-vous, and sunk by the destroyer *Roebuck* 30 miles from the more easterly of the two alternative positions. The next day a signal was decrypted in which one of the U-boats reported that the *Brake* had been sunk and, that U-boat having also been present when the *Schliemann* was sunk, suggested that ‘refuellings have been systematically compromised’. The U-boat was not to know that an ex-Italian freight-carrying U-boat had also been sunk on 11 March, by forces under C-in-C South Africa, at a rendez-vous several hundred miles south of the Cape of which details had been obtained from the Enigma. Nor did the U-boat Command wait for evidence of this further loss; on 13 March it brought into force a new emergency procedure for modifying the Enigma settings when compromise was suspected. The emergency procedure created little difficulty for GC and CS, where a close and anxious eye was kept for more basic German security measures. But none were taken, not even after the US escort-carriers *Croatan* and *Guadalcanal* had in the last week of April, with the help of the Enigma, sunk U-488, the last remaining supply U-boat, and two other U-boats at a rendez-vous point west of the Cape Verdes. The enemy, believing that Allied air power and radar had made conditions too dangerous for even occasional refuelling operations, accepted a further restriction on his activities in distant waters. From the spring of 1944 patrols were continued in the Indian Ocean by the U-boats based in Penang and those few reinforcements from Europe which managed to reach the area, but were otherwise confined to those carried out under increasing difficulties on the Arctic routes, in the Mediterranean and in the north Atlantic.

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The Allied offensives in the Mediterranean called for a continual increase in follow-up shipping and permitted a continual increase in through-Mediterranean shipping from the middle of 1943; by December of that year the number of sailings in Mediterranean convoys exceeded the number of sailings in Atlantic convoys. The enemy thus had every incentive to increase the number of U-boats deployed in the area; and in September 1943, when only thirteen U-boats survived out of the 47 which had passed the Straits of Gibraltar since September 1941, the U-boat Command duly embarked on a series of attempts to reinforce them.

Advance notice of the first attempt was given by Shark decrypts on 19 September in the form of advice to U-boats on how to make the passage. By 29 September decrypts had disclosed that one of the first two U-boats to approach...
the Straits had been forced back by air attacks and that four others had been ordered to abandon the attempt and proceed to the north Atlantic. Between 26 October and 9 November Shark decrypts reported on the attempt to pass another group into the Mediterranean. After one boat had been sunk by air attack, four others were instructed to surface only at night; two of these got through, but two scuttled when attacked by air and surface forces. At the end of November Shark warned that another attempt was due; subsequent decrypts showed that one U-boat had made the passage but was proceeding to Toulon for repairs. Two boats succeeded in making the passage in the first week of January 1944; four did so at the end of January and the beginning of February: three more got through in mid-February. On these occasions, too, the Enigma gave advance general warning that U-boats were approaching the Straits, and was a pre-requisite of effective action to stop them. In view of the difficult Asdic conditions in the Straits, and of the fact — as the Enigma disclosed — that some of the U-boats hugged the Portuguese and Spanish coasts and surfaced only to charge their batteries, it could not be guaranteed that the action would succeed. But the decrypts established that a U-boat bound for the Mediterranean had been sunk on 24 February west at Gibraltar and that two others had left Biscay ports for the same destination. On 6 March, after having been attacked by air, they were ordered to defer their passage to the Straits: and by 27 March it had emerged from the decrypts that one had been forced to return to Biscay and that the second, severely damaged while getting through, was putting in to Toulon. Yet a third U-boat, which had not been referred to in the decrypts, was sunk in the Straits on 16 March. The main reason for the improvement in the Allied performance lay with the arrival of Gibraltar of a US Catalina squadron equipped with the Magnetic Airborne Detector, which enabled a low-flying aircraft to track a submerged U-boat. U-761, the U-boat sunk on 24 February, was the squadron’s first victim.

Between the end of March and the middle of May 1944 only three U-boats tried to enter the Mediterranean. Two succeeded, but the third, sunk by the US Catalinas, was the last to make the attempt. Despite Dönitz’s efforts to increase it over the previous six months, the number of U-boats in the Mediterranean was then down to eleven, two less than it had been in September 1943. It had never risen above eighteen, the figure at the middle of February 1944, the reinforcements being more than offset by losses. Some of the losses were inflicted by Allied air raids on the Mediterranean U-boat bases at Toulon, Pola and Fiume. Between October 1943 and May 1944 seven were sunk on patrol, four of them in May 1944. The Enigma made little contribution to these successes if only because the four-wheel Mediterranean key introduced in June 1943 for communications to and from the U-boats (Turtle) was rarely read without delay. But the Porpoise decrypts usually recorded the movements of the U-boats to and from their bases, so that there was little difficulty in deducing how many were operating, and they referred from time to time to the areas in which the boats were operating. On 23 and 24 January the Enigma disclosed that three U-boats had been despatched to the Anzio area, of which one had turned about; and by the end of the month it was known from the decrypts that three U-boats were off the beachhead and that, although a fourth was due to join them from Toulon, no others were available. A boat sank the cruiser *Penelope* off Cape Circe in the middle of February, but the U-boats achieved no other important success against the beachhead or the follow-up convoys.
Against Allied warships the Mediterranean U-boats had few further successes. Their effectiveness against Allied merchant shipping similarly declined. Whereas they had accounted for some 31 ships (136,000 tons) in the second half of 1943, as compared with 41 ships (225,450 tons) lost to air attack at sea and in harbour, they sank only eight (86,000 tons) in the first five months of 1944, with another seven (44,100 tons) sunk by air attack. The U-boats sank no ships after May, the month in which the U-boat Command ceased to reinforce them and in which, with four sunk on patrol, their own casualties became insupportable. By their presence, however, even in small numbers, they had made it impossible for the Allies to reduce the escort forces required for their convoys, and it was because they still constituted a potential threat to the landings in the south of France that the Allies again raided their main base at Toulon on 5 July and 6 August.

After the July raid the Enigma reported that one U-boat had been sunk and that all but one of the other seven in port had been damaged. After the August raid it disclosed that three more had been sunk and one severely damaged. The Enigma disclosed in detail the subsequent closure of the base at Toulon and on 28 September it added that the base at Salamis was being closed down.

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In the north Atlantic the U-boats, some dozen in number, which had been disposed in a patrol line south of Iceland since mid-December 1943 had meanwhile sighted no convoys by the middle of January 1944. On 22 December, in response to the lack of sightings, they had been broken up into six sub-groups of three U-boats and instructed to act aggressively on their own initiative. But they continued to be ineffective. In the five weeks between 22 December 1943 and the middle of January 1944 they failed to sight ten convoys which sailed close to them and sank only one merchant ship.

By the end of January some eight of these U-boats, reinforced by twelve which had sailed from the Baltic during that month, were re-formed into two groups, one around Rockall and the other about 300 miles south of Ireland, and the Enigma had meanwhile also reported an increase of the GAF’s strength in the Ju 290s which had recently joined the BV 222s for long-range reconnaissance of the Western Approaches. By 19 February, however, twelve large convoys had passed safely in and out of the Western Approaches since the middle of January, and in return for the loss of eleven of their number the U-boats had sunk one escort, shot down two aircraft and sunk one straggler. The attempt to intercept these convoys constituted the last centrally directed wolf-pack operation by U-boats in the Second World War. At the end of February sixteen U-boats were ordered to form another group 500 miles north of the Azores, but the decrypts showed that they were disposed over a wide area, each U-boat being allotted an individual patrol zone, and on 22 March, after failing to contact a convoy and losing two of its U-boats in exchange for the sinking of two escorts, the group was disbanded.

By that time the number of U-boats available for operations in the Atlantic had been reduced not only by losses but also by diversions to other theatres and by anti-invasion measures. Over and above the transfers to the Mediterranean, the number in north Norway had grown from 18 to 24 at the end of 1943 and
from 24 to 33 on 10 January 1944. The OIC was kept informed by the Enigma of these moves, and at the end of February it knew that the number of U-boats based on Atlantic ports was, at between 110 and 115, lower than at any time since July 1942. From the same source it also knew that their numbers were being reduced by a curtailment of the U-boat building programme, and it was soon to be discovered that the enemy was pinning his hopes for a renewal of the Atlantic offensive on the production of new types of U-boat.

The Germans had concluded in the summer of 1943 that the existing U-boats which had been designed to carry out a large part of their operations on the surface, and which were handicapped by blindness, slow speed and poor endurance now that Allied anti-submarine measures were forcing them to spend so much time submerged, must be replaced as a matter of urgency by new types combining high under-water speed with the capacity to spend long periods submerged. Prototype boats incorporating the technology which gave these qualities – the stream-lined hull and the closed-cycle propulsion unit using hydrogen peroxide on which Professor Walter had carried out experiments since the beginning of the war – had been ordered at the end of 1942. At the end of May 1943, however, no longer able to wait for the completion of the development programme for these Walter-boats, the U-boat Command had switched priority to the production of transitional types of U-boat which, while retaining the existing methods of propulsion, used the revolutionary Walter hull, were given greatly increased power and were equipped with many new and formidable aids to navigation and attack. The preliminary design for the larger of these (Type XXI, of 1,600 tons) had been completed in June; on 12 July Hitler had given approval for their production on a large scale as a matter of urgency. About the same time it was decided to produce a similar and smaller boat of 230 tons for work in shallow waters, particularly the Mediterranean and the Black Sea (Type XXIII). Construction had started in December 1943, dispensing with prototypes and using novel methods of pre-fabrication. The Type XXI programme envisaged the completion of three boats in April 1944 out of a total of 238 by February 1945. The Type XXIII programme envisaged the completion of 140 boats between February and October 1944. It was hoped that sufficient Type XXI boats would be operational to permit the resumption of the U-boat campaign in the autumn of 1944.

There had meanwhile been a steady reduction in the output of the old types of U-boat. As from July 1943 no more of these were laid down, the U-boat Command reckoning that the completion of the 250 boats already on the stocks would be sufficient to maintain continuity in the supply of operational U-boats until the new types were available. In the summer of 1943, on the other hand, the Command had also decided to equip the old types with the Schnorchel. The Schnorchel, an extensible tube which enabled a U-boat to take in oxygen and charge her batteries while remaining at periscope depth and to travel at periscope depth on diesel propulsion, was crucial to the design of the Type XXI and Mill boats, which depended entirely on diesel and electric propulsion. But it was also the most effective of the various devices designed to prolong the operational life of the old types. By the end of 1943 it had been fitted externally to three of the existing U-boats; and by May 1944 some thirty had been equipped with it.

In November 1943 German public broadcasts spoke of the intention to introduce original methods of U-boat warfare and POW referred to the development of unconventional propulsion to give higher underwater speeds.
In December the Enigma indicated that two U-boats of an unusual type were undergoing trials: they were in fact the first of the Walter-boats. The first intelligence to the effect that Germany’s experiments were also concerned with enabling U-boats to cruise submerged for long periods followed early in 1944, when the Enigma disclosed that other U-boats were carrying out tests with a hitherto unheard of device named Schnorchel and established that it was a ventilation trunk with which they could charge batteries while submerged.

In February 1944, after an interval in which the weather had made sorties impossible since the previous September, PR provided conclusive evidence of a decline in the construction of old-type U-boats. By the end of that month the number on the stocks was 168 as compared with 271 in September. By 10 March it was clear from analysis of the photographs that few if any old-type hulls had been laid down since the autumn, and that some keels on which work had been started had been dismantled, and seven boats of an apparently new type, about 245 feet in length, had been detected, of which one, in Danzig, was already launched. It had been on the slip for no more than six weeks, as compared with the minimum of five months taken to build a normal U-boat.

POW had by then discussed the development of both a 500-ton U-boat, with closed-cycle propulsion and increased diving depth, and a smaller Walter-boat.

The first mention of Types XXI and XXIII U-boats was obtained on 1 May from a new source of Sigint - the cypher of the Japanese naval attaché in Berlin which had recently succumbed to a combined American–British attack. Further decrypts of his signals, the first of many to provide intelligence of high quality about Germany’s technological developments and anti-invasion préparons, gave a detailed account of what the Admiralty called ‘a revolution’ in U-boat design and construction. They showed at the end of May that the propulsion of the new types was based on existing methods, that is on diesels improved by Schnorchel for proceeding at periscope depth and on improved electric motors for submerged passage, the Germans having failed to bring to a practical stage the innovation the Admiralty had most feared - under-water propulsion using a form of closed-cycle engine. In August they provided the technical specifications for both types, and in October full details of the pre-fabrication system and the planned output. But already in June they had disclosed that, because the programme had been retarded by Allied bombing, the boats would not be in service by the autumn as the Germans had hoped.

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The successive defeats sustained by the U-boats from the summer of 1943 were accompanied by Germany’s final abandonment of the attempt to sail blockade-runners to and from the Far East. Her blockade-running programme for the winter of 1943–1944 started in November 1943. By the middle of January 1944 it had run into so much delay and suffered so many losses that she was forced to recognise that the risk of interception had become too high to justify further sailings.

In May and June 1943 Japanese diplomatic decrypts disclosed that the Axis intended to resume blockade-running in the autumn. They stated that seven merchant ships would sail from Europe with 50,000 tons of cargo and that the Germans were also constructing special U-boats in which they hoped to lift
3.0(H) tons of cargo from Japan during 1943. PR of the Biscay ports and SIS reports from the area indicated by 6 September that seven ships were either ready to sail or making preparations to do so. On 4 October – by which time one of these ships had been bombed – the decrypt of a signal from the Japanese Ambassador in Berlin stated that the cargo to be shipped from Biscay in the coming season had been reduced from 50,000 to 35,000 tons by Allied bombing. At the beginning of November a second suspected blockade-runner was mined. In the middle of the month the decrypt of a further report from the Japanese Ambassador revealed that the total tonnage to be shifted from Biscay had been reduced to 29,000 tons; it added that he did not know when the ships would leave.

By that time two intelligence developments promised that operational information about the enemy’s movements would be fuller than it had been during the previous winter. The U-boat Enigma was now being decrypted regularly and with less delay; together with the fact that the U-boats were ranging further afield in the south Atlantic and the Indian Ocean, this meant that more frequent orders from the U-boat Command arising from the movement of the blockade-runners were decrypted promptly. Of no less consequence, GC and CS had in August 1943 broken the Enigma key (Sunfish) used for transmissions to and from the blockade-runners themselves: this yielded decrypts of operational value about the departure of outward-bound ships, on which subject previous intelligence had been poor. Nor were Allied expectations disappointed. Between November 1943 and January 1944, when the Axis abandoned blockade-running, no ship succeeded in getting away from the Biscay ports: and of the five ships which attempted the passage from the Far East, four were sunk with the help of the Enigma. According to MEW’s estimates at the time, the fifth ship had brought in 7,500 tons of cargo and the remainder of the total cargo loaded in the Far East (32,815 tons) had been sunk. MEW’s estimates compared well with the facts: 33,095 tons were loaded in the Far East of which 6,890 tons were landed in France.

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From the summer of 1943 it was accepted that, so long as the Tirpitz, the Schamhorst and the Lützow remained operational in north Norway, the sailing of convoys to north Russia, suspended in March, could not be resumed. There was considerable uncertainty about what the Germans intended to do with their surface fleet. Continuing rumours that it was to be laid up received support from Enigma references to a drastic comb-out of fleet personnel to meet the need for U-boat crews, and also for the manning of the new anti-aircraft armament which was being introduced into U-boats. But these references clearly did not apply to the three ships of the Battle Group in north Norway, which were known to have been carrying out intensive exercises in Altenfjord for some time past.

In the event, the ships made no move until early in September, when the Tirpitz, the Schamhorst and eight destroyers bombarded the shore installations of a British landing party which had recently ousted a German meteorological expedition from Spitzbergen. The Enigma decrypts disclosed in advance of this operation that the GAF was carrying out unusually extensive
reconnaissance between Norway and Iceland, but otherwise gave no warning of it before PR reported that the ships had left Altenfjord. This was a reminder that Sigint, PR and the SIS could not be relied on to provide advance notice of the enemy’s movements, and it was followed by evidence that even if they did give timely warning, it was far from certain that the intelligence could be put to good account. Between 23 and 29 September the *Lutzow* returned to the Baltic, steaming the whole length of the Norwegian coast without molestation despite the fact that the Enigma and the SIS ship-watchers gave notice of her departure and precise details about her movements.

When it received the early evidence about the *Lutzow* the OIC was perhaps distracted by its preoccupation with the outcome of the attack by midget submarines (X-craft) on the German ships at their berths, which had been scheduled to take place on the night of 21–22 September. The planning of this operation had called for a prolonged effort to collect information about the fjords and the anti-submarine net defences at the berths, and it had to be made for Narvik and Trondheim as well as for Altenfjord, since the location of the ships could not be known in advance. The ISTD, the Enigma, the SIS, the naval attache in Stockholm and PR, some of it carried out by the Russians, all contributed to this. To ensure still greater precision, additional measures were taken as the time for the attack approached. An RAF PR Spitfire unit was sent to operate from Russia: it was arranged that Mosquitoes should fly a shuttle service between the United Kingdom and Kola to obtain further PR; and the SIS at last succeeded in establishing an agent in the vicinity of the Altenfjord anchorage. But the agent was unable to send reports before the attack took place, the weather frustrated the Mosquito flights, and difficulties in completing the ground facilities for the Spitfires delayed until 7 September their first sortie – which added to the tension by reporting that the *Tirpitz* and the *Scharnhorst* had left Altenfjord.

To which base, and to which berths, would they return, and could these questions be answered before the submarines towing the X-craft had to leave on 11 or 12 September? The weather was too bad for flying on 8 September. On 9 September it could be seen that the *Lutzow* was at her berth, but the rest of Altenfjord was obscured by cloud. At 1000 on 10 September, however, an Enigma decrypt disclosed that the *Tirpitz* and the *Scharnhorst* had been due to berth at Altenfjord at 1500 on 9 September. Later on 10 September visual reconnaissance confirmed their return and gave their exact positions.

While they were on passage the X-craft were allocated to their targets – three to the *Tirpitz* and one each to the *Scharnhorst* and the *Lutzow* – and given the latest PR information about the locations and the net defences of the ships. They could not be given the latest Sigint, an Enigma decrypt stating that the *Scharnhorst* would be carrying out firing exercises between 21 and 23 September, a period covering the planned time of the attack. As it happens, the X-craft detailed to the *Scharnhorst* was unable to reach her berth, and the X-craft detailed to the *Lutzow* was lost on passage on 20 September. But on the morning of 22 September two of the craft detailed to the *Tirpitz* succeeded in penetrating her net enclosure and laying their charges.

The first intelligence about the results of the attacks was provided by the Enigma. A series of signals decrypted between 22 September and 3 October made it clear that complete surprise had been achieved and that the *Tirpitz* had been damaged. It was supplemented by the SIS agent’s first report from Altenfjord. Received on 14 October, this said that the *Tirpitz* was down by the
how, badly damaged, after two torpedo hits. Thereafter, although it did not
disclose the precise nature and the extent of the damage done to her, the
Enigma gave a general idea of what repairs were necessary and revealed that
they were to be carried out in Altenfjord and would not be completed until
mid-March 1944. Together with further decrypts in October and November
which disclosed that the Tirpitz’s entire ship’s company was being granted
home leave in three watches, beginning on 1 November, this enabled the OIC
to discount rumours to the effect that she was to be sent to Kiel. On 2 January
1944 the Enigma disclosed that 15 March had been fixed as the completion date
for her hull, engine and electrical repairs. From the middle of October the SIS
also supplied some useful reports on what could be observed or learnt from the
crews about the state of the Tirpitz.

* * *

In the changed situation produced by the disabling of the Tirpitz and the
departure of the Lützow the first homeward-bound convoy left Russia on 1
November and the first eastward-bound convoy sailed on 15 November: but the
convoys had to be provided with substantial covering forces so long as the
Schamhorst posed a threat.

On 23 and 26 September the Enigma had indicated that the Schamhorst
was to remain at Altenfjord for the winter; on 16 October it added that she and
the destroyers were at full war readiness; and from September it showed that
she was exercising in Altenfjord with unusual frequency. Nor were these the
only grounds for thinking that she might be sent out. Even before the convoys
were resumed, the Enigma had disclosed that the enemy was looking for
opportunities to intervene against them. On 29 October the decrypts showed
that, following GAF sightings which had been interpreted as indicating a
west-bound convoy, destroyers had left Altenfjord on 27 October and had been
recalled on 28 October. The Schamhorst did not sail with them, but this was
not confirmed until 1 November, and there was still some anxiety about her
until 4 November.

During the next four weeks the enemy searched actively for the convoys
but failed to contact them. But on 18 December an Enigma decrypt disclosed
that, assuming the approach of a convoy probably with a heavy covering force,
the enemy had ordered air reconnaissance, allocated attacking areas to U-boats
and brought the Battle Group in Altenfjord to three hours’ notice. The Enigma
showed that U-boats had sighted the convoy but failed to keep up with it. On 21
December the Enigma added that in the afternoon of that day the Battle Group
had reverted to six hours’ notice. This experience strengthened the belief that
the Schamhorst would try to intervene before long. We now know that on 19
December, aware that convoys were getting through unmolested and believing
that, as a result, the British were relaxing their precautions, Donitz had
obtained Hitler’s approval for the use of the Schamhorst against the next
convoy to be located, provided the chances of success seemed reasonable.

Convoy JW 55B, which sailed on 20 December, was sighted by a routine
meteorological aircraft at 1045 on 22 December. The sighting, together with
the fact that a U-boat had been ordered to operate against the convoy, was
disclosed by the Enigma and was reported to Admiral Fraser, the C-in-C Home
Fleet, at 0146 on 23 December, and by the early hours of 24 December the Home Fleet learned from the next Enigma decrypts to be received that during 22 December the Battle Group had been brought to three hours' notice, that the Germans had at first suspected that the convoy might be a landing force, and that, when this suspicion was dispelled, eight U-boats had been despatched to form a patrol line south-west of Bear Island. At 0550 on 24 December a further Ultra signal gave the Home Fleet the news that the enemy, appreciating that the convoy was possibly covered by a strong British Battle Group, had ordered air reconnaissance for that day, and that at 2324 on the previous evening, after a further GAF sighting of the convoy on 23 December, the Schamhorst had received a signal advising her that 'German U-boat was not in contact with the convoy'.

At the time he received this first indication that the Schamhorst had already sailed or was about to sail, neither the C-in-C's own Force 2 (the Duke of York, the cruiser Jamaica and destroyers) nor the cruisers which had sailed from Kola to provide close cover to convoys JW 55B and RA 55A (Force 1, under Vice-Admiral Burnett) were close enough to intervene. Admiral Fraser, approaching from the south-west, increased his own speed to 19 knots and broke wireless silence to order the convoy to back-track for three hours, thus taking the risk of enabling the Germans to confirm their suspicion that the Home Fleet was covering the convoy and to obtain DF evidence of its general whereabouts. At 1025, following this decision, he learned that Admiral Polar Coast had been requested on the afternoon of 22 December to make preparations for the departure of the German Battle Group and that the OIC had had no definite evidence up to 0740 on 24 December that the Battle Group had sailed. Apart from a signal giving him details of U-boats on passage in the operational area, the OIC had no further intelligence to send him before the GAF sighted the convoy early on Christmas Day.

In addition to the news that the convoy had been sighted, the C-in-C then received details in Ultra signals of the redisposition of the U-boats in consequence of the sighting and of the GAF's intentions for 25 December: the GAF was to regain contact with the convoy and "to search for what is thought to be a heavy force, approaching from the south-west, which has been DFd". During the rest of the morning of 25 December current intelligence about the GAF's reconnaissance activity, which was being provided by Cheadle and by RAF shipborne Y parties, was valuable in indicating that the enemy was searching for the east-bound convoy, whereas RA 55A, the west-bound convoy, had escaped detection and would soon be clear of danger. On this evidence the C-in-C, again breaking W/T silence, ordered four fleet destroyers from RA 55A to join JW 55B and diverted JW 55B further to the north so as to delay the Schamhorst's attack and give the Home Fleet more time to come up with her. He then received Ultra signals informing him that at 0901 that morning a U-boat had made contact with JW 55B and that seven other U-boats had been ordered to follow up the contact. The next Enigma intelligence was issued by the OIC at 2142: at 1158 an R-boat had been ordered to proceed to the Schamhorst in Langfjord and told that she should receive further orders there. After the receipt of this intelligence, which had reached the OIC at 2050, there was a short delay before GC and CS broke the Enigma setting which had come into force at midday on 25 December. But among the first of the new series of decrypts was one which, reaching the OIC at 0025 on 26 December, disclosed that the Battle Group had at 1530 on 25 December been given the executive
At 0217 the OIC was able to issue an emergency Ultra signal - 'Emergency: Schamhorst probably sailed 1800 25 December' - and at 0218 it followed this up by notifying Ultra recipients that the Schamhorst had informed a patrol vessel in the Altenfjord area that she would be passing outward-bound from 1800 on 25 December. For the benefit of the convoy's escort and other ships not in receipt of Ultra, if also broadcast at 0339 the general message: Admiralty appreciates Schamhorst at sea'.

At 0401, when Force 1 and Force 2 were both steering courses to intercept the Schamhorst, the C-in-C again broke wireless silence to announce his own position and order Force J and the convoy's escort to give theirs. The OIC had informed him at 0230 that his own force had apparently not yet been sighted by the enemy, and his FLAP V party had no evidence to the contrary'. His plot showed him that the prospects of cutting off the Schamhorst were good unless she sheered off on learning his whereabouts. It may therefore be presumed that in breaking wireless silence he had decided that the risk of alerting the enemy must be accepted in the interest of saving the convoy: and it was no doubt for this reason that at 0628 he ordered the convoy to alter course to the north and fold Force 1 to close in to support. GAP contact with Force 2 followed about 1000, when the Cheadle party in the Duke of York reported powerful signals from a reconnaissance aircraft; thereafter Force 2 was shadowed by three aircraft, one of which made W/T reports and was in radar contact for nearly three hours.

Whether or not the interception and DF-ing of the C-in-C's last transmissions had assisted the GAF to contact the C-in-C's force is a moot point. The GAF had already been searching on 25 December for what the enemy thought, on DF evidence, to be a heavy British force approaching from the south-west; it might well have found the C-in-C's force on 26 December even if he had not transmitted again or if his transmissions had been missed. More important is the fact that, despite this earlier appreciation, the Germans now attached no significance to the GAF's sighting reports. It transpired from a later decrypt that, although at 1012 on 26 December the aircraft had reported locating 'five warships, one apparently a big one' by radar, Fliegerfuhrer Lofoten omitted the reference to a big ship when passing the report to the naval authorities, which he did at 1306. The naval shore authorities appear to have assumed that the aircraft had sighted the Schamhorst's destroyers returning to base. The Schamhorst, on receiving Fliegerfuhrer Lofoten's signal in the afternoon would have known that it was not her own destroyers...

The despatch of this Ultra signal was followed from 0150 by the receipt of several Offizier signals, some of them from the Battle Group. British forces had made contact with the Schamhorst before the full texts of these signals were decrypted. The earliest full text was sent to the OIC at 0916 on 26 December; it was a signal from the Battle Group reporting that it was ready for sea by 1630 on 25 December. In addition to Offizier signals, twelve messages that were completely indecipherable were intercepted between 2130 on 25 December and 1444 on 26 December; GC and CS judged that these were encrypted in the special key reserved for Fleet operations (Barracuda).
that had been sighted, and that some other force was at sea, but by then it was too late. In assessing the part played by intelligence in bringing about her destruction, however, it is not wise to dwell too much on the failings of the Germans. These would not have been crucial unless the British forces had been in a position to take advantage of them: and the fact that the British forces were so placed was due to the Enigma: and if it was also a tribute to the C-in-C’s imaginative and decisive use of the Enigma, that owed much to the confidence he knew he could place in it.

Even the Enigma ceased to be useful after it had disclosed that the Schamhorst had sailed. By 1000 on 26 December it had revealed that during 25 December the GAF had sighted no support forces within 50 miles of the convoy, and that at 2100 on 26 December the Schamhorst had signalled that the weather in the operational area was likely to hamper operations by her destroyers. At 1215 the C-in-C learned that the northernmost U-boat in the enemy’s patrol line had sighted the convoy at 0945 that morning. In the afternoon the OIC sent him the contents of two decrypts which showed that at 0043 on 26 December the U-boats had been informed that the Schamhorst and five destroyers had passed through the northern exit from Altenfjord at 2300 on 25 December with the intention of attacking the convoy at about 0900 on 26 December, and that at 1021 on 26 December the U-boats had been ordered to operate against the convoy themselves. But before he received the first of these signals the C-in-C heard that Force 1 had picked up the Schamhorst by radar at 0840, had sighted her at 0921, and had opened fire at 0929. All now depended on whether contact with the Schamhorst could be maintained.

At 1000 Force 1 lost contact, the Schamhorst using her superior speed to draw away to the north-east; and at 1100 the C-in-C signalled that ‘unless touch can be regained there is no chance of my finding the enemy’. Touch was regained shortly after 1200, Force 1 having correctly appreciated that the Schamhorst would make a second attempt on the convoy from the north. After a further exchange of fire she again broke off and started on a southerly course for home at maximum speed shortly before 1300, some three hours after she could have learned that the GAF had located Admiral Fraser’s Force 2. Thanks to this delay, and helped by the fact that Force 1 managed to shadow her by radar, the Duke of York opened fire at a range of 12,000 yards. Three hours later the Schamhorst, damaged and slowed by gunfire, was sunk by torpedoes from the Home Fleet’s destroyers.

* * *

For three months following the sinking of the Schamhorst the Admiralty was able to dispense with battleship cover for the Arctic convoys. But the convoys continued to need cruiser support against possible attack by the German destroyers — a threat which did not materialise — and the U-boat effort against them continued, indeed increased.

In their attack on the first east-bound convoy of 1944, JW 56A, the U-boats, which had now been equipped with Gnat torpedoes, achieved their first success since the convoys had been resumed in the previous November. They sank three merchant ships on 25 January, and this despite the fact that the Enigma had disclosed the positions of their patrol line on 8 January.
Against the next east-bound convoy, JW 56B, the enemy sank one destroyer and damaged another for the loss of one U-boat, but the convoy got through unscathed. Thereafter, until the convoys were suspended in April in advance of the invasion of Normandy, their escorts were strengthened by escort-carriers and support groups from the Atlantic and the U-boats sustained heavy losses in return for few successes.

The Home Fleet had meanwhile delivered another attack on the *Tirpitz* – this time a dive-bombing attack on her while she was in her berth in Kaafjord by aircraft from the carriers *Victorious* and *Furious*. Preparations for the attack had begun early in January, as soon as the Enigma indicated that repairs to the *Tirpitz* would be completed by 15 March.

In the light of this intelligence it had to be assumed that she would be seaworthy by mid-March and the possibility that before she could be attacked she would move, perhaps to Germany, was strengthened in the next two weeks. The SIS agent reported on 3 March that she had fired her guns; on 11 March that she was ready to sail; and on 15 March that she had sailed. On 12 March Coastal Command ordered emergency deployments for her interception; but the OIC advised the Home Fleet that there was no Enigma evidence to suggest that she was moving from Altenfjord, and later on 13 March the Enigma indicated that she was still there. By 14 March the fact that she had returned to her berth was confirmed both by the SIS agent and by a British PR flight from north Russia. But on 15 March the Enigma revealed that the *Tirpitz* would be at sea in Altenfjord for trials on 15 and 16 March, and on the following day it added the news that her Commanding Officer was to command the Battle Group and that the staffs of Admiral Commanding Northern Waters and Captain (U-boats) Norway were to be amalgamated in a single operational staff.

On 21 March the Admiralty accordingly instructed the C-in-C Home Fleet to combine the carrier attack on her (Operation *Tungsten*) with the provision of battleship cover for the next convoy.

Like the X-craft attack on the *Tirpitz*, Operation *Tungsten* depended on topographical intelligence about the target area – and this was necessary for Narvik and Trondheim as well as for Altenfjord, in case she should move from there – but its success also demanded accurate advance information about the anti-aircraft defence of the anchorage and its surroundings. From the end of January all the intelligence obtained on these subjects from PR, from plans of *IluBismark* and from the SIS agent near Altenfjord and other SIS agents was checked against what was provided by the Enigma – which was now disclosing details about the emergency measures the Germans were taking to strengthen their defences against a possible incursion by battleships into Altenfjord – and incorporated into the construction of an exercise range on Loch Eriboll, which most nearly resembled Kaafjord, and into a model of Kaafjord made by the ISTD. According to the reports on Operation *Tungsten* the exercise and the briefings carried out in February and March in the light of this intelligence were of ‘inestimable value’ in giving the air crew who took part in the attack the feeling that it was ‘almost an exercise which they had frequently carried out before’. But despite all the preparations the effectiveness of the attack depended in the end on finding the *Tirpitz* at her berth in Kaafjord.

Whether this would be so remained uncertain until the last minute. From 31 March, when PR showed that she was in her usual position, reconnaissance from north Russia proved impossible until 6 April. For the C-in-C Home Fleet and the *Tungsten* force, which was approaching the fly-off area on 1 April,
much accordingly depended on whether the SIS agent or Sigint would yield any later news than the PR report of 31 March.

Because so much depended on good weather over the target, the SIS agent had been instructed to make two-hourly weather reports from the anchorage area: he had nothing to report until the first of these was received at 1700 on 2 April. But in the forenoon of 1 April, by great good fortune, an Enigma decrypt disclosed that the *Tirpitz* had postponed for 48 hours the continuation of her speed trials and would probably sail for them on the morning of 3 April. When sending this information out the OIC pointed out that she had been away from Kaafljord on trials between 1000 and 2359 on 15 March and between 0730 and 1700 on 16 March; it added that on those earlier occasions the SIS agent had reported her departure and her return within five hours and that while further Enigma might become available its receipt could not be guaranteed. In the light of this intelligence the C-in-C Home Fleet, in order to increase the chances of finding her in her berth, advanced the planned time of the attack and ordered it for 0530 on 3 April. His three escort-carriers were then at some distance from the main force; in order to reach the rendez-vous position by the afternoon of 2 April they had to maintain maximum speed for more than twenty-four hours. Early on 3 April another decrypt disclosed that the *Tirpitz* would sail at 0530 that day, but zero hour for flying-off had by then been fixed for 0415 and by 0437 the first wave of the attack had formed up in the air. At 0530 the first wave caught the *Tirpitz* as she was weighing anchor to proceed on her trials. It achieved complete surprise. An hour later the second wave encountered a smoke screen over the ship, but was not greatly impeded by it.

The attack put the *Tirpitz* out of action for three months. After considering the action photographs, PR evidence and reports from the SIS agent, however, the Admiralty warned on 11 April that no reliable assessment of the damage would be possible for some time, and on 18 April it would only say that it was unlikely that her repairs would be completed before three months or that she would be available for offensive operations within five months. The Enigma, which had been so informative after the X-craft attack, disclosed nothing between the day of the *Tungsten* attack, when the *Tirpitz* reported that she had received several hits, and the beginning of June, when another decrypt stated that her casualties had been severe.

Early in June the SIS and the Enigma confirmed the estimate as to when the *Tirpitz*'s repairs would be completed by reporting that she was exercising in Altenfjord and getting ready to move. On 17 July and between 22 and 24 August she was again attacked by the Home Fleet’s aircraft carriers. The Enigma showed that she sustained no further significant damage: the Germans had so greatly increased the anti-aircraft defences that carrier attacks were no longer effective. On 15 September, however, she was badly damaged in a raid by RAF bombers operating from north Russia. Signals to all German attachés and to all U-boats decrypted before the end of the month reported the damage, but announced that it was not being made public and that she would remain in the north to tie down the Home Fleet. But in October, when the Enigma disclosed that she was moving to Tromsø, she still caused alarm in the Admiralty until it emerged that the move was part of the German evacuation of parts of north Norway. She was sunk in Tromsø on 12 November by bombers from the United Kingdom.
Although the carrier raids in July and August achieved no results against the *Tirpitz*, they had been fitted into attacks by the Home Fleet along the Norwegian coast. These were carried partly to assist the deception plans for the Normandy landings, by keeping the Germans anxious about Norway, and partly to destroy coastal shipping.

The general programme of attacks on coastal shipping had been steadily increased since the middle of 1943, when MEW recognised that despite special measures - the appointment of a new Reichskommissar for Shipping; increased construction; the provision of better anti-aircraft protection for convoys; the allocation of more ships to the Norwegian trade - Germany’s merchant shipping was becoming insufficient to meet her economic and military needs. During the second half of 1943, however, the results of direct attacks had remained modest, in Biscay, the Channel and the North Sea no less than in Norway, and the only striking success had been a strike by the Home Fleet’s carriers near Bodo in September which sank 5 and damaged 7 ships.

From the beginning of 1944 the anti-shipping campaign was further increased. It concentrated on Norway because very little shipping was now going west of the Ems for fear of attack, and achieved better results. MEW calculated that by the end of March sinkings off Norway represented a quarter of the total tonnage plying between Norway and Germany. Total losses in European waters in the first half of the year from direct attack amounted to 46 ships (140,000 tons) sunk and 18 (63,000 tons) damaged. As Enigma decrypts showed, the wider effect of the campaign in disrupting the enemy’s traffic was no less important; he had been forced to sail convoys between Stavanger and Christiansand only at night by the end of January.

To these casualties must be added the losses and the dislocation caused by minelaying. In the second half of 1943 Bomber Command’s minelaying had largely concentrated in Biscay, as part of the anti-U-boat offensive, and operations over the Baltic had been cut back by the strengthening of the air defences over north-west Germany. It had still accounted for more ships than were sunk or damaged by direct attacks: and from early in 1944, with improved navigational aids and new types of mine, Bomber Command returned to the Baltic. In the first five months of the year minelaying sank or damaged nearly 100 ships and greatly added to the strain on Germany’s minesweeping and escort forces. As with the victims of direct attacks, the Enigma usually disclosed the name, type and tonnage of the ships, whether they had been sunk or damaged, and the exact time and place of each casualty. Apart from their value in assessing the enemy’s losses, the decrypts were thus of great importance to the planning of the mine-laying campaign. By showing which swept routes the enemy was using and which were closed, how his mine-clearing craft were deployed, and where he was suffering the greatest dislocation at any one time, they enabled the OIC and Bomber Command to select the time and place of most sorties in such a way as to maximise their disruptive and demoralising effect. In May 1944 it was estimated on the evidence of Sigint that some 40 per cent of the total personnel of the German navy was engaged in the clearance of shipping routes or in minefield escort duties.

The threat to British coastal shipping had by then, in contrast, long been confined to mine-laying and torpedo attacks by E-boats, some fifty of which operated from Ijmuiden, the Hook of Holland, Boulogne and Cherbourg. The Enigma decrypts were of no assistance against these – notice of their sorties
was usually obtained with too much delay — and no other intelligence was available. Few E-boats were sunk, though some were damaged. But the OIC knew from the Enigma at the end of May that, the E-boats apart, the German navy in ports west of Ostend had been reduced to 4 destroyers, one fleet torpedo-boat, 3 small torpedo-boats and 200 minesweepers and other small vessels — by no means so great a threat to the huge invasion fleet the Allies were assembling as would be presented, or so it seemed, by the U-boats and the German air force.
CHAPTER TWENTY-FIVE

The Allied Air Offensive, mid-1943 to mid-1944

At the Washington conference in May 1943, at a time when Bomber Command in the Battle of the Ruhr and US Eighth Air Force in its daylight precision attacks on selected military and industrial targets were both suffering severe casualties, the Combined Chiefs of Staff concluded that ‘if the German fighters are materially increased in numbers it is quite conceivable that this would make our daylight bombing unprofitable and perhaps our night bombing too’. The outcome of their discussions was a new directive to the Allied air forces. Issued on 10 June, it ordered Eighth Air Force to give priority to reducing the German fighter force, as a preliminary to attacking targets which sustained Germany’s capacity for armed resistance, and instructed Bomber Command to design its operations ‘as far as practicable to be complementary to the operations of the Eighth Air Force’.

The Eighth Air Force responded to the directive by trying to concentrate its efforts against the aircraft production industry and the German day-fighters. But Bomber Command, its freedom of action unaffected by the wording of the directive, made no departure from the aims and principles that had governed its operations since 1942. Encouraged by developments which promised a rapid increase in its own strength and effectiveness – by the fact that Lancasters were coming forward in large numbers and the versatile Mosquito was joining them; that ‘Oboe’ and H2S were improving navigation and bombing accuracy; that ‘Window’ was now available against the enemy’s defences and other radio counter-measures were being produced – it embarked on another stage of the area bombing offensive in the belief that not least by its effect on German civilian morale it ‘would presently and decisively bring the war to a successful conclusion’.

Between 24 July and 1 August, in four raids on Hamburg and in single raids on Essen and Remscheid, the offensive achieved an unprecedented degree of concentration and intensity, and it seemed for a time that Bomber Command’s expectations might be well-founded. British casualties were well below the insupportable level they had reached during the Battle of the Ruhr, and this could be contrasted with the experience of Eighth Air Force, which was being forced by continuing heavy losses to diversify its offensive. At the same time, intelligence left little doubt that the raids had produced devastation on a scale never before known. PR showed that Hamburg had been all but destroyed. The secret sources, while not disclosing the first reactions of Speer and Milch, who feared that a few more raids on the same scale would reduce the Reich to impotence, confirmed that the damage done was unusually severe. On 2 August the Enigma reported that all Service leave to the Hamburg area had been stopped; on 10 August it showed that the ban was still in force. By the end of the first week of August decrypts of a report from the Japanese Vice-Consul in Hamburg and of a circular issued by the German Foreign Ministry had added that the damage was appalling, 80 per cent of the heart of
the city having been destroyed, and the casualties were ‘extremely high’; other decrypts of Axis diplomatic telegrams had reported that anxiety about the raids was lowering morale in the armed forces and in Berlin, where schools, hospitals, archives and government departments were being evacuated and the population was queueing to leave by train; and Abwehr decrypts had referred to German plans for dispersing war production and putting it under ground.

From the beginning of August, however, until the third week of November, when it launched the Battle of Berlin, Bomber Command did not again achieve the concentration of attack it had briefly delivered against Hamburg. This was reflected in the fact that Sigint produced few reports on the immediate effects of the major raids against widely separated cities including Berlin; and these made it clear that the raids were producing much less damage than that inflicted on Hamburg. Of the three raids that proved most costly to Bomber Command, those made on Berlin on 24 and 31 August and 3 September, only the first was referred to by Sigint: a single decrypt reported ‘a considerable damage’. But the night photography evidence indicated that only 27 of the 1,729 sorties despatched had dropped their bombs within three miles of the aiming point. At the same time, Bomber Command’s casualties began to return to the disturbing level reached during the Battle of the Ruhr. They did so despite the lengthening nights, despite the introduction of further radio countermeasures in succession to ‘Window’ and despite the resort to extensive tactical countermeasures from September; and the immediate explanation was not in doubt. The intelligence sources disclosed a continuing increase in the GAF’s front-line fighter strength in Germany.

It had been clear from the Enigma before the beginning of August that the GAF was making no attempt to replace on other fronts the immense losses it had incurred in the summer, especially in the Kursk battle and in Sicily, but was on the contrary progressively withdrawing fighter units from Russia and the Mediterranean for the defence of the Reich. On 21 September the Air Ministry calculated that fighter strength in the Reich, at 780 single-engined (day) and 740 twin-engined (night) fighters, had come to constitute 60 per cent of Germany’s total fighter forces, the increase being partly accounted for by the rapid reinforcement of the defences in south Germany and Austria following the first USAAF raid on Wiener Neustadt from Mediterranean bases on 13 August. Still more significant, on 20 August the decrypt of a report from the Japanese Ambassador in Berlin had disclosed that Milch planned to double military aircraft production, at present 2,700 planes a month, over the next fifteen months, and was giving priority to fighters over bombers. This first firm indication that Germany was giving priority to fighter production was confirmed at the end of October, when the Enigma showed that one-third of her long-range bomber Gruppen were to be disbanded.

On 27 September, in the light of Bomber Command’s disappointing performance and of this intelligence, the Deputy Chief of the Air Staff complained that, notwithstanding the directive of 10 June, Bomber Command had not yet attacked any town associated with fighter production, and urged that it should now be instructed to give higher priority to such targets. The Deputy Chiefs démarche failed to produce a review of Bomber Command’s priorities. So did the fact that in the next few weeks intelligence established that Eighth Air Force’s offensive was failing to prevent a continuing increase in the front-line strength of the German fighters on the western front. By the end of October the Air Ministry judged that the number of single-engined fighters
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had risen from 740 at 1 July to 800 at 1 October (when the actual figure was 964) and that the number of twin-engined fighters had jumped during the same period from 470 to 725 (actual figure, 682); and predicted that they would continue to rise even if the USAAF persevered with the daylight offensive.

This prediction was disturbing enough: the Allies had hoped that the total enemy fighter force in the west would be reduced to 650 aircraft by 1 April 1944. But still more disquieting was the realisation, which soon followed, that the enemy had forced the USAAF to accept temporary defeat. During September the Enigma and the German fighter R/T traffic had indicated that the GAF was giving highest priority to defence against the daylight raids: it was diverting twin-engined fighters to day-fighting and equipping them with a rocket projectile adapted from the Army’s 21 cm mortar, a weapon which, first referred to in the Enigma in August, proved to be formidably effective against the US bombers. Against the US raid on Schweinfurt on 14 October the intelligence sources revealed that the GAF had used not only every available single-engined and twin-engined day-fighter unit, including four Gruppen equipped with the 21 cm rocket projectile, but also almost all its night-fighter units. And it had done so to good effect: Eighth Air Force’s losses were so heavy that after Schweinfurt it abandoned its deep-penetration raids until it could protect its bombers with long-range fighters, which would not be available until the new year.

This set-back sharpened American criticism of Bomber Command’s total concentration on area bombing. At Bomber Command, however, it strengthened the case for another phase of intense area bombing, this time primarily against Berlin, and even prompted the suggestion that the USAAF should take part in it. On 3 November Air Chief Marshal Harris, AOC-in-C Bomber Command, supported his proposal with PR evidence of damage already done to housing – it showed that 19 towns had been ‘virtually destroyed’, 19 seriously damaged and 9 damaged – and also with the claim that ‘what actually occurs is much more than can be seen in any photograph’. He was convinced that ‘Germany must collapse before this programme, which is more than half complete already, has proceeded much further’. The destruction of Berlin would be the turning-point. ‘We can wreck Berlin from end to end if the USAF will come in on it. It will cost between 400 and 500 aircraft. It will cost Germany the war’.

It must be remembered that, unlike Eighth Air Force, Bomber Command was not yet trained for attack on precise targets such as aircraft factories and their aircraft parks. If only on this account, Bomber Command’s belief in the power of an independent strategic air offensive and the effectiveness of area bombing again prevailed against the mounting scepticism, to be put to one more test in the Battle of Berlin.

When such basic considerations, operational and psychological, conspired to produce this decision, so that firm intelligence about the growing strength of German fighter defences could be set aside, intelligence that told equally firmly against the more sanguine estimates of the invisible effects of area bombing on Germany’s war production and civilian morale could alone, perhaps, have
altered the outcome. But these were subjects on which a body of indisputable or unambiguous evidence did not exist.

It is true that in the summer and autumn of 1943 the Ministry of Economic Warfare was providing by no means optimistic assessments of the effects of area bombing on the German economy. In July 1943 the JIC, which relied for its evidence on MEW and also took US opinion into account, conceded that only a small proportion of the enemy’s production capacity had yet been destroyed. But it noted that injury caused by bombing could not be assessed ‘by counting houses and factories’. The JIC’s next report, issued on 12 November and covering the third quarter of the year, again pointed to the importance of morale: it set MEW’s estimate, to the effect that by September bombing had reduced armaments production and total industrial production to between 85 and 90 per cent of the January 1943 level, in the context of increasing damage to civilian conditions of life, with between 5 and 6 million people homeless and a shortage of consumer goods so severe that the needs of air raid victims could not be met. But if damage to the economy could not be considered without reference to damage to morale, the evidence for the effects of the bombing on morale, such as it was, was resistant to objective assessment or at any rate to measurement.

The Japanese diplomatic decrypts, the Sigint source that referred most frequently to the impact of the bombing on morale, had assessed the situation in grave terms during August. The Hamburg raids had caused panic in Berlin and while there was ‘as yet no split between the Führer and the people, things are tending that way: the future behaviour of the people will be governed by the intensity of the raids as well as by developments at the fronts’. After the end of August, however, the decrypts had not referred to the subject again until the first half of October: and the Japanese Ambassador had then assured his government that while there were ups and downs in the level of German morale, ‘there will be no internal collapse as a result of the war not going well, or of the intense air raids’, that the raids were not having a long-term effect on morale and that the German authorities were now intensifying the air defences.

All the more so because the Ambassador had stressed in his October report the difficulty of investigating the effects of the bombing, the authorities in Whitehall were disposed to regard such Japanese testimony as subjective or tainted and to place more reliance on the only other available sources — SIS reports; POW interrogations; German newspaper and radio information and propaganda, analysed by the Political Warfare Executive (PWE); such assessment by the representatives of neutral governments as reached the Foreign Office through the diplomatic missions; and (though these were rarely revealing before 1944) decrypts of German police signals. There is no reason to think that the sources were at fault in pointing to a decline in German morale when Germany’s prospects of victory were so obviously diminishing, or, when Allied bombing was causing so much physical and visible damage, in indicating that the deterioration was more pronounced on the home front than among the armed forces. But they could not provide evidence as to whether and, if so, when and in what ways deterioration would turn into collapse. Those who assessed the evidence confined themselves to the unexceptionable conclusion that this might happen at any time, and must happen in the long run, if the Allies kept up the pressure.

These assessments were not calculated to discourage the decision to
launch the Battle of Berlin. But it can hardly be held that they justified the claims which continued to be made for some weeks after the battle began on the night of 18-19 November. AOC-in-C Bomber Command on 7 December assured the Air Staff that provided priority was given to Lancaster production, and provided there was no further increase in its casualties, Bomber Command could by itself bring about the surrender of Germany by 1 April 1944. The CAS on 3 December had ‘no shadow of doubt’ that German morale was at an extremely low ebb and thought that Bomber Command might be ‘at least half-way along the road of industrial devastation towards the point where Germany will become unable to continue the war’. A report by Bomber Command’s intelligence staff of 17 December, written after the first PR sortie of Berlin since the assault had begun, was entitled *Götterdämmerung*, it asserted that ‘the administrative machine of the Nazis, their military and industrial organisation and above all all their morale, have by these attacks suffered a deadly wound from which they cannot recover’. It is clear that such claims did not reflect the intelligence assessments, for what they were worth, so much as express the high hopes which were necessarily invested in the outcome of the battle.

Before the end of December the Air Staff was nevertheless coming to accept that the area bombing offensive was again failing to fulfil the hopes that had been placed in it. Its retreat may have been partly caused by the fact that, whereas it had hoped for evidence of a dramatic deterioration in Germany, such slight evidence as had been received had been by no means encouraging. The only Sigint evidence, a decrypt from the Japanese Ambassador at the end of November, had remarked on Berlin’s methodical rescue services and reported that the population remained ‘surprisingly calm’. By 23 December POW interrogations had corroborated earlier intelligence to the effect that ‘whereas the German people feared the night attacks, Hitler and the German High Command feared the daylight precision attacks on individual factories’. But the Air Staff was also influenced by Bomber Command’s casualty rate and Sigint evidence of the continuing resilience of the enemy’s fighter forces. Bomber Command’s losses, surprisingly low in the first two weeks of the Battle of Berlin, rose appreciably in December. Sigint disclosed that while fewer fighter Gruppen were now being transferred to Germany from other fronts – there were fewer to transfer – new Gruppen were still being formed. At the end of December the Air Ministry estimated that the front-line strength in the west was 865 single-engined fighters (as compared with 800 on 1 October) and 750 twin-engined fighters (as compared with 725 on 1 October) out of a total front-line strength that had increased to 1,710 single-engined fighters and 1,100 twin-engined (as compared with 1,430 and 920 on 1 October).

In January 1944 these trends became more pronounced, and from mid-February Bomber Command, unable to sustain the casualties it was incurring on the northern routes, switched a large proportion of its effort into less concentrated raids against south Germany. Nor was it long before it accepted the necessity for a more lasting change in its bombing tactics. On 24 March it returned to Berlin for the last time, and again suffered heavy casualties. On 30 March it carried out a raid on Nuremberg, which was a still more costly failure, casualties amounting to well over 10 per cent and few of the bombers reaching the target. This was the last raid of the war in which all available bombers, up to 800 in number, attacked in a single bomber stream.

The Battle of Berlin had been fought against a back-drop of somewhat
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dispiriting conclusions about the impact of the bombing on Germany’s economic performance. The quarterly report on this subject, issued by the JIC on 4 March, recorded that in MEW’s view the impact had been less impressive in the last quarter of 1943 than in the two previous quarters: industrial production had not recovered from the damage previously inflicted, but the rate of decline had slowed down. And during the first quarter of 1944, as the JIC noted in June, MEW had been unable to detect any decline in the level of output since the summer of 1943. As for Bomber Command’s belief that German morale would disintegrate before D-day, that had faded by the spring.

It had remained strong at the end of January 1944, the authorities in Whitehall being undeterred by the optimistic tone of the decrypts from the Japanese embassy in Berlin. In two reports at the end of December 1943 the embassy admitted that the raids in November had caused severe damage, but stressed that electricity and water supplies had quickly been restored and claimed that the popular resolve to continue the war was not faltering. In January the Japanese Ambassador repeated this claim: ‘Internal collapse will certainly not be brought about by means of air raids: the vicissitudes of the war situation as a whole will constitute spiritually, as well as otherwise, the most important factor’. On receiving this last decrypt A1 was finally moved to comment on 26 January that the Ambassador’s view was in direct conflict with a substantial body of reports which the SIS had begun to collect from foreigners with contacts in Germany and German businessmen visiting neutral capitals. But these reports were themselves conflicting, and they became increasingly inconclusive as the weeks passed. The JIC summed them up in March by saying that although the bombing had deepened apathy in Germany, the security services there were strong enough to suppress any serious disturbance. On 10 April and on 1 May it concluded that a collapse of German Resistance before D-day for Overlord was most improbable. And just before D-day, while not ruling out ‘the possibility of a collapse occurring suddenly, especially if Allied military successes ... transform the present anxiety into something approaching panic’, it believed there was ‘no evidence to suggest that the Allied bombing may shortly foment any effective opposition to the régime, or that the stamina and discipline of the German people have deteriorated to such an extent that a collapse may be considered likely within the next month or so’.

The AOC-in-C Bomber Command had meanwhile acknowledged that his hopes had been frustrated by the German nightfighters. On 7 April, pleading for long-range fighter protection for the bombers, he told the Air Ministry that he had ‘long foreseen ... that the strength of the German air defences would eventually reach a point at which night bombing with existing methods and types of heavy bomber would produce percentage casualty rates which could not in the long run be sustained’. He felt that ‘we have not yet reached this point’ but that ‘tactical innovations which have so far postponed it are now practically exhausted’. This was indeed the case, and not only on account of the inability of the Allies to prevent the increase in German fighter production. The success of the night-fighters had also rested on the development by the German Air Force of new and unsuspected methods of interception which enabled it to inflict increasing casualties on the bombers.

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For general early warning of raids the Germans relied on their radars, notably the long-range Freya. The British had successfully jammed Freya for a brief period from the end of 1942 but for over a year from the spring of 1943 the Germans defeated them by pushing up the frequency of Freya until it was out of reach. 'Window', the next important British counter-measure, was introduced in July 1943 with the aim of jamming the main elements in the German defence system — the Ground Controlled Interception (GCI) Wurzburg radars of the Kammhuber line, which vectored the night-fighters on to individual bombers until they were close enough to locate the bombers by Air Interception apparatus (AI); the AI apparatus (Lichtenstein) used by the night-fighters; and the gun-laying Wurzburg radars used by the enemy’s Flak and searchlight batteries. But the British were disappointed in their hope that the Germans would take between six months and a year to overcome 'Window'. By the end of July, while it was clear from the Enigma that the enemy Flak had been forced to go over to pre-radar methods of barrage fire and sound ranging, the Enigma and the R/T had disclosed that some night-fighters, their box controls disrupted, were being told to freelance, that freelancing single-engined day-fighters were also operating above the bomber streams, and that ground stations were broadcasting on R/T a running commentary on the movements of the bombers.

Without foreknowledge that the British were preparing to resort to 'Window', the Germans had paved the way for their prompt response to that development by experimenting since the early summer with new methods of operating their night-fighters. In the first place, utilising the fact that most of the fighters were by then equipped with AI (Lichtenstein), they had reduced the rigidity of the box system of control in the Kammhuber line by operating several fighters simultaneously, one fighter being under control and the others freelancing. At the same time — and this represented a bigger step towards independence from ground control — they had tested a system of freelance visual tactics called Wilde Sau in which single-engined day-fighters sought out the bombers over their targets and attacked them from above. To begin with, the fighters, making frequent landings for refuelling and rearming, had relied on the light of the fires and Pathfinder flares in the target area, but after achieving some success over Cologne on 3 July they had co-operated with Flak and searchlights over Hamburg to still greater effect at the end of that month. From that point Wilde Sau underwent rapid development. The Germans had begun to expand the number of single-engined fighters available for night-fighting and had further improved the system by installing beacons, first visual and then radio, around which the fighters could congregate until they received on the R/T running commentary such information about the imminence of a raid and about its likely target as was obtained from early-warning radar and the visual and aural observations of the Observer Corps (the Flugmeldedienst). And by the end of September the new system had become established as the standard night-fighter procedure.

Although Wilde Sau effectively circumvented 'Window', and was proof against any other counter-radar measures that might be developed, it was vulnerable to tactical counter-measures. Since it was used to summon fighters from all over the Reich to the assembly beacons selected by the controllers in the light of their plots of impending raids, the running commentary was broadcast on high-powered transmitters. Intercepted regularly by Kingsdown from the middle of August, this soon disclosed that the forecasts of the likely
targets made by the Wilde Sau controllers were sometimes inaccurate. In the three deep penetration raids against Berlin between 23 August and 3 September, the R/T showed that Wilde Sau had worked to great effect, fighters being drawn in from as far afield as northern Denmark and central France, and that Bomber Command’s casualties, higher than it could afford for long, would have been still higher if the controllers had not been mistaken in calculating the return route chosen for the bombers after the second raid. During a raid on Mannheim on 5 September it became clear from the commentary that bomber losses were kept down because the controller made the mistake of first sending the fighters to Nuremberg. It was as a result of these experiences that Bomber Command, whose first response to the introduction of Wilde Sau had been to try to jam the running commentary, brought into force from the night of 22–23 September those tactical counter-measures – deceptive routeing and diversionary raids to confuse and mislead the German controllers – which down to the end of the war were to be of some assistance in reducing its casualties.

Bomber Command’s operations staff was guided in its use of these counter-measures mainly by the intelligence obtained from Kingsdown’s interception of the R/T running commentary, which was prolific and uninhibited, the Germans paying no regard to radio security. The staff received the intelligence both in the form of current information, teleprinted from Kingsdown, and in daily analyses of the enemy’s activities which GC and CS produced after interpreting the R/T in the light of intelligence obtained from the Enigma and such low-grade codes as those which transmitted radar plots and the reports of the enemy Observer Corps. Once the positions of all the German assembly beacons had been located – a piece of research that was accomplished during September and October, partly by comparing bomber crew reports and DF bearings with the running commentary, but primarily with the aid of documents seized by a Belgian agent of the SIS from the pilot of a crashed night-fighter – Bomber Command appears normally to have made efficient use of the intelligence when planning routes and diversionary raids. Certainly the R/T commentary disclosed that on many nights the deception measures had been of some value in containing Bomber Command’s losses. But from the beginning of December, when the losses began to rise to the prohibitive level which was to force Bomber Command to withdraw from the Battle of Berlin, it became clear that further major changes in Germany’s night-fighter system were making the deception tactics progressively less effective.

One of the improvements reduced the scope by intercepting the bombers at points nearer to their bases. This was, indeed, one feature of the new system, called Zahme Sau by the night-fighters, which had largely supplanted Wilde Sau by the late autumn of 1943; by February 1944 the fighters were sometimes flying out to meet the bombers over the North Sea. Another feature of Zahme

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*It also called for a higher level of control, the controllers of the individual GCI boxes being replaced by control from the HQ of Germany’s five Jagd divisions. The subordination of most night-fighter units to Mu showed that a large Jagd Korps XII became Jagd Korps I and its subordinate Jagd divisions were re-numbered. Early in 1944 it disclosed the creation of hower Jagd Korps and the subordination of the Jagd Korps to a new Luftflote Reich.
Sau was that, after obtaining early warning of the course of the bomber streams, the controller inserted into the stream a night-fighter which enabled the controller to direct other fighters to the stream. Even more important, the fighter was helped in making and retaining contact by a new AI set, SN2, which was immune from 'Window'. SN2 was the prerequisite for the introduction of Zahme Sau, and the key to its success, in that it made interception possible even though it was now taking place in darkness, away from the illumination provided by flares, searchlights and fires at the bombers' target. And before long the new system incorporated yet a third advance. For early warning of raids and plots of the bomber streams the Germans introduced into service new detection devices which picked up the radiations emitted by the equipment used by the bombers for the purposes of protection, navigation and communication— their identification Friend or Foe equipment (IFF); their H2S centimetric ground-scanning radar; 'Oboe', their précision-navigation and bomb-aiming aid; and 'Monica', which gave them radar warning of fighters approaching from astern. Together with SN2, these passive radar devices, which could not be intercepted and jammed, were the essential basis of Zahme Sau.

Not until February 1944 did it become clear from occasional references by the intelligence sources to new equipment that Lichtenstein was being replaced by a new AI set, and that this must go some way to account for the increase in British bomber losses. The search for the frequency of the new set met with no success until July 1944, when an SN2 set was recovered from a German night-fighter which landed intact and by mistake in East Anglia. SN2 had by then operated without interference and to great effect for some nine months. The radiation detection devices for exploiting the Allies bombers' radar emissions were also coming into use by October 1943. In that month the Germans began to create a tracking organisation in which the plots obtained by the new devices were at first collated by a selected GCI station in the area of each Jagd division. But the existence of this service was apparently not suspected by British intelligence until the summer of 1944, on the basis of Enigma decrypts. It was not until May that Bomber Command could be given definite proof that its bombers were being tracked with plots obtained from their 'Oboe', H2S and other transmissions. This discovery, made on the basis of Enigma, was confirmed by documents captured in Normandy in June: in July the recovery of equipment from a night-fighter provided further evidence that the enemy was plotting no less than eight different types of transmissions from the bombers, including W/T and R/T as well as centimetric radar.

This delay owed something to the fact that, while it was accepted that the Germans could listen to centimetric radar, having recovered the apparatus from the many bombers that had crashed, the British technical experts were reluctant to acknowledge that they could, within a few months, have learned to exploit the centime!ric transmissions for plotting and homing. But it must be stressed that it was extremely difficult to obtain firm intelligence about the enemy's detection devices. The devices were passive radar receivers, not active radar transmitters working on frequencies that might have been intercepted. No relevant documents were captured before June 1944. No equipment could be recovered in the United Kingdom until the night-fighter landed there in error in July 1944. POW and agents' reports, mostly vague or wild on such matters as radar, were unhelpful unless they could be checked and corrected in the light of more reliable sources: and Sigint, the only reliable source in the
absence of captured material, was sparse and difficult to understand. On the other hand, so great was Bomber Command’s reliance on radar and jamming for reducing its casualties, and for accuracy in navigation and bombing, that it could not curtail or abandon the use of them without firm evidence that they were as much a liability as they were an asset.

From the end of June it knew that, if it was to avoid heavy casualties in the absence of any effective means of countering the night-fighters, it had either to abandon the concentrated area bombing offensive altogether or stultify it by denying the bombers the assistance of their indispensable radar aids. This dilemma was short-lived. In August 1944, not long after it was recognised, the problem was resolved by other developments. After devoting much of its effort to daylight bombing in June and July despite its inexperience in this type of operation, Bomber Command was then able to return to large-scale night-bombing – and, more than that, to establish night-time air superiority over Germany and make full use of the capacity for accurate night-bombing which it had been developing since the end of 1943 – primarily because the German night-fighter defences were collapsing as a result of inadequate training of pilots and shortage of fuel, as well as from the loss of their network of early warning ground radars to the advance of the Allied armies.

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Indications to the effect that deficiencies in the training of pilots and a shortage of fuel were handicapping the German Air Force, if not as yet its night-fighter operations in defence of the Reich, had appeared in the intelligence sources before the end of 1943. Thereafter, while the Enigma showed that the Germans were combing-out GAF non-combatants, in an effort to provide more fighter pilots as well as to meet the needs of their land forces, the USAAF had exploited and intensified the GAF’s deficiencies so effectively that by the beginning of April 1944 it had established daytime air superiority over western Europe.

The USAAF had resumed its deep-penetration raids in the second week of January, and had extended them as its long-range Mustang fighters became available in increasing numbers. By the middle of February the Enigma had shown that its raids were imposing a high wastage rate on the German single-engined fighters and that in combat with its Mustangs the enemy’s twin-engined rocket firing aircraft were having to be escorted by single-engined fighters. During ‘Big Week’, a programme of accurate precision attacks on an unparalleled scale on which the USAAF embarked on 20 February, it claimed to have destroyed 600 fighters. The claim was greatly exaggerated, but that German losses were rising was so clear, from Sigint as well as from combat reports, that the USAAF decided to give greater priority to the destruction of German fighters in direct combat. Beginning with a major attack on Berlin on 4 March, it suspended attacks on the aircraft production industry, ceased to route its raids with a view to avoiding the defences, and chose targets and routes with the aim of forcing the enemy fighters to do battle.

In the next four weeks it was estimated that the Germans lost at least 10 per cent of the fighters they committed against the USAAF’s attacks, and that the wastage sometimes rose to 40 per cent. It also became clear that, though
still offering determined opposition from time to time, the enemy’s fighters were abstin­ing from all-out combat, and the Enigma confirmed that this policy of conservation was being imposed by a critical shortage of fighter pilots; it referred to ‘the present lack of men and material’ and showed that bomber and transport pilots were being transferred to fighter units as a matter of emergency. On 6 June the Japanese Naval Attaché, summing up the recent daylight attacks, reported that they had achieved considerable success: daylight attacks on Berlin indicated that the Germans were ‘being crushed by over­whelming superiority’; the wastage of German fighters was 10 per cent of those engaged; mass German counter-attacks had been greatly reduced by the scale of the American attack; Allied claims that 20 per cent of German fighter production had been destroyed by the end of April were reasonably accurate.

In the course of gaining this victory, one of the most decisive in the war in the air, the USAAF commands were assisted by three types of intelligence from which, on account of the different nature of its operations, Bomber Command derived little benefit.

For help in studying and identifying their targets they relied on the target intelligence organisation under AI 3(c) at Hughenden Manor near High Wycombe, whose staff of 80 officers and 300 clerical assistants included US officers. It collated the product of research in the Service departments and MEW with all the information that it could collect from other sources – ISTD, CIU, POW, refugees, learned societies and professional associations, technical journals, insurance companies and other private firms – and carried out the elaborate process of turning the results of its labours into target maps and target illustrations for distribution to briefing officers and bomber crews. Its work did not influence the selection of targets, which was settled by the planning and intelligence staffs at the commands in the light of priorities laid down by Whitehall and the US authorities in London. They found that, though it was supplemented by PR, the GAF Enigma was the most important source of intelligence. The US Strategic Air Force, which was set up at the beginning of 1944 to command both the Eighth and Fifteenth Air Forces, recorded after the war that it was ‘the root of our target intelligence’ in that it provided invaluable information on the enemy’s order of battle, dispositions, production, wastage, casualties, serviceability and reserves.

The Enigma was especially valuable to the USAAF’s offensive against aircraft on the ground, at airfields, depots and training stations, which was perhaps even more important than the attempt to reduce the German fighter force by direct combat. The intelligence that was most useful in combat, on the other hand, as distinct from that which helped in the selection of targets and planning of raids, came from the R/T of the German day-fighters. The potential value of this traffic for the information it provided on such matters as the take-off times of the fighters, the routes they followed when assembling, their intentions to intercept and their tactics in combat was established by GC and CS. In the summer of 1943, after much trial and error following the first attempt to turn the intelligence to operational account during the Dieppe raid, the Kingsdown Hook-up had been set up. This met a need which did not exist for Bomber Command but which was of great importance for the American fighter-escorted daylight operations – the need to pass the intelligence to the fighters while they were airborne. It had not enabled the USAAF to avoid the heavy losses which forced it to abandon deep-penetration raids and confine itself to attacks in north-west Germany from October 1943. From that date,
however, the USAAF planned for the resumption of deep-penetration raids from the beginning of 1944, when its long-range Mustang fighters would become available, in close consultation with GC and CS; and at the same time GC and CS and the Air Ministry took measures to improve the service given through the Hook-up.

These improvements bore fruit when the US deep-penetration raids were resumed in earnest in February 1944. Everything that was known about the procedures and probable reactions of the German fighter controllers was applied to the planning of the operations carried out in ‘Big Week’. On 24 February, for example, Eighth Air Force used the intelligence in its plan for co-ordinating major attacks in Poland, on Gotha and on Schweinfurt with raids against Dutch airfields, timed to hit the German fighters when they were preparing to intercept, and with a diversionary raid by Fifteenth Air Force against the important ball-bearing factory at Steyr in Austria. From the beginning of March, however, the German defences testified to the efficiency of Eighth Air Force’s use of this intelligence by ceasing to use R/T when assembling their fighters; and by the end of March, in the course of winning daylight air superiority, Eighth Air Force had driven the enemy fighters from bases that were within R/T range of the United Kingdom.
CHAPTER TWENTY-SIX

The Last Bomber Offensive Against the United Kingdom, January to June 1944, and the Threat from Germany’s New Aerial Weapons

German daylight bombing of the United Kingdom had virtually come to an end after the transfer to the Mediterranean in June 1943 of 60 per cent of Fliegerkorps IX’s fighter-bombers and 50 per cent of the long-range bombers. It had ceased altogether before the end of the year. Small-scale night raids by fighter-bombers and bombers, including the new high speed Me410 in its fighter-bomber role, had continued against coastal towns, against London and against Allied air bases in East Anglia. But they had done little damage and had suffered heavy casualties.

The first sign of a new offensive was given by the Enigma in the middle of December 1943: four bomber Gruppen, two-thirds of the total bomber force in northern Italy, had been withdrawn to Germany with all their aircraft. By 10 January 1944, when Enigma decrypts had established that all six of the bomber Gruppen in Italy had been withdrawn early in December and that another Gruppe had more recently moved from Germany to the Brussels area, the Air Ministry surmised that ‘the GAF may intend retaliatory bombing of this country in the immediate future’, and it expected the bombing to take place mostly at night against London. The first of the GAF’s large-scale raids on the United Kingdom followed on the night of 21-22 January.

Before the opening of the offensive the Air Ministry had estimated that the reinforcements would bring the force to about 500 aircraft – the actual figure was 524 – and would make possible a maximum effort of up to 350 sorties in one raid, an intensive effort of up to 200 sorties on three nights a week and a sustained effort of no more than 75 sorties a night. This scale of attack was far larger than any delivered against the United Kingdom since 1941, and far larger than the Air Ministry had bargained for before receiving the unexpected news that bombers were being removed from Italy. But it knew that the German bomber force had long neglected training for accurate bombing against defended targets, a fact that had been reflected in its poor performance over the United Kingdom in the small-scale raids in recent months, and it judged that the attacks would not be pressed home. It also knew that, in addition to resorting to ‘Window’ during its raids since October, the GAF had equipped its bombers with a backward-looking warning radar (Neptun) to warn against the approach of night-fighters, had carried out Pathfinder and flare-dropping experiments over the United Kingdom and had expanded and modified its radio aids to navigation and bombing accuracy. But the use of ‘Window’ had done little to increase the efficiency of the enemy’s raids or reduce his casualties, and the counter-measures authorities were confident that they could neutralise the other developments.
Germany’s New Aerial Weapons

These estimates and expectations were largely borne out by events: in the five months to the end of June 1944, when the offensive was called off, the defences shot down 10 per cent of the bombers sent against the United Kingdom, and the GAF incurred other losses from accidents due to bad weather, inexperience and lack of training. After increasing during February despite the withdrawal of two bomber Gruppen for operations against Anzio - a movement that was disclosed by the Enigma at the end of January - the scale and tempo of the offensive declined from the beginning of March. At the same time, the GAF diverted some of its effort away from London to Bristol and Hull in the belief that they harboured invasion shipping. And after the night of 18–19 April, when piloted aircraft carried out their last raid of the war against London, it devoted almost all its remaining effort to ineffective attacks against the ports where shipping was collecting for Overlord. In June - following the Normandy landings - the GAF confined its operations over the United Kingdom to intruder raids against East Anglian airfields. Except that it briefly returned to such attacks in March 1945, an intruder raid on the night of 27–28 June 1944 was the last attack of the war on the United Kingdom by piloted aircraft.

The Enigma provided little intelligence about the offensive once it had begun. A good deal was learned about the performance of the enemy’s radio aids and the effects of British jamming from POW interrogations, and a variety of other sources frequently gave the defences notice of a raid one or two hours before the early-warning radar could do so. Kingsdown obtained such warnings from its interception and DF-ing of the bombers’ R/T. Cheadle got them from its interception of signals in which the GAF notified Flak units in the Channel Islands and ships and naval stations between Dinard and Nantes that its bombers would be passing over, and also of signals (which Cheadle named ‘Xylophone’) in which in advance of a raid the Safety Service in France requested the activation of beacons and other navigational aids. The countermeasures authorities got them from their monitoring of transmissions from equipment in the bombers. But the tactical intelligence had little impact on operations, the weakness of the German offensive being largely due to lack of experience, poor training and limited resources. The burden was borne by bombers designed before 1939 - the Ju 88, the He 111 and the Do 217 - with assistance from only a few of the new sub-stratospheric bombers - the Ju 188 and the He 177 - which Germany had deployed to squadrons in October 1943. She had neglected the development of new aircraft until her requirements forced her to devote to the modernisation of her fighter and fighter-bomber arms such resources as were left over from the development of the V-weapons, the retaliatory programme to which she had given first priority; and it was mainly because she was unable to launch the V-weapon offensive by the beginning of 1944 that she committed her inadequate bombers against the United Kingdom.

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From the spring of 1943 the intelligence sources enabled the Allies virtually to exclude from their strategic assessments the possibility that the Germans would either initiate chemical warfare or succeed in producing, as they
themselves were striving to do, the nuclear weapon. Rumours warning of these
two threats had circulated at intervals since 1940. There had been no evidence
to support them, but in the absence of firm evidence to disprove them they had
created general unease. During the autumn of 1942 uneasiness increased about
Germany’s nuclear research programme. Reports from Norway of greater
activity at the heavy water plant at Vermork led to the first attack on the plant,
carried out by SoE in February 1943. In the same month uneasiness about her
preparations for chemical warfare gave way to alarm when an Enigma decrypt –
the first substantial reference to the subject by Sigint – gave an estimate of the
number of replacement gas masks that would be required by all units in the
German army outside the Reich. But from that date the anxiety steadily
subsided as more intelligence became available.

In relation to the threat of chemical warfare, the intelligence came from
the Enigma. Decrypts referring to German anti-gas precautions became more
frequent. But they almost invariably indicated that the precautions were
associated with German suspicions that the Allies might be intending to
initiate gas warfare; and they sometimes specifically forbade measures which
might lead the Allies to suspect that Germany planned to initiate it. In relation
to her nuclear research programme, the reassurance came from contacts with
scientists in Norway, Sweden, Denmark and Switzerland who, in some cases
with the assistance of the SIS, kept in touch with colleagues both in Germany
and in Allied countries. By the summer of 1943 Allied scientists felt confident
that the Germans had concluded by the end of 1942 that they could not
produce a weapon in time for use in the present war, and had reduced the
priority attached to nuclear research.

These findings stood in sharp contrast to those which were then being
reached in the light of increasing intelligence about Germany’s development of
jet and rocket propulsion for piloted aircraft and pilotless missiles. At the end
of 1941 the Air Ministry had been surprised by the appearance of a new German
aircraft, the FW190; and it had not fully appreciated the technical superiority
of the aircraft, which combined high performance with heavy armour and
armament, until an FW 190 force-landed in Wales in June 1942. The research
section it set up as a result of this salutary experience (AI2(g)) began work just
when Germany was at last giving high priority to bringing forward new
aircraft. Its task was not easy. Until the spring of 1944, when she was forced to
rationalise the situation, Germany’s aircraft industry was not only striving to
improve existing aircraft, but was also simultaneously developing a large
number of new types, both conventional and jet or rocket propelled, of which
only a few eventually went into production. The Air Ministry was thus
inundated with inconclusive reports and confusing rumours about new
developments from agents, PW and journalists and it could not check them
against the reliable sources. The Enigma rarely provided information about
new types of aircraft until they were about to be deployed to squadrons: it was
silent on the subject until the beginning of 1944. PR detected them at an early
stage in their development, but it could not do so before the first of them
reached the test airfields from the middle of 1943.

By that date the other sources were improving. As men with technical
expertise who had previously worked on the development lines were drafted as
aircrew by the GAF, some POW provided accurate information. As Germany
began to recruit highly skilled men from the occupied countries to her aircraft
factories and research establishments, a few reports of obvious authenticity and
exceptional value began to reach the SIS. Helped in these ways, AI2(g) detected each of the significant new departures in German aircraft and aero-engine design, and did so in good time. Of the new types, the most important were the ME 262, which made its first successful flight with the Jumo 004 jet engine in July 1943 and went on to become the world’s first operational military jet; the Arado 234, powered by gas turbine axial flow engines, which went into series production early in 1943; the Me 163 interceptor fighter, the first operational rocket propelled aircraft, which went into service from June 1944; and the He 162, which superseded the Me 163 from the end of 1944.

The Air Ministry’s first report on intelligence about jet and rocket propelled aircraft, obtained from PR, POW and the Air attaché in Berne, was issued in July 1943. It concluded that Germany would have at least one jet propelled aircraft in service by 1944 and that she was experimenting with rocket powered aircraft which, dependent on the production of novel fuels, might outclass and render obsolete all existing aircraft. The report prompted an order for 120 of the jet–propelled Meteor fighter, which had been designed round the Whittle engine, and the first serious attempts in the United Kingdom to tackle the aerodynamic problems of supersonic flight. Although it was written in general terms, evidence to substantiate its conclusions was not long in coming.

By the end of 1943 AI had learned enough about the Me 262 to be able to rate it as superior to the HE 280, another jet fighter to which agents and POW had frequently referred; and it had obtained from the Air attaché in Berne copies of documents which indicated that both would enter into service in the next six months. From the same documents it heard for the first time of the ME 163, but was unable to decide whether it was jet or rocket propelled until, in January 1944, German POW and a French engineer who had been employed at Peenemünde provided full details about its liquid rocket engine and its performance. In January 1944 PR identified the Me 262 for the first time near the Messerschmitt factory at Augsburg. On 7 February the Enigma made its first reference to the new types, disclosing that army specialists were being transferred to the production of the Me 262. On 22 February another Enigma decrypt revealed that highly qualified pilots were being transferred for training with the Me 262, the Arado 234 and the Do 335. This was the first evidence of the Ar 234; the Do 335, which had recently been mentioned in an agent’s report as being a new light-bomber, was in the light of this decrypt assumed to be another jet aircraft until the autumn, when a sketch supplied by a French workman showed that it was propeller driven.

As a result of heavy bombing of the Dornier works in the spring of 1944, the Do 335 never went into service. AI remained unaware that its production had been interrupted, though it was satisfied that neither the Do 335 nor the Arado 234 had yet reached the stage of series production. But it was alarmed to learn that, in addition to the Me 262 and the He 280, the Me 163 might soon be operational: an Enigma decrypt of 18 April discussed the training of Me 163 mechanics, mentioned a test unit for the aircraft at Bad Zwischenahn, and indicated that 10 Staffeln of twelve aircraft each were to be brought into service in the interceptor role.

Intelligence about the Me 163 and the Me 262 was released to RAF crews at that time, and PR, visiting known test sites every few days, photographed increasing numbers of both aircraft. During May and June 1944 Enigma decrypts indicated that their entry into service was imminent. Coinciding as it
did with the launching of the Normandy landings, this intelligence was all the
more disturbing in that there was considerable uncertainty about the role
intended for the Me 262. The Enigma suggested that it would be used as a
fighter or for reconnaissance, but POW were claiming that it had been
developed as a bomber. This conflict of evidence reflected disagreements in
Germany. The air force had produced it as a replacement for the Me 109
fighter, but had been forced to convert it for carrying bombs to meet Hitler’s
wish to use it against the Allied invasion beaches.

Partly on this account, and partly as a result of heavy Allied bombing of the
production and test areas at Lechfeld, Leipheim and Augsburg, the Me 163 and
the Me 262 did not enter squadron service until August, though a Me 262
challenged a Mosquito in July and an Enigma decrypt of 26 July disclosed that
Me 163s were to operate with immediate effect in defence of the Leuna
hydrogenation plant. In the same month a decrypt from the Japanese naval
attaché in Berlin stated that the GAF had fewer than 100 jet and rocket aircraft,
but would have 300 in September and would be receiving 1,000 a month by
January 1943. But neither of these aircraft ever appeared in large numbers; and
the intensification of Allied bombing of Germany’s aircraft industry, oil plants
and communications which stopped their production — together with that of
the He 162, which did not begin till the end of 1944 — also prevented the Ar 234
from becoming a problem. In September 1944, when nothing had been heard
of this aircraft since February, the Japanese naval attaché’s decrypts disclosed
that it had begun to carry out reconnaissance over the United Kingdom: in
October they provided a lengthy account of its characteristics, and the Enigma
disclosed that it was to become operational as a bomber. But it carried out only
limited operations against the Allied armies as they advanced into Germany in
the spring of 1945.

In contrast to the Air Ministry’s success in giving notice of the arrival of new
aircraft, it received no warning before Germany brought into service the first
radio guided rocket missile (HS 293) and the first radio controlled bomb (FX
1400). POW and agents had occasionally referred during 1941 and 1942 to
German experiments with air-launched radio controlled bombs, but the
intelligence bodies did not associate the first Enigma references with these
earlier reports. Received in May and July 1943, the decrypts disclosed that new
weapons named HX 293 and FX were about to become operational in the GAF,
but they gave no details. Details were first obtained from a POW, shot down
early in August, who revealed that he had been taking part in experimental
operations against ships off Malta and Sicily with two guided missiles, one of
which (FX) was a free-fall bomb whose fall could be corrected by radio beam
from the aircraft launching it. On 27 August, the day the report of his
interrogation was circulated in Whitehall, the GAF sank one British ship and
damaged another in Biscay with missiles: they turned out to be the HS 293,
which was guided to its target by the launching aircraft. On 8 September, on
the announcement of the Italian armistice, the GAF sank the Italian battleship
*Roma* and damaged the *Italia*, and the decrypt of the report of the attack
established that it had used both FX and HS 293.
On 3 September, after examining reports on, and debris from, the attacks in Biscay, the Admiralty was able to announce the external characteristics of HS 293. To the extent that ships could be advised on the tactics to adopt against it, the design and performance of the FX were understood without much delay. The frequencies used for the radio control of both weapons were obtained from the examination of aircraft in Foggia later in the autumn, when radio countermeasures were put in hand. But knowledge of the characteristics of the HS 293 remained incomplete until the decrypt in the cypher used by the Japanese naval attaché in Berlin gave a detailed specification in the spring of 1944. Even then there remained some uncertainty about the performance of its rocket motor. This could not be determined without identifying the two fuels used: and while POW soon disclosed that one of them (Z-Stoff) was sodium permanganate, the suspicion that the other (T-Stoff) must be concentrated hydrogen peroxide was not confirmed until stores were over-run in Normandy.

One reason for the failure to attach significance to the early reports about new air-launched missiles was that from the end of 1942 they were submerged in a larger body of reports which indicated that Germany was developing long range, remote controlled, pilot-less weapons. In their handling of those reports, the intelligence authorities were to be confused for months by the fact that Germany was experimenting with two such weapons — the army’s liquid fuel rocket, eventually to be known as the V-2, and the airforce’s pilot-less aircraft, the V-1. But even the earliest of them, which had been received between December 1942 and the end of March 1943, were too substantial to be ignored.

They were obtained by the SIS from a Danish chemical engineer and, through two other informants, from Luxembourgers who had been pressed into construction work at Peenemünde. All referred to experiments that were taking place there with a rocket, though they gave different accounts of its dimensions, its warheads, its range and its method of propulsion. Questions put to POW produced conflicting and in some cases impossible claims. But the evidence left little doubt that a rocket was being developed. In April 1943 the Chiefs of Staff decided to alert operational staffs to the threat, and the Prime Minister set up a special enquiry under Mr Duncan Sandys to seek more precise intelligence and consider countermeasures.

New PR coverage of Peenemünde later in April revealed that buildings had been added since the place had been photographed in May 1942 and that new but inexplicable features — tower-like structures and circular emplacements — had appeared which were probably for the testing of explosives and projectiles. It was not until the last week of June, however, after three inconclusive further sorties, that PR clearly identified two torpedo-like objects, 38 feet long, 6 feet in diameter, and with a tail of 3 fins 12 feet wide. At the same time a new POW, a general, admitted that he had been present at the firing of a projectile with a

\textsuperscript{V} initially stood for \textit{Versuchsmuster} (experimental) but the Germans came to use it for \textit{Vergeltungswaffe} (reprisal weapon).
range of 200 km which used a liquid fuel. He thought it was pure alcohol, and he believed that mass production of the projectile would be held up by difficulties with the materials required for the fuel containers and burners.

Sandys reported on the latest intelligence at the end of June. He noted that there had been other POW and SIS reports indicating that technical troubles were holding up the development of the weapon, and that a programme for obtaining PR cover of all of northern France within 130 miles of London, though not yet completed, had so far detected no construction work of a suspicious character except at Wissant. But he warned that the weapon was probably so far advanced that it might be used operationally without much delay if the Germans were prepared to accept considerable loss of accuracy and efficiency. At the same time he offered an assessment of the rocket's technical features which, in the absence of intelligence, was based on the assumptions of British rocket experts.

In April the experts had offered the opinion that a rocket with a range of 200 miles (300 km) would weigh about $\frac{9}{2}$ tons and have a warhead of $\frac{P}{4}$ tons. The rocket which the Germans put into production (known as A4) in fact weighed 12 tons and had a warhead of about $\frac{10}{2}$ tons. By June, however, in the light of the PR evidence of its dimensions, and on the mistaken assumption derived from British rocket experiments that it would use a solid propellant, they judged that it would weigh between 60 and 100 tons. And whereas this estimate ignored the POW reference to liquid fuel – the A4 used liquid oxygen and alcohol – they raised the estimated weight of the warhead to between 2 and 8 tons to meet claims about its destructive power being made in several of the intelligence reports. A third mistaken assumption was that, as in British experiments, the missile must be launched from a long projector; the A4 was controlled during its burning by vanes in its jet and could be launched vertically with simple apparatus.

These assumptions were to impede the collection and interpretation of further intelligence for some months. The resulting estimate of the weight of the weapon at once led few sceptics, notably Lord Cherwell, to argue that the Germans could not have solved the problem of firing such a heavy missile, and to suggest that the evidence which indicated they had done so was designed to conceal the fact that they were developing a pilotless jet propelled aircraft.

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In Germany at the end of June 1943 about 40 rockets had been launched with some degree of success and, though failures were still occurring, the decision was taken to adhere to a programme to produce 3,080 by December 1944 and begin operations in November 1943. The campaign would be controlled from an underground bunker at Watten near St Omer, which was due for completion in October 1943, and work had begun in the spring on 45 simple launching sites and advanced stores or depots in the Pas de Calais and near Cherbourg. The pilotless aircraft needed a more elaborate launching system involving inclined rails and a concrete emplacement; work on 64 sites and 8 stores, each holding 250 missiles, did not begin till August, for completion in December.

PR and the SIS reported early in July that unusual construction work was
going on at Watten, as well as at Wissant, but was far from complete. By the end of July PR of Peenemünde had detected cradles which appeared to be used for transporting a missile to the firing point, but had otherwise thrown no new light on the missile’s characteristics. As for the imminence of the threat, the SIS received a report rated not very reliable which quoted a German official to the effect that in spite of intensive experiments no secret weapon would be ready for two years: another report that October was the operational date; and a third which said that serial production would begin in September and that the bombardment of London was planned to begin in the autumn. This report, the source of which was rated very reliable, added that the rocket was being developed under a man named Von Braun, and that it was fired from mobile steel mountings. It is obvious now that he was knowledgeable: but other reports obtained in July claimed that it was fired from a long-range gun. The interrogation of POW added nothing to the SIS evidence during July and August. Nor did the few warnings that now came in from the embassies — though one of these, dated 25 July, stated explicitly for the first time that the Germans were developing a pilotless aircraft as well as a rocket.

On 9 August the Chiefs of Staff accepted that despite the contradictions in the intelligence, the rocket threat was likely to materialise in September or October unless effective counter-measures could be found. The previously planned bombing raid on Peenemünde followed on 17–18 August. Carried out against precise targets with the aid of the PR photographs, it did immense damage to the installations, as PR showed the following day. We now know that it also killed many of the V2 scientists and engineers, delaying the programme by about two months, but that von Braun remained confident that test firings with the warheads would be possible by mid-November. Raids on Watten were made by the US Air Force on 27 August and 7 September, and PR after the second attack showed it had been reduced to rubble. The Germans abandoned it and began to build an underground depot at Wizernes: after the Peenemünde raid they had moved the main rocket assembly works to an underground factory in the Harz mountains and set up a new test range at Blizna in Poland.

Meanwhile, towards the end of August the SIS had received a report from a source in touch with a senior member of the Waffenamt, the Army’s weapons office. It said that 100 rockets had been fired and that another 100 were in hand, and that Hitler had set 30 October for the beginning of the rocket offensive and had ordered the production by then of 30,000 rockets. It made another reference to the use of mobile projectors. And it reinforced the earlier claim that two weapons were under development: the rocket, officially known as A4, and a pilotless aircraft known as PH17. The report fuelled Cherwell’s scepticism: he dismissed it as being the kind of spurious information that was to be expected in answer to questions put out through various channels on technical subjects. A ministerial meeting on 30 August nevertheless decided that civil defence measures must be put in hand for the evacuation of priority classes from London, Southampton, Portsmouth and Gosport and, possibly, for the evacuation of the government from London. But on 14 September the Defence Committee decided against reviving plans for the evacuation of the government and acceded to Cherwell’s request that a panel of scientists should be set up to consider whether or not a rocket with the features and performance indicated by the intelligence reports was scientifically practicable. At the same time, it instructed Sandys to obtain from the intelligence authorities a statement as to the reliability of the intelligence so far received.
The statement about the status of the intelligence, prepared by Dr R.V. Jones, ADI (Science) at the Air Ministry, fully supported Sandys in defending its credibility. It concluded that although the information obtained about the weapon’s characteristics was incomplete and inconsistent, ‘if the torpedo-shaped objects are not the long-range rocket implied by so many sources, it is hard to find an alternative’: and it added that although ‘there are obvious technical objections which, based on our own experience, can be raised against the prospect of successful rockets ... it is not without precedent for the Germans to have succeeded while we doubted. The beams are a sufficient example.’ More particularly, it rejected the suggestion that the rocket story was a cover or a deception plan to deflect attention from the development of a pilotless aircraft. The intelligence sources were now claiming that both were being developed at Peenemünde, and the Germans could hardly be hoping to protect the one from bombing by drawing attention to the other.

When the panel of scientists - the Bodyline Scientific Coordinating Committee - began its deliberations on the rocket, at the end of September, intelligence had provided little new information about it. As to when the weapon would be ready the latest evidence had been scanty and conflicting. Of twelve new POW interrogated, three high ranking officers had doubted the existence of a rocket, and one of these had dismissed talk of a very long range rocket as bluff. But Hitler had referred in a recent speech ‘to technical and organisational preparations ... which will enable us not only to break his [the Allied] terror tactics, but also by other and more effective means to retaliate’. There had been some diplomatic decrypts - one in which Rippentrop had informed German missions abroad on 24 August that the Allied bombing would diminish ‘when the measures we have in hand are completed’: others in which the Japanese ambassadors in Berlin and Rome had said that new German methods of retaliation would be introduced before the winter in spite of slight delays inflicted by the bombing of Peenemünde and Friedrichshafen - names which the ambassador in Berlin begged Tokyo to keep secret. Among the diplomatic reports, one from Berne conveyed the rumour that raids would start in September. On the other hand, the British Military Attaché in Berne had reported on 14 September that the air attack in Peenemünde and other places of production, including Friedrichshafen, had delayed ‘Gerät A-4’, the new weapon which Germany had hoped to have operational by the autumn of 1943. On 7 October a telegram from the Japanese Ambassador in Berlin was decrypted giving information dated 30 September. This said that experiments had shown the possibility of ‘fairly accurate shooting up to a range of about 400 kms by some form of artillery bombardment’. The weapon would be operational ‘by the middle of December at latest’.

The reports on the weapon’s characteristics and performance had been equally inconsistent, giving references to weights of from 10 to 80 tons, to bomb loads of 2 and 4 tons, to ranges between 220 and 500 kilometres and to warheads carrying unspecified materials or gas or ‘bacteriological germs’. A SIS report of 25 August had said that the weapon would destroy all buildings with 29 kilotons: another had referred to bombs and shells that did not depend on the laws of ballistics and to projectiles that were fired through the stratosphere. There had been a POW reference to ‘liquid air bombs on the rocket principle’. Other reports had mentioned that the rocket was remote controlled and given details about the method of control, the firing of the propellant charges and the rocket’s exhausts, but little could be made of them.
One of them might have pointed to the fact that one of the propellants was liquid oxygen; in fact it said that the explosive material was liquid air. Another claimed that the rocket when fired was said 'to rise very slowly from the ground, making a considerable noise'; but this only perplexed the rocket experts, whose picture of the launching arrangements did not allow for that type of initial flight.

On 22 October the Scientific Committee nevertheless reported, with only one dissentient voice, that a rocket with a warhead of 10 to 20 tons and a range of 130 miles was scientifically possible, and could have the dimensions of the objects seen at Peenemünde. On 28 October, at a meeting with Cherwell, some of the experts changed their minds to the extent of agreeing with him that there were formidable difficulties in accepting that the Peenemünde objects were rockets; and when the Committee attended a ministerial meeting that day its members remained divided. But that meeting eventually agreed, after an adjournment, that 'although there were formidable difficulties, there was nothing which from a scientific point of view rendered impracticable the production of a long-range rocket with the range and the performance postulated'. The Defence Committee had meanwhile, on 25 October, heard from Sandys that, although there was some evidence that the German programme had been delayed by Allied bombing, the rocket had probably reached the stage at which it could be used operationally; prolonged bombardment was unlikely before early 1944, but a limited campaign over several days might begin as early as November or December. It had also heard from Cherwell that he still believed that the Germans could not be producing a rocket with the characteristics that were being attributed to it. But the Defence Committee had accepted Sandys' estimate of the nature and timing of the threat.\footnote{At this point Churchill sent Roosevelt by courier the latest assessment of the intelligence accumulated over the past 6 months, the Americans having so far received only such individual items as had appeared in the regular digests of POW interrogations and SIS reports. The President replied on 9 November that the US had no additional intelligence apart from indications of rocket factories at various sites.}

The report of the ministerial meeting with the scientists was sent to the Prime Minister on 2 November. It offset the cautiousness of its conclusions ~ a cautiousness which* is understandable when it is remembered that the scientists had been considering greatly exaggerated estimates of the weight of the rocket and of its warhead, and had been assuming that the rocket was launched by a projector ~ by emphasising that since the Germans had embarked on preparations in France for launching it, it must be assumed that they had overcome the problems or believed they would soon do so. Cherwell, asked for his opinion by Churchill, repeated his objections to this view; these, too, were based on the exaggerated estimates of the weight of the rocket, and they rested on scientific criticisms that were cogent on the assumptions that were being made. But he pressed them all the more forcefully because he was anxious lest concentration on the rocket should distract attention from the much more likely threat from a pilotless aircraft. He had not yet heard that intelligence had finally established that the Germans were, indeed, at work on a pilotless aircraft.
Production of the VI had started at the Volkswagen factory at Fallersleben in September 1943. It was then 3 months before the date, 1 December, the Germans had fixed in June for the opening of the VI offensive, but design changes and, to a smaller extent, Allied bombing had held up the programme.

Up to the beginning of September the scattered references in the intelligence reports to a pilotless aircraft had been taken to be descriptions of the rocket, and had confused the efforts to establish the rocket’s characteristics. The earliest of them, sent to the SIS in Switzerland in June 1943 by Luxembourgers who had escaped from Peenemiinde, had described the launching of a cigar-shaped missile from a cubicle contrivance, and had been accompanied or followed by a sketch of the launching. Together with the diplomatic report of 25 July about two different weapons, and further SIS reports in August to the effect that some form of aerial torpedo with initial propulsion by catapult was being developed, it was not given serious attention until the report received from the SIS’s contact with Waffenamt at the end of August convinced the investigators that both a pilotless aircraft and a rocket were being developed.

During September SIS reports made it clear that the pilotless aircraft was not to be confused with the air-launched Hs 293, the main characteristics of which were established early in the month. Although some of the reports mentioned both, they indicated that one of them was launched by catapult and that it was controlled automatically and not by radio. One source, a Frenchman in touch with an informant in Peenemiinde, added that a GAF Flak Regiment (155W) under the direction of a Colonel Wachtel was to be deployed about the beginning of November, with HQ at Amiens and batteries of catapults at Dunkirk and Abbeville: it would initially have 108 catapults capable of launching a missile every 20 minutes, and would eventually have 400. The SIS in Stockholm provided photographs of a ‘rocket propelled glider bomb’ that had landed on Bornholm. Still more convincing was the first Sigint reference to the new weapons. In a decrypt of 7 September Luftflotte 3 requested Flak protection for the ground organisation of Flakzielgerat 76 following the capture of a British agent who had been trying to locate sites associated with the German rocket, and in view of the fact that 5 ‘reception stations’ had already been bombed by the Allies. ADI (Science) deduced that Flakzielgerat (Flak target apparatus) was more likely to be the code-name for a pilotless aircraft than for the rocket because FZ development numbers had been associated with glider bombs in an earlier report.

This conclusion had been confirmed by the middle of October. The GAF Enigma then disclosed that two groups of plotting stations were at work. One – Group Wachtel – was carrying out firing experiments and tests of explosive with a battery located at Zempin. The other – the ‘Insect’ Group – was experimenting with catapults at Zempin and Peenemiinde: it had a control station and a series of out-stations equipped with radar and engaged in plotting objects fired in a north-easterly direction. In addition to the Enigma decrypts, which left it unclear whether the two groups were connected, a series of plot reports from the stations themselves in a simple code was intercepted from 12 October. These were clearly related to trials with an aircraft and not a rocket – the plots gave range and bearing, but not heights – and from the evident interest in its impact point it was clear that the object was a weapon and not a new manned aircraft. By the end of November it had been established from the decrypts that the speed of the missile was between 216 and 300 mph, and once
420 mph, that the rate of its fall was 2,000 metres in 40 seconds, thus implying that the missile had wings, and that the maximum range might be 120 miles.

Possibly prompted by inquiries arising out of the Enigma evidence, the CIU found on 13 November on photographs of Peenemünde an aircraft which appeared to have a span of about 20 feet and to be propelled by some type of jet. The size was judged to be suitable for an expendable pilotless aircraft and the object was located near the airfield, outside what was thought to be a test house, and not near the rocket test site.

While evidence from GC and CS and the CIU was thus pointing unmistakably to experiments with pilotless aircraft, the SIS and photographic reconnaissance were together uncovering new material in France. Some time before the end of October London had learned from one of its French networks that since August six sites in northern France had been found, each having a strip of concrete and some a line of posts that were aligned on London. By 24 November 38 such sites had been confirmed by the PRU and as many as 60 reported by the SIS; all were set back up to 20 km from the coast in a corridor 200 miles long by 30 miles wide in Seine-Inférieure and the Pas de Calais. By the end of the month 75 sites had been located in that area and seven in the Cherbourg peninsula, and analysis of them had established that those in the Pas de Calais–Dieppe area were aligned within ± 7° of London, and those near Cherbourg were within 140 miles of Bristol and 100 miles of Portsmouth and Southampton. By the same date the SIS had provided a detailed drawing of one of the sites – it had a ramp 150 feet long, inclined at 15° – and the photographs had shown that each site had three long narrow buildings, each with a gently curving end rather like a ski, and a flat platform, and that on an extension of the platform there was a series of studs, possibly for the installation of a ramp.

Sir Stafford Cripps had meanwhile been asked by Churchill to conduct another inquiry into the intelligence bearing on the long-range rocket, the pilotless aircraft and glider bombs. His report, issued on 17 November, accepted that tests with the A4 rocket were taking place at Peenemünde, but believed that there was no evidence to associate the A4 with either the Watten-type sites in France or the more recently discovered ski sites. It could find no evidence that successful final trials of an A4 type rocket had taken place or that quantity production of it had begun; on this point, indeed, the firms mentioned by the intelligence sources were not capable, in MEW’s view, of turning out so heavy a missile in large quantities. This might mean, the report continued, either that the weight and destructive power of the A4 had been exaggerated or that in addition to the A4 two other weapons were under development – a lighter A4 and a pilotless aircraft – both of which might be in series production. As for the pilotless aircraft, the evidence from Sigint showed that it had reached an advanced state of development: but there was no direct evidence of preparations for using it. In particular, Cripps dismissed the possibility that the weapon was associated with the ski sites. The report suggested that those sites would eventually be equipped with apparatus for launching a rocket with less destructive effect and smaller weight than estimates of the A4 had so far suggested.

This conclusion was based on the widespread assumption that the pilotless aircraft could be fired from any airfield, without special launching apparatus. This mistaken assumption was understandable in view of the lack of evidence about the design of the VI. With less justification, the conclusion also set aside the fact that, whereas the rocket was an Army weapon, the Sigint and SIS
evidence had associated the flying bomb experiments at Peenemünde and the ski sites with the GAF. It was nevertheless supported by the JIC, which on 24 November argued that despite being designed for the GAF, the ski sites were probably intended for launching a large rocket.1 But it was disputed by Sandys and ADKSc). They had advised Cripps as early as 4 November, on the evidence connecting the ski sites with the GAF, that ‘nothing in the evidence nor in the construction of the emplacements [ski sites] themselves is incompatible with the theory that a pilotless aircraft is their raison d’être’.

When the Chiefs of Staff considered the JIC’s report, together with the Cripps inquiry, on 30 November the view that the ski sites, the pilotless aircraft and Zielgerät 76 were all associated with each other was gaining ground. Nor was it long before the CIU established that this was the correct conclusion. On 1 December the interpreters at the CIU located in recent photographs a ramp at Peenemünde and on the ramp ‘a tiny cruciform shape set exactly on the lower end of the inclined rails = a midget aircraft actually in the position for launching’. This led to a re-examination of earlier photographs, which established that the ramp had been built late in 1942, and of the recent photographs at Zempin, where the interpreters now found a launching position with ramp foundations resembling those located at the French ski sites.

If only because of the existence of the larger sites, however, the rocket threat was not overlooked. On 7 December the JIC reported that although the evidence remained slender, the larger sites might be intended for rockets, and on 11 December it noted that seven had now been identified by PR and agents’ reports = Watten, Mimoyecques, Wizernes (all three of which had already been bombed), and Sottevast, Siracourt, Lottinghem and Martinvast (where work had started with the construction of two trenches over 500 feet long, and with their long axes orientated at right angles to the line to London or Bristol). The JIC confessed that their purpose was still a mystery. But it had by then received confirmation from the Enigma that the enemy was developing a long-range rocket in addition to a pilotless aircraft.

In a signal intercepted on 26 November and decrypted on 10 December two of the observation posts in the ‘Insect’ group in the Baltic had been informed that ‘you will be used now and again for measuring the A4 from Ost. You need merely attempt to pick up the ascent vertically and to hold it as long as possible. W/T as for 76’. As the JIC noted in its next report on 18 December, this first Sigint reference to the A4 confirmed that it was undergoing trials in the Baltic and left little doubt that it was a high altitude rocket.

* * *

By the beginning of December 1943 the plots intercepted from the Baltic test stations had made it possible to estimate the speed, range and flight elevation of the pilotless aircraft. They were 1,400 metres in 10 seconds for 200 kilometres at heights between 2,000 and 2,200 metres. It was thus possible to

*A subcommittee of the JIC (the Crossbow Sub-Committee) had taken over from Sandys the responsibility for assessing intelligence on the V weapons in the middle of November, when Bodytone was replaced by Crossbow as the British codename for the weapons,
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begin the development of counter-measures in the knowledge that, unlike the rocket, the VI might be dealt with by fighter aircraft and anti-aircraft guns. But little was known about its propulsion unit and the weight of its warhead or about Germany’s plans for its production — considerations which would determine the scale on which an offensive could be sustained — and nothing had been learned about when an offensive might begin.

The photographs taken at Peenemünde indicated its approximate wing span and overall weight. These set limits to the weight of the warhead, but the limits were wide: it could be half a ton if the missile was rocket propelled, but two tons if the propulsion was turbo jet. Agents’ reports left no doubt that production was widely dispersed, but had provided conflicting estimates of the rate of production and the timing of the threat. Japanese diplomatic decrypts, the only Sigint on the subject, were inconclusive. At the end of December the Ambassador advised Tokyo that the delay in launching the retaliatory weapons was not because the Germans were not ready, but because they were waiting for a suitable moment to act. In the middle of the month the JIC could only guess that the VI might drop 300 tons on Greater London in 8 hours from mid-January 1944, and that the scale of the attack might rise to 1,000 tons in 8 hours during February.

This assessment was based on the number of ski sites identified by PR — this rose from 70 to 87 during December — and the assumption that the warhead weighed two tons. Cherwell disagreed with it: references to the use of two fuels had indicated that the weapon was rocket propelled, and thus that the warhead weighed only half a ton, and he doubted whether Germany could produce more than 650 automatic pilots a month. ADI (Science) supported Cherwell. He pointed out that the Enigma had revealed that the Wachtel organisation had a unit known to be involved in the two fuels used by the HS 293 and that PR had located storage for separate fuels at Peenemünde and the ski sites. Allowing that with rocket propulsion the warhead might weigh as much as a ton and that the Germans would have completed 100 ski sites by February, and adding the further consideration that the Baltic plots were indicating that a third of the missiles would fail at launch and that only between 11 and 15 per cent would hit Greater London, he calculated at the end of December that Germany would not be able to mount an offensive before March, that its maximum scale would then be 320 tons in eight hours, and that ‘it would take a long time to achieve serious damage to London’.

The JIC was unconvinced by the arguments in favour of rocket propulsion — which indeed turned out to be wrong. On the other hand, it was encouraged by the results of Allied bombing of the ski sites, which began on 18 December. By the beginning of January 1944 50 sites had been attacked, and PR indicated that direct hits had been obtained at 13 of them. The JIC on this evidence believed that if 142 of the then expected total of 150 sites were neutralised during January and February the threat would be so reduced that Germany would not be able to start a small-scale offensive before the end of March. Nor did this optimism decline in the next few weeks as the bombing intensified. By the first week of March PR has shown that 54 sites out of the total 96 identified had received major damage. In the middle of March, when no further sites had been located, the Air Ministry calculated that the number left intact would be reduced to 10 by the middle of April. On 18 March the Chiefs of Staff advised the Defence Committee that all the sites would be neutralised by the end of April and that the maximum scale of any offensive before that date would not
exceed between one-third and one-half of the earlier estimates.

Depending as it did on the elimination of the sites, this assessment did not have to take account of the fact that analysis of the Baltic plots had disclosed that the Germans had greatly improved the missile’s performance. In the course of a single week in January the problem which had previously caused a large number of the flying bombs to fail at launch had obviously been solved: and by the middle of March their accuracy had so much improved that some 60 per cent of those fired might be expected to fall on Greater London. But from that date PR produced another ground for alarm by detecting what appeared to be an improvement in the enemy’s ability to repair the sites. The number regarded as being fully operational rose from 10 in the middle of March to 20 at the end of the month and 25 at the middle of April, and some 20 more were under active repair.

Intensified bombing, accompanied by harassing fighter attacks to prevent repairs, had reduced the number of operational or nearly operational sites from 45 to 25 by 7 June. But even as the level of Allied bombing increased, PR produced another shock by discovering the first of a new and hitherto unsuspected type of launching site. From the beginning of January the Germans had seized on the delay in the VI production programme as an opportunity to replace the ski sites with less elaborate and less visible launching pads, capable of rapid construction from pre-fabricated parts, while continuing to carry out superficial repairs at the ski sites for deception purposes. At the same time, they had abandoned the original storage depots and begun to store the flying bombs in caves and underground tunnels. From early in February SIS’s agents had been reporting suspicious construction at new locations, and by the end of that month the SIS had received a general warning that 120 launching sites of a new type were due to be completed by the end of May. No time was lost in following up the agents’ reports: PR had looked at 150 suspect locations by the middle of March. It was not until 27 April, however, that the CIU, pre-occupied by its study of the ski sites, detected a new site, heavily camouflaged, in the Cherbourg peninsula. By that time, over a period of four months, Allied bombing had delivered over 20,000 tons of bombs against the ski sites.

From the end of April all available British and US PR resources were used to cover the area within the VI’s range of London and Bristol. By 7 June 61 of the new-type sites been photographed; the agents had by then reported 110, of which 31 were confirmed by PR. They each consisted of a launching point and a square building, and it was assumed that pre-fabricated installations would be erected in a final stage before operations. This was confirmed by 5 June by PR of Zempin, which showed that lengths of rail had been erected on a modified site near a pre-fabricated square building.

Nothing further had been learned by then about the VI itself. In February and March several Enigma decrypts had confirmed that, as the Polish underground had already reported, it was undergoing trials at Blizna. As well as referring to firings with catapults, however, they had mentioned T-Stoff and Z-Stoff, and had thus perpetuated the belief that the VI, like the HS 293, was rocket propelled. As it happens, though T-Stoff (hydrogen peroxide) was used for launching the VI, the references to Z-Stoff were accounted for by the fact that the V2 was also undergoing trials at Blizna. Nor was this mistake corrected until, on 6 June, the Air Ministry received a report from experts who had been allowed to inspect two pilotless aircraft in Sweden: they had found it to be
powered by a pulse-jet which used low-grade aviation fuel. The inspection had yielded no information about the warhead, as both projectiles had dummy warheads. They were controlled by a rudder and two elevators, but little was learned about the control mechanism beyond the fact that it involved three gyroscopes and a compass.

PR of the sites had meanwhile been suspended since 4 June on account of bad weather and the landing in Normandy. But when it was resumed on 11 June it disclosed that rails had been laid on ramps at four sites, and at about the same time the SIS reported that 33 rail wagons each carrying three ‘rockets’ had passed through Ghent. Early on 12 June A1 warned that perhaps 20 sites might be brought into operation at an early date and that some 400 tons of bombs might be delivered from them in the first 10 hours.

In the event the Germans opened the offensive on the night of 12–13 June with a much smaller attack. In May Hitler had ordered that the offensive must begin in mid–June: and Wachtel had planned to fire 500 missiles in a first attack on 11 June. But the Allied bombing of French communications in support of the landings had so disrupted the distribution of pre–fabricated parts and missiles to the sites that only ten flying bombs were launched, of which five crashed immediately and only four reached England. The offensive was resumed on the night of 15–16 June from 55 sites. They launched 244 Vi’s by noon on 16 June, of which 144 crossed the English coast and 73 reached London. On 17 June, to permit the maximum production of flying bombs, Hitler ordered a reduction in the output of the A4 rocket.

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After the raid on Peenemiinde in August 1943 the Germans had continued to test the rocket’s flight there but had transferred the testing of the warhead to Blizna, where they subsequently carried out its field trials. In the autumn they had placed an order for the production of 12,000 rockets at the rate of 900 a month at the Volkswagen factory near Nordheim in the Harz region. But after rising from 50 in January 1944 to 437 in May, monthly production had begun to decline, the delay mainly due to design and development problems and to the decision to embark on mass production before they had been solved. Not till August, after some 65,000 modifications had been made to it, was the missile cleared for full production.

The British authorities knew nothing of these developments, or of the location of the production, at the beginning of 1944, and they naturally focussed their energies on bombing the heavily protected Watten–type sites that the Germans were constructing for the firing of the rocket in France. Six of the 7 sites that had been detected were correctly associated with the rocket – the seventh, at Mimoyecques, was designed for a revolutionary long–range gun – and all of them had been severely damaged in 3 raids by the end of March. In the case of the V2, as in the case of VI, London did not know that in January the enemy had discovered that it could be launched with simple mobile equipment as effectively as from a bunker.

Although the coded signals of the Baltic plotting stations continued to report rocket flights, intelligence indicated from February that the rocket was being tested at Blizna. The Poles had been reporting from Blizna since October
1943. Some of their information had clearly referred to the pilotless aircraft and all their reports were assumed to be about it until, in February 1944, they began to give missile dimensions that were close to those of the torpedos observed at Peenemünde, but to quote missile weights considerably smaller than those mentioned by most of the reports from other agents: 7 to 12 tons overall, with warheads of one or two tons. By the end of March they had submitted accounts of the firing, trajectory and impact of a missile that was clearly a rocket; and the decrypts of Enigma signals addressed to Blizna had confirmed that the A4 was being tested there by referring to 'the Army’s secret command project'.

The opening of the VI offensive in June was followed by several reports from agents to the effect that Watten was ready to function and that rockets were being transported to the Pas de Calais: and anxiety that a V2 offensive might not be long delayed was all the greater because intelligence about its development, performance and characteristics was still scanty. Signals from the Baltic plotting stations announcing A4 firings remained infrequent, but this could not be taken to be a reliable indication that its development was being delayed, and there were no plot reports on the flight of the missile of the kind that had thrown so much light on the range and accuracy of the VI. The Poles had reported increasingly frequent firings at Blizna since April, but they were still confusing V2 firings with VI firings and the accounts which clearly referred to a rocket were contradictory. Some said it was launched from rails, others that the launcher was a tube. Some gave the altitude of the flight as 6,000 metres, other 10,000 metres. PR sorties of Blizna in April and May had identified a flying bomb ramp, but had detected no sign of the larger installation that was thought to be associated with the rocket. At the end of May a POW captured in Italy, who had been on a rocket course at Peenemünde, stated that it contained two chambers, one filled with alcohol and the other with liquid oxygen or liquid air; that it carried one ton of explosive which could be increased to one and a half tons; that its range was 300 to 350 km; that on being fired, it went up at 2° to an altitude of 10,000 metres and was then steered by wireless from a control station; that it was fired from a metal frame about one and a half metres high to which it was transported on a trolley. In a telegram decrypted in the middle of June the Japanese Naval attaché also reported that it was propelled by special fuels and controlled from ground stations. But he claimed that it weighed 20 tons and had an explosive charge weighing 8 tons, and a number of POW had provided similar figures.

In the second half of June GC and CS opened up another source of intelligence by breaking a new and little used Army Enigma key (named Corncrake). First intercepted at the end of March, it turned out to be in use between Peenemünde and Blizna. By the end of June the traffic had been read for 16 days up to 8 June. It provided technical details about the A4, referring to a radio control system: ‘pressure bottle installation’: A-Stoff and B-Stoff trucks, Z-Stoff canisters and a fourth fuel, C-Stoff: a firing platform: and a jet-rudder. Other decrypts gave serial numbers of objects that were being transferred from Blizna to Peenemünde. On 7 July experts reported on another missile that had landed in Sweden. It was larger than a VI and they estimated the weight of the warhead as being not less than 5 tons: it was rocket propelled, without wings and with directional control apparently exercised by vanes and radio, as in the HS 293.

This was the state of knowledge when, on 13 July, an Enigma decrypt from
Arras raised the alarm by referring to the imminence of bombardment. It seemed probable that the reference was to the VI, but the possibility that it was to the rocket could not be excluded, and the alert was maintained by the receipt on the following day of a decrypt in which the Japanese ambassador in Berlin reported that Germany would be employing weapons even more devastating than the flying bomb. Asked to make an urgent appraisal of the latest evidence, ADI (Science) on 16 July concluded that the rocket had reached a stage of development at which it was ‘good enough at least for a desultory bombardment of London’ and that, in view of the advance of the Allied armies towards the launching areas, it might be used at an early date even if the weapon’s performance was not wholly satisfactory and its production had been delayed. But he stressed that there was no reliable information about the state of production and no pointers as to when an attack might begin. In particular, although PR showed that the large sites in France would not be ready for some time, it remained uncertain whether they were intended for rocket launching; one of the most serious gaps in the intelligence concerned the methods used in firing it. With regard to the characteristics of the rocket, the report made two mistaken assumptions— that the warhead weighed between 3 and 7 tons; and that its main fuel was hydrogen peroxide.

When the Chiefs of Staff considered this report on 18 July Cherwell conceded that the threat of a large-range rocket could not be disregarded but complained that he had not seen all the evidence. At a meeting later that day the Prime Minister, who was presumably somewhat shaken by the alarms of the past few days, took up this complaint, criticising the Air Ministry for having kept back the information summarised in ADI (Science)’s report. And he became still more disturbed when, at the meeting, ADI (Science) provided additional intelligence: the Germans had produced about 1,000 rockets, and the rocket could be fired with a mobile mechanism from a simple concrete bed and did not need a bulky launching edifice.

ADI (Science) had arrived at the figure of 1,000 rockets after concluding that the serial numbers in the Corncrake decrypts must be production numbers, and the decrypts had taken the series from 17,053 to 18,036 on 14 July. The evidence that the rocket was fired from a concrete platform had come at the end of June from POW who had been engaged in surveying and constructing launching sites. They had listed 14 areas in which some 24 firing sites and at least four supply depots had been under construction since January, and had explained that the rocket was to be fired from a metal tripod from concrete platforms so built that they would be indistinguishable from the nearby road. The depots had been in tunnels or quarries from which the rockets would be taken first to an assembly shed and then to the firing point.

Unfortunately, the missile inspected in Sweden was an experimental type. The A4 had a smaller warhead and only a small proportion were radio controlled.
feet square and realised that it was a launching pad. It was his announcement of this discovery, finally over-turning the long-held assumption that the rocket was fired from a large launching apparatus, which produced consternation at the meeting of 18 July.

By 22 July the Air Ministry had received a report on the examination, in the area now occupied by Allied troops, of some of the sites listed by the POW as rocket launching points: they consisted of concrete platforms and camouflaged terraces parallel to and on either side of roads. And by that time other clues to the nature of the launching system had begun to fall into place. It could be seen that the large columns photographed at Peenemünde were rockets standing vertical at the firing point, and that the jet rudders mentioned by the Enigma and the flaps on the fins of the rocket examined in Sweden kept the missile stable during the initial stage of its flight. The discovery that the rocket was fuelled by liquid oxygen followed on 23 July. In discussions with the experts who had examined the rocket in Sweden it emerged from their description of the pump that fed the fuel into the combustion chamber that it was of a type used in the process of liquefying air which was lubricated by the fuel itself: this established that the main fuel must be liquid oxygen, not hydrogen peroxide.

At this stage, however, much remained unknown about the weapon, and grave uncertainty persisted as to what extent, if at all, the German plans for the rocket offensive would be foiled by the advance of the Allied armies towards the launching areas.
PART V
CHAPTER TWENTY-SEVEN

The Initial ‘Overlord’ Plan and its Revision

At the Casablanca conference in January 1943, while accepting that a large-scale cross-channel invasion would be impracticable before the spring of 1944 unless Germany showed signs of collapsing, the Allies appointed a Chief of Staff to the Supreme Allied Commander Designate (COSSAC) to be responsible with a US-British staff for the planning of the operation. His directive, issued by the Combined Chiefs of Staff in April 1943, instructed him to carry out deception to keep alive the threat of landings in 1943, to prepare for a return to the Continent with whatever forces were available in the event of Germany’s disintegration, and to plan for a full-scale assault (operation Overlord) as early as possible in 1944.

COSSAC’s outline plan was submitted to the Quebec conference in August 1943. The Combined Chiefs of Staff had already fixed the target date, 1 May 1944, and specified the scale of the operation: 9 divisions for the assault phase and a follow-up of 20 divisions. Working within these limits, COSSAC proposed an initial assault by three seaborne divisions and one airborne division against the least heavily defended part of the Normandy coast – the Caen sector between the rivers Dives and Vire. In choosing this sector he followed earlier recommendations which had been made after comparing its advantages and disadvantages with those of the Pas de Calais and the Cotentin peninsula in the light of a mass of intelligence about the fixed defences and the topography of the coast and its hinterland. The chief feature of the plan was COSSAC’s insistence that certain pre-conditions must be fulfilled if the operation was to have a reasonable chance of succeeding.

The first pre-condition was that the Allies should have greatly reduced the enemy’s fighter strength, which was known to be on the increase; and it would thereafter be essential to prevent the arrival of air reinforcements from other theatres and to destroy the airfields and fighter control sites in the Caen sector and – in view of the importance of achieving tactical surprise – in other sectors also. Tactical surprise was the second pre-requisite: if the enemy, with prior knowledge of Allied plans, was able to move his ground, sea and air forces to the landing area there would be no chance of penetrating inland. There would thus be a special call for deception measures and the highest degree of security. Even if the deception succeeded, however, the Germans would still have time to bring in some reserves. The crucial battle would be that with the Panzer divisions, and its outcome would depend on the extent to which the Allies could reduce and delay the arrival of reinforcements in the Caen area by air interdiction and by diversionary operations, perhaps in the south of France. It would also depend on the number and quality of the German divisions deployed in France and the Low Countries on D-day. Hence a third pre-condition:

‘On the target date, if the operation is to have a reasonable chance of success,... the German reserves in France and the Low Countries, excluding divisions holding the coast, and GAF and training divisions, should not exceed ... twelve full-strength, first-quality divisions. In addition the Germans should not be able
to transfer more than fifteen first-quality divisions from Russia or elsewhere during the first two months. Moreover, on the target date the divisions in reserve should be so located that the number the Germans could deploy in the Caen area to support the divisions holding the coast should not exceed three on D-day, five by D+2 or nine by D+9.'

A further pre-condition was that 'the state of defences in the Caen sector and the strength of the defensive troops holding it should remain approximately as it is today'.

It may seem remarkable that COSSAC could have presumed that, as the target date approached, the intelligence authorities would be able to establish whether such precise requirements were being met. To the Americans and the Soviet authorities, indeed, it was incredible; in the debates which followed down to the end of 1943 they suspected that the British, in subjecting their approval of the outline plan to the fulfilment of COSSAC’s conditions, were preparing the way for a demand that Overlord should be deferred or cancelled.

But the British did not doubt that the necessary intelligence would be available. What they urged was that intelligence might show that the conditions could not be fulfilled without some revision of the outline plan. Their arguments were amply justified. Before the end of 1943 the intelligence sources were pointing to a continual intensification of the enemy’s fixed defences, and to an increase in the number of his divisions in France beyond the limits specified by COSSAC. It was on this account that the US Chiefs of Staff eventually accepted that the scale of Overlord must be increased; and it was fortunate that they did. Even under the revised plan, the invasion of Normandy was carried out in 1944 on such tight margins that its success was not easily assured. It would have been a still more hazardous undertaking in the absence of the reliable intelligence which established the need to strengthen the assault forces.

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The main sources of intelligence on the German fixed defences were PR, which provided 80 per cent of the information, and the resistance movement, which supplied increasingly detailed reports. From the autumn of 1943 they revealed that, over and above the laying of beach and land minefields, the Germans had begun to make provision for the demolition of ports and quays, to install flame-throwers, to casemate coastal batteries and other gun positions with six feet of reinforced concrete, to prepare inundations and to erect lines of metal tripods a short distance below the water line. Except that these underwater obstacles against tanks and landing craft, first detected on the east coast of the Cotentin peninsula, were not extended to most of the beaches in Belgium and northern France before February 1944, all this work was proceeding rapidly by the beginning of December 1943: and other sources had provided additional information by then.

It came from documents captured in Italy from divisions recently transferred from France: from plans of the Atlantic wall, stolen by agents from the Todt Organisation; and from signals from the Japanese Military Attaché in Berlin. In November he sent a 32-part report to Tokyo on his tour of the defences; eleven of the parts were decrypted by the end of the year, the
The Initial ‘Overlord’ Plan

For the remainder at long intervals up to June 1944. They gave a detailed account of the numbers and sites of every element in the coast defence system, from the heaviest coastal battery down to grenade throwers, with comments showing how ‘enormously’ the system had been improved since an earlier visit in February 1943. But neither Sigint nor any other source disclosed that on 3 November Hitler had issued a general directive (No 51) on the threat of Allied invasion. It had stated that the threat was now greater than that in the east and could be expected to materialise ‘not later than the spring, and perhaps earlier’.

‘Unless all indications are misleading’, the Pas de Calais with its V-weapon sites was the most endangered stretch. To meet the threat the maximum emplacement of coastal artillery, fixed anti-tank weapons, dug-in tanks, mines and other obstructions was to take place along endangered parts of the coast. In addition the Directive had inaugurated a programme to raise the number and quality of the divisions kept in the West.

MI 14’s ability to assess the fluctuating strength of the German Army in France and the Low Countries, and to follow the changes in its order of battle there, depended on the state of its knowledge about the organisation, the chain of command, the deployment, the logistic and support systems, and the condition of the German Army as a whole. The Army was a huge and complex structure and the task of acquiring comprehensive information about it, and of keeping that information up to date, was always more difficult than that of keeping abreast of the strength and order of battle of the Air Force or the Navy. Apart from the Ersatzheer (the Home Army or Training Army) and apart from the Waffen SS and the GAF field divisions, which supplied an increasing proportion of the field forces from 1942, it came to comprise over 300 divisions and many non-divisional units, notably the specialised units of the GHQ pool which supplied up to a third of each field division in battle conditions. Its armies, corps, divisions and non-divisional units were frequently re-distributed between the various theatres. New formations were always being created. The divisions and the non-divisional units fell into different categories according to function and composition, and varied in quality. For estimates of strength in any one theatre at any time, and forecasts of likely changes to it, continuous and detailed studies of the total capacity of the Army was the essential basis.

Before the spring of 1943 it was not easy to achieve accuracy in these studies, and still less easy to do so without considerable delay. The Enigma and Army Y threw some light on orders of battle in north Africa and on some sectors of the Russian front, but about the Army as a whole and about its orders of battle in theatres where it was not engaged in active operations – and especially western Europe, where is used land-lines for its communications – Sigint still provided only fitful intelligence. MI 14 had thus to rely mainly on the other sources – captured documents, agents and POW – and the information they provided was too fragmentary, and received with too much delay, to be of great value. But from that date there was an increase in the volume and the quality of intelligence that was to continue without a break till the end of the war.

At the beginning of 1943 a large consignment of documents, including promotion and appointments lists and files of the Allegemeine Heeresmitteilungen (the equivalent of Army Council Instructions), was captured from the HQ of 90th Light Division in Tunisia. The first important haul for a long time, this was soon followed by many others. By May 1943 documents were being captured so frequently, and were casting so much light on all aspects of
the German Army, that a new research group, the Anglo-American Military Intelligence Research Section (MIRS), was set up to exploit them, thus enabling MI 14 itself to concentrate on studying the enemy’s current deployments. On the current order of battle, too, intelligence was improving rapidly. POW were being taken in larger numbers. The volume of reports from agents, which provided the bulk of the evidence on the identification and location of the German formations in the west, greatly increased as the SIS, SOE, the French, Belgian and Dutch resistance organisations and the Polish network expanded their activities in France and the Low Countries: by the spring of 1944 MI would be receiving reports from that area alone at the rate of 150 a day. The reports were being received with less delay. At the beginning of 1943 the time-lag between the date of a German troop movement and MI’s receipt of the news of it by courier was at least a month, but from the middle of the year more and more reports were sent by W/T or by the pigeon service (code-name *Columba*) which MI 14 described as being ‘amazingly current’.

Agents reporting on troop movements by rail and on the location of enemy formations could generally be relied on even before 1943. On other matters – the enemy’s organisation and chain of command; the identification of his formations, which was usually derived from divisional emblems: the quality and state of training of the divisions – their claims, though increasing in accuracy, had still to be treated with caution until they were confirmed by other sources. But the process of checking them was facilitated by the increase of evidence from captured documents and POW interrogations, and still more important, because its evidence was more recent, not to say current, from Sigint. From the summer of 1943 the Enigma and Army Y provided all but exhaustive intelligence about the formations engaged in Sicily, Italy and the Balkans, while the intelligence obtained from the Enigma and the Fish decrypts about those on the Russian fronts was steadily expanding. These developments substantially improved MI’s understanding of the situation in the west, even though the Enigma and Fish links were not in regular use in that area before the spring of 1944.

One feature was established beyond doubt as the order of battle intelligence improved: Germany continued to create new divisions. By the end of July 1943 it was known that 51 had been formed since October 1942, all but one of them before the beginning of 1943. They included an increasing number of SS Panzer divisions: by the end of August, mainly by decrypts of the Enigma used by the SS, a total of thirteen SS Panzer divisions had been identified, two of them still forming and the remainder already on active fronts. By the same date documents acquired by the Polish SIS had established that all twenty of the divisions destroyed at Stalingrad had been re-formed. In October the number of divisions was estimated to be 328 (of which 316 were identified) and it was accepted that together with the GHQ pool – not used up, as had previously been thought, in the reconstruction of the Stalingrad divisions – the available manpower would permit the formation of still more divisions.

Equally clearly, however, further divisions could be created only at the expense of reducing either the establishment strength or the actual strength, or both, of existing divisions. It was known that Germany had already formed some two-regiment divisions and that the actual strength of many combat divisions was well below establishment: the Enigma had disclosed that in the divisions in Italy the short-fell was between 15 and 40 per cent. As it was also known that recruits were being taken more and more from civilian prisoners,
foreigners and the elderly, and that the Air Force and Navy were giving up
more men to the Army, it could be assumed that the divisions were declining in
quality as well as in actual strengths. Nor were these the only signs that the
Army was under increasing strains. By October 1943 the intelligence on troop
movements indicated that since May the strength of the Army in the west had
dropped by some 20 per cent, and that practically all the withdrawals to the
east or Italy had been divisional troops and had included all the best
formations.

In that month, however, evidence that the Germans were about to reverse
these withdrawals was obtained from the decrypt of a report from the Japanese
ambassador in Berlin. This stated that three reserve (training) Panzer divisions
were to be brought into France from Germany, two parachute divisions from
Italy and a number of infantry divisions from other fronts. It also provided an
accurate base for future calculations about German reinforcements by listing
the number of divisions by type that were already held by each of the
subordinate commanders under C-in-C West, together with the additional
forces held by the Military Administrations of France and Belgium. In the
middle of November the GAF Enigma divulged an appreciation from C-in-C
West himself, the first of several that were to be decrypted at regular intervals
down to D-day either from the Enigma or from von Rundstedt’s Fish link with
Berlin, which was first intercepted in January 1944 and broken in March. This
noted that while there were no indications that invasion was imminent, ‘it is
certain that the enemy is methodically and on the largest scale proceeding with
his preparations to attack’, and it urged that counter-measures must be pushed
forward ‘with the utmost exertion of all forces’.

Whitehall did not learn of the response to earlier representations from
C-in-C West which Hitler made in Directive No. 51 of 3 November. This laid
down a series of measures for improving the equipment and the mobility of the
divisions in the west, particularly those forming the mobile reserve, over the
next three months and decreed that no units stationed in the west or in
Denmark, including such Panzer, assault gun and anti-tank units as might be
sent there to complete their training, were henceforth to be transferred
without the Führer’s permission. But MI 14 did not fail to detect that with only
occasional exceptions divisions ceased to be withdrawn from November 1943,
while the number kept in the west was steadily raised by the creation of new
formations and the arrival of divisions from Russia for re-fitting. Its estimate of
the number rose from 37 in October 1943 to 44 on 10 January 1944, when the
actual number was 48, and a significant number of the newly arrived or newly
formed divisions identified by MI were armoured or motorised: they included
12th SS Panzer Division (Hitlerjugend), 17th SS PG Division1 and three Panzer
Reserve (Training) divisions, the first such divisions to be stationed in France.
By the end of November 1943, moreover, MI had noted that whereas no Panzer
division had been transferred out of France in recent weeks, four had gone to
Russia from other fronts – 1st Panzer Division from Greece, 16th Panzer and
1st SS Panzer Divisions from Italy and 25th Panzer Division from Norway.

* * *

*The German motorised divisions had been re-named Panzer Grenadier divisions in May 1943.
It was this intelligence, strengthening the conviction of the British planners that COSSAC had accepted too small a margin of Allied superiority, which persuaded the Combined Chiefs of Staff to set in train the revision of the COSSAC plan by resolving early in December to do everything practicable to increase the strength of the Overlord forces. By the end of December Eisenhower, now appointed Supreme Allied Commander, had instructed his Chief of Staff (General Bedell Smith) and Montgomery to discuss its revision with the naval and air commanders in London before his own arrival in England in the middle of January 1944.

By the middle of January a new plan had been drawn up which increased the front from 25 to nearly 50 miles, taking in an additional beach on the left wing and extending the right wing to the eastern shore of the Cotentin peninsula. The seaborne assault force was increased to 5 divisions, and the rate of reinforcement and supply was accelerated. Eisenhower approved the changes on 21 January and at once obtained the concurrence of the Combined Chiefs of Staff.

It was easier to change the plan than to find the extra resources. COSSAC’s staff, which had itself concluded during December that the Overlord force and rate of build-up must be increased, had suggested that they should be found by reducing the proposed landing in the south of France (operation Anvil) to a threat. The British Joint Planners supported this suggestion and also proposed that the target date for Overlord, 1 May 1944, should be postponed by a month. These proposals were welcomed by the British Chiefs of Staff, who in any case preferred that Anvil should be sacrificed to assist the Allied advance in Italy, but were opposed by the US Joint Chiefs; they insisted on retaining Anvil and were not easily persuaded that Overlord, though it must be enlarged, need be postponed. Eventually, however, in approving the revised plan, the US Chiefs compromised by accepting the postponement but retaining Anvil.

A further difficulty remained. It arose from the decision to extend the landings to the eastern shore of the Cotentin in order to accelerate the capture of Cherbourg. COSSAC’s plan had rejected a landing there, and accepted delay in capturing Cherbourg, on topographic grounds. The landing had to be made north of the floodable marshland of the valley of the river Douve, which ran almost the whole length of the base of the peninsula, but the coast north of the Douve was itself backed by a floodable area traversed by only a few causeways. The discovery at the end of December 1943 that this area had been flooded had confirmed COSSAC’s staff in the belief that it was out of the question to attempt a landing there, and they continued to resist the proposal after the revised plan had been approved. At the end of January the impasse was resolved by the decision to drop a US airborne division behind the beach to secure the causeways.

Although the knowledge that there were two German divisions in the Cotentin continued to fuel misgivings – which eventually led to the decision to drop a second US airborne division in the narrow gap between the Douve valley and the west coast of the peninsula – the Army, Navy and Air Commanders of the expedition issued the revised over-all plan on 1 February. Entitled the Initial Joint Plan for Neptune, Neptune being the code-name for the first phase of Overlord in which the assault force crossed the Channel and got ashore, it laid down the framework within which the subordinate commanders drew up their detailed force-plans. It directed the Navy to land the initial assault forces, five divisions with some additions, on D-day and the maximum number of
follow-up troops by D+3, setting the target at some nine divisions by that date and twenty divisions by D+14. It stipulated that seven hours before the first landings one US airborne division (later increased to two) would drop behind the Cotentin beach (Utah) and one British airborne division on the Dives estuary to seize the bridges across the river Orne and so protect the bridgehead’s eastern flank. It set out the tasks allotted to the assault forces. Those landed on the newly added eastern-most beach (Sword) were to take Caen, a distance of twelve miles, occupy airfields to the south-east of Caen and join the two British divisions landed on the Gold and Juno beaches, which would be advancing to the Bayeux–Caen road, in providing flank protection to the US forces to the west of them: most of the German mobile divisions lay to the east of Caen. The US troops landed on the Omaha beach would advance to the line St Lo–Periers–Lessay while those landed in the Cotentin drove against Cherbourg; they should have joined forces and be advancing into Brittany by D+20, when they would be reinforced by the arrival of Third US Army under General Patton.

In part because the Russians had been assured that the assault would be delivered in May, the Initial Joint Plan gave 31 May as D-day. But D-day depended on the Plan’s decisions about H-hour, which it settled with reference to light and tide conditions. In the Mediterranean the Allies had made their landings under cover of darkness. For Overlord the advantages of landing by night were off-set by several considerations. Some light was imperative for the preliminary bombardments which were an essential feature of the Plan. It was also essential if the nearly simultaneous landing of so large a force, which in view of the formidable nature of the defences called for meticulous instructions to every unit involved, was to be effectively co-ordinated. Given the distance between the embarkation ports and the beaches, moreover, daylight landings reduced the danger of detection during the passage, which would take place at night. Above all, the tide, enormous in Normandy, had to be taken at a point which limited the ground the troops would have to cover across the exposed beaches. These considerations determined the choice of H-hour: approximately half-flood on the main beaches in a period when, while the time would vary from beach to beach with the differences in the tide and the optimum ratio of tide to beach gradient, half-flood occurred some 40 minutes after nautical twilight following a night when the moonlight had been sufficient for accurate landings by the airborne troops. If these conditions were to be fulfilled D-day would be on 5, 6 or 7 June, weather permitting.
CHAPTER TWENTY-EIGHT

Intelligence on German Appreciations and Preparations from February 1944 to D-Day

The detailed force-plans had taken account of the hydrographic and topographic conditions in the landing areas, including such details as the gradients, the exits and the weight-bearing qualities of every beach, and of a mass of intelligence about the location and arc of fire of the active defences, from the heaviest batteries to machine-gun nests, and the nature and location of the extensive minefields behind the beaches. They had sought, indeed, to produce ‘the perfect plan’ for each sector of the assault – one which in the light of long study of a fifty-mile stretch of coast settled in advance where, and with what air support, every Allied assault craft would land and every ship in the bombarding force would take up station.

Once completed, such plans would be reconsidered only if intelligence called for revised estimates of the form and scale of the enemy’s resistance. But they had been drawn up so far in advance that for many weeks the Allies could not exclude the possibility that, either because it was becoming apparent that the enemy had discerned the size and destination of the landings, or was for other reasons altering his plans for countering them, Overlord would have to be re-fashioned, or even postponed or abandoned.

In the event no serious revision was made. That this was so was due in the first instance to the fact that intelligence showed that the Allied estimate of the scale of opposition to the landings continued to be reasonably accurate. But that estimate had rested on the supposition that the landings would gain surprise: and it was no less important that the Allies succeeded in keeping secret the time, the destination and the scale of the assault. Over and above the security precautions that were in any case in force in Whitehall and throughout the country, additional precautions, some of them severe and controversial, were introduced in the spring of 1944, the opposition of the Prime Minister and the civil departments being overcome by urgings from SHAEF and MI5.¹ SHAEF insisted that Overlord would have small chance of success if the enemy obtained so much as 48 hours’ notice of the plans and that a longer period of notice would spell ‘certain defeat’.

Neither these measures nor the Allied deception plan, to which we will come, would have sufficed to keep the enemy guessing if he had been blessed

¹In February a ban was imposed on Press speculation about the second front. From 1 April all unauthorised travel to and from a coastal zone from The Wash to Land’s End and an area around the Firth of Forth was forbidden, other communications to and from those areas were considerably restricted and travel to and from Ireland was suspended. On 6 April all normal leave was stopped for British forces in the United Kingdom, and limits were placed on the movements of Allied troops there. As for communications between Britain and overseas, it was decided on 16 April to ban all travel to and from the United Kingdom by Allied and neutral diplomats (other than those of the Dominions, the US and the USSR), to prohibit the receipt or despatch of all messages, and to forbid the use of cyphers.
with reasonably good intelligence. Far from having good intelligence, however, Germany in the weeks before D-day lacked any source of reliable information. MI5 knew that all German agents in the United Kingdom were controlled by the British; and while the reports that the Germans received from uncontrolled agents in Lisbon, Stockholm and other capitals were occasionally uncomfortably close to the mark, accurate reports were but a few among many that were wildly inaccurate. So complete was the Allied control of the air, and also Germany’s lack of adequate aircraft, that the GAF was virtually unable to carry out overland reconnaissance in southern England; it succeeded in obtaining some coverage of shipping off the south coast, but its offshore operations were also insufficiently regular to provide the basis for good reconnaissance. Above all, the Allies had good evidence from their own extensive Sigint that the Germans were decrypting no Allied signals. In all these directions, moreover, they enjoyed the double advantage of knowing not only that the enemy was poorly served but also that their own intelligence was so comprehensive and so prompt that it was unlikely that any substantial change in German appreciations and dispositions would escape their attention.

That the Allies could rely on intelligence at least to this extent was due to the fact that PR, agents and reports from the Resistance — the non-Sigint sources whose contribution to knowledge of Germany’s defences and order of battle continued to increase — were being supplemented more and more by Sigint. Benefiting from the expansion of Sigint resources and from the fact that, though still on a limited scale, the GAF and the German Army were at last using wireless in western Europe, GC and OS and the Y services were now making sufficient progress against the enemy’s communications in that theatre to ensure that, if he did take steps or make changes that had not been allowed for, they would get some evidence about them. In particular, most of the new Enigma keys of the German Air Force were broken soon after they were introduced, from February 1944, and although little progress was made against the new Army keys that were identified, the Fish link between C-in-C West and Berlin was broken in March. As had long been the case, moreover, the naval Enigma keys in the west were being read without interruption.

In addition to giving the Allies some assurance that, should any occur, untoward changes in German expectations and preparations would not go undetected, these Sigint developments enabled them to undertake a deception programme with the object of prolonging Germany’s uncertainty about Allied intentions.

By January 1944 Sigint had shown that deception could not succeed in diverting the enemy’s attention from the Channel and the South of France. An army decrypt had disclosed that he had taken the news of Eisenhower’s appointment as Supreme Allied Commander as proof that the Allies were concentrating their main effort in the England area. Japanese diplomatic
decrypts had reported that Rommel had been appointed to command under C-in-C West ‘all forces held in reserve for the counter-offensive’, and that an armoured HQ of Army Group strength was also being set up under von Rundstedt. The naval Enigma was associating reports of shipping concentrations with ‘the great landing planned against western Europe’. A new deception plan approved in February accordingly sought, mainly by using double agents and radio simulation, to confirm the German belief that, within the Channel, the Pas de Calais was the threatened area. In its first phase (code-named Fortitude North) the theme was that the main invasion in the Pas de Calais would take place only after the Western Allies had made landings in Norway in conjunction with operations by Soviet forces: it was being prepared well in advance so as to enable them to take advantage of any weakening of Germany that might follow from the Norwegian operations and from the strategic bombing. The second phase (Fortitude South) to be implemented after D-day, would portray the Normandy landings as a diversion to draw off the German reserves while the main assault was launched against the Pas de Calais by 1st United States Army Group (FUSAG) with the object of establishing a bridgehead for the arrival of 50 divisions.

Over and above the knowledge that Germany’s defence preparations and troop deployments were giving priority to the Pas de Calais and that Sigint had underlined her anxiety for Norway, this plan exploited details disclosed in other high-grade decrypts. In November 1943 the Japanese Ambassador had reported that the Germans were uncertain whether the Allies would embark on a venture so hazardous as a cross-Channel invasion, for which they would need 50 divisions. In December he had informed Tokyo that he had suggested to Ribbentrop that, in view of the difficulty in making a landing in the Pas de Calais, the Allies might open their attack with preliminary landings in Normandy or Brittany. In January 1944 the decrypt of a report by German army intelligence had attached particular significance to the fact that FUSAG had been located by Traffic Analysis in the United Kingdom. Before FUSAG was allotted its fictional role the intention had been that it would command American armies in France after the consolidation of the lodgement area – a task that was now transferred to 12th US Army Group.

* * *

After February the deception programme was adjusted in the light of decrypts indicating changes of emphasis in Germany’s expectations. They were part of a steady increase in Sigint relating to western Europe which coincided with Germany’s growing conviction that 1944 would bring the opening of the second front.

On 30 January a naval Enigma decrypt circulated an order of the day in which Hitler stated that the Anzio landings were the first step ‘in the invasion of Europe planned for 1944’. The Japanese Ambassador telegraphed that in an interview on 22 January Hitler had said that the Allies could hardly abandon their plans to attack in the west, given the threat to the United Kingdom from his reprisal weapons, and had added that while invasion across the Channel was the most effective action the Allies could take, they might think it too hazardous and decide to land in the less heavily defended area around Bordeaux.
or even in Portugal. When this telegram was decrypted, early in February, it had already emerged from naval decrypts of 29 January that, following a false GAF sighting of between 200 and 300 landing craft about 100 miles off the Gironde estuary, U-boats from as far away as Rockall had been ordered to proceed to Biscay at full speed, regardless of the danger from Allied aircraft and mines. Later in February Sigint showed the Navy and the GAF carrying out elaborate anti-invasion exercises between the Gironde and the Spanish frontier, and also over the Loire estuary and the Brest and Cherbourg peninsulas.

A naval Enigma decrypt of 27 February emphasised the vulnerability of the south coast of France to Allied invasion. According to the decrypt of a telegram from the Japanese Ambassador in Vichy the Germans remained anxious as to that area in the first week of March: they suspected that in view of the set-backs the Allies had encountered in Italy, they might risk a large-scale landing there in the near future. On 21 March the decrypt of a signal sent by the Japanese Military Attaché in Vichy at the end of February reported that the Germans were sending four infantry divisions and two armoured divisions to Avignon, Montpellier, Toulouse and Bordeaux.

By the time these decrypts were obtained the Allies had received intelligence indicating at least for the present that the Germans had come to the conclusion that the attack in the south of France would be concerted with the larger invasion, and that the larger invasion was not imminent. The decrypt in the middle of February of a circular telegram sent by the German Foreign Ministry had revealed that the Abwehr had learned in Stockholm that the second front had been postponed till June, partly on account of disagreements between the Allied Expeditionary Air Force and the British and US strategic bomber forces. In a telegram decrypted on 23 February the Japanese Minister in Berne had quoted a German intelligence authority as saying that the main invasion was not expected in March and that the preparations for a secondary landing in the south of France by the Americans from Corsica would take between two and four months to complete. On 29 February the decrypt of a telegram from the Japanese Ambassador in Berlin had reported the views of the German Ministry of Foreign Affairs. It estimated that between 75 and 85 divisions had been assembled in Britain but judged that the second front was being postponed; air reconnaissance had suggested that the Allies had enough shipping for a landing but not for bringing up supplies. Summing up on 1 March the JIC had concluded that 'Germany ... expects that the main attack will be made against the coastline facing the English Channel or possibly against Brittany, probably in conjunction with diversionary landings in the west and south of France.... The Germans probably appreciate that the Allies will not be ready to undertake large-scale operations from the United Kingdom within the next two or even three months unless there is a substantial weakening of the German forces in France and the Low Countries'.

From other decrypts it was clear, however, that the German operational commands were not relaxing their vigilance. On 23 February a GAF Enigma decrypt had stressed that Allied preparations were well advanced: W/T activity had indicated that some bombers had been withdrawn for use in airborne landings and that airfields in the south-west were heavily occupied with transport aircraft and gliders, while other evidence, presumably air reconnaissance, showed that Bristol was 'particularly heavily occupied' with shipping. This was followed by an appreciation from C-in-C West of 21 March. Decrypted on 6 April, this said that the Allied preparations were 'as good as complete', all
information indicating that the jumping-off base would be 'the occupied west coast'; he was bringing 21st Panzer Division to Brittany to strengthen the defensive grouping behind his west coast front. The C-in-C went on to say that agents had reported that the invasion had been postponed for a time, and he himself believed that the recent increase in Allied air attacks on communications behind the Channel front did not mean that the main attack was imminent since it must be expected that they would become still more intensive and continuous before that point was reached. But other appreciations by no means accepted that the invasion had been deferred. An appreciation by Foreign Armies West dated 20 March, and decrypted on 12 April, read as follows:

'Numerous items of information about the alleged postponement of the invasion or its complete abandonment in favour of intensified air warfare and small-scale local landings... are a planned cover for the actual intentions. Such reports are refuted by, inter alia, reports from numerous sources of troop movements throughout England which show a considerable increase on previous months. Similar indications are given by the great intensification of the signals traffic of the agents' and resistance organisation in France: this has increased by about 70 per cent as against January and February.'

On 13 April the decrypt of another Army appreciation, dated 6 April, reported that the disposition of the Allied Air Forces, the move of Command HQs from London to Portsmouth and the co-ordination of British and American W/T all pointed to 'a further step in the concluding phase of invasion preparations.'

These German appreciations were followed on 15 and 27 April by decrypts of signals from the Japanese Naval Attaché in Berlin. The first, the account of an interview on 4 April with Admiral Meisel, Chief of the Naval Operational Staff, reported as follows. The Allies had completed their preparations and had concentrated their main force in southern England: taking the weather into account, they were more likely to move in May–July than in April, but they might choose April from the wish to co-ordinate the invasion with the Russian offensive in the south. Although it was so heavily defended, northern France remained the most likely place as it gave the Allies the shortest distance; but there would probably be a pincer movement from the Mediterranean and Biscay and fairly strong commando operations to cut sea communications in Norway, and possibly a landing in Greece to secure air bases. There was, however, no information on which to base a reliable forecast. Asked about the possibility that the Allies might desist from invasion and rely on intensified air attack while the invasion threat tied down large German forces, Meisel replied that they were bound to invade: they would wish to forestall Soviet penetration of central Europe, and the British could not withstand a long war of attrition. A second decrypt, received on 27 April and reporting an interview on 13 April, disclosed that Meisel had by then concluded that the second front would start soon, possibly within four weeks. Although he could not wholly exclude the possibility that the Allies were conducting a deception programme, he believed that all the evidence - the concentration of troops and shipping in southern England; an increase in daylight air raids in France, and of Allied espionage activity there; the fact that severe restrictions had been imposed on the civilian population in the United Kingdom and could not be maintained for very long - pointed to that conclusion. The evidence included the interrogation of captured agents, and articles taken from them, which suggested that the Allies
would mount 'a direct second front' without diversionary operations in the Mediterranean and Norway, and that the landings would take place in northern France. There were still no firm indications of the Allied plans: since 'thorough' GAF reconnaissance had observed no concentration of landing craft on the south-east or southern coast of England, it was concluded that the concentration was in the west coast ports, but they were difficult to reconnoitre. In a third signal, decrypted on 27 April and reporting yet another interview with Meisel on 17 April, the Attaché enlarged on the reasons for the change in the Navy’s opinion: the extension of Allied bombing to communications and airfields; the establishment of a security zone in the UK and the prohibition of inward and outward mail; the news that war correspondents had been attached to invasion forces; evidence of landing exercises; statements by British political leaders.

Further decrypts had meanwhile disclosed that the Germans had indeed concluded that the invasion was imminent. The naval Enigma decrypts of 20 April included a proclamation from Dönitz to all ranks to the effect that a large-scale landing in western France was to be expected at any time. On 27 April an army decrypt revealed that Hitler had cancelled all leave in C-in-C West’s command from 26 April. On 29 April the decrypt of a telegram from the Japanese Ambassador disclosed that the Ministry of Foreign Affairs in Berlin was taking the threat seriously on 24 April; it had informed him that if the threat did not materialise that week the landings would have to be postponed for several weeks, but that it had believed for some days that they would be attempted in the near future.

From 18 April, and especially from 26 April, there was a marked increase in day and night reconnaissance by the GAF between Dover and Land’s End, in Scotland and over Scapa Flow; it lasted until the alarm subsided, and was accompanied on the south coast by minelaying and bombing raids on ports. Among the Enigma decrypts reporting on this activity two disclosed that on 25 April and 8 May no penetration overland had been achieved and several offshore sorties had had to be broken off; but one gave details of a large concentration of warships and assault shipping in Plymouth and noted that such good cover had not been obtained since August 1943, and others recorded that assault shipping had been detected.

E-boat activity off the south coast also increased. It included a successful attack on 28 April on Exercise Tiger, a trial landing by Force U on Slapton Sands in the south-west of Lyme bay. They sank two LSTs (large ships carrying tank landing craft) and damaged a third. This was a serious setback for the Allies in view of the shortage of landing craft; and the loss of life - some 700 men, many of them engineers - was greater than that incurred by Force U in the landings on Utah beach. As was invariably the case with E-boat operations, Sigint gave no warning of the attack. Signals decrypted after the event revealed that the E-boats had caused alarm in the German naval commands by sighting Allied landing craft about 20 miles from Slapton Sands on an easterly course.

By the early days of May the alarm was over, as was soon confirmed by the Japanese diplomatic decrypts from Berlin. On 6 May, in a telegram decrypted on 11 May, the Ambassador disclosed that the favourable period late April to early May having passed, there was a strong body of opinion that the invasion would now be postponed for two or three weeks. On 9 May, in a telegram decrypted on 13 May, he added that Dönitz had told him that, although domestic and international pressures would still compel the Allies to invade in
1944, they would not do so ‘for some time’; they probably realised that Germany’s ‘somewhat precipitate withdrawal’ on the eastern front reflected the transfer of some of her finest troops to the west and were thus being forced to increase the scale of their invasion measures. But even before these signals were decrypted, it was the turn of the Allies to be alarmed by intelligence to the effect that the Germans might have discerned where they intended to land.

This intelligence, more disturbing than C-in-C West’s reference in March to the threat to Brittany, or than decrypts in April and early May in which the enemy had noted the movements of Allied Command HQs to Portsmouth and the concentration of Allied shipping in the Portsmouth-Southampton area, came in a signal from Luftflotte 3. Sent on 8 May and decrypted the same day, it reported that the main effort of Allied fighter activity during 7 May had ‘consisted unmistakeably of attacks ... on the course of the Seine between Mantes and Le Havre’, and went on to say: ‘From this the view of Luftflotte 3, already often expressed, that landing is planned in the area Le Havre–Cherbourg, is confirmed once more’. Its receipt coincided with the decryption of signals from the Japanese Naval Attaché in which he reported that, on a tour he had made of northern France between 20 and 24 April, he had learned that the German commands, particularly the Navy, believed on topographic and strategic grounds that the landings would centre on Boulogne, with the main force to the east, but also that diversionary landings with detached forces were quite probable in the Le Havre–Cherbourg area, on the Dutch coast and on the west coast of Denmark.

The Attaché’s report, referring back to the third week of April, did nothing to reduce the anxiety aroused by Luftflotte 3’s appreciation of 8 May. But on 13 May the decryption of an appreciation by the C-in-C West went some way towards providing relief in Whitehall. Its main conclusions were:

1. On the basis of the amount of invasion shipping observed, the Allies would probably employ 20 divisions, and possibly more, in the first wave: in addition they would use strong air-landing forces with the object of forming a bridgehead.

2. Although the whole Channel front from the Scheldt to the tip of Brittany was under threat, the most threatened sector appeared to be ‘roughly from Boulogne as far as Normandy inclusive’.

3. Given the importance to the Allies of capturing Le Havre and Cherbourg, Normandy and perhaps also Brittany were likely areas for the strong airborne attacks.

4. Defence in the most threatened sector had been strengthened by ‘the bringing up of 2nd Parachute Division and 7th Werfer Brigade and by elements which had already arrived of 91st Air Landing Division and of Panzer Lehr Division’. In addition Normandy was being strengthened ‘also in the interior against air landings by special measures . . .’

It remained disturbing, even so, that C-in-C West had singled out the sector from Boulogne to Normandy inclusive as the most threatened sector and had stressed the fact that Normandy was being reinforced, and Allied anxiety again increased when, between 14 and 27 May, Sigint disclosed that its reinforcement included the transfer of 21st Panzer Division to Caen and the
strengthening of the German forces in the Cotentin peninsula in a manoeuvre that was more purposeful and greater in scale than any the Germans had so far carried out against the threat of invasion. The decrypts gave details of the disposition of the reinforcements which enabled the American Commands to make last minute changes in their plan for the airborne landings behind the Cotentin beach-head.

Some post-war commentators have argued that this development was due to the fact that Hitler had firmly concluded during April that the invasion would come in Normandy. The JIC was at the time briefly inclined to take a similar view. On 22 May the first of three weekly reports it issued on 'German Appreciation of Allied Intentions Regarding Overlord' stated that:

'The main assault is expected against the northern coast of France from Boulogne to Cherbourg inclusive. Although the German High Command will, until our assault take place, reckon with the possibility that it will come across the narrow Straits of Dover to the Pas de Calais area, there is some evidence that the Le Havre-Cherbourg area, including as it does those two first class ports, is regarded as a likely, and perhaps even the main, point of assault.'

A week later it reiterated this warning in somewhat more emphatic terms:

'The recent trend of movement of German land forces towards the Cherbourg area tends to support the view that the Le Havre-Cherbourg area is regarded as a likely, and perhaps even the main, point of assault.'

Further evidence in support of this conclusion was provided in the decrypt on 1 June of the Japanese Ambassador's telegram reporting an interview which Hitler had granted him on 27 May. It quoted Hitler as saying that the Allies had completed their preparations: that they had assembled 80 divisions, eight of which had combat experience and were 'very good troops'; that after diversionary operations in Norway, Denmark, south-west France and on the French Mediterranean coast, they would establish a bridgehead in Normandy or Brittany; and that after seeing how things went, they would embark on establishing a real second front in the Straits.

It was no doubt with mixed feelings that the authorities scrutinised this decrypt. Together with the decrypt from Luftflotte 3, it showed that neither the Allied deception programme nor the enemy's shortage of good intelligence had prevented the Germans from appreciating that the Allies would probably deliver not merely diversionary landings but even their initial main assault in Normandy, and that it was on this account that the defence forces in Normandy, hitherto comparatively weak, had recently been strengthened. On the other hand, it reiterated the assumption, adopted in Germany from the outset on grounds of inherent military probability, that wherever the initial landings might come, the Allies would direct their major effort against the Pas de Calais; and to this extent it indicated that, because the deception plan had led him to exaggerate the scale of the Allied preparations, the enemy remained far from certain of the place of the coming invasion.

By 1 June such recent evidence as was obtained from decrypts had favoured the conclusion that of the two hypotheses prompted by Hitler's remarks, the second deserved the greater weight. It is true that another appreciation from Luftflotte 3 differed little from that of 8 May, stating that the pattern of Allied air attacks on the Seine bridges during 27 May had 'reinforced
the views already expressed by Luftflotte 3 as to the probable Allied intentions against the Dieppe and the Seine Bay areas'. By 30 May, however, the Enigma decrypts had disclosed anti-invasion preparations and exercises in sectors of northern France other than Normandy, and actual short-lived alerts in several western areas. It would have been easy to place too much reliance on this evidence as proof that the Germans remained radically unsure of the main thrust of the Allied plan. But there was no mistaking the significance of a decrypt of 30 May. It disclosed that the GAF had been planning since 30 April to lay defensive minefields and that it was now making final preparations for laying them from Ostend to the Garonne.

It was on this evidence, and also on the negative evidence that there had been no Sigint references since 28 May to further German troop deployments affecting Normandy, that on 3 June, in its final assessment of the German appreciation of Allied intentions, the JIG reached a more relaxed conclusion than that of 29 May. On the positive side the JIC emphasised the preparations that were being made for defensive minelaying by air along the whole of the north and west coasts of France, and it also noted that defensive sea-minelaying had continued in areas from the Belgian coast round to the Gironde. It summed up as follows:

"There has been no intelligence during the last week to suggest that the enemy has accurately assessed the area in which our main assault is to be made. He appears to expect several landings between the Pas de Calais and Cherbourg.

As for German expectations of the timing of the assault, the JIC repeated the assessment it had given on 19 May: 'the enemy considers Allied preparations sufficiently advanced to permit of operations at any time now'. Since the German recovery from the major alarm at the end of April there had been few explicit Sigint references to this subject. But these assumed that, as the Allies had completed their preparations, they might attack at any time. C-in-C West's appreciation of 8 May, decrypted on 13 May, had noted that although agents were reporting a plethora of landing dates, mainly pointing to the middle of May, the invasion was bound to be heralded by ceaseless air attacks, and that 'this stage cannot yet be recognised'. It had allowed, however, that the landings might come as soon as the favourable weather, 'a series of days of continuous fine weather', set in. On 19 May, in a telegram decrypted on 23 May, the Japanese embassy had reported that the German Foreign Ministry had informed them that the invasion was 'not far off'.

As we now know, the Germans did not believe in the few days before D-day that the landings were imminent, and they remained uncertain of their destination. On 1 June in an appreciation that was not decrypted till 11 June, Foreign Armies West believed that the period from 12 June onwards must be considered the new danger period. In an appreciation of 5 June that was not decrypted C-in-C West similarly concluded that 'as yet there is no immediate prospect of the invasion', and he had this to say about the areas of the threat:

"The main front between the Scheldt and Normandy is still the most probable place of attack. Its possible extension along the north coast of Brittany, including Brest, is not excluded. Where within this entire sector the enemy will attempt a landing is still obscure. Concentration of enemy air attacks on the coastal fortifications between Dunkirk and Dieppe, and on the Seine-Oise bridges, in
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conjunction with the paralyzing of supply services and of the southern flank
between Rouen and Paris (inclusive) might be indicative of the main front of a
major landing intended by the enemy. However, the cessation of traffic across the
Seine would equally affect troop movements required in the case of an enemy
attack on the western part of the Baie de la Seine, Normandy and the North coast
of Brittany. As yet there is no immediate prospect of the invasion.'

On the same day Army Group B, in another report that was not decrypted,
considered that the concentration of the Allied air attacks between Dunkirk
and Dieppe pointed to ‘the previously assumed focal point of the major landing’
in the Pas de Calais.

Closely connected with Germany’s uncertainty as to when, where and on what
scale the Allied attack would come was her uncertainty as to how best to oppose
it. Should she give priority to defeating it on the beaches or hold back her
offensive divisions with a view to destroying the assault forces by counter-
attack after they had landed? The intelligence sources revealed that the
German commanders themselves remained divided on the subject.

The COSSAC Plan had assumed that because the enemy had to defend so
long a coast-line, he would group his mobile reserves methodically, so that
they could move at high speed against the weakest or most accessible point of
the bridgehead, but would delay the counter-attack until he had determined
the scope of the assault, and that he would be unable to do this before D+2 on
account of the risks of Allied landings elsewhere. This remained the assump-
tion when the COSSAC plan was revised: as the JIC concluded on 1 March, the
enemy ‘cannot rely on being able to defeat us on the beaches. He must plan to
conserve and concentrate so as first to prevent the enlargement of the main
bridgehead and then to counter-attack to drive us into the sea’. On 18
February, however, a Japanese decrypt – that of a telegram from the
Ambassador in Vichy about an interview with Abetz, the Military Governor in
France – had disclosed that the Germans were divided as to whether to aim to
drive an invasion force back into the sea as soon as possible or to allow it to
land and then surround and destroy it. Abetz had said that he preferred the
former course as being less likely to encourage the resistance forces in France,
but that the decision lay with the military authorities.

A month later the decrypt of a signal by the Japanese Military Attaché in
Vichy revealed that the decision had gone as Abetz had wished. The Attaché had
been informed by Rundstedt’s Chief of Staff on 17 February that the primary
object of the defences in Holland, Belgium and France was to enable the
Germans ‘to hold firmly on to the coast’. Their strategic aim was to destroy the
Allies at sea and on the beaches. If they failed in that, they would try to destroy
them as close to the coast as possible: there was to be no question of luring
them inland. He expanded on this report in a further signal on 28 February,
decrypted on 27 March. Headed ‘German Army’s New Defence Policy in
Holland, Belgium and France’, this explained that up to January the German
plan had been primarily to hold the coast but, if the situation demanded it, to
allow the Allies to penetrate a certain distance before launching a counter-
offensive. Following Rommel’s appointment to command Army Group B, however, it had been decided to hold the coast ‘absolutely’. As a result, there had been changes in troop dispositions. Previously the large number of infantry and armoured divisions which were to come under Rommel’s command for the counter-offensive had been held back as a reserve at Rundstedt’s disposal. Now, all the infantry divisions of the general reserve were allotted to the various Armies and only the armoured forces (nine divisions under General Geyr von Schweppenburg) remained at Rundstedt’s disposal. The change had been made because experience in the Mediterranean had shown that the Allies did not move quickly and boldly after consolidating their bridgeheads, and generally sought to use air superiority to control the rear of the defending forces; moreover, there were great political disadvantages in letting the Allies advance inland.

These decrypts coincided with the first Enigma references to the existence in France of Army Group B and the armoured command – Panzer Gruppe West. Enigma decrypts established on 11 and 18 March that the HQ of Panzer Gruppe West was at Paris and confirmed on 19 and 21 March that Rommel commanded Army Group B, which appeared from Traffic Analysis to have its HQ at St Quentin. Together with existing information about the chain of command, they suggested that Army Group B, with Fifteenth and Seventh Armies, and Panzer Gruppe West were each directly subordinate to C−in−C West, who himself also commanded Army Group D with First and Nineteenth Armies. But they left some uncertainty as to whether and to what extent Rommel was under Rundstedt.

As it happened, the decisions reported by the Attaché had not prevented continuing disagreement between Rundstedt and Rommel. In pursuit of the policy of destroying the invasion on the beaches, Rommel requested in March that all armoured and motorised units and all GHQ artillery should be placed directly under his command; but Rundstedt protested and towards the end of March a compromise was reached. Three of the armoured divisions (2nd Panzer, 21st Panzer and the newly constituted 116th Panzer) were assigned to Rommel and four (1st SS Panzer, 12th SS Panzer, 17th SS PG and Panzer Lehr) were kept as a central mobile reserve under the direct control of OKW. In May the remaining three – the newly constituted 9th Panzer and 11th Panzer and 2nd SS Panzer – were to be placed under Army Group G in southern France.

The Allies learned nothing about these differences. But an indication that the Germans reached some compromise about their mobile reserves followed at the end of April. A decrypt then disclosed that four of the armoured divisions in the west had been placed in OKW reserve, to be employed only with OKW’s permission. This left it uncertain whether the remainder were under Rundstedt or Rommel, as did decrypts early in May of signals from the Japanese Naval Attaché in Berlin about his tour of northern France. He stated that Rommel had been especially appointed by Hitler to lead an assault army, but that if the Allies invaded in several places their divided forces would be destroyed by Rommel in the north and by Rundstedt elsewhere. Nor was the situation clarified by the disclosure in a decrypt of 8 May that a new Army Group G had been set up under General Blaskowitz, GOC First Army, to command First and Nineteenth Armies in the south and south-west.

In the absence of any further direct intelligence about the chain of command MI 14 concluded on 5 June that Rommel (Army Group B),
Blaskowitz (Army Group G) and von Schweppenburg (Panzer Gruppe West) were all directly subordinated to von Rundstedt (C-in-C West and GOC Army Group D). It also concluded that while Panzer Gruppe West would assume an operations role if an additional Army Staff became necessary, it remained mainly administrative for the present. These conclusions were substantially correct.

Within this framework German disagreements about the use of the mobile divisions had continued during May. Rommel, convinced that it would be difficult to manoeuvre the armoured formations under Allied air attack, had pressed that the four divisions in OKW reserve be moved closer to the coast; Rundstedt had resisted. The Allies learned nothing of these further exchanges but from order of battle intelligence they knew that infantry divisions which had been inland were being moved closer to the seaboard throughout Rommel’s command.

* * *

The evidence that the Germans were moving divisions closer to the coast was part of an increasing amount of intelligence about the strength and deployment of the German Army in the west. In the end, it enabled the Allies to make an all but totally accurate assessment of the German order of battle in the Overlord area on D-day, but in the meantime it did nothing to reduce their anxieties. It showed that against the general background of an increasing total number of divisions in the west the Germans were bringing in additional armour, were up-grading more divisions to field status and, in particular, were concerned to reinforce the Normandy area.

For the purpose of the Initial Joint Plan the probable strength of the German Army in the west on D-day was set at a higher level than that which the COSSAC plan had regarded as tolerable. It was assumed, on the other hand, that the enemy’s ability to bring in reinforcements in the two months after D-day would be less than COSSAC had been prepared to accept. The projections were set out in a JIC paper of 1 March. There would be between 16 and 20 ‘offensive divisions’ (seven of them infantry) and between 39 and 35 ‘defensive divisions’. A high proportion of the ‘offensive divisions’ would be at or near full strength, but they would vary in quality. The ‘defensive divisions’ would probably be well below first-class divisions in quality. Although it did not attempt to assess what the quality would be, the JIC explained that ‘an estimate of the opposition to Overlord in terms of number of divisions is misleading’. As for reinforcements after D-day, Germany might bring in eight first-quality divisions from other fronts than the Russian in the first two months, and the possibility could not be excluded that five would be switched from the huge number on the Russian front; but this possibility was unlikely to materialise if, as promised, Russia had begun her offensive.

On 14 February Major-General Hollis, head of the Chiefs of Staff Secretariat, had testified to anxiety on this score by requesting the JIC to consider the extent to which COSSAC’s pre-conditions for the success of Overlord were likely to be met; these were that the Allies should have complete air superiority; that the Germans should not have more than twelve full-strength first-quality mobile divisions with which to counter-attack; and that the number of
first-quality divisions they could transfer from other fronts in the first sixty
days should not exceed fifteen. General Hollis’s minute had concluded: ‘Before
long we shall have to review the position in the above three respects and
ultimately take a decision whether ... we can go ahead or not’.

On 7 March, uncertain whether the paper of 1 March had taken account of
COSSAC’s pre-conditions, Hollis again wrote to the JIC. ‘I may be quite wrong,
and probably the matter is under constant review, but if it is not so, I suggest
the time will soon come when enquiries will be made as to how we stand.’ The
JIC’s Secretary replied:

‘The conditions precedent to Overlord had been much in our minds . . . and you
may be sure that the question is not being overlooked. The position briefly is as
follows:

Condition (a) has already been achieved and ... is being daily intensified.
Condition (b) is not so good. The present position is that there are in France
and the Low Countries the equivalent of some 16 full-strength, first-quality
mobile divisions. General Eisenhower’s staff is of course aware of this. They
have not, as far as I know, ever in so many words stated that they are prepared
to meet the increased scale of defence. By implication, however, they have
done so. I think the argument is that we have in the new Neptune plan
widened the area of assault and increased the number of invading forces and
thus, to some extent, compensated what the Germans have done.
As regards Condition (c) all is well. The JIC in a very conservative estimate
have stated that a minimum of 8 first-quality divisions could be transferred
from other fronts during the first two months of operations. ... It is highly
unlikely that this figure . . . could be achieved.

General Hollis expressed himself as entirely satisfied, and in the next two weeks
intelligence indicated that the projections in the paper of 1 March could be
scaled down. By 20 March MI 14’s total count of divisions in the west had risen
to 55, and the number of these that were thought to be ‘offensive’ was fourteen.
Agents had reported the arrival of 2nd Panzer Division at Amiens from Russia
and of 2nd SS Panzer Division at Bordeaux, which had brought the number of
Panzer and PG divisions to nine; Enigma had disclosed that 3rd Parachute
Division was being set up in France with cadre from 1st Parachute Division in
Italy; and on 24 February the decrypt of an OKH circular signal of 22 February
disclosing that 349th, 352nd and 353rd Infantry Divisions were being set up in
France had brought the number of three - regiment divisions there to four at a
time when the fact that a division of that type (262nd) was being used to
counter-attack at Anzio had led to the conclusion that such divisions must be
rated as offensive. By 22 March, on the other hand, Sigint had suggested that
21st Panzer Division was leaving Mantes possibly, as MI believed, for Italy or
Russia, and MI had removed it from the order of battle. It had also removed 2nd
Panzer Division and two others (10th Panzer and 164th PG Divisions) for lack
of firm evidence of their existence. This reduced the number of offensive
divisions from fourteen to ten.

Early in April it emerged that three of the offensive divisions, two of them
the best In France, had been transferred to Russia. By the middle of March
agents’ reports and the low-grade traffic intercepted by Army Y in England had
established that as well as sending 2nd SS Panzer Division to Bordeaux, the
enemy had transferred 9th SS Panzer Division from Amiens and two newly
formed infantry divisions to the south of France; but between 7 and 9 April
Enigma decrypts disclosed that II SS Panzer Corps comprising 9th and 10th SS Panzer Divisions (10th SS Panzer from Lisieux) was at Lwow en route to assist First Panzer Army, which was encircled in Galicia, and that 349th Infantry Division, known to have been at Lille since January, was also on the Russian front. On 6 April, however, the decrypt of a C-in-C West appreciation disclosed that the three Reserve Panzer Divisions in the west (155th, 179th and 273rd) were being reconstituted as full Panzer Divisions. 21st Army Group regarded this as ‘a desperate improvisation’, but MI 14 accepted that they would be fully offensive by D-day. By 10 April, moreover, it had on further consideration restored 21st Panzer Division and added 2nd Panzer, of whose presence it had hitherto been sceptical, to the order of battle in France. Its estimate of the number of offensive divisions in France at that time was accordingly eleven: five Panzer Divisions (2nd and 21st and the three Reserve Panzer Divisions); three SS Divisions (2nd and 12th SS Panzer and 17th SS PG); 2nd Parachute Division; and 2 three-regiment infantry divisions (352nd and 353rd). Though it had no doubt that, subject to her difficulties on the eastern front, Germany would bring the number back to 55, M1’s estimate of the total number of divisions in the west then stood at 50 identified and two unidentified.

Early in April the Allies re-classified the German divisions. Panzer and Panzer Grenadier divisions were placed in one category and the infantry divisions were divided into those capable of full service in mobile operations (Field divisions), those capable only of defensive fighting (Static divisions) and an intermediate category of Limited Employment (LE divisions). In the middle of April it was estimated that there were ten Field divisions in the west, 33 Limited Employment divisions, including ten Reserve (training) Infantry divisions, and no Static divisions. Although it was thought that many of them were of recent formation, at an early stage of training, this represented an increase of seven Field divisions since January. It was known from captured documents, moreover, that five of the divisions still classed as Limited Employment (271st, 272nd, 275th, 276th and 277th Infantry) were to be organised on an offensive War Establishment. And it was believed that further infantry divisions were forming in France, probably of a new type with numbers below 100 and having only six battalions: Sigint had recently reported that one such division - 84th Division - had arrived in Rouen from Poland.

By this time it had been observed that some Field divisions were being moved closer to the coast and even into coastal sectors. By 20 March there was already ‘an extraordinary assemblage’ of divisions in the Pas de Calais, and the process was then detected in Brittany and Normandy.

This ‘striking reinforcement of the coastal zone’ was accompanied by the discovery from agents and decrypts that 21st Panzer Division had been transferred from Mantes to Rennes, that 12th SS Panzer Division had moved from Antwerp to Evreux, the area vacated by 10th SS Panzer Division’s transfer to Russia, and that 3rd Parachute Division was in a ‘lay-back’ position inland of Brest. As for the other formations included among the offensive divisions on 10 April – 2nd Panzer, the three Panzer Reserve divisions, 2nd SS Panzer and 17th SS PG – the following was learned about them by the end of the month.

2nd Panzer Division remained under close scrutiny by PR and agents at Amiens, where it had been since arriving from Russia in January in a depleted state, and a decrypt of 20 April reported that it was receiving new equipment, including self-propelled artillery. The same decrypt mentioned that 2nd SS Panzer Division was being re-equipped, and agents had reported by mid-April
that it had moved from Bordeaux to Toulouse. Beyond confirmation that it had not yet moved, and some evidence that its training was well advanced, nothing had been heard of 17th SS PG Division since February, when it was south of Tours. But a good deal had been learned about the Reserve Panzer divisions. By mid-April, agents had located 155th at Nimes, 179th in the Mantes area and 273rd near Bordeaux, and had reported that they were taking part in formation exercises and that Panther tanks had been sighted in their vicinity. On 25 and 28 April decrypts of signals from C-in-C West disclosed that 9th Panzer Division was arriving to be merged with 155th into a new 9th Panzer Division, that 16th PG was arriving to be merged with 179th into a new 116th Panzer Division, and that a new Panzer division was also to be formed out of 273rd. A further decrypt of 7 May revealed that 11th Panzer Division was returning from Russia to Bordeaux to form a new 11th Panzer Division with 273rd.

Over and above this intelligence a decrypt of 12 April had referred to 2nd Parachute Division, then in Russia, and to two previously unidentified divisions - 5th Parachute Division and 91st Air Landing Division - as 'a reserve for any theatre of war'; and this implication that at least one more parachute division might arrive in the west was strengthened by a decrypt which had disclosed on 7 April that II Parachute Corps was moving from Ghent to Melun.

Summarising the latest intelligence on the German Army’s order of battle, the JIG advised that the number of divisions opposing OVERLORD, then 53, would have risen to 55 by D-day. There would be 8 Panzer or PG, 14 Field and 33 LE: the enemy would also have III Flak Korps and independent artillery units and tank battalions. Four of the eight Panzer-type (2nd Panzer, 21st Panzer, 12th SS Panzer and 17th SS PG) were first class and likely to be up to strength; but 2nd SS Panzer was unlikely to be up to strength, and the three Reserve Panzer divisions would not be complete and would hardly be the equivalent of two good divisions. As for the Field divisions, 3rd Parachute Division would be up to strength and eleven infantry divisions would have the equipment and transport to make them capable of fighting in the front line; but only two (352nd and 353rd) were likely to be in an advanced stage of training, manning and equipment by D-day. To them should be added 5th Parachute Division and 91st Air Landing Division, though they needed several further weeks of training. Assuming that the Panzer, PG and the three most powerful infantry-type divisions retained their present dispositions,¹ the JIC after some disagreement with the Washington JIC and much discussion with SHAEF and 21st Army Group, and with the warning that the calculation must be ‘largely conjectural and becomes increasingly speculative in the later stages’, gave the following assessment of the German rate of build-up from D-day:

D-day morning: Three LE divisions plus Flak and artillery.
D-day evening to D+1: Two Panzer divisions, one Field division, four LE divisions.
D+1 to D+2: Four Panzer divisions, seven Field divisions, four LE divisions.

¹As given in the JIC paper, these were 12th SS Panzer (Evreux), 21st Panzer (Rennes), 17th SS PG (Thouars, south of Tours), 2nd Panzer (Amiens), 2nd SS Panzer (Toulouse), 273rd Reserve Panzer (Libourne, near Bordeaux), 179th Reserve Panzer (Mantes), 155th Reserve Panzer (Nimes), 3rd Parachute (Brest), 352nd Infantry (St Lo), 353rd Infantry (Brittany).
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D+3 to D+7: Seven Panzer divisions, seven Field divisions, four LE divisions.

The JIC believed that the only transfers from other theatres after D-day would be two divisions from Italy by about D+20 and two from Scandinavia by about D+25.

At least in relation to the identity and location of the armoured divisions, the accuracy of the intelligence in this paper was confirmed in striking fashion on 2 May, when the decrypt of a Fish signal of the middle of April gave the time-table for a tour by Guderian, Inspector General of Panzer Troops. It disclosed that he was to inspect 2nd Panzer Division at Amiens on 28 April, 12th SS Panzer at Evreux on 29 April, 21st Panzer at Rennes on 1 May, 17th SS PG at Thouars on 2 May, 273rd Reserve Panzer (10th Panzer) at Libourne on 3 May, 2nd SS Panzer at Montauban on 4 May, 155th Reserve Panzer (9th Panzer) at Nimes on 6 May and 179th Reserve Panzer (116th Panzer) at Paris/Melun on 8 May. But by the beginning of May other decrypts were undermining the assumption that there would be no further increase in the offensive divisions and no change in their dispositions.

The most valuable of these, an order from Jodi on 26 April, was decrypted on 29 April. It specified that certain formations had been set up as an OKW reserve which was to be moved and employed only with OKW’s permission.

1. WEST
   1 SS Panzer Corps with 1st and 12th SS Panzer, 17th SS PG Division and Panzer Lehr Division ‘when brought up’.
   2. ITALY
   Hermann Goring Division.
   3. SOUTH-EAST
   42nd Jäger Division and 1st Mountain Division ‘when brought up’.
   4. HUNGARY
   16th and 18th SS PG Divisions and 8th SS Cavalry Division.
   5. DENMARK
   20th GAF Field Division.
   6. HOME AREA
   Parachute Regiment 6, coupled with air transport space earmarked for 91st Air Landing Division and Werfer (ie. multi-barrelled mortar) Brigades 7 and 8.

This decrypt gave a firm indication that 1st SS Panzer Division and Panzer Lehr were to be brought into the west. It suggested that reinforcements for the west from the OKW reserve might also be drawn from the Hermann Goring Division and from Parachute Regiment 6, the two Werfer Brigades and 91st Air Landing Division (as an infantry division): and from the five divisions in the south-east and Hungary if they were not needed for Russia. It gave no clue as to when the reinforcements would arrive. But it was not long before Sigint rectified this omission. On 8 May the decrypt of a signal from C-in-C West disclosed the recent arrival in France of Panzer Lehr, and ground reports subsequently added that it had arrived via Orleans and was located at Chartres. The same decrypt announced that 91st Infantry Division had arrived in ‘the west coast area’: and on 15 May Sigint located the division at Redon, between St Nazaire and Rennes. The presence in the west of 1st SS Panzer Division was finally confirmed on 20 May, when Sigint located it in Belgium.

No less disturbing than the evidence of these arrivals was the discovery
that the Germans were re-disposing their forces in the west to strengthen their position in the Overlord area. The decrypt about Guderian’s tour had placed 21st Panzer at Rennes in the middle of April. By 14 May it had been identified by decrypts and agents’ reports of tanks and track carriers close to Caen with its tanks apparently east of the Orne, a short run from the eastern beaches of the Neptune area. Decrypts issued on 24, 25 and 27 May of Fish signals dating from the middle of the month reported the completion of a considerable reinforcement of the Cotentin and gave exceptionally full details of the locations, boundaries and subordinations of the formations involved.

These disclosures, together with evidence from Sigint and the other sources that some divisions were still being up-graded and new ones formed in the west, required frequent upward revisions during May of the estimates of the total number of divisions available under C-in-C West’s command. At the end of April, when the JIC had estimated that Overlord would be opposed by 55 divisions – 8 Panzer and PG; 14 Field and 33 LE – it had believed that the enemy would maintain C-in-C West’s strength at that level. By 13 May the number of divisions already identified had risen to 56 and the JIC had raised its estimate for D-day to 60. It had also revised its estimate of the number that could be transferred to France in the two months after D-day. On 30 April it had believed that these would be limited to two from Scandinavia and two from Italy; on 13 May, though continuing to insist that no divisions would be released from Russia, it thought that one or two could arrive from Denmark, two or three from Norway, and two from Italy and, possibly, two from the Balkans and a few newly-formed divisions from Germany and Poland. At the same time, however, MI 14, which relied on a considerable amount of recent intelligence, much of it provided by Fish decrypts and giving detailed strength returns, carried out a massive analysis of the state of the offensive divisions (that is, the Panzer and PG divisions, of which ten had now been located, and those of the Field divisions that were not holding coastal sectors) and concluded that they were the equivalent of between twelve and sixteen full-strength, first-quality divisions.

On 20 May MI 14’s re-evaluation was incorporated into a draft minute for the Prime Minister. The relevant paragraphs read as follows:

Land Forces

7. We estimate that, on the target date of OVERLORD, the Germans will have six to seven full-strength, first-quality divisions in reserve in France and the Low Countries. They will also have in reserve some eleven to fourteen offensive divisions of rather lower quality, roughly equivalent to some six to nine full-strength, first-quality divisions. Instead of twelve full-strength, first-quality divisions in reserve, as stipulated by COSSAC, there will thus be a total of seventeen to twenty-one offensive divisions which will be the equivalent of some twelve to sixteen full-strength first-quality divisions.

8. During the first two months it is unlikely that the Germans will be able to transfer any divisions from the Russian front to the West, but they may make available, from elsewhere, for use against OVERLORD, some five to seven divisions of varying strength and quality. Dependent on the course of events on the Russian and Italian fronts, and at the cost of major withdrawals in the Mediterranean theatre, a further six divisions, at the most, might also be
brought against OVERLORD. This represents a maximum of thirteen divisions which might be brought against OVERLORD, as compared with the maximum of fifteen which COSSAC considered acceptable.

9. In the following table we compare the build-up in equivalent full-strength, first-quality divisions, which, according to COSSAC’s conditions, should not be exceeded, with that which we now believe the Germans might achieve. Our estimate makes no allowance for interference by air or airborne attack or by sabotage.

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<th>Time</th>
<th>German build-up</th>
<th>Present acceptable to COSSAC</th>
<th>Estimate</th>
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<td>D+2</td>
<td>5</td>
<td>6—7</td>
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<tr>
<td>D+8</td>
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<td>11—14</td>
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10. It should be noted however, that since COSSAC laid down his conditions in his appreciation of 30 July 1943, the OVERLORD Plan had been revised with the object of increasing the breadth and weight of the initial assault, ensuring the earlier capture of a deep water port, and improving the rate of our build-up. These factors, together with the reduction in the likely rate of German reinforcements against OVERLORD in the first two months of the operation, should in some measure compensate for the present increase in German opposition during the initial stage of the operation.

The JIC’s final report in the series entitled ‘Periodic Review of Conditions in Europe and the Scale of Opposition to OVERLORD’ followed on 25 May. The number of divisions located in the west was then 59 – 10 Panzer and PG, 14 Field, 34 LE and one unidentified but probably LE – as compared with 56 on 13 May. The strength of the counter-attack would also depend on the quality of the divisions, and the JIC paper offered an assessment of the state of every division. But it noted that the available intelligence was variable in extent and reliability, and uncertainty on this subject continued to be a major source of anxiety down to D-day. A further problem was that additions to Allied intelligence about the Army order of battle were still being made in the few days before D-day. These were either too late or too tentative to be included in the order of battle lists and maps that were issued to the Allied forces. But they enabled MI 14 and 21st Army Group to arrive at final estimates of the number, identification and location of the enemy’s land forces on D-day that were remarkably close to the fact.

On 4 June 21st Army Group’s assessment of the total number of divisions in the west was 59 identified plus two (245th Infantry and 6th Parachute) unconfirmed. On 5 June MI 14, which believed that 6th Parachute was still forming in central France, gave the total as 60, of which two were unidentified; and it was soon to emerge that the two unidentified were already among the 58 identified. These estimates may be compared with the figure derived from German records. This is 60, but it may be amended to 58 because it includes two divisions (2nd Parachute and 19th Panzer) which, though about to leave for the west, did not do so before D-day. As for the locations, comparison of the German and Allied maps shows that the Allied estimates were almost equally accurate. As we shall see, however, the intelligence on the location of two
formations that were to play a critical role on D-day – 21st Panzer and 352nd Infantry – was either insufficiently precise or not spelled out with sufficient emphasis when relayed to the Commands.

In his signals reporting on his tour of northern France, decrypted early in May, the Japanese Naval Attaché repeated that as it was Rommel’s policy to destroy the Allies ‘near the coast, most of all on the beaches’, the strengthening of the coastal defences, like the movement of troops to the coastal sector, had been ‘particularly noticeable since he had taken command.’ The details given in his report filled some gaps in Allied knowledge of the enemy’s coast defence preparations but were chiefly valuable for confirming what the Allies had learned since February, the month in which they detected that the Germans were adopting new measures, notably the laying of underwater obstacles and the erection of obstacles against airborne landings, as well as intensifying the construction of fixed defences, the inundation of coastal areas and defensive sea-minelaying.

From 20 February PR detected obstacles underwater on many beaches, beginning with those in the Neptune assault area but eventually including practically every good beach in France and Belgium. They were not yet being laid lower than about 100 yards below the high-water mark, but in view of the necessity of landing below them, the danger that they would be extended down to the low-water line created prolonged anxiety about the time set for H-hour. On 6 May General Eisenhower described the underwater obstacles as ‘one of the worst problems of these days’. Nor was it until 8 May that, in the light of PR showing the precise positions of the obstacles laid by then, the Allies felt able to take the difficult decision to stand by their original intention to land at half-flood.

Lack of time and shortage of manpower and materials prevented the Germans from extending these obstacles down to the low-water line, as they planned to do. Even so, the fact that it was imperative to remove or destroy in advance of the first assault wave those they were laying necessitated the training of large numbers of Royal Engineers and naval personnel and the provision of special craft and equipment. For these purposes, moreover, it was not enough to pin-point the location of the obstacles. This could be done by the vertical photography flights of the normal PR squadrons. It was essential, also, to determine the nature of the obstacles. The decrypt of a signal from the Japanese Military Attaché in Vichy provided some technical details about them on 21 March. But more information was needed – as was illustrated at the end of April when a bombing attack on coastal batteries detonated a series of mines which, it emerged, had been attached to stakes set between the obstacles. It was obtained by Lightnings of the USAAF which, flying daily until D-day along the lines of obstacles at zero feet, took oblique photographs with a new moving camera. Low-level oblique photography, an outstandingly important development in PR which also proved invaluable for coverage of the other fixed defences and of the V-weapons sites, was supplemented by the physical examinations carried out by the Combined Operations Pilotage Parties with men landed from a midget submarine.
Intelligence on German Appreciations and Preparations

Inundations and obstacles against airborne landings presented further problems. The inundations were under PR observation from the beginning of 1944, and an enormous effort was devoted to plotting them as they were extended in the Low Countries and northern France, even though only those behind Courseulles and around the river Dives and those at the base of the Cotentin peninsula and on its east coast directly affected the Overlord plans. As a final coastal defence measure Rommel ordered the staking of all fields suitable for glider landings. The work was started in Brittany and Normandy, areas which the Germans judged to be favourable for diversionary and subsidiary landings, and was soon detected. On 30 April 21st Army Group observed that, in the wake of Rommel’s tour of Seventh Army’s area, fields suitable for airborne landings up to ten miles inland were rapidly being staked and wired. The Allies could do little, however, to circumvent the hazards created by this last-minute development.

Concurrently with the intensification of work on the coastal and beach defences the German Navy made a start with an extended programme of defensive minelaying. Largely with the assistance of Sigint, though not without much tedious analysis of it by the OIC and GC and CS, the programme was reconstructed in considerable detail - a fact which proved to be of crucial importance for the success of the landings.

Much of the defensive mining was carried out in deep waters. General evidence about it was derived from Enigma decrypts disclosing that minelaying sorties were taking place. The interpretation of such decrypts was often assisted by PR. More specific information as to where mines had been laid was provided by decrypts announcing that a swept channel had been closed or diverted. The usefulness of these decrypts depended entirely on the fact that the positions of the swept channels had been identified by means of the patient study of information gleaned from Enigma and other sources since the early stages of the war. It was on the strength of the previous study and the arrival of new evidence that the OIC was able on 21 February to give the first warning that the German torpedo-boats had begun laying a major barrage in the Seine Bay, or to the eastward of it, at the end of January, and that the enemy had since established a safety margin to seaward of the inner swept channel between Le Havre and Cherbourg, routeing all traffic through this channel and confining minesweeping in the Bay to the channel. Between the end of February and 24 May a further 22 possible minelaying sorties by torpedo-boats, E-boats and minesweepers from Cherbourg, Le Havre and St Malo were detected.

A second type of defensive activity, inshore minelaying and the laying of underwater obstacles by R-boats, converted landing craft and minesweeping trawlers, was also first detected in February. It was kept under observation with the aid of PR, R/T intercepts, Enigma decrypts, and decrypts of a form of German W/T traffic first intercepted in October 1943. Called "PP", it consisted of easily decoded ship-to-ship signals of a tactical nature and was heard from most parts of the coast from Flushing to Bordeaux. The PP traffic disclosed in mid-March that an experimental barrage had been laid off Ouistreham. But inshore operations were only occasionally detected in the Seine Bay before April.

By the end of April a general upsurge of inshore activity was known from PP and R/T traffic to have included two complex operations by specially assembled groups of LCT IIIIs (heavily armed landing craft) on the banks south of St Vaast (the Banc de la Rade, the Banc de St Marcouf and the Banc du
Cardonnet) at the northern end of what the Allies knew as Utah beach, across the ‘boat-lane’ selected for the approach of the assault force. Enigma decrypts provided unusually full details of the position of the minefield laid in these operations: they were issued to Ultra recipients by the OIC on 1 May. Other Enigma decrypts gave details in terms of the German naval grid of closed areas between Boulogne and Dieppe, off Flushing, off L’Abervrach in Brittany and west of Fecamp; reported the diversions from the swept channel brought about by inshore mining between St Valery-sur-Somme and Dieppe; and disclosed that an ‘alarm barrage’ had been established north of the Cotentin. Another message was of even greater importance. Decrypted on 17 May, it announced the closing of two adjacent areas together measuring roughly 12 miles by 7, and gave their boundaries: they were in the middle of the Seine Bay, half-way between Barfleur and Antifer.

Within these closed areas the limits of the actual minefield remained uncertain, but information about the southern limit of the field in the Seine Bay, which was invariable in that it enabled the Allies to extend the sea-room available for the boat-lowering area to be used by the assault forces, was obtained a fortnight before D-day. An Offizier signal of 19 May, decrypted on 20 May, contained the news that the torpedo-boats in Cherbourg were ordered to proceed to Le Havre in order to lay two flanking minefields. In the light of this warning and of subsequent air reconnaissance, Allied aircraft and MTBs engaged on 23 May a force of torpedo-boats, minesweepers and E-boats a few miles south of the assumed northern limit of mine-free water. 49° 30’ N. It seems probable that the interception succeeded because the OIC had hoped for some such opportunity and made preparations for it. The Germans lost one torpedo-boat and one minesweeper, while one torpedo-boat, one minesweeper and one R-boat were damaged. Their defensive mining effort was thus irreparably crippled: no further minelaying was attempted in the Neptune area before D-day. Still more important, a flood of PP signals specified the points through which the damaged ships and their rescuers were to manoeuvre. This enabled the OIC to establish, and to promulgate on 31 May, the exact limits of mine-free water in the Seine Bay and the vicinity of Le Havre.

Meanwhile, on 14 May, an Enigma decrypt had provided further intelligence of great value about the minelaying in shallow waters. It disclosed that the mine being used was the KMA, of which it gave details, and that it was a ground-mine laid in water between 3.5 and 5 metres deep. With this information the OIC was able, after reviewing the Enigma and PR evidence on the enemy’s inshore activity since February, to conclude that KMA mines had been laid at various specified locations between Den Helder and Bayonne. None of the locations was in the Seine Bay. This correct conclusion was adopted by ANCFX in his final operational orders. They stated that inshore of the German coastal channel, in which the Allied boat-lowering positions were to be sited, there was no evidence that ground-minelaying had taken place.

The orders added, however, that ground-minelaying in shallow water off the beaches by aircraft, and possibly E-boats, was to be expected as soon as the enemy became aware of Allied intentions. As already noted, a decrypt of 30 May disclosed that he was making final preparations to carry out such minelaying, the first by the GAP since September 1943, from Ostend to the Garonne.
The Admiralty carried out large-scale mining to seal off the Neptune beaches and convoy routes from intervention by the surface ships of the German navy, and maintained regular PR of their Baltic bases. But no intelligence was received which suggested that this threat would materialise. It was otherwise with the U-boats. The Enigma decrypts indicated as early as the spring of 1944 that the enemy was holding back the departure of 500-ton U-boats to the Atlantic in order to accumulate an anti-invasion force in south Norway and Biscay. In the middle of May the OIC forecast that 90 would be available in Biscay by D-day, and would be joined by 50 from the Atlantic and south Norway by D+2, and by 65 by D+5.

Decrpts of 19 and 20 May then threw a flood of light on the plans of the U-boat Command. In one of them Captain U-boats West announced that some U-boats were now to sail at intervals from Biscay, but that if any had not sailed before the Allied D-day, and if the Channel appeared to be the theatre most threatened, all U-boats at Brest and Lorient, plus seven from St Nazaire and five from La Pallice, would sail on the evening of D-day and the remainder on the evening of the following day. They would be disposed as follows:

1. an unspecified number, all but one equipped with Schnorchel in the coastal area between the Scillies and a point east of Start Point;

2. four non-Schnorchel boats from Brest in waiting positions in the north Biscay area with a view to possible employment in the Channel as a second wave;

3. all other non-Schnorchel boats in Brest in waiting positions about 150 miles south-west of Brest;

4. an unspecified number of Schnorchel boats from Lorient in the coastal area between the Scillies and Trevose Head;

5. an unspecified number of non-Schnorchel boats from Lorient to a waiting area in central Biscay.

Together with seven boats from St Nazaire and five from La Pallice, those sent to waiting positions in Biscay would dispose themselves evenly in a 45-mile wide strip of which the centre line was joined by a point 150 miles west of St Nazaire and a point off the Spanish coast, 30 miles west of Bilbao. The message added that these non-Schnorchel boats would not be very effective for reconnaissance as they would be surfaced only at night.

This intelligence left several questions unsettled. The numbers of U-boats involved in the signal from Captain U-boats West could only be guessed at. The extent to which they would be reinforced before D-day, particularly from the accumulation of U-boats in south Norway, could not be foreseen. On 25 May the final appreciation issued by the JIC gave the OIC’s estimates on these two points. It stated that 45 500-ton U-boats had been located in Biscay ports by 20 May, but that they would be reinforced by D-day by a further 25 boats, making 70 in all. In addition the enemy might move ten or more 500-ton U-boats from the Atlantic to the western and central Channel. From D-day other U-boats would follow into the western and central Channel, some from among the 70
Biscay boats and others from the eastern north Atlantic, to the number of 45 by D+2, 60 by D+5.

No further Sigint about the U-boats in Biscay was obtained before D-day; nor did air reconnaissance detect any sign that any of them had sailed. In these last few days, however, the decrypt of a signal from the head of the Japanese Naval Mission in Berlin enabled the Admiralty to discount, however belatedly, another threat. The final JIC assessment of the scale of opposition to Overlord issued on 25 May, had warned that 'offensive operations in the eastern half of the Channel and the southern North Sea are likely to be carried out by the small type of U-boats (of 250-300 tons) and small submersible craft'. The 250 to 300-ton U-boats were the Type XXIII boats, which had at last been observed under construction in the third week of April. The submersibles were the W-boats, now distinguishable from the Type XXIIIs; the threat from them as a specific anti-invasion weapon had been discerned at the end of February. The threat from both had thereafter continued to be a source of grave and growing anxiety. But on 30 May, to the great relief of the Admiralty, the Japanese decrypt disclosed that the Germans had not yet finished their experiments with a form of closed-cycle engine for underwater propulsion.

* * *

By April 1944 the Allies were confident that they had established air superiority in the west; in terms of the resistance to be expected from the GAF on and after D-day, it was clear that they could proceed with the invasion. But estimates of the GAF’s nominal first-line strength in the Overlord area on D-day continued to rise as D-day approached. At the end of April AI believed that 750 aircraft would be immediately available to Luftflotte 3 (France and the Low Countries). By the end of May it had raised the figure to 900 (including 500 bombers and anti-shipping and 220 single-engined fighters) and estimated it would be increased by 230 aircraft on D+1 and a further 470 by D+4. The actual nominal strength of Luftflotte 3 at the end of May was 891 aircraft (including 402 bombers and anti-shipping and 425 fighters of all types) and it rose to about 1,030 by D+10. As well as having good evidence for these calculations, from agents, PR of airfields and Sigint, AI knew from the high-grade decrypts, from POW and from actual performance that the enemy’s bomber arm and his potentially formidable anti-shipping force had been seriously weakened by his concentration on his fighter defences, and that the GAF as a whole was suffering from inadequate training and shortage of pilots. It regularly stressed that its projections of the nominal strength of the GAF on D-day were a poor guide to what its actual strength would be. But it could not accurately measure in allvar. ee ihc .scale of the enemy’s resistance, let alone foresee that in the event the GAF would be incapable of making a serious challenge.

This uncertainty complicated the planning of the Allied preliminary air operations. HQ Allied Expeditionary Force favoured a bombing offensive from the beginning of March against the railway system throughout north-west Europe as the best means of delaying the enemy’s reinforcement of the bridgehead, and particularly of preventing him from massing his Panzer formations for a counter-attack during the first days of the assault. Bomber Command and the US Strategic Air Force resisted any reduction in their air
offensive against Germany’s aircraft production and fighter forces; this might give the GAF time to recover and undermine the objective of retaining air superiority beyond D-day. Nor were the strategic air commanders alone in objecting to the railway plan. It encountered widespread opposition on other grounds. It was argued that the French communications system was both too wide and too dense a target for attrition bombing to be effective against it; that whereas selective bombing within the target might betray the whereabouts of the invasion area, diversionary bombing to guard against that danger would be enormously costly; that the unavoidable consequence of heavy civilian casualties in France was unacceptable.

The intelligence sources could not help to resolve these disagreements. PR and high-grade Sigint showed that a series of trial attacks in moonlight by Bomber Command against selected railway targets from early in March had been unexpectedly successful: they were, indeed, an early illustration of Bomber Command’s increasing ability to hit precision targets in night raids. But neither source could show whether the damage would have serious long-term effects.

In these circumstances, amid increasing anxiety that the German army might have ‘superior strength at the moment of assault’, the so-called Transportation Plan went into force on 15 April in a diluted form, the directive to the strategic air forces giving attacks on rail centres only second priority after the campaign to reduce the GAF’s fighter arm by means of attacks on German industry.

The critics of the Transportation Plan were unimpressed when, during May, high-grade decrypts disclosed increasing German anxiety over the damage being done to the railway system. They had never doubted that the bombing would produce dislocation, only that it would be sufficient seriously to hamper military movements. And on this question the evidence from PR and the resistance movements was not encouraging. On 20 May SHAEF concluded that the plan had failed to restrict the enemy’s ability to maintain his forces or move up reinforcements; he still had three times the number of railway lines he needed, four times the amount of rolling stock, eight times the number of locomotives. On 4 June 21st Army Group was still more scathing. Of the 13 main lines running into the Neptune area not more than six had been cut at any one time and the Germans still had a line capacity of at least 250 trains a day, which was more than adequate for his essential peak military and supply movements.

Although intelligence was not conclusive as to the effects of the attrition bombing — it was an issue on which controversy continued long after the end of the war — opposition to the programme was sufficient to ensure that other targets were not neglected. The Seine bridges had been excluded from the Transportation Plan, as being unsuitable for air attack, but under pressure from 21st Army Group and AI they were bombed from the middle of April. The attacks were indecisive until 7 May, when the US tactical air forces achieved spectacular success against four of them. But further attacks were banned, and bombing diverted to bridges in Belgium, until 24 May; the high-grade Sigint revealed on 9 May that the raids had led Luftflotte 3 to conclude that the Allies intended to make their landings between Le Havre and Cherbourg.3 Between

3See p.448.
24 May and D-day, however, in raids that were repeated whenever PR detected that repairs were nearing completion, all 24 Seine bridges between Rouen and the sea were made impassable. 12 others over major waterways in France, Belgium and Germany were blocked, but for security reasons attacks on the Loire bridges were deferred till after D-day.

The air authorities regarded the German long-range coastal batteries as being, like bridges, costly and unprofitable targets. But in March PR detected that the number of batteries covering the assault area had risen to 49, from 16 in January, and that the German case-mating programme, which had been completed in the areas near Calais and Dieppe, was being extended to 8 of these 49. This intelligence led the Army and Navy Commands to insist on the bombing of the 8 and of any others at which PR detected case-mating. Bombing of the 8 and of 16 others between Dunkirk and the Seine began on 10 April. It continued down to D-day. By 4 June, on the evidence of PR, 21 of the batteries had been damaged. Intense bombing of the 10 most formidable of the batteries was carried out on the night of 5–6 June. On D-day only 4 batteries were active in the assault area.

From mid-May the Allied air forces implemented plans for the destruction of airfields and air control centres within range of the beachhead. This was assisted by high-grade decrypts which disclosed on 6 May the GAF’s plans for delaying the despatch of reinforcements to the invasion area till the last moment and for sending them to reception areas before finally deploying them to forward bases, some of which had previously been deserted. On this evidence 59 bases in reception areas near Brussels and Marseilles were listed for attack, together with 41 forward airfields which could be attacked without betraying the intention to land in Normandy and 5 aircraft control centres which had been identified by RAF Y. By the end of May 34 of the forward airfields and 14 other bases had been bombed in 90 raids. PR and Sigint indicated that only 4 of the 34 had been so severely damaged that no further attack was called for, but from the beginning of June the attacks on the airfields were greatly reduced to permit intensive bombing of communications targets related to the known locations and probable approach routes of the German armoured divisions.

The neutralisation of the German radar chain called for both bombing and jamming; only those stations that were unsuitable for jamming, or were of greatest importance, were selected for air attack. The identification of these depended on accurate intelligence about the location and the function of the installations. It was obtained by co-ordinating information from intercepts of the radar transmissions, and from specially designed equipment capable of DFing the transmissions to a quarter of a degree of accuracy, with PR, POW interrogations, captured documents and low-grade Sigint. Its accuracy may be judged from the discovery after the event that, of the 120 installations at 47 sites between Calais and Cherbourg, all had been located by D-day and only 6 wrongly identified. Bombing of the selected targets – 42 in number between Calais and Brest – began on 10 May. On the effects of the raids, Sigint was again inconclusive; but PR, the main source of information, indicated that only 14 of the sites had been destroyed by 3 June. Between then and D-day the strategic bomber forces joined the tactical air forces in attacking the 12 most important that remained operational. Subsequent analysis indicated that the bombing had reduced the effectiveness of the radar chain in the invasion area to 18 per cent.

The same analysis indicated that the effectiveness of the chain was further
reduced to 5 per cent by the jamming programme that was put into force during the crossing of the Allied convoys and the assault on the beaches. No more than half a dozen stations that had survived the bombing escaped the effects of the largest jamming programme ever devised.
CHAPTER TWENTY-NINE

The Assault

At 0430 on 4 June Eisenhower postponed the landings for 24 hours, to 6 June: on 3 June the forecasts had predicted for 5 June weather which might permit landings from surface craft but would forbid air operations, including airborne landings. On the evening of 4 June the meteorological officers at SHAEF forecast a break in the weather for the assault area: it would last over the morning of 6 June, but not beyond, and while producing conditions ‘barely tolerable’ for the assault forces, would permit in conditions of ‘considerable cloudiness’ the heavy bombing of coastal defence batteries planned for the early hours of D-day and, probably, the air spotting required for the naval bombardments. A further postponement beyond 6 June would have entailed postponement for at least a fortnight, with grave disadvantages including the danger that the enemy would be alerted to Allied intentions. On the other hand, in conditions that were more typical of December than of June, a decision in favour of 6 June carried with it the risk of condemning the expedition to failure. Eisenhower decided for 6 June.

The German meteorological service, crippled by the loss of its outlying stations in Greenland, Spitzbergen, Iceland and Jan Mayen and reduced to dependence on reports from two or three U-boats in the Atlantic and daily meteorological flights to the west of Ireland, was unable to forecast the short-lived break in the bad weather that enabled Eisenhower to make his decision. Had it been otherwise, moreover, it must be regarded as highly improbable that the Germans would have been influenced by such a forecast. As C-in-C West had stated in his appreciation of 8 May, their basic assumption was that the Allies would attempt to land when they were sure of ‘a series of days of continuous fine weather’.

It was on this account that, although the Allies had had to plan on the assumption that in normal weather the enemy would know by H-12 hours that the expedition had sailed, and would be sure of its destination by H-4, the landings achieved tactical surprise. During 5 June, when the whole expedition was at sea – five assault forces carried by some 6,500 vessels, including 4,250 landing craft, in some 75 convoys, each five miles long – only five German aircraft flew over the Channel on routine sorties that were easily evaded, and the only aircraft detected by Allied radar during the night of 5–6 June were over the Pas de Calais. The German Navy, which cancelled the naval patrols and minelaying operations scheduled for that night, made no change in its dispositions in the Channel ports, of which precise details were issued to the Allied naval commands on the evening of 5 June. Rommel had gone to Germany for a few days on 5 June, and several other senior German officers were absent from their posts.

Put off his guard by the weather, the enemy was not alerted, as he might well have been, by unusual last-minute W/T activity on the part of the Allies. Their decision to postpone the operation necessitated an unwelcome amount of signalling, since many of the convoys had already set out and one was half way across before it could be turned back, but it appears to have gone unnoticed.
The SOE’s arrangements for instructing the French Resistance to begin the planned programme of sabotage necessitated the transmission of an operational signal at intervals throughout 5 June. Late in the evening, at 2215, this unusual development was brought to the notice of the German authorities. Fifteenth Army took it to be a warning that invasion would follow within 48 hours, but Seventh Army and the naval authorities took no action and C-in-C West’s HQ doubted whether Fifteenth Army’s deduction was justified. It was not until he got the first news of the Allied airborne landings that the enemy brought his forces to the highest state of readiness.

6th Airborne Division landed north-east of Caen at 0020 on 6 June and 101st and 82nd US Airborne Divisions began their drops in the Cotentin about 0200. These operations were accompanied by the dropping of dummy parachutists and the simulation of shipping movements in other areas. At about 0200 Fifteenth Army asked Army Group B to have 12th SS Panzer Division brought up from Rouen to the Caen area. At 0215 Fifteenth and Seventh Armies ordered the highest state of readiness, as did Naval Gruppe West; but at 0300 the naval authorities, C-in-C West, AOC-in-C Luftflotte 3 and the Chief of Staff at Army Group B still believed they were faced only with a diversionary operation preceding an invasion in the Pas de Calais. Not till 0400 did C-in-C West, persuaded by further reports that the airborne landings were on such a scale that they would be supported by a sea assault in the Seine Bay whatever the Allies planned to do elsewhere, order 12th SS Panzer Division to move at once towards Caen and Panzer Lehr Division to prepare to move. At 0500 he ordered Army Group B to release 21st Panzer Division to Seventh Army for a counter-attack on the airborne forces north-east of Caen. By 0515 Seventh Army had concluded from the airborne landings and the location by radar of sea targets off the Cotentin and along the whole of the Calvados coast that ‘a large-scale enemy assault’ was in progress. But further delays followed. 21st Panzer Division did not receive the 0500 order till 0700. At 0730 Jodi for OKW permitted 12th SS Panzer to move as far as Lisieux but otherwise refused to approve von Rundstedt’s orders to 12th SS Panzer and Panzer Lehr until Hitler had been consulted. Hitler was asleep till mid-day, and did not consent to the movement of the divisions till the afternoon.

Meanwhile Naval Gruppe West had concluded that a major operation was in progress. At 0320, following reports at 0215 of radar echoes from shipping off the Cotentin, where the assault forces were anchoring off the Utah and Omaha beaches between 0230 and 0300, and of the detection at 0309 of ten large vessels north of Port-en-Bessin, it brought the U-boats in Biscay ports to immediate readiness, and issued the following orders: the 8th Destroyer Flotilla to move from Royan to Brest; the 5th Torpedo-Boat Flotilla from Le Havre to carry out reconnaissance in the area Port-en-Bessin and Grandcamp; the 5th and 9th E-Boat Flotillas from Cherbourg to patrol off Cape de la Hague and Barfleur respectively.

If only because the airborne landings necessarily alerted the enemy, the Allied assault forces could at no time after midnight on 5–6 June be sure that they would escape attack before reaching the beaches. From the naval Enigma, however, they received a full and prompt account of the German Navy’s reactions, as distinct from those of the Army and the Air Force. From 0338 they were informed of most of the orders issued by Naval Gruppe West. The first news of positive action by the German Navy, an order to the 5th Torpedo-Boat Flotilla at 0348 to leave Le Havre and attack landing boats off Port-en-Bessin
and Grandcamp, near the Vire estuary, was transmitted to them at 0420.

In this sortie the torpedo-boats in fact encountered the eastern-most bombardment force and sank the Norwegian destroyer _Svenner_. They attacked between 0515 and 0530, before the force had received the Sigint warning. But the fact that only 32 minutes had elapsed between the transmission of the German order and the despatch of the decrypt to the Commands by the Admiralty at 0420 illustrates the speed with which, thanks to the decision to intercept the naval traffic within the perimeter of Bletchley Park, the naval Enigma decrypts were being processed. Throughout the assault phase the average time-lag between the interception of the German signals and the delivery of the decrypts to the OIC was to be 30 minutes during those large parts of each day in which the naval keys were being decrypted currently.

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The Allied naval bombardment began about 0530, immediately after the completion of overnight air attacks on the ten most formidable batteries. From dawn until ten minutes before the first troops landed the attack on the beach defences was continued by an enormous force of heavy bombers and was completed by guns and rockets mounted on landing craft, some specially designed, which drenched them for the final five minutes. Although the Allied air offensive had already done much in the weeks before D-day to retard the development of the enemy's coastal batteries, and especially the programme for case-mating them, it was still essential to neutralise the defences if the assault troops were to get ashore, and this objective the combined air and naval bombardment — the largest ever planned — very largely achieved. The bombardment was not marked by great accuracy: the naval gunfire scored few direct hits and the bombing of the beaches, carried out in overcast conditions, was only 'partly successful'. It also turned out that there were some unavoidable deficiencies in the intelligence on which the planning of the attacks had absolutely depended. Perhaps the most important was that the Allies had not detected that the principal enemy gun positions on the beaches had been constructed to give enfilading fire: they could not fire to seaward but neither were they seriously damaged by off-shore bombardment. Had this been known the naval fire plan would have been differently framed. Another arose from the fact that although most of the batteries had been correctly plotted, and their characteristics correctly assessed, some of the more formidable had either been moved and their original sites preserved as decoys, or else the number and calibre of their guns had been over-estimated. But these deficiencies were to cause serious problems only when troops had got ashore. The sheer weight of the barrage so far succeeded in suppressing the guns and demoralising the defenders that during the run-in to the beaches there was 'little reaction on the part of the enemy'.

The run in, timed to be completed at varying H-hours between 0630 and 0755 at the five beaches, took place in weather that was worse than had been forecast, with steeper seas and stronger winds. Many of the smaller landing craft foundered during the crossing. On some of the beaches it was difficult to locate the pre-arranged landing places. Still more serious, the stiff on-shore wind had so raised the level of the tide that the underwater obstacles were
already under water. Grievous casualties followed from the fact that it proved impossible to carry out the prepared operations for removing the obstacles, as also from the fact that the beaches were now being raked by enfilading fire which delayed the opening of beach exits and compounded the congestion as men and vehicles were landed in an increasingly restricted area. By the end of the day, however, 75,215 British and Canadian troops and 57,500 American had been landed from the sea, and 23,000 Allied troops had landed by air, and the casualties amounted to 3,000 British and Canadian seaborne troops, 1,300 British airborne troops and a total, seaborne and airborne, of 6,000 US troops. ANCF’s Report and the subsequent Naval Staff study attributed this remarkable success in breaching the Atlantic wall at so little cost in large measure to the excellence of the intelligence on the defences and the topography of the invasion area.

Among the operational factors which contributed to the success, the most important was the equally remarkable fact that the Allies achieved tactical surprise. But the achievement of tactical surprise was due to the adverse weather; and in its turn the adverse weather went far to reduce the ability of the Allies to exploit either the advantages of surprise or the benefits they might have derived from air power in the critical period following the landings. By creating confusion on the beaches, and delay in getting away from them, it seriously hampered the Allied plans for rapid thrusts inland. While fighters could operate defensively in the overcast weather that prevailed till the afternoon, the heavy bombers were severely handicapped in implementing ‘carefully laid plans to stop movement by demolishing towns to block main roads’. 500 bombers which set out to attack eight key road centres had to return without bombing. And while fighter-bombers provided useful sightings, intelligence on the movements of the German armoured formations was impaired by the fact that the poor weather almost eliminated the work of the PR squadrons on D-day. Although they were greatly accentuated by uncertainty concerning the deployment of 21st Panzer Division and 352nd Infantry Division, it was these consequences of the unseasonable weather which prevented any of the assault forces from gaining its D-day objectives and which, in particular, frustrated the Allies in their central purpose, the rapid capture of Caen.

* * *

The capture of Caen on D–day had been regarded throughout the planning of Overlord as crucial to the entire operation. Caen and the open ground to the south–east commanded the main routes by which the bulk of the enemy’s mobile reserves — six of the ten Panzer–type divisions in the west — would have to approach the bridgehead. The seizure of these objectives would give the Allies control of the crossings of the Orne and the Odon, and access to the only open country in which they could use the British armoured divisions to maximum effect. By enabling them to establish forward airfields, it would also increase their power to prevent the German reserve divisions from reaching the bridgehead, and thus enable the Allied forces to get through the difficult bocage country. But whereas ‘rapid seizure of the Caen–Falaise plain would not only have eliminated the dreadful battles of attrition, but might well have
shortened the campaign . . . failure to take the town by the end of D+1 forced General Montgomery to conclude that it could not be taken by direct assault.

A number of factors have been singled out as contributing to the failure. They all stemmed from defective analysis at the planning stage. The Overlord plan courted failure to gain its central objective either by making insufficient allowances for the difficulties of mounting a co-ordinated attack with infantry, armour and artillery following a long sea crossing or, alternatively, by allotting to the Caen sector less of the available assault forces than were required to ensure that the objective was achieved. The COSSAC planners had expressed serious forebodings on this score in January when the COSSAC plan was revised and the assault area greatly extended. It may well be that by necessitating an increase in the scale of the assault forces, the revision left the Allied commanders with no choice but to overlook these forebodings – that they could not both extend the assault frontage and increase the forces allotted to the Caen sector. For whatever reasons the forebodings were originally set aside, however, we have to ask why the planners continued to suppress them even when intelligence disclosed during May that the Germans were reinforcing Normandy and, in particular, had transferred 21st SS Panzer Division to the Caen area. This intelligence was received in time to permit changes to be made to the plans for the American airborne operations in the Cotentin.¹ There is no indication in the surviving evidence that it prompted any consideration of the need to strengthen the plans for the capture of Caen.

The explanation may well lie partly in the settled conviction of the commanders that there was still no scope, and now no time, for any major revision despite strong warnings from the intelligence authorities that 21st Panzer might be widely deployed around Caen. It has to be added that whereas Sigint gave precise details about the deployment of the Cotentin reinforcements, it was unfortunately silent as to that of 21st Panzer, but the intelligence authorities had done all that could be expected to sound the alert. On 22 May I Corps was advised that there would be up to 540 German tanks in its D-day area, 300 (a gross exaggeration) with 21st Panzer, 160 with 12th Panzer and 80 others scattered throughout I SS Panzer Corps; and it had been specifically warned to expect immediate local counter-attacks by reserves and tanks of 21st Panzer near the coast and an armoured counter-attack on its left flank by 12th SS Panzer in the evening. But it is clear from their contemporary orders and their later testimony that I Corps’s commanders continued down to D-day to believe that all or most of 21st Panzer’s units lay with its tanks some 30 miles south-east of Caen, and would counter-attack as a whole division, and were confident that the speed of their advance and the ability of the Allied air forces to delay the enemy’s approach would enable them to reach Caen before 21st Panzer arrived. As it happened, they encountered greater opposition than they had allowed for, and the most important single reason was that 21st Panzer Division had been widely dispersed. Only its tanks had been kept to the rear, a few miles north-east of Falaise. Its anti-tank guns with a battalion of its 192 Regiment of lorried infantry had been deployed on the Periers Ridge, three miles inland from 3rd Division’s beach, with a battalion of field guns to the south of the ridge at Beauville, The rest of its artillery had been placed on high ground fifteen miles south-east of Caen. Its anti-aircraft guns had been

¹See above, pp 449, 458.
deployed around the town. One battalion from each of its grenadier regiments had been stationed on each side of the Orne, 125 PG Regiment’s to the east and 192 PG Regiment’s to the west.

It was the opposition of these battalions on the Orne to 6th Airborne Division which administered the first upset to the Allied plans. 6th Airborne’s operational plan had had to be revised following the discovery in the middle of April that the Germans were erecting obstacles against air landings in its area. It had originally intended to land 6 Air Landing Brigade and a parachute brigade soon after 0001 on D-day. In the event, two parachute brigades were landed in the first wave to clear the obstacles before the Air Landing Brigade arrived with the heavier equipment in gliders in the evening. The first wave achieved complete surprise and was largely successful in gaining its objectives, seizing the Pegasus bridge intact and demolishing four bridges across the Dives. From 0500, however, subjected to frequent and severe attacks from 125 and 192 PG Regiments and 736 Regiment of 716th Infantry Division, and handicapped by the lack of the heavy equipment, the parachute brigades were penned into a constricted bridgehead around the Pegasus bridge, where they took heavy losses. Although they held on to the bridge, and thus delayed the D–day counter-attack by 21st Panzer’s tanks by forcing them to go through Caen, they were unable to prevent the enemy from securing a strong footing in the bridgehead which 6th Airborne Division had hoped to establish by the end of D-day.

These developments reduced I Corp’s prospects of gaining Caen. But the fragility of the position of the parachute brigades was compounded by the fact that 3rd Division, which was to have relieved the brigades at the bridges at noon, did not do so until midnight, and then with troops intended for the capture of Caen. And these difficulties, though they partly arose because 3rd Division’s advance inland was delayed, also resulted mainly from the unforeseen presence in forward positions of non-armoured elements of 21st Panzer. The advance encountered the artillery of 21st Panzer on the Periers ridge and was eventually, north of the town, forced by opposition from 21st Panzer’s PG regiments to halt for the night five miles short of Caen, where it finally relieved the paratroop garrison at the western end of Pegasus bridge.

Reconnaissance units had meanwhile reported German tanks advancing from the town. They were the tanks of 21st Panzer. Delayed in their start from the Falaise area till about 0730, their move had been detected by Army Y by 0830, they had been sighted from the air several times from 1000, and Y had located them halfway between Falaise and Caen between 1000 and 1030. They had then been delayed by air attacks from which, however, they suffered no great damage. The sightings had so far indicated, correctly, that they were making for 6th Airborne Division’s area east of the Orne, but between 1300 and 1500 Y had disclosed that 21st Panzer’s reconnaissance unit was active west and north-west of Caen, air reconnaissance had detected some 150 tanks approaching Caen and striking north-west, and a POW captured on the Periers ridge had reported that the division’s tanks were west of the Orne. Its tanks, accompanied by two of its PG battalions, had in fact been ordered to switch the direction of their attack at noon, Seventh Army appreciating that the Allied penetration from Sword beach was the crucial threat, but had again been delayed by finding that the Pegasus bridge was in British hands. At 1630 Second British Army was warned by its intelligence staff that 21st Panzer would be fully committed before the evening. In fact, it began its attack at
1630, through the two-mile gap which still separated 3rd British from 3rd Canadian Division on its right.

At Bieville the British checked the attack, inflicting heavy tank losses on the Germans. In all on D-day 21st Panzer lost 50 of its 127 tanks. German tanks and infantry in small numbers pushed on, reaching the German positions that were still holding out at the coast at about 1900. But at 2100, when part of the large glider fleet of 6 Air Landing Brigade began to land, they withdrew from the corridor they had threatened to establish to the coast and fell back to a defence line already formed by other elements of 21st Panzer in front of Caen.

If 21st Panzer failed in its counter-attack, the arrival of its tanks finally destroyed all possibility that 3rd Division would reach Caen on D-day. Nor could it make further progress on the following day. Advancing in greater strength it was driven back with heavy casualties after a day-long battle with 21st Panzer to a line between three and four miles from the centre of Caen, and was held there for the next month by a strong German salient running from the Caen canal through Bieville to the west of Carpiquet. 21st Panzer’s 192 PG Regiment and advance elements of 12th SS Panzer also frustrated 9 Canadian Brigade’s attempt to reach Carpiquet on D+1. East of the Ome 6th Airborne Division attacked on D+1, and again on 9 June, in an attempt to extend its bridgehead: it made little progress and was hard put to it to hold its ground against German attacks.

In the operations around 6th Airborne’s bridgehead the Allies derived some advantage from Sigint. During 7 June Army Y disclosed that in their attempts to dislodge the parachute brigades the Germans were forming a Battle Group consisting of battalions from 711th and 346th Infantry Divisions and a company of tanks and other elements from 21st Panzer Division. It was on the strength of this Y evidence that a strong two-pronged attack against the eastern front of the airborne bridgehead on 8 June was repulsed by the pre-arranged defensive fire of 3rd Division’s guns from across the Ome. Army Y identified and helped PR to locate most of the other enemy divisions that were approaching the bridgehead. But the Allies otherwise derived little advantage from Sigint during these early ground operations.

On the evening of D+1 the Allies recognised that they could no longer hope to take Caen by frontal assault. At the same time, however, they could still hope that although the chief consequence was that the enemy would be able to array his Panzer divisions in a line running westwards from Caen and contain the bridgehead within the difficult bocage, the length of their front, the constant pressure they were keeping up on all sectors and the limited scale of the enemy’s reserves would prevent him from organising a concerted attack against what was known from Sigint to be regarded as his most threatened sector - his right flank between the Dives and Bayeux.

* * *

On the evening of D-day, after holding up the release of 12th SS Panzer and Panzer Lehr till the afternoon, OKW had put I SS Panzer Corps in charge of the sector from Bayeux on the Orne, with 12th SS Panzer, Panzer Lehr, 21st Panzer and 716th Infantry Division under command, and had ordered an immediate attack by all available forces to liquidate the bridgehead, but had
been advised by C-in-C West that as 12th SS Panzer would not be ready till 7 June and Panzer Lehr till 8 June, 21st Panzer was attacking on its own. On 7 June I SS Panzer Corps hoped to carry out a two-divisional counter-attack that evening with 12th SS Panzer and Panzer Lehr from Caen north-westward to the sea, but was forced to postpone it to 8 June when air attacks delayed the arrival of these divisions. On 8 June, by which time Panzer Gruppe West had been put in command of it, the counter-attack (this time with all three divisions) was again postponed, in part because Panzer Gruppe West’s move from Paris was delayed till 9 June by air attack but mainly because it had been necessary to commit 12th SS Panzer and Panzer Lehr against 3rd Canadian and 50th British Divisions.

The D-day objectives of 3rd Canadian Division from Juno beach, which complemented those of the remainder of I Corps on its left, complemented on its right those of 50th British Division and 8 Armoured Brigade (of XXX Corps) from Gold beach. 3rd Division was to secure the Caen-Bayeux road from Carpiquet westward to the left wing of 50th Division’s advance. 50th Division was to advance east and south-east of Bayeux to the Caen-Bayeux railway, to link up with the Canadians; to take Bayeux and advance west and south-west beyond it to the river Drôme, to link up with V US Corps; to advance south of the town to the river Aure; and to move westwards along the coast through Arromanches to Port-en-Bessin, where it would again join up with V Corps. The approaches to Bayeux from Caen were, exceptionally for Normandy, good tank country through which the Germans might be expected to counter-attack, and their capture was regarded as vital. Striking south through this area XXX Corps was also to make an armoured thrust with 8 Armoured Brigade in an attempt to reach Villers-Bocage by last light. This would complement similar thrusts by I Corps to the east, one by 2 Canadian Armoured Brigade towards Erevcy and one by 27 Armoured Brigade, and a subsidiary thrust from Juno beach by armoured cars which was to destroy crossings over the Orne and bridges over the Odon south-west of Caen. All these thrusts aimed at holding off the approaching enemy armour. In fact, none of them materialised.

The Juno and Gold assaults both fell behind schedule. 3rd Canadian Division was stopped on D+1 by fire from 21st Panzer Division and direct confrontation with advance elements of 12th SS Panzer. Early the following day elements of 12th SS Panzer attacked the Canadians further west, at Putot. After heavy fighting all day the outcome was stalemate with both sides holding their original positions on the Caen-Bayeux road. 50th Division’s infantry took Bayeux early on D+1. But 8 Armoured Brigade on the morning of 8 June was attacked near Loucelfes by 12th SS Panzer. By night-fall, after confused fighting throughout that day, its advance had been stopped two miles north of Tilly-sur-Seulles where 12th SS Panzer was joined by elements of Panzer Lehr Division.

The appearance of 12th SS Panzer and Panzer Lehr can have caused no surprise. XXX Corps had been advised to expect 12th SS Panzer to reach the battle area sometime after mid-day on D-day, either through Lisieux or Argentan or both, and, in addition, that 17th SS PG Division might arrive very late on D-day and an unidentified Panzer division in the Orléans area (viz Panzer Lehr) on D+1. Early on D-day movements were sighted from 12th SS Panzer’s concentration area near Dreux, and in the afternoon the division was detected moving towards Lisieux by air reconnaissance and Army Y. The bulk of the division was held back by the threat of air attacks and, after reaching
Lisieux, by OKW’s temporary ban on its further advance. But elements were detected on the move by 1600 and were seen approaching Caen at 1945. Early on 7 June air reconnaissance established that at least part of the division was using the axis Dreux–Argentan and Y reported (wrongly) that elements of it were east of the Orne. But that evening, following the success of 12th SS Panzer’s forward elements in stopping 9 Canadian Brigade, 21st Army Group did not expect the bulk of the division to reach the front before night-fall. Panzer Lehr’s movement from the Orleans–Chartres area was also sighted on the afternoon of D-day. That night and through the following day it was heavily attacked from the air and engaged by naval gunfire, and its non-armoured elements suffered considerable casualties as it advanced by several roads through Alençon and Domfort to an assembly area near Thury-Harcourt, 15 miles south-west of Caen. Thus delayed, its arrival there was not complete till noon on 8 June. That evening 21st Army Group and Second Army believed it had reached the front but were uncertain where it was.

Panzer Lehr thus reached the front in time to join 12th SS Panzer in halting 8 Armoured Brigade’s delayed thrust to Villers-Bocage on 8 and 9 June and also in spoiling on 10 June the attempt by XXX Corps’s follow-up forces to envelop Caen from the west. But its delayed arrival had frustrated the enemy’s intention to make a counter-attack from Caen to the sea on 7 June, and the advance of 3rd Canadian Division and 50th British Division had again prevented him from making this attack on 8 June.

On the enemy’s intentions for the counter-attack, and on the deferment of his plans, no precise intelligence was obtained. A decrypt late on 8 June disclosed that on 7 June Panzer Gruppe West had been given an operational command, but provided no details. On 8 June Army Y indicated that 1 SS Panzer Corps was in command of the armour in the Caen–Bayeux sector. Decrypts during 9 June confirmed the presence of 1 SS Panzer Corps and indicated that 12th SS Panzer and 21st Panzer Divisions were subordinated to it, but left its involvement with Panzer Gruppe West unclear. But two other decrypts may well have reassured the Allies that the pressure they were maintaining along the whole of the front was frustrating plans for a counter-attack by forcing the enemy to commit his reserve piecemeal. The first of these decrypts – the first to be obtained since D-day from a new GAF – Army liaison (Flivo) key (Ocelot) – disclosed that at 0800 on 7 June 12th SS Panzer and Panzer Lehr Divisions were under orders to attack to the north-west or the north-east from an unspecified starting area. When it became available, however, at 0718 on 8 June, Panzer Lehr was known to be under air attack between Alençon and Domfort. Early on 9 June a decrypt of 8 June ordered 21st Panzer and 12th SS Panzer to continue on 8 June the attack they had already begun: but no concerted counter-attack had materialised.

On the evening of 8 June Second Army believed that the ‘expected counter-attack in force . . . cannot now be long delayed’, given that Panzer Lehr was now available and that 1st SS Panzer Division was expected soon from Belgium, and 2nd Tactical Air Force still expected a major counter-attack from the direction of Caen now that 12th SS Panzer, Panzer Lehr and 21st Panzer Divisions were all in the line. Twenty-four hours later, however, 21st Army Group, though still expecting the counter-attack, was sure that it was becoming harder and harder for the enemy to mount it because he was still responding piecemeal to the pressure the Allies were exerting throughout their long front.
Another development referred to in 21st Army Group’s summary of 9 June must have contributed to the growing confidence of the Allied intelligence staffs: the discovery from captured documents and Sigint that they had over-estimated German tank strengths. At the end of D-day, as 21st Panzer was believed to have some 300 tanks (four battalions) and as only half that number had been detected in the Caen sector, Second Army has concluded that it must have ‘more armour in reserve’. But by 8 June the number of tanks counted in the Caen–Bayeux sector was still not more than 150: and since it knew that those of 12th SS Panzer and Panzer Lehr had not yet arrived, Second Army had begun to suspect that 21st Panzer’s strength had been exaggerated. This suspicion was confirmed on 9 June by a captured document which showed that the division had only two battalions and that they did not have Panthers. 21st Army Group, noting this discovery in its intelligence summary of 9 June, also announced that ‘12th SS Panzer possibly has fewer tanks than we allowed it, but we still know nothing of Panzer Lehr’. It was here relying on GC and CS’s interpretation of a tank return on 25 May, the first to be received since D-day. Decrypted on 5 June, it used *pro forma* which GC and CS was unable to solve until late on 7 June. But the tentative (and as it later emerged, largely accurate) solution which was then sent to the Commands showed that whereas before D-day 12th SS Panzer had been credited with ‘over 200 tanks and a high proportion of Panthers’, the division had in fact had on 25 May only 85 PzKw IV and 29 PzKw V (Panthers) – and no Tigers.

On 8 and 9 June, when these appreciations were being made, Panzer Gruppe West was still planning to attack with 21st Panzer, Panzer Lehr and 12th SS Panzer and the remnants of 716th Infantry, but on 10 June the enemy finally abandoned his hopes of a decisive counter-attack and bent all his efforts to solidifying his defence. A serious gap had by then been opened up on Panzer Gruppe West’s left by the advance of 1st US Division from *Omaha* beach.

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On 8 June 50th British Division’s westwards thrust along the coast through Arromanches had made contact with 1st US Division which on 8 June gained the high ground west of Port-en-Bessin, its D-day objective, after recovering from its initial setbacks on the *Omaha* beaches.

At *Omaha* V US Corps’s D-day objectives had been to take Isigny and Carentan and establish a bridgehead up the Isigny–Bayeux road, five miles inland, from the Vire to the boundary with Second British Army, a distance of fifteen miles. In the event the assault force was pinned down on the beaches and by the end of D-day it held only a tenuous beachhead, five miles long and a mile and a half deep. V Corps’s difficulties were chiefly brought about by the fact that at *Omaha*, the only beach overlooked by cliffs and the one with the strongest coast defences, the assault force suffered most heavily from all the consequences of bad weather. They were compounded by the fact that, as on *Gold* beach, the enemy was on the coast in unexpected strength, the Allies having failed to detect before D-day that he had moved up two regiments of 352nd Infantry Division, on 716th’s left.

Fortunately for V Corps – for its two divisions were by then exhausted and lacking most of their equipment – the regiments of 352nd Infantry were
committed piecemeal instead of in a concentrated counter-attack. V Corps was thus able to begin its advance during D+1, 29th Division thrusting westward towards Isigny and 1st Division eastwards, pushing forward against 726 Regiment of 716th Infantry and elements of 352nd Infantry to reach the high ground west of Port-en-Bessin and make contact with 50th Division on 8 June.

During the night 8–9 June the Germans withdrew 716th Infantry and the remnants of 352nd’s western flank to a line south of Bayeux. On 9 June V Corps extended its advance, 1st Division pushing towards the St Lo–Bayeux road and 2nd Division (newly arrived) attacking against 352nd’s centre. Heavy fighting on that day ended in a second enforced withdrawal of 716th and 352nd Divisions and opened up a ten-mile gap in the German line, from Berigny to Panzer Lehr Division’s position at Longraye. As the Germans realised, unless they were prevented from advancing through this gap to the high ground beyond Caumont the Allies would be able either to turn east and out-flank Caen or to drive towards Avranches, thus out-flanking 352nd Division and the German forces in the Cotentin; or worse still, to do both.

29th US Division’s thrust to Isigny had meanwhile become all the more essential for the junction of V Corps with VII US Corps in that VII Corps, landing at Utah, had also failed to achieve its D-day objectives.

At Utah, where the bombardments and the landing had been least handicapped by the weather, the assault force had met little opposition, though it had lost four destroyers and two minesweepers, the largest naval casualties incurred during Operation Neptune, on an enemy minefield across the Cardonnet Bank.¹ 4th US Division had thus crossed the causeways and linked up with the 101st US Airborne Division according to plan, but by the end of D-day 101st Division had failed to link up with 82nd US Airborne Division at Sainte Mère Eglise and 82nd Division had failed to secure a bridgehead across the Merderet in preparation for the westward advance across the peninsula. On the other hand, the Germans in the Cotentin were slow to organise counter-attacks. Surprised by the arrival of airborne troops in territory strongly held by their own forces, they had also been impeded by an unfounded report of a further airborne descent on the west coast of the peninsula near Coutances. During 7 June 4th US Division was able to link up with 82 Airborne, beleaguered at Sainte Mère Eglise, in time to repulse a counter-attack delivered by elements of 91st, 709th and 243rd Infantry Divisions.

Following the failure of the counter-attack, elements of 709th, 91st and 243rd Divisions under the command of GOC 243rd began forming a line from Quinéville to Montebourg to block the threat to Cherbourg, with southern outposts around the coastal batteries at Azeville and Marcouf. This emerged from the decrypts during 8 June. Reports of heavy fighting in front of this line, together with evidence that the Germans were anxious about their ability to hold it during 9 June, were decrypted on 9 and 10 June. They included the disclosure that at 1020 on 10 June von Rundstedt had ordered the destruction of Cherbourg insofar as it was not essential for the Navy’s operations. But

Advance intelligence on this minefield, which ms to damage a further 25 vessels in the next ten days, had been sent to Ultra recipients on 1 May (see above, p 462) but the Senior Officer of the Western Task Force, an Ultra recipient, appears to have overlooked it. The reason for the oversight may lie in the fact that the minefield was not referred to in the final assessments of enemy minelaying in the Seine Bay issued by the OIC and the ANCF at the end of May and the beginning of June.
with the formations already disposed in the Cotentin and with 77th Infantry Division - detached from II Parachute Corps and ordered up the west coast to Valognes on 9 June, as was disclosed by a decrypt on 11 June - the Germans managed to delay the American advance westward from Sainte Mère Eglise for several days and to hold up the American thrust to Cherbourg till the third week of June.

In order to ensure their junction, V and VII Corps had meanwhile been ordered on 7 June to give priority to the capture of Isigny and Carentan. V Corps’s thrust with 29th Division against the left flank of 352nd Infantry Division took Isigny on the night of 8–9 June: 101st Airborne Divisions attack from the north forced 6 Parachute Regiment to fall back on Carentan on 8 June. At Carentan, however, 6 Parachute Regiment was to hold out till 11 June, the US forces barely winning the race for time against the arrival of those which Rommel had ordered up from the west and south-west.

Of these reinforcements, a battle group of 275th Infantry from St Nazaire and elements of 265th Infantry from Lorient had been ordered to Normandy by rail and road respectively on D-day. II Parachute Corps, 17th SS PG Division and an advanced group of 3rd Parachute Division were all moving up by 7 June, when Rommel directed them to the west coast of the Cotentin. On 8 June he re-directed them to the Balleroy area to fill the gap that was opening up with 1st US Division’s advance against 716th Infantry and the western flank of 352nd Infantry near Bayeux. On 9 June, deciding that the threat to Carentan was more serious than the Balleroy gap, he left only the reconnaissance battalion of 17th SS PG to watch the gap but otherwise re-directed these formations, ordering 17th SS PG to Carentan, 3rd Parachute to the area between Balleroy and St Lo and II Parachute Corps to St Lo. On the same day he ordered a battle group of 353rd Infantry from Brest to join II Parachute Corps near St Lo.

These movements were all delayed by Allied air attacks and rail disruptions carried out by the Resistance. 17th SS PG was unable to reach the Carentan area till 11 June and the battle groups of 275th and 265th Infantry Divisions did not arrive till 14 June. But though the Allies were able to delay them by attacking the lines of communication, they remained for some time uncertain as to where these reinforcements would be committed. As well as being far from complete, their intelligence was confused by uncertainty on the part of the enemy.

PR detected train movements from 17th SS PG’s area on 7 June, and subsequent sightings on that day suggested that it was making for western Normandy. The first Sigint about the movements of 17th SS PG was obtained on 8 June from signals made on 7 June. The earliest included it, together with 1st SS Panzer, Lehr Division, an unidentified SS Panzer division and 10 Panzer Brigade, in a list of code-names for armoured formations which were to operate under Seventh Army. A second signal reported at 1230 that it was subordinated to Panzer Gruppe West and was moving north. By the evening of 8 June air sightings had made it plain that it was moving to western Normandy, and 21st Army Group believed that it was making for the St Lo area and would come in on the left of 352nd Division to block the American advance. On the evening of 9 June, however, the Ultra evidence persuaded First US Army to discount these sightings. On 10 June, moreover, 1st US Division took POW from 17th SS PG’s reconnaissance unit on the right of 352nd Division near Balleroy, where Rommel had left it, and on the strength of this evidence First Army concluded
that on 11 June 17th SS PG would counter-attack from that sector. It even suggested that 17th SS PG might be joined by 1st SS Panzer and 11th Panzer Divisions, which had been reported on 8 June as preparing to move, in a heavy counter-attack on its front. These fears were not finally dispersed by further Sigint till 10 June, when a decrypt reported that 17th SS PG and 3rd Parachute Division had arrived in the St Lo area with II Parachute Corps the previous evening. This enabled the Allied authorities to conclude firmly that, while some of 17th SS PG had been sent to Balleroy to watch the gap, the bulk of it was to be used with the remainder of the German force to counter the American threat at Carentan.

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In the assault phase – those first days in which the landings might have been repelled, or at least so disrupted as to produce a decisive effect on the subsequent battle on land – the Germans were unable to intervene more than marginally at sea. For immediate action they could call only on the enfeebled bomber and anti-shipping forces of the GAF and on limited naval forces – on only limited naval surface forces, indeed, for they were unable to commit the U-boat fleet in the critical period on account of the formidable scale of the Allied defences and the absence of warning as to where and when the Allies would invade.

At midnight on 5–6 June the U-boats in Home Waters were disposed as follows:

* * *

Gruppe Mitte with 22 non-Schnorchel boats were at short notice in south Norway;
Gruppe Landwirt with 36 U-boats comprised eight Schnorchel and nine non-Schnorchel boats at Brest and 19 others (only one of which was equipped with Schnorchel) distributed between St Nazaire, Lorient and La Pallice;
En route from Norway to the Atlantic ten non-Schnorchel, and seven Schnorchel boats: of these, unknown to the U-boat Command, five had been sunk and one damaged.

Alerted at 0305 on 6 June, the U-boat Command at once ordered five of the U-boats on passage to make for Biscay on the surface at high speed, ordered the remainder of those on passage first to halt and then to form a patrol off south Norway until further notice, and at noon sent the eight Schnorchel boats from Brest to the central Channel north of Cherbourg, where they were expected to arrive in four or five days. Despite its reluctance to send non-Schnorchel boats into the danger area, it also ordered the nine in Brest to sail at high speed on the surface to the area between the Lizard and Hartland Point. The remaining Landwirt boats were ordered to establish an anti-invasion patrol on a line north-westward from Bayonne. All but one of the Landwirt boats had sailed by the end of D-day. Gruppe Mitte remained in harbour.

These decisions were in large measure disclosed by Sigint during D-day, but the decrypts gave no details of the departure times or whereabouts of the U-boats. The omission was not serious. Dense anti-submarine patrols sighted 5 U-boats outwardbound from Biscay as early as 1850 on D-day, and 14 U-boats,
all but two off Ushant, during the night of 6–7 June. In eight air attacks that
night two U-boats were sunk and six forced to return to port with damage.
Three more were sunk on the night of 7–8 June and others forced to return.
But by 1400 on 8 June decrypts had established that six or seven were moving
into the Channel from Biscay and that four in the Atlantic had been ordered to
proceed not to Biscay, but to the area between the Scillies and the Lizard.
Other decrypts on 8 June gave the precise positions of the U-boats, then
numbering 19, which had established an anti-invasion patrol line in Biscay,
and disclosed that 11 U-boats from south Norway had been ordered on 7 June
to establish an anti-invasion patrol line south of Bergen, to continue the line of
six boats already on patrol between Trondheim and Bergen.
Signals decrypted on 9 June revealed that four U-boats additional to those
already identified had been ordered in from the Atlantic and that four of the
eleven U-boats on patrol south of Bergen had been ordered into the Atlantic.
The OIC assumed that all these boats were destined for the Channel. Decrypts
of 10 June revealed that the U-boat operational area in the Channel had been
extended to the French coast as far south as Barfleur: that one of the U-boats
ordered from the Atlantic to the Scillies—Lizard area had been directed to join
the group proceeding into the Channel; that a Schnorkel U-boat which had
been forced back to La Pallice was sailing for the Channel on that day.
Although these decrypts allotted precise patrol areas near the Allied convoy
lanes to each U-boat, the actual positions of the U-boats remained unknown.

On 12 June the OIC summed up the intelligence received since D-day.
Leaving aside those which were patrolling off Norway and those sent in to the
Atlantic whose destination was as yet unknown, 35 U-boats had sailed against
Overlord on D-day and three since. Eight of them were moving towards the
Channel - six Schnorchels from Brest and two that were then south of Ireland.
Of nine non-Schnorchels from Brest, some of which had made for the
Scillies—Lizard area, all but two had returned with damage or casualties.
Nineteen had sailed from south of Brest for the patrol line in Biscay. Late on 12
June Sigint revealed that two further 500-ton U-boats had been ordered to
proceed from the Faroes—Iceland passage to Biscay at high speed, and that
another had left Brest for the Channel.

The first U-boat successes in the Channel followed on 15 June. The frigate
HMS Blackwood was torpedoed and sunk off Cap de la Hague and an American
LST was sunk off Barfleur.

Throughout their passage into the Channel accurate plotting of the
individual U-boats had been impossible and even their numbers had been
obscure. Even now it is not possible to give an entirely accurate account of how
they fared, for the U-boat Command was itself uncertain as to their move-
ments, but it is clear that nine Schnorchels from Biscay had been trying to
reach the Overlord convoy lanes, of which one had been sunk on 10 June and
two others forced to return damaged to Brest. Of the remaining six, one had
turned back with defects after a week, one had entered St Peter Port with
empty batteries on 13 June, the third had arrived there on 15 June,
subsequently returning to Brest, the fourth sank HMS Blackwood but was so
damaged in the counter-attack that she went back to Brest, and the fifth was
sunk on 18 June. Only the sixth reached her intended patrol position south of
the Isle of Wight: she arrived on 15 June, sank an LST and attacked, but
missed, two US battleships, but was so continuously harried by Allied patrols
that she withdrew to Brest after three days. No further U-boat was to reach the
Channel until 25 June and although the U-boat Command persisted with its campaign there throughout July, there were never more than four U-boats in the area.

As for the U-boats on patrol in Biscay, decrypts of 9 June had revealed that on the previous evening, in consequence of a GAF sighting of an ‘invasion convoy’ 120 miles west of Brest, ten of them had been ordered to attack and that, when the scare had subsided, all 19 had been moved to specified positions in a new patrol line on the fifth fathom line, where they could lie on the bottom for long periods and thus shorten their re-charging time. As they had been since D-day, they were attacked from the air almost every night until 13 June, when they were recalled to their bases: this news emerged from a decrypt on 14 June. They remained in port, as was known from PR. As is now known, this was partly as a precaution against Allied landings in Biscay, but mainly because the U-boat Command had concluded that to sail them anywhere until they had equipped with Schnorchel would ‘only result in further heavy losses’. As early as 11 June Sigint had disclosed that it had decided to sail no further non-Schnorchel boats, but to sail all Schnorchel boats as fast as possible.

The enemy made a determined attempt to bring his destroyers to bear. As the Allies knew from Sigint and PR, two of them, Z23 and Z37, were undergoing refit or repair, and the other three (Z24, Z32 and the ex-Dutch ZH1) were operational in the Gironde. At 0621 on D-day, as the OIC was able to inform the Commands within just over an hour, a decrypt disclosed that these three had been ordered to prepare to transfer to Brest, and by 0850 a further decrypt had added that they were likely to leave Royan at 1230. They were seen by air reconnaissance as they left the Gironde and in the early evening decrypts gave their course and speed. As a result of this intelligence the destroyers were attacked by Beaufighters 40 miles south-west of St Nazaire, though Allied destroyer sweeps failed to make contact. In a signal sent at 2026 and decrypted by 2312 they reported that they had sustained slight damage; a further damage report from Brest, disclosing that Z32 would be available ‘at reduced war readiness’ from 1200 on 8 June, was decrypted on 8 June.

Further decrypts of 8 June gave advance notice that, accompanied by torpedo-boat T24 (a small destroyer), they would leave Brest for Cherbourg at 1830, arriving at 0500 the following morning. In the evening of 8 June decrypts gave their detailed route and intended speed, and disclosed that they would make an offensive sweep against south-bound shipping north of Cherbourg before entering the port. On the strength of this prompt intelligence they were shadowed from 2245 by aircraft of Coastal Command which assisted 10th Destroyer Flotilla, reinforced and concentrated north-east of Ushant, to make contact at 0130 on 9 June. HMS Tartar was badly damaged in the action which followed, but ZH1 was sunk, Z32 was driven ashore and totally wrecked, and Z24 was badly damaged. Z24 and T24 escaped to Brest: a report on the action giving details of the extensive damage to Z24 was decrypted in the afternoon on 9 June.

The action of 9 June put an end to the danger from the destroyers and reduced the threat from surface ships to that coming from the torpedo-boats and the E-boats based in the Channel. The OIC estimated from Sigint and PR on the eve of D-day and during the next 24 hours that there were 15 E-boats (probably not more than 12 operational) at Cherbourg, 15 at Boulogne and 12 at Ijmuiden, and five torpedo-boats at Le Havre. Of the torpedo-boats, two were in dock, but the remaining three and all available E-boats carried out
minelaying operations and torpedo attacks every night. The casualties they inflicted by direct attack were not severe - some 20 Allied ships sunk or damaged in the first week, mostly small, over and above what they achieved by mining - and their operations did not seriously threaten the Allied build-up. But they were a continuing source of anxiety - so much so, that ANCXF called for an exceptional raid by heavy bombers on their forward base at Le Havre on the night of 14 June.

The raid, which included 22 Tallboy bombs for attack on the E-boat shelters, was delivered that evening, before the customary departure time, by 228 aircraft, and 116 aircraft made a follow-up raid 3 hours later, together the largest daylight operation Bomber Command had ever carried out. It destroyed nine E-boats, seriously damaged two and damaged one other, leaving only one conditionally able to proceed, it also sank three of the five torpedo-boats and damaged another, and sank or damaged several smaller vessels. A raid by 297 aircraft struck Boulogne on the night of 15 June: some 26 smaller vessels were sunk but no damage was done to the eight E-boats present. Detailed reports on the destruction achieved by the raids were decrypted on 15 and 17 June.

The German Naval Command assessed the raid on Le Havre as 'a catastrophe' and believed that as a result of it the naval situation in the Seine Bay had [been] completely altered'. And it is, indeed, true that until 25 June, when two broke through to the eastern Channel, the E-boats left at Cherbourg were to be largely occupied in transferring to St Malo, and in transporting ammunition from there to Cherbourg, and that until July those based in Boulogne were to be used mainly for minelaying. But the greatest threat to shipping in the assault area in the first ten days after D-day had in fact arisen from enemy mining of the anchorages: and far from declining after 14 June, this menace continued to grow because the Germans used two new types of pressure-operated mine \(\text{\textit{Oyster}}\), one the acoustic \(\text{\textit{Oyster}}\) which could be swept only in favourable weather, and the other the magnetic \(\text{\textit{Oyster}}\) which defied all known methods of sweeping and could be destroyed only by counter-mining.

No advance warning of the existence of the \(\text{\textit{Oyster}}\) mines had been obtained from Sigint or any other source. The Admiralty was no doubt on the look-out for evidence of their use - it had itself developed mines on similar principles - and suspicions appear to have arisen from mid-June, when spontaneous detonations were reported in waters previously swept for mines. But it was not until the end of June that parts of one of the mines were recovered on Sword Beach and the Admiralty could inform all ships of their properties and of the counter-measures to be adopted.

Minelaying with the \(\text{\textit{Oyster}}\) mine had meanwhile emerged as the most effective weapon of the GAF. Its limited activity on D-day had come as 'a distinct surprise after all the estimates of the GAF menace to the assault force'. From 1500 on D-day it had carried out small and ineffective tip-and-run raids against the anchorages: after dark it had carried out torpedo and bombing attacks with a total of 175 aircraft, of which only 40 had reached the targets, and damaged three ships and sunk one LST for the loss of 12 aircraft. Nightly raids on this scale on the next few nights achieved equally limited success. On about 10 June, however, the long-range bombers of Fliegerkorps IX turned to minelaying, and on 16 June a decrypt disclosed that the GAF had decided that the scale of minelaying by five Geschwader of Fliegerkorps IX should be increased. From then until mid-July, when they were diverted to support the Army, and again for a few days early in August, when they carried out what
were virtually the last anti-shipping operations by the GAF, the long-range bombers devoted their entire effort to minelaying; and their operations, greatly exceeding those of the E-boats in scale and frequency, proved no less difficult to counter.

The Enigma and RAF Y usually gave two or three hours’ notice of the time of their attacks and of their general target area. But since the aircraft flew too low to be detected by radar, and usually operated singly, intelligence was of little assistance in intercepting them. Regular Allied air attacks were made on their bases, and these no doubt did something to reduce the frequency of their incursions, but Allied minesweeping in the anchorages and on the cross-Channel routes failed for some time to keep pace with them. In his Report of Proceedings ANCXF stated that ‘by 24 June casualties due to enemy mining were becoming serious . . . Special measures were taken to reduce all traffic and the speed at which it proceeded within the assault area’. On 6 July it was estimated that of some 600 *Oyster* mines laid, less than a dozen had been destroyed, and during July and early August the number of Allied ships sunk or damaged by mines still averaged four per week.

The success of the GAF’s bombers in delaying the Allied rate of build-up by mining operations stood in sharp contrast to the ineffectiveness of its specialised anti-shipping units. The anti-shipping units of Fliegerkorps X with the FX and Hs 293 bombs and of Fliegerdivision 2 with torpedo aircraft had from the outset had little success. An attack on the night of 7 June, preceded by decrypts ordering reconnaissance in the Seine Bay which emphasised that the exact location of heavy naval units was of special importance, had been a conspicuous failure; and a decrypt of 10 June analysing the operation attributed it to the inexperience of the aircrew. Serviceability was also particularly low in the anti-shipping force; Sigint had shown that three torpedo-bomber Gruppen in southern France had only 32 aircraft available for operations on the night of 7-8 June. Decrypts disclosed Fliegerkorps X’s intention to operate with FX bombs on the nights of 11 and 14 June. Thereafter the anti-shipping units remained largely inactive until Sigint disclosed on 8 July that II and III KG 6 and KG 40 had been ordered to transfer their He 177s and FW 200s from south-west France to Norway. As well as reflecting the almost total failure of the anti-shipping units, the transfer, which was soon followed by the disbandment of Fliegerkorps X, was due to the growing fuel shortage. About 100 torpedo-carrying JU 88s of Fliegerdivision 2 remained in France until Operation *Dragoon*, but they were rarely active and they had no success before then being withdrawn to Germany.
The Germans had been preparing to make a further attempt to counter-attack north of Caen with all available forces under Panzer Gruppe West since 8 June. They abandoned it in the afternoon of 10 June, but they attacked in the Orne bridgehead on that day. There was fierce fighting around the perimeter during the next ten days. The British attack towards Cagny, launched on 13 June, met strong resistance from a battle group of 21st Panzer Division and was broken off the same day. During the next few days the bridgehead front continued active, but with neither side gaining any significant advantage.

7th Armoured Division attacked on 10 June with the road from Bayeux to Tilly-sur-Seulles as its main axis of advance. Strongly opposed by Panzer Lehr Division, it made little progress that day, or on 11 June, but V US Corps on its right was nearing Caumont without meeting serious opposition and appeared to have found a soft spot in the German defences. On 12 June General Dempsey, in command of Second British Army, ordered 7th Armoured Division to push southward to the Caumont neighbourhood and seize Villers-Bocage from the west. General Dempsey felt that, if this manoeuvre was carried out with drive and speed, there was a chance of a breakthrough before the front congealed. At first all went well. The leading elements of the division entered Villers-Bocage from the west early on 13 June and moved out along the Caen road. But they were stopped that afternoon by a mixed force of tanks and infantry, cut off and overwhelmed. Meanwhile the road from Caumont through Tracy-Bocage was threatened by attacks at several points by infantry identified as belonging to 2nd Panzer Division, newly arriving at the front. Attempts to drive the Germans from the Tilly-Balleroy road failed. On 14 June 7th Armoured Division withdrew from Tracy-Bocage to the Caumont area.

General Dempsey had been right in sensing that there was a soft spot in the German line south of Bayeux. 352nd Infantry Division had found its position on the coast untenable. During the night of 9–10 June it was withdrawn to the river Elle, between Berigny and Airel, thus opening a gap 10 miles wide from Berigny eastwards across the Aure to Longraye near Tilly-sur-Seulles where Panzer Lehr was established. The enemy’s first plan was to fill this gap with II Parachute Corps (less 77th Infantry Division which had been ordered to Valognes in the Cotentin). But by the evening of 9 June the bulk of 3rd Parachute Division had only reached Brecy, east of Avranches, and part of 17th SS PG Division was in the same area: only advance elements had reached the gap at Balleroy. Moreover, Rommel now considered that weakness in the Carentan area was more dangerous than the gap on the right of LXXXIV Corps. II Parachute Corps was therefore diverted to block the sector between Carentan and St Lo, and 353rd Division was ordered from Brittany to St Lo, where it would come under II Parachute Corps. Only reconnaissance elements of 17th SS PG Division were left in the vicinity of Balleroy to hold the gap until the arrival of XLVII Panzer Corps with 2nd Panzer Division, which had begun its move from Amiens on the night of 9–10 June.

On the afternoon of 10 June an air attack destroyed Panzer Gruppe West: seventeen officers, including the Chief of Staff, were killed, the GOC was wounded and all its communications were smashed. I SS Panzer Corps took over its duties while it went back to Paris to be reconstituted. On the same day von Rundstedt ordered the demolition of all Cherbourg harbour installations that were not indispensable for German naval operations. For, in the US sector, progress had meanwhile been made on both sides of the Vire estuary. V US Corps was in Balleroy on 10 June. On 12 June it was in the outskirts of
Caumont and made a firm junction with VII Corps which completed the capture of Carentan that day. XIX US Corps was now inserted between V and VII Corps. During the next few days V and XIX Corps exerted pressure towards St Lo against stiffening resistance which brought them to a standstill on 18 June about five miles from the town. Meanwhile VII Corps repulsed a counter-attack on Carentan on 13 June and next day attacked westwards from its bridgehead over the Merderet. It took St Sauveur le Vicomte on 16 June, reached the west coast of the Cotentin on 18 June and began its advance north to capture Cherbourg. Its rear was guarded by VIII US Corps, brought in to hold a line facing south from Carentan to the west coast.

On 11 June, following the disaster to Panzer Gruppe West, von Rundstedt and Rommel met and agreed to report independently, but in the same sense, to Hitler. They emphasised that the German forces between the Orne and the Vire must remain on the defensive until reinforcements had arrived to release the striking power of the armoured divisions. Hitler at once ordered the transfer of II SS Panzer Corps, consisting of 9th and 10th SS Panzer Divisions, to Normandy from the eastern front, contrary to the JIC’s expectations before D-day. He directed that the Allies between the Orne and the Vire must be destroyed piece by piece: as a start, the Orne bridgehead was to be eliminated.

Hitler issued a further directive on 16 June. Von Rundstedt was to concentrate his forces, taking the risk of weakening all fronts except that of Fifteenth Army. An Infantry Corps, LXXXVI, was to be brought up from First Army. 12th SS Panzer, Panzer Lehr and 2nd Panzer Divisions were to be relieved in the front line by infantry divisions from Holland, Fifteenth Army and Nineteenth Army. Fifteenth Army would get two new divisions from Norway and Denmark. A massive armoured counter-attack was to be prepared, using the three Panzer divisions withdrawn from the line and four more which were on their way to the battle area (2nd SS Panzer from southern France, 1st SS Panzer from Belgium and 9th and 10th SS Panzer Divisions from the east).

On 17 June, meeting the two Field Marshals at Soissons, Hitler insisted on a rigid defence of every inch of ground. His determination on this point had already been illustrated by his reaction to developments in the Cotentin. Rommel and Seventh Army had decided that as the peninsula was in danger of being cut in two the German forces should also be divided. Gruppe von Schlieben, comprising 70th, 243rd and 91st Divisions, would fall back on Cherbourg and Gruppe Helmich, with 77th Division and all troops south and west of the Merderet, would man a defence line north of La Haye du Puits. As 77th Division was in the Montebourg sector, orders would have to be given in time to allow it to disengage. On 16 June Hitler forbade a planned withdrawal of Gruppe von Schlieben on Cherbourg, and modification of this order on 17 June, permitting withdrawal under pressure, came too late to enable the bulk of 77th Division to get through to the south.

Meanwhile the movement of reinforcements ordered forward after the landings had been seriously delayed by Allied air power, which was making movement by day hazardous and disrupting railway communications, and, in the case of 2nd SS Panzer Division, by the Maquis. By 17 June battle groups of 265th, 275th and 353rd Divisions had reached the front and XLVII Panzer Corps had been brought up to command 2nd Panzer and 2nd SS Panzer Divisions; but 2nd Panzer was still short of its armoured regiment and 2nd SS Panzer had not yet arrived.
The Germans had embarked on a programme for improving their cypher security in the early summer of 1944, and before D-day GC and CS had been alarmed by several decrypts foreshadowing their intentions. The programme fortunately did not gather momentum until 4 months after the landings. The preparations made at GC and CS for exploiting and disseminating a greatly increased volume of high-grade Sigint from D-day were thus amply rewarded.

The Home Waters Naval Enigma key, which was still read currently, and which had carried an enormous amount of traffic in the first few days of the invasion, continued to provide intelligence about the Army and the GAF, as well as about the Navy, throughout the fighting in Normandy. Of the GAF Enigma keys which had recently been brought into force in north-west Europe, 15 were being read with little delay by D-day, and continued to be so until September 1944. They did not at first include the GAF/Army liaison key (Ocelot) which had not been used until the end of May; but GC and CS read this key nearly currently from 8 June till August. Ocelot, like GAF/Army liaison keys in other theatres, produced invaluable intelligence about the ground forces. Its decrypts did much to make up for the fact that the new keys of the Army formations in France resisted GC and CS’s attack until 17 June.

From 17 June to 26 June GC and CS read regularly the Enigma keys used by C-in-C West (Bantam) and Seventh Army (Duck). It continued to read those keys from time to time till the end of July, and from mid-June to the end of July it also read fairly frequently the keys used by 12th SS Panzer Division (Penguin) and the German military occupation authorities in France (Nightjar) and an Army supply key (Peewit).

From the beginning of August, when the Allied break-out from Normandy and the landings in the south of France led to a spectacular increase in German wireless traffic, all the above keys (except Ocelot, which in August began to suffer from delays) were read currently until the German security programme began to take effect. This reduced the speed but not the volume of decryption for GAF keys from September 1944 and for Army keys from November.

These set-backs in the autumn were in large measure off-set by an increase in the volume and speed of decryption of Fish traffic. GC and CS suffered a serious reverse when C-in-C West’s link with Berlin became unreadable shortly after D-day. The link between Berlin and C-in-C South West provided valuable intelligence about the fighting in Normandy from D-day until July, but it, too, was then made unreadable by German improvements. In October, however, GC and CS recovered both of these Fish keys and it had meanwhile made some progress against the links between Berlin and Army Group B (from June 1944) and Army Group H (from August). Delays in decryption decreased from the end of October, and as additional links made their appearance in the west, there was a steady increase in the volume of Fish decrypts until the end of March 1945.

At the other extreme, the German Army in France made much less use of its medium-grade field cypher than had been expected, and the Allies had correspondingly more difficulty in exploiting it. But Army Y benefited from the German reliance on low-grade codes and plain language for tactical signalling.
Between D-day and 18 June the naval and GAF Enigma had shown the Germans to be anxious lest the Normandy landings be followed by landings elsewhere. In a message of 6 June, decrypted that evening, Naval Gruppe West had announced that although the invasion of Normandy was recognisable as a major operation, all units were to be prepared for surprise attacks in further areas. In a message of 8 June, decrypted on 10 June, C-in-C West had ordered a state of emergency in view of the possibility of landings outside the bridgehead and of Allied reinforcements by air. An appreciation issued by Admiral Atlantic on 9 June, which was decrypted on 10 June, suggested that the hesitant and slow progress of Allied land operations in the Cotentin and Seine Bay might indicate ‘an intended second landing at another point’. On 11 June the decrypts included one in which Panzer Gruppe West referred to reports indicating that the Allies were planning a landing on the Belgian coast that night. Orders to GAF reconnaissance units, decrypted on 10, 11, 12 and 14 June, directed attention to the Dutch–Belgian coast: strong troop concentrations had been observed in English east coast harbours. Similar orders were decrypted during the next three days. On 16 June Naval Gruppe West saw strong indications (jamming of radar, shipping concentrations and Allied air activity) of invasion operations against Holland and Belgium during the night 16–17 June.

Several telegrams from the Japanese embassies in Berlin and Vichy, decrypted between 9 and 22 June, provided further evidence of German anxiety about landings in the south of France and in the Boulogne–Calais area. The Overlord intelligence staffs regarded these decrypts as in large measure explaining why the German build-up was taking place more slowly than they had expected. They had appreciated before D-day that the Germans would take the decision to commit themselves to Normandy by D+2 and that twelve divisions would be rushed there between D+3 and D+6: 3rd and 5th Parachute Divisions and 77th Infantry Division from Brittany; 11th Panzer and 2nd SS Panzer Divisions from the south of France: 1 SS and 2nd Panzer Divisions, 84th, 85th, 326th and 331st Infantry Divisions\(^1\) and 19th GAF from beyond the Seine. 21st Army Group’s intelligence summary\(^2\) on the evening of 11 June repeated that whereas it had been expected that the enemy would after D+2 adjudge the assault on Normandy to be the over-riding menace, and would have brought up eleven divisions\(^2\) between D+3 and D+6, the evidence was that only five would have arrived, none of them from east of

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\(^1\)These divisions and 19th GAF Field Division were thought to be likely to be transferred to Normandy, with the armour which was in OKW and Army Group B Reserve behind Fifteenth Army, because they occupied a lay-back position behind the eleven static or coastal divisions of Fifteenth Army which were massed in the concrete defences between the Seine and the Scheldt. Contrary to what is assumed in some accounts of the influence of the Fortitude deception, the Allies did not envisage and the Germans did not contemplate the transfer of the static divisions, or even of the three field divisions (47th, 48th and 49th) which were known to have been formed out of reserve infantry divisions just before D-day; the latter were judged by the Allies to be static, like the coastal divisions. Even the lay-back or so-called mobile infantry divisions were largely dependent for transport on horse-drawn vehicles and bicycles, and though the Allied intelligence authorities suspected this, they appear to have under-estimated in their assessments before D-day the difficulty the Germans would have encountered if they had decided to move them to Normandy under Allied air attack and with communications disrupted and all the Seine bridges down.

\(^2\)It was 11 instead of 12 because, as the summary reported, it was now known that 19th GAF Division had left Belgium for Italy.
the Seine; and it attributed the short-fall to the fear of further landings, especially in the Pas de Calais, and the damage to communications, in particular the destruction of the Seine bridges.

The decrypts referring to the enemy’s anxiety about further landings were used as evidence not only of the effectiveness of the Allied deception programme, but also of the importance of maintaining it by every possible means. On 7 June, despite heavy commitments in other directions, the Air C-in-C ordered the continuation of the bombing of *Fortitude* targets and this was reaffirmed by Tedder two days later. On 11 June, in support of a plea that the suspension of diplomatic privileges imposed in the spring should not be relaxed until 21 June, Eisenhower’s Chief of Staff submitted a selection of the decrypts to the Foreign Office, which was objecting to the prolongation of the suspension after D-day. He argued that when it was ‘imperative that the enemy receive no scrap of information which might indicate to him the true nature of our plans ... the mere lifting of the ban ... will indicate ... that no further landings are to be contemplated’. On the same day MI 14 advised the CIGS that ‘about D+6 or 7 he [the enemy] may realise that no major attack on the Pas de Calais–Belgian Coast is intended for the time being,’ and that the date on which he took this decision would depend a great deal on the successful continuation of the deception.

Thus far, although high-grade Sigint had begun to make its contribution during 8 and 9 June, it had thrown little light on the progress of the enemy’s build-up. On the morning of 10 June the decrypts of signals sent the previous evening had located Panzer Gruppe West at La Caine and the HQ of I SS Panzer Corps near Tourville, and had prompted Allied air attacks later on 10 June. Two raids on the Panzer Corps HQ produced no result but the attack on Panzer Gruppe West put it out of action. But apart from confirming on 10 June the transfer of II Parachute Corps with 17th SS PG and 3rd Parachute Divisions to the St Lo area,¹ the decrypts provided no precise information before 11 June. Until then, the Allied assessments depended entirely on agents, PR, Army Y and contacts with the enemy; and the evidence of these sources had been less than conclusive.

On D-day air reconnaissance had detected rail loading activity in 2nd Panzer’s and 1st SS Panzer’s areas as well as in those of 12th SS Panzer, 17th SS PG and Panzer Lehr. On the evening of 8 June 21st Army Group had believed that, as agents had by then reported heavy loading in Belgium, 1st SS Panzer was likely to be the next armoured formation to arrive after 12th SS Panzer, Panzer Lehr and 17th SS PG, and that it would be followed by 2nd SS Panzer from Toulouse. On 10 June, when air reconnaissance detected heavy movements from Paris through Dreux, 21st Army Group and Second Army associated them with 1st SS Panzer, though Second Army had noted that ‘other candidates’ were 2nd Panzer, 116th Panzer or the balance of I SS Panzer Corps.

The first Sigint references to these movements were in keeping with Allied expectations. Issued on 11 June, they confirmed that 2nd SS Panzer was on the move and reported that its main loading base was Perigueux. But it was still assumed that 1st SS Panzer was also moving up, leaving 2nd Panzer and 116th Panzer to guard the Pas de Calais, and that 2nd Panzer might leave Amiens

¹see above, p 480.
within a week if the *Fortitude* deception measures were relaxed. It was thus with some surprise that on the evening of 12 June the Allied authorities learned from the decrypt of a signal from the Flivo of XLVII Panzer Corps that 2nd Panzer had been due to move to an assembly area 20 km south of Falaise, about 35 miles from the battlefield, during the night of 11–12 June.

In view of the fact that air reconnaissance had indicated that only one division had moved through Paris, this disclosure involved only the substitution of 2nd Panzer for 1st SS Panzer. Thus the real surprise was not, as is commonly said, the appearance of advanced elements of the division, but the fact that the Allies encountered them on the afternoon of 13 June near Villers-Bocage; 21st Army Group had expected it to go into action against I Corps in the Caen sector. Decrypts disclosing that it had established communication with Panzer Lehr in XXX Corps area on the evening of 12 June were issued on 13 June after its troops had been identified.

The Germans in fact ordered 2nd Panzer forward on 7 June and released 1st SS Panzer from OKW Reserve on 8 June. But the two divisions had not begun to move to Normandy until 9 June, when 116th Panzer was also ordered to release one regiment. Thus except for the remainder of 116th Panzer, which was newly formed and far from ready, all the armour that had been kept back behind Fifteenth Army was being sent into the Normandy battle on D+3, much as the Allies had predicted, notwithstanding the continuing German fear of a second landing. On the morning of 10 June, however, 1st SS Panzer had been stopped following the receipt by the Germans on the previous evening of two warnings that the Allies were intending to carry out another major invasion, probably in the Pas de Calais. The first warning had come from an uncontrolled Abwehr agent in Stockholm and the second, from one of the double-cross agents, had been sent as part of the *Fortitude* deception programme, which had been intensified since 8 June. It appears to have been this coincidence which impressed the enemy at a time when he was acutely torn between his fear of a further landing and his anxiety to gain a decision in Normandy before a further landing took place. 1st SS Panzer was not to move to Normandy until, on 16 June, Hitler ordered von Rundstedt to take the risk of weakening all his fronts except that of Fifteenth Army and prepare a massive armoured counter-attack.

2nd Panzer Division, continuing its movement by road through Paris, had meanwhile been directed not to the Caen sector, where Panzer Gruppe West had abandoned the attempt to counter-attack on 10 June, but to the gap in the Caumont – Balleroy sector. Its reconnaissance battalion, moving by train and only by night, had reached the gap on the night of 12 June. But the set-back to 7th Armoured Division at Villers-Bocage on 13 June was administered not by 2nd Panzer’s infantry, but by one of the two Tiger tank companies of Heavy Panzer Abteilung 101. In April high-grade Sigint had identified Panzer Abteilung 101 as part of the Corps troops of I SS Panzer Corps, and shown that it was receiving Tigers and Panthers from Panzer Brigade 10, a staff formation. In the middle of May agents had located it at Gournay, near Beauvais, 50 km north-west of Mantes. The decrypt of 8 June allotting cover names to armoured formations which included Panzer Brigade 10 had been a strong indication that the Allies would encounter Panzer Abteilung 101, and they were certainly on the look-out for it. But no indications were obtained of the approach of the

*see above, p.479.*
Abteilung to Villers-Bocage, where it arrived during 12 June. It had in fact left Gournay on 7 June and had suffered severely from air attack near Versailles on 8 June, but had thereafter moved only by night.

Sigint disclosures about the enemy’s formations became more frequent from 13 June. Decrypts of 13 and 14 June reported that 2nd SS Panzer had been marching to Tours on 12 June and that it had urgently requested fuel to be sent to Chatellerault on 13 June. Decrypts of 12 and 14 June showed that 116th Panzer had been placed under LXVII Corps and was moving to an area south of the Somme. There was still no reference to 1st SS Panzer, but agents reported on 13 June that it had moved to Ghent. Early on 14 June Sigint gave the location of 2nd Panzer, less its armoured regiment, and confirmed its subordination to LXXXIV Corps; it had closed the gap between I SS Panzer Corps and LXXXIV Corps, and had Panzer Lehr on its right and 3rd Parachute Division on its left.

The enemy had intended to fill this gap with II Parachute Corps until he was forced to divert that Corps against the American advance in the Carentan sector. Sigint became plentiful on 12 June in that sector, where it contributed significantly to the frustration of a counter-attack delivered by 17th SS PG on 13 June. A Flivo signal giving the order of battle of LXXXIV Corps at 1000 on 12 June was decrypted within a few hours. The right group comprised II Parachute Corps, 3rd Parachute and 352nd Infantry Divisions, Parachute Regiment 6, 17th SS PG Division and (in the first reference to this formation) a battle group of 275th infantry Division. The left group comprised 91st, 77th, 709th and 243rd Divisions under the GOC 91st Division. Decrypts issued on 12 June added that elements of 3rd Parachute had been in action at 1300 that day, and that they were to join the right wing of 352nd Infantry on both sides of the St Lo–Bayeux road and operate defensively until full fighting efficiency was achieved. The news that 17th SS PG was assembling south and south-west of Carentan for mobile operations was obtained from the decrypt of another signal issued on 11 June. It was overtaken by signals of 12 June which, decrypted with little delay, enabled GC and CS to issue at 1101 the warning that 17th SS PG was to counter-attack that day to recapture Carentan. At 1316 GC and CS added that LXXXIV Corps had urgently requested air support for preparatory bombing and for ground attack from H-hour, which would probably be 1500. Signals decrypted later in the day disclosed that communications difficulties had prevented the redirection of GAF formations and that the attack had been postponed until the morning of 13 June. At midnight on 12–13 June GC and CS signalled 17th SS PG’s latest intentions, together with requests for preliminary air attacks at 0230 and attacks from 0320 in front of the attacking spearheads. There can be little doubt that these timely decrypts helped the US forces to repulse this counter-attack.

Decrypts of 14 June disclosed that battle groups of 275th and 265th Infantry Divisions had been approaching the battlefield on 10 June, and that II Parachute Corps intended to use its remaining reserves for a counter-attack to eliminate a penetration east of the Douve but was doubtful of success because of the slow arrival of reinforcements. A decrypt of 16 June showed that this attack was still being contemplated late on 15 June. On 17 June decrypts reported that 2nd SS Panzer had been at Champssecret on 15 June under the command of XLVII Panzer Corps with 2nd Panzer Division. The next references to 2nd SS Panzer were received on 18 June; it had left XLVII Panzer Corps on 17 June and was assembling south of St Lo on the morning of 18 June.
On 17 June Sigint established that 1st SS Panzer Division was still in Belgium on the evening of 16 June and that 116th Panzer was in Fifteenth Army Reserve under LXVII Corps. From 17 June, however, the decrypts began to reflect the developments inaugurated by Hitler’s directive of the previous day. On 17 June they reported that 16th GAF Field Division was being withdrawn from its coastal sector in Holland and that 6th Parachute Division from eastern France had arrived in Amiens, and on 18 June that 363rd infantry Division, from Denmark, was moving to Bruges. On 17 June they revealed that since 15 June preparations had been going forward for the transfer from Bordeaux of the Corps Staff of LXXXVI Corps and an unspecified infantry division. This last information was amplified on 18 June when the decrypt of a signal of the previous day reported that LXXXVI Corps was being put into the line to take over the sector between the Seine and the Orne; the Seine would be its right boundary with LXXXI Corps, and also Seventh Army’s right boundary with Fifteenth Army, and its left boundary with I SS Panzer Corps would be the Orne from Caen. Additional information had been received from other sources by the evening of 18 June. The Resistance had reported that two infantry divisions might be coming up from the southern Biscay coast. Reports of train movements indicated that two divisions might have been brought up from Germany. Allied troops had made contact in the St Lo area with elements of 353rd Infantry Division.

In its intelligence summary of 15 June 21st Army Group reviewed the state of the German build-up. It had been expected that the Germans would assemble 25 divisions by D + 10, including nine Panzer and PG divisions. The actual number was six armoured divisions, one parachute division and elements of eleven infantry divisions — some of the latter being only brigade groups. The summary attributed the short-fall to the effects of Allied air power and the extent to which the Germans had continued to fear further landings, particularly in the Pas de Calais. The Army Group’s summary of 18 June, issued on the day on which VII US Corps reached the west coast of the Cotentin and began its advance on Cherbourg, reflected the knowledge that reinforcements were coming in now from Holland, Denmark and Bordeaux, and probably from Germany. It noted that as the Germans must be resigned to the loss of Cherbourg, they might be reconsidering their appreciation of Allied intentions and reviewing their own order of battle. But it did not expect them to ‘sell out’ of the Seine–Somme area.

* * *

On 18 June Montgomery issued a new directive requiring Second British Army to take Caen by a pincer attack while First US Army pressed on with the capture of Cherbourg. On 19 June a storm began in the Channel, the like of which had
not been known for over forty years. It lasted three days and compelled the postponement of Operation *Epsom* and the subsidiary attacks: I Corps’s advance was now to take place on 23 June, to be followed by XXX Corps’s attack on 25 June and VIII Corps’s on 26 June. But VII US corps continued to advance northwards, and by 20 June it was facing the landward defences of Cherbourg. It began the attack on the town on 22 June and entered it on 25 June. The Fortress Commander surrendered next day, although resistance in outlying positions lasted till the end of the month.

Meanwhile, intelligence had covered the continuation of the German build-up in the interval before the opening of Operation *Epsom*. Local sources had reported by 20 June that 1st SS Panzer Division had finally left Belgium by rail between 17 and 19 June. On 20 June, when the decrypt of a signal of the previous day disclosed that on reaching its assembly area it would be subordinated to I SS Panzer Corps, which had its HQ at Baron, 21st Army Group expected it to reach the front on 21 June with (on the strength of a decrypt of a signal from C-in-C West on 25 May) about 100 tanks. On 20 June 276th Infantry and 16th GAF Field Divisions, whose departure from Bordeaux and the Dutch coast respectively had already been reported by the Enigma, were believed to be arriving, as was 48th Infantry, which was reported, incorrectly, to have left Belgium on 16 and 17 June.

Decrypts issued on 21 June reported that Seventh Army had 2nd SS Panzer Division in reserve in the area Torigny-sur-Vire–Canisy–Tessy-sur-Vire on 18 June and that 353rd Infantry, less elements already committed, was to be brought forward to Periers as LXXXIV Corps Reserve. On 22 and 23 June, the Enigma established that 116th Panzer still showed no signs of moving from Fifteenth Army’s area. 21st Army Group was then expecting the early arrival not only of 16th GAF from Holland and 276th Infantry from Bayonne, but also of 277th Infantry from Narbonne: PR had detected railway activity in its area as well as in that of 276th Infantry, and a ground source had reported that it was due to move on 21 June.

During 24 June GC and CS revealed that II SS Panzer Corps and 9th SS Panzer Division and 10th SS Panzer Division had arrived in the Saarbrücken–Nancy area and at Dreux by 21 June. Other decrypts on 24 June reported the arrival of infantry divisions. The main body of 353rd Division was level with St Lo. Two trains of 276th Division had unloaded at Le Mans and nine south of Angers; personnel were on the march to the area Domfront–Flers; there were three trains in Tours and six more on the way. A battle group of 266th Infantry Division had arrived south-east of Avranches and four trains of 16th GAF Field Division had unloaded west of Paris. Elements of 277th Infantry Division had been unloading.

21st Army Group’s intelligence summary for 24 June noted the infantry reserves drawn from Brittany, Holland and southern France and the strategic reinforcement in the shape of II SS Panzer Corps with 9th and 10th SS Panzer Divisions. It thought that the Corps would probably be joined by a Panther battalion and a Tiger battalion and be deployed according to need in the ‘Panzer cockpit’, between Caumont and Caen, and in the St Lo area, where a strong Allied drive would endanger the troops of LXXXIV Corps at the base of the peninsula.

Early on 25 June high-grade Sigint added information from the decrypt of a report from C-in-C West of 18 June: Werfer Brigade 9 had arrived south-west of Paris; all trains of 1st SS Panzer Division’s Panther unit had left; 34 trains of
363rd Division and 12 trains with elements of 6th Parachute Division had arrived in Fifteenth Army’s area; and 276th Division’s sector (in the Bayonne area) had been taken over by an ad hoc regiment. At 1010 a very prompt decrypt which gave LXXXVI Corps’s order of battle early on 25 June, revealed that 16th GAF Field Division was being brought up to the Corps. A signal from GC and CS in the afternoon indicated that a battle group of 11th Panzer Division near Bordeaux might have been on the move on 22 June.

Enigma decrypts covered the adjustments the enemy made to his tactical dispositions on the front-line between 18 and 23 June as fully as it covered the movements of his reinforcements – so fully that when Operation Epsom was launched the only major uncertainty about the German order of battle concerned the precise whereabouts of 1st SS Panzer Division and of II SS Panzer Corps with 9th and 10th SS Panzer Divisions. 21st Army Group’s intelligence summary of 26 June noted that 1st SS Panzer Division had not been committed piecemeal, but had been assembling with the van of 9th and 10th SS Panzer Divisions south of the road Argentan–Dreux. It suggested that Rommel might use this ‘formidable reserve’ for his long-delayed counter-attack. In fact it was used to contain the salient on the Odon which VIII Corps established.

On 23 June I Corps attacked in the Orne bridgehead. XXX Corps followed on 25 June. Its task was to protect the right flank of VIII Corps by exploiting south to the Noyers area. VIII Corps attacked on 26 June to force the crossings of the Odon and the Orne and establish itself on high ground commanding the roads to Caen from the south.

On 28 June VIII Corps held a salient five miles deep but less than two miles wide which was threatened on both sides. II SS Panzer Corps with 9th and 10th SS Panzer Divisions was believed to be approaching. It was therefore decided to await the counter-attacks which appeared to be building up. These began during the afternoon of 29 June. Elements of both 9th and 10th SS Panzer Divisions were identified. VIII Corps withdrew that night from its advanced positions and was disposed in strength to hold the rest of the salient. After a quiet day on 30 June the German counter-attacks were renewed on 1 July, first south and then north of the Odon. They were met by very strong artillery concentrations and were finally repulsed. Their failure marked the end of the Epsom battle.

Except that DF supplied many locations, Army Y was of little value during the battle; VHF communication was rarely intercepted despite intensive search, and few WT transmissions in medium grade codes and cyphers could be read. Enigma decrypts, though numerous, were obtained with delays of between five and eight hours. Except for those giving advance notice of the GAF’s intentions in support of the army, which were a guide to the enemy’s intentions and expectations, they were of little tactical value. But they provided an over-all view of the fighting and kept track of the arrival of new formations. A decrypt on the evening of 28 June disclosed that HQ Panzer Gruppe West was again operational; a further decrypt of 2 July added that it had assumed command on 29 June of LXXXVI, I and II SS Panzer and XLVII Panzer Corps. On 27 June 10th SS Panzer Division reported that it was moving up, but gave no location. On 29 June 9th SS Panzer Division reported that it intended to attack that morning. Decrypts received later in the day revealed that both divisions, together with 1st and 12th Panzer Divisions, had been subordinated to II SS Panzer Corps. By the evening of 29 June 21st Army Group appreciated that the
need to contain the British salient had spoiled Rommel’s plan for a concerted counter-attack: the battle had first drawn in infantry from 2nd SS Panzer and tanks from 2nd Panzer and finally 9th and 10th SS Panzer Divisions.

On 24 June, advised that the massive armoured counter-attack on the bridgehead which he ordered on 17 June could not begin till 5 July, Hitler had asked Rundstedt to consider carrying out in the next few days an attack against the rear of the US forces investing Cherbourg. Rundstedt had refused after conferring with Rommel: all the approaching reinforcements might be needed to destroy the offensive the Allies were preparing around and to the west of Caen. On 27 June, the day on which VIII Corps crossed the Odon, Rundstedt had submitted that his forces west of the Vire might soon be encircled unless he and Rommel were given a free hand to make extensive adjustments to the front, thus questioning Hitler’s insistence that every inch of ground must be rigidly defended pending the counter-attack. On 29 June, in a conference at Berchtesgaden, Hitler had agreed with Rundstedt and Rommel that an attack on the Americans was not possible until the British thrust through Baron to the Orne had been stopped. Returning to learn that Panzer Gruppe West and Seventh Army were advocating the immediate evacuation of Caen and withdrawal to a line beyond the range of naval guns, the two Commanders had endorsed these recommendations and had requested freedom to act on them, but Hitler had insisted that there was to be no withdrawal. He dismissed Rundstedt on 2 July and Schweppenburg on 4 July, replacing them with Field Marshal Kluge and General Eberbach.

On 8 July he issued a new directive. It forecast further Allied landings between the Seine and the Somme and on the French Mediterranean coast, allowed that a surprise attack on one of the Brittany ports was possible and recognised that ‘the present relative strengths of the opposing forces, and the fact that the majority of all our mobile formations are already committed, preclude for the time being any major offensive aimed at the destruction of the enemy in the bridgehead’. But it insisted that, ‘in no circumstances may the bridgehead be allowed to increase in size ... otherwise our forces would prove inadequate to contain it and the enemy will break out into the interior of France where we do not possess any comparable tactical mobility with which to oppose him’.

The Allies learned nothing of these exchanges. But decrypts had disclosed by 4 July that the Germans still feared landings between the Seine and the Somme and on the French Mediterranean coast and, possibly, a surprise attack to capture one of the large Brittany ports – the threats to which Hitler drew attention in his directive.

In telegrams decrypted on 23 June the Japanese embassy in Berlin had reported that on the basis of POW remarks and captured documents OKW believed that Patton had 23 divisions, and that this was one reason why the Germans had ‘so far refrained from pouring their reserves into Normandy’: for their own part, the Japanese believed that the fact that the Allies were continuing to develop the Normandy bridgehead might soon force the Germans to commit their resources on the assumption that the present
invasion represented the main Allied effort. These decrypts were followed by an appreciation by FHW dated 22 June: over and above 21st Army Group’s formations – between 22 and 24 divisions in Normandy and between 10 and 12 in reserve – FUSAG had some 28 large formations in south-east England; the employment of FUSAG in Brittany was unlikely; but a coup de main to seize Brest could not be ruled out. On 22 June, in a telegram decrypted on 28 June, the Japanese Ambassador had reported that, while many voices were raised in favour of a quick counter-offensive in Normandy, the German High Command still felt that the main task was to meet the main body which the Allies had not yet landed; and on 24 June, in another telegram also decrypted on 28 June, he had given it as his personal view that since Patton was waiting to land, it would be dangerous for Germany to put strong reserves into Normandy.

Three decrypts had been issued on 1 July. The first, a circular sent out on 27 June by the German Ministry of Foreign Affairs, announced that the Allies had been unable to carry out their promise to Russia to attack with a second invasion army, but that, though postponed, a further landing was still to be expected. The second was another telegram from the Japanese embassy dated 27 June to the effect that Patton’s army was expected to land in the near future, probably in the area from the beachhead to Le Havre. The third was a C-in-C West appreciation of 26 June: the C-in-C believed that beyond their immediate objective in Normandy the Allies probably intended to use FUSAG in successive waves for landings on both sides of the Somme, with the object of capturing Le Havre and developing in conjunction with 21st Army Group a pincer movement against Paris on both sides of the Seine, and also to use between 12 and 14 divisions in north Africa for landings on the Mediterranean coast. He went on to express grave anxiety. The reserves behind Fifteenth Army were likely to be inadequate for defence against the strong airborne landings that were to be expected, and the mobile reserves there were insufficient for a massive counter-attack. In the south Nineteenth Army’s reserves consisted only of 9th Panzer Division, which was not yet fully mobile, and Assault Brigade 341: in the event of a landing there the fact that the French forces had proved themselves in Italy might exert great psychological effect on the Resistance movement, which was increasing its activities. In the event of German reverses it had to be faced that the revolt which had been prepared might well break out.

In a signal of 2 July, decrypted the same day, C-in-C West had ordered the greatest alarm readiness and reinforced patrols during the next few days. There had been a remarkable increase of traffic on the French and Belgian wireless networks, and French and British signals to parachutists in France revealed advance warnings of a landing similar to those that had been intercepted before D-day: there was no clue as to where landing might be made. This decrypt was followed on 4 July by the decrypt of an appreciation of 30 June in which Fremde Heere West expected the capture of Cherbourg to release landing craft for operations by Patton’s Army Group. When and where the Army Group would be used remained unclear. The Allies were carrying out a war of nerves to tie down German forces on the Mediterranean coast: they would attack there when they recognised that the war of nerves was not succeeding. The Franco-Belgian Resistance organisations expected new Allied landings about 6 July, but FHW believed the second half of July to be ‘more probable’.
On 30 June General Montgomery issued a new directive. Second British Army was to hold the main enemy forces between Caen and Villers-Bocage, and ‘develop operations for the capture of Caen ... the sooner the better’. First US Army was to begin an offensive southwards on 3 July and, pivoting on its left at Caumont, to swing eastwards to the general line Caumont–Vire–Mortain–Fourges. When the base of the Cotentin peninsula was reached, near Avranches, VIII US Corps on the right would turn westwards into Brittany. General Bradley would direct a strong right wing in a wide sweep south of the bocage country to secure successively the line Lavel–Mayenne and Le Mans–Alençon.

On 1 and 4 July German assessments of 21st Army Group’s immediate objectives were obtained from the decrypts of appreciations issued by C-in-C West on 26 June and Fremde Heere West on 30 June. The C-in-C had expected the Allies to extend their bridgehead south-east from the Tilly area, to strengthen the Orne bridgehead as a pivot for operations to the east or south-east between the Orne and the Seine, and to attack the German front in the south of the Cotentin when the US divisions operating against Cherbourg became available: in this last sector they would seek to destroy the German forces north of the line Periers–Lessay and thrust to Coutances. FHW had expected First US Army to attack from the St Lo area, to cut off German forces west of Carentan, and then to advance south in the direction of Avranches–Domfront, its task being to protect the southern flank of the Army Group while Second British Army sought a decision south of the Seine by thrusting eastwards.

Between 3 and 18 July the Allies suffered heavy casualties in return for inconsiderable gains: but they knew from the close watch they were able to keep on the enemy’s conduct of the battle that their attacks had tied down four armoured divisions (1st and 10th SS Panzer and 2nd and 21st Panzer) and elements of a fifth (9th SS Panzer), thus frustrating his attempt to deliver a counter-attack, and also that he had been forced to commit two others (Panzer Lehr and 2nd SS Panzer) against the US threat to St Lo.

When the Epsom attacks ended the dispositions of the German armoured divisions in the line were, from right to left, 21st Panzer with elements both sides of the Orne, 12th SS Panzer in the Caen sector, 9th and 10th SS Panzer facing the Odon salient, Panzer Lehr in the Noyers sector and 2nd Panzer in the Caumont sector. 2nd SS Panzer was Army Group Reserve west of the Vire. 1st SS Panzer had also reached the front, and elements had been identified around Gavrus in the Odon salient, but its precise whereabouts remained uncertain.

The attack on Caen on 8 July encountered elements of 21st Panzer Division backing up 16th GAF Field Division north of the town. On 10 July prisoners confirmed that the relief of 21st Panzer Division by 16th GAF had been disturbed by the attack, and a decrypt disclosed that 16th GAF Field Division was subordinated to 21st Panzer Division east of the Orne. On the next day 21st Army Group commented that the enemy ‘had been trying to have it both ways: not to yield ground, yet to have armour in reserve’. But ‘every time a Panzer Division gets relief it is back in the battle to plug a hole somewhere else’. On 13 July 21st Panzer’s PG regiments were in the front line east and south of Caen while its tanks were thought to be in reserve around Vimont. 12th SS Panzer Division held the sector west and south of Caen including Carpiquet village and airfield. Around midnight on 9–10 July, however,
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high-grade Sigint reported that part of 1st SS Panzer had come into the line south-west of Caen and, with elements of 12th SS Panzer, was occupying the new main defence line. At 0912 on 10 July GC and CS signalled that, while elements of 12th SS Panzer were still fighting north of Caen, Flak was being moved to protect the assembly of the Division north of Falaise. On 11 July the high-grade Sigint reported that the Division was being withdrawn for the time being and that by 1015 most of it was out of the line. On 16 July 21st Army Group’s intelligence summary noted that it was the only formation uncommitted. On 17 July high-grade Sigint reported that 12th SS Panzer was moving that day to the area Lisieux–Cambremer–Pont L’Éveque and required air cover. On 15 July it had reported that 272nd Infantry Division (arriving from the south of France) would be taking over from 1st SS Panzer Division, which would stay close behind the front as Corps Reserve, but what 21st Army group called ‘the magnetic attraction of the Odon salient’ drew elements of 1st SS Panzer Division again into the battle on 16 July.

In the Epsom battle II SS Panzer Corps with 9th and 10th SS Panzer Divisions had been committed against the Odon salient, 9th SS north of the river and 10th SS south of it. On 11 July GC and CS reported that 9th SS Panzer was being relieved by 277 Infantry Division, and brought in south of the Odon to help 10th SS Panzer and 12th SS Panzer Divisions to repulse Second Army’s attempt to extend the salient south-west towards the Orne. At midday on 15 July Sigint showed that 9th SS Panzer was again out of the fighting for the time being, but another decrypt disclosed that by 1700 the next day it had been committed near Gavrus to stem the Allied thrust towards Noyers and Bougy.

On 30 June high-grade Sigint had disclosed that Panzer Lehr, then under XLVII Panzer Corps, was to be relieved by the newly arrived 276th Infantry Division. A decrypt on 5 July announced that it was in XLVII Panzer Corps Reserve to support either 276th or 2nd Panzer Division but on 8 July GC and CS reported that it was transferring to the area west of St Lo. Elements had already started and the staff would move during the night 8–9 July.

2nd SS Panzer Division had remained in Army Reserve on the western flank, but Sigint disclosed on 6 July that it had been subordinated to LXXXIV Corps. During the next few days it was actively engaged all along the Corps front. Sigint reported its reversion to Army Reserve on 10 July, but the respite was brief, Sigint reporting two days later that it was assuming command both sides of the Carentan–Periers road.

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The news that 2nd SS Panzer and Panzer Lehr were being committed on the western flank was part of the very full intelligence disclosed by high-grade Sigint relating to the offensive opened by First US Army on 3 July.

A report from C-in-C West of 30 June on the situation in this sector was decrypted on 4 July: as the remnants of 352nd Division were completely exhausted and 3rd Parachute Division was no longer able to withstand a strong attack, there was a danger of a breakthrough into the flank of LXXXIV Corps, on II Parachute Corps’s left, and he had therefore put a Panzer battalion of 2nd Panzer Division under II Parachute Corps for operations north of St. Lo. This
was followed by frequent decrypts reporting, usually within 12 hours, the
tactical changes in LXXXIV Corps’ fronts that were made to stem the threat of
an American breakthrough, and the arrival of reinforcements. On 6 July they
disclosed that 2nd SS Panzer Division had been subordinated to LXXXIV Corps
that morning. They disclosed on 8 July that Panzer Lehr Division was being
transferred to St. Lo, and gave on 9 July the position it was taking in the line.

Early on 10 July the decrypts announced that Panzer Lehr intended to
attack, probably that evening. In the afternoon they disclosed its positions and
its plan for attacking the Allied bridgehead south of the Vire-Taute canal at
dusk. The attack was delayed till the morning of 11 July, without further
warning from Sigint, but decrypts that evening revealed that it had run into
trouble. During 10 July it emerged that 2nd SS Panzer Division was being
withdrawn to Periers and placed in Seventh Army Reserve, but decrypts during
12 July showed that it had returned to the battle, taking command on the
Carentan-Periers road. These decrypts were followed by the news that Panzer
Lehr Division had suffered heavy losses in an American thrust on 12 July and
that II Parachute Corps was trying to hold a new defence line by scraping
together its last reserves. From 13 July decrypts reported repeated withdrawals
by Panzer Lehr, exposing II Parachute Corps’ left flank, and frequent warnings
from the Corps that its exhausted troops would be unable to prevent an
American break-through to St. Lo. First US Army entered St. Lo on 19 July.

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On 15 July Montgomery issued final instructions for an offensive east of the
Orne (Operation Goodwood). It was hoped that this attack would be accompa­
nied by an American offensive from west of St. Lo (Operation Cobra), but this
had to be postponed when German resistance delayed the capture of St. Lo till
19 July.

When the preliminary operations for Goodwood began on the night of
15–16 July it was known that the Germans expected a major attack by Second
Army. Signals to that effect from 21st Panzer Division, 10th SS Panzer Division
and LXXXVI Corps were decrypted on 13 and 14 July. There is no evidence,
however, that they expected the attack to come in the Goodwood sector. On the
contrary, the plan for the preliminary operations exploited the knowledge that
the enemy continued to believe that the offensive was to be co-ordinated with a
further Allied landing between the Seine and the Somme. In a signal of 7 July,
which was decrypted on 9 July, the Japanese Naval Mission in Berlin had again
reported that there were 30 divisions in England waiting to land between Le
Havre and Calais. On 12 July the decrypt of a telegram from the Japanese
Ambassador in Berlin reporting German views on 6 July had disclosed that
while some authorities were impatient for a general counter-attack in Norman­
dy, von Kluge thought it essential to wait until he knew what the Allies
intended to do with the main forces they had reserved in England, which would
probably land near the Straits. On 10 July, in a telegram decrypted on 13 July,
the Ambassador added that the Germans believed that the withdrawal of Allied
airborne forces from the bridgehead pointed to a landing in the area Calais-Le
Havre, for which the next suitable dates were 18 to 20 July.

On 16 July it became clear that the preliminary operations were succeed-
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ing in their object of deceiving the Germans. Field Marshal Sperrle, AOC-in-C Luftflotte 3, stated in an Enigma message that Allied concentrations observed in the Caen–Tilly area made it probable that the offensive would be launched from there about the night of 17–18 July; as its success would be crucial for the future course of the war, it must be stopped, and as a further Allied landing was also expected north of the Seine or elsewhere, it was imperative to avoid delay in submitting reconnaissance reports. Sperrle’s general directive was followed by the decrypts of numerous signals giving detailed orders for reconnaissance sorties and for spoiling attacks on shipping, on airfields and on tank and troop concentrations west of Caen.

The Goodwood offensive itself, launched on 18 July, achieved tactical surprise. This was indicated early on 18 July by a decrypt which disclosed that JK II’s main efforts that day would again be made west of the Orne; nor was it till the late afternoon of 18 July that – without any warning from Sigint – Luftflotte 3’s operations were re-directed east of the Orne. Thereafter, however, the Germans having revised their appreciation of Second Army’s intentions, the operation achieved results that were disappointing in relation to the high hopes with which it had been launched. This has prompted not only the suggestion that the Germans expected it in the Goodwood sector but also the argument that it suffered from inadequate intelligence about the enemy’s defences. With regard to the resources Germany commanded – as distinct from their precise dispositions, for which the only source of intelligence was Allied reconnaissance – this argument is not well-founded. The information that Sigint had supplied was very nearly correct about the infantry and armour she had in the line east of the Orne, as also about the heavy concentration of anti-tank artillery she had assembled there.

In the event, the main advance was stopped at Cagny and at Bourguebus and was counter-attacked in the afternoon of 18 July by 21st Panzer Division, Panzer Abteilung 503 and battle groups of 1st SS Panzer. Von Kluge asked for the return of 12th SS Panzer from reserve near Lisieux in the afternoon and, early in the evening, for permission to move 116th Panzer to the battlefield from north of the Seine; and at 1700 he ordered Panzer Gruppe West to regain the Caen–Troarn road. His signals were not decrypted; but it was known from the Enigma by 1900 that fighter protection had been requested for 1630 to cover the arrival of a battle group of 12th SS Panzer, and by 2200 that 1st SS Panzer was moving to clear the Caen–Cagny road and then intending to advance to the line Manneville–Mondeville.

VIII Corps was unable during 19 July to drive the Germans out of Bourguebus; but Panzer Gruppe West delayed the counter-attack till the arrival of 116th Panzer, which was ordered to accept losses in moving up by road, and at 2230 instructed XLVII Panzer Corps and II SS Panzer Corps to send battle groups to reinforce 1 SS Panzer Corps east of the Orne. These decisions were not disclosed in Enigma decrypts, but during 21 July it was learned from Army Y that elements from 2nd Panzer and 9th and 10th SS Panzer Divisions had been sent east of the Orne.

On 20 July VIII Corps occupied Bourguebus and Frenouville, but could make no further progress. I Corps had by then failed to capture Troarn and Emieville. II Canadian Corps, which had entered Caen across the Orne and the Odon on 18 July and reached Fleury-sur-Orne on 19 July, was then held up by 272nd Infantry Division with support from 1st SS Panzer and a battle group of 2nd Panzer. On the evening of 21 July Montgomery signalled the end of
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*Goodwood* by ordering that the new positions gained on the eastern flank should be firmly held while the US forces advanced into the Cherbourg and Brittany peninsulas.

Throughout the battle for Normandy Sigint provided prompt and comprehensive intelligence on the activities of the German Air Force. Over and above the fact that the Allies usually received advance warning of its reconnaissance intentions and its operational orders from the Enigma and the interception of its tactical communications, high-grade decrypts gave a full account of its order of battle— the arrival of its reinforcements, the locations and strengths of its formations, the serviceability of its airfields — and threw much light on the difficulties it progressively encountered as a result of Allied command of the air and its own manpower and fuel shortages.

The GAF provided no close support for the Army during the first three days of *Overlord* largely as a result of the dislocation caused by Allied air attacks on its airfields, transit depots, air parks and communications. Sigint disclosed on the evening of D-day that it had brought into force at 0930 its plans for the transfer of reinforcements to the invasion theatre from areas as far away as Austria and Hungary.

On the basis of further decrypts and of much tactical Sigint the Air Ministry estimated on 8 June the reinforcements which had been brought in since D-day: 300 single-engined fighters, approximately 70 per cent of which were based west and 30 per cent north-east of the Seine, 30 night-fighters, 50–60 torpedo-bombers, and 25–30 radio-controlled bombers. The total forces available in France and the Netherlands were thought to comprise 1,430 aircraft: 340 long-range bombers; 55 fighter-bombers; 520 single-engined fighters; 420 twin-engined fighters; 420 twin-engined fighters; 95 reconnaissance aircraft. The long-range bomber effort, however, was likely to be much less than had been expected. The bomber Gruppen were much below establishment and serviceability was below 60 per cent.

On 12 June the Air Ministry estimated the total strength had risen to 1,615 aircraft. This was a considerable over-estimate; Luftflotte 3 had 1,000 aircraft at the end of the first week, and this was to be the highest figure it reached. But there was ample evidence of weakness in many units. Recent strength returns of ten fighter and fighter-bomber Gruppen, nominally comprising 300 aircraft, indicated an actual strength of 240 aircraft with serviceability about 50 per cent. On 14 June the Air Ministry noted that, due in large part to Allied attacks on airfields, fighter strength and serviceability remained low. Most recent evidence for 14 fighter and fighter-bomber Gruppen indicated a strength of 275 aircraft, or 65 per cent of establishment. (The actual strength of ground-attack aircraft and fighter-bombers had fallen to 130 aircraft on 12 June). By then, moreover, Sigint had disclosed a significant change in GAF policy. Decrypts had confirmed by 8 June that the enemy intended to use some of his single-engined fighters as fighter-bombers equipped with bomb racks and 2Jem rocket projectors for ground attack, and this had been repeated in a decrypt of 12 June which went on to emphasise that bombing was the primary task and the shooting down of aircraft only secondary. On 13 June, however, a
decrypt revealed that this policy had been reversed: all fighter Gruppen were to be re-equipped as fighters; until further notice the task of fighters was to clear the skies over the battlefield, and they would use only aircraft armament in attacks on ground targets. The reversal of policy was no doubt a response to the situation reported by C-in-C West on 9 June, in a signal decrypted on 14 June, which complained that the operations of thousands of Allied bombers and fighter-bombers were stifling German tank attacks and severely harassing all movements.

On 16 June the Air Ministry estimated that the bomber force, with a strength rising to 400 aircraft, had maintained an average of about 130 sorties per night, of which about 45 had been by anti-shipping units. But the decrypt of an appreciation of 14 June by Fliegerkorps IX noted that heavy anti-aircraft fire had reduced the possibility of successful attacks on shore targets. Bomber operations against Allied shipping, either by direct attack or by mining, offered better prospects. This appreciation foreshadowed the increase in the mining operations by Fliegerkorps IX which caused the Allies more worry and losses than any other form of attack.

By 17 June AI noted that some recovery of fighter strength might be expected in the next two or three weeks, since the GAF was re-organising the replacement system and since the negligible current wastage in Italy and on the eastern front would permit maximum allocation of aircraft to France. Since D-day the Allied bombing of the airfields around Paris and on the replacement routes in France had forced the enemy to move his main transit depots to the Rhineland, and this had resulted in serious delays in bringing up replacements for the losses suffered in France. By the end of June the GAF had indeed overcome this handicap; it had also brought forward some of the few remaining units kept back for the defence of the Reich.

On 15 July AI noted that there had been a marked recuperation in the close-support forces and on 16 July it estimated that the number of single-engined fighters had increased in the past week from 435 to 520 aircraft; it believed this force would be capable of exceeding the previous maximum effort of 600 sorties a day delivered on 30 June at the end of the Epsom battle. The extent to which its estimates were based on high-grade Sigint is indicated by the fact that there were some three dozen decrypts giving the locations and strengths of single-engined fighter units in the few days before the opening of the Goodwood and Cobra offensives.

During July, however, it became evident that the shortage of manpower in the GAF was reaching critical proportions. On 11 July GC and CS decrypted an order by Goring on 5 July designed to reduce the intolerable losses of unit commanders and officers in fighter and close-support operations. A decrypt on 13 July showed that personnel were being transferred from the bomber to the fighter arm, and evidence accumulated that the former was being run down.

Sigint references to fuel shortages had been frequent since D-day, when a decrypt had given the general warning that the Allied air offensive against oil production plants had made it necessary to break into OKW’s strategic reserve and impose restrictions on consumption throughout the armed forces. From the beginning of July such references multiplied and became more insistent. Decrypts of 2 and 8 July disclosed that acute difficulty over the supply of aviation fuel had restricted crew training; that motor transport fuel was also very short. An order by Goring on 6 July, decrypted on 9 July, spoke of deep inroads into the supply of aviation spirit making drastic economy absolutely
essential. Liaison travel and communication flights must be drastically reduced and transport flights limited strictly to operational requirements and supply of the fighting forces. Safe storage and constant control of aviation fuel was indispensable. Stocks of aviation fuel were being depleted because of the shortage of MT fuel; accordingly no aircraft fuel was to be released for travelling purposes, except in operational areas where extreme emergency might justify it. Transgressors would be liable to court martial.
CHAPTER THIRTY-ONE

The Allied Break-Out from Normandy and the German Withdrawal from the South of France

At the end of Operation Goodwood the Germans expected Second British Army to resume its offensive east of the Orne. They brought into that sector 9th SS Panzer Division from Evrecy, 2nd Panzer Division from Caumont and 116th Panzer and 271st Infantry Divisions from across the Seine. On their western flank they expected US First Army to resume its offensive, and doubted their ability to withstand it; but provided no further reinforcements.

Except for the moves of 116th Panzer Division and 326th Infantry Division, which arrived from Fifteenth Army to relieve 2nd Panzer at Caumont, high-grade Sigint kept the Allies abreast of the changes in the enemy’s order of battle between 22 and 25 July, and confirmed that he expected to be attacked east of the Orne. On the western flank decrypts confirmed by 21 July that LXXXIV and II Parachute Corps had been seriously shaken in the struggle for St. Lo and were uneasy about their ability to hold out against another offensive.

The US offensive - the delayed Operation Cobra - began on 25 July. It reached Avranches on 30 July; only scattered and crumbling German defences then barred the way to open country to the south. The same day Second British Army, held by six Panzer and SS divisions east of the Orne, opened a strong attack from its western front in the Caumont area. It broke through on its right on 31 July, making contact with the Americans on the front held by II Parachute Corps. Von Kluge responded by moving 2nd Panzer Division from Caen and 116th Panzer Division and XLVII Panzer Corps from the Caumont area to the US front, and by moving 21st Panzer and 9th and 10th SS Panzer Divisions westwards to hold the British thrust.

The Enigma and Army Y disclosed these re-dispositions as they were completed, but without giving advance notice of them. They also provided detailed intelligence on the enemy’s worsening situation in the face of the American advance. Decrypts reported heavy losses in withdrawals made difficult by intense air attacks and exhaustion of ammunition on 25, 26, 27 and 28 July, when they added that Panzer Lehr Division had no forces fit for battle. On 29 July they reported that II Parachute Corps’ fighting strength was down to 3,400 on 27 July and that, with no reserves whatsoever, it would be unable to resist further pressure. The arrival of XLVII Panzer Corps and 2nd Panzer Division on II Parachute Corps’ right on the evening of 28 July was disclosed the next day. The news that 116th Panzer Division was subordinated with 2nd Panzer Division to XLVII Panzer Corps on 30 July was decrypted the same day. A report decrypted on 31 July disclosed that 116th Panzer had lost heavily to Allied air attack during its transfer.

The GAF Enigma showed that almost the entire effort of JK II and Fliegerkorps IX was concentrated against the area of penetration south and west of St. Lo from the morning of 28 July. In a message of 29 July, decrypted on 30 July, Fliegerkorps IX warned all units that only a supreme effort could
close the gap and prevent an Allied break-through. A review by Luftflotte 3 on 30 July, decrypted early the following day, reported that the crisis remained acute: attacks by XLVII Panzer Corps had been checked and it had not yet established an unbroken front with Parachute Corps.

On 1 August 12th US Army Group, comprising First and Third US Armies, became operational. Third Army advanced on Rennes, which it took on 6 August, and began to clear Brittany. First Army, continuing its advance, reached Mortain on 3 August, when it was clear that the Germans had no continuous front between Mortain and the Loire. On Second British Army’s front the advance made slow progress against stiff resistance, but on the night of 3–4 August the Germans withdrew to a new defence line. Hitler had directed that the front between the Orne and the Vire was to be held mainly by infantry so that the armoured divisions could be withdrawn for an offensive to annihilate the Allies between Mortain and Avranches and re-establish the Cotentin front. Von Kluge issued the orders for this on 3 August; he then had six infantry divisions arriving from the south and the Pas de Calais and an additional Panzer division arriving from the south, 9th Panzer.

From the beginning of August the Allies received timely notice of the enemy’s movements and decisions. The deterioration in Germany’s position in Normandy produced a spectacular rise in the number of Enigma decrypts – so much so that the total volume of Army decrypts in August was larger than in any previous month of the war and was not to be exceeded before March 1945 – and a similar increase in German army low-grade communications. Much of the intelligence was local and tactical, quickly overtaken by events. But it underlay 21st Army Group’s conclusion on 3 August that the enemy was losing control of the battle and lacked the large early reinforcements with which alone he could restore the situation. At that point it was known only from PR and reports by the Resistance that three infantry divisions were on the move from north of the Seine and one from the Bordeaux area, and that another division, either 9th Panzer or an infantry division, was coming up from Dijon. Von Kluge’s orders of 3 August were not decrypted.

During 4 August, however, Enigma decrypts disclosed with only a few hours’ delay that the Germans were carrying out planned withdrawals on Second Army’s front and that 12th and 1st SS Panzer Divisions were preparing to leave. This intelligence was followed on 5 August by the news that 10th SS Panzer and 2nd Panzer Divisions had also been withdrawn and that 116th Panzer was to be relieved that night. A stream of decrypts had meanwhile reported that the front was open south and east of Avranches, where strong US forces were pouring through, and that Allied spearheads were threatening Rennes. They included on 5 August the decrypt of an enemy appreciation, issued on 2 August, which had warned that although five divisions were coming up – 9th Panzer, 2nd Parachute from Brittany, and three infantry – these would not arrive in sufficient strength in time to seal off the penetration.

On the evening of 6 August decrypts disclosed that 2nd Panzer Division had at 1400 that day requested fighter protection over its attack on Mortain during the coming night and on 7 August, and that at 1330 116th Panzer, 2nd Panzer, 1st SS Panzer and 2nd SS Panzer Divisions were subordinated to XLVII Panzer Corps for an attack westward. In the early hours of 7 August further decrypts added that on the evening of 6 August Seventh Army was to attack with the elements of five Panzer divisions in the Mortain sector in an attempt to reach Avranches.
In the evening of 7 August decrypts confirmed that the offensive had been brought to a standstill by overwhelming Allied fighter-bomber activity; the GAF had failed to reach the target area because of continuous air battles extending back to its take-off points. The attack had begun soon after midnight on 6–7 August. Favoured by bad weather, it had taken Mortain. But when the weather lifted in the afternoon the whole weight of the Tactical Air Force and US Ninth Air Force, which were brought up in the light of the Sigint warnings, had pinned the Germans to the ground they had gained.

Meanwhile, on 6 August, decrypts had disclosed that von Kluge had ordered First Army to extend its responsibilities northwards to the Loire, where it was to prepare bridgeheads on the north bank between Nantes and Orleans, and Montgomery had issued a new directive. His intention was to destroy the enemy forces in the area bounded by the Seine to Paris, then southwards to Orleans and then westward along the Loire to the sea. 1st Canadian Army was to attack through Falaise to the Seine at Rouen, Second British Army through Argentan to the Seine below Mantes. 12th US Army Group was to place its main weight on its southern flank, which was to swing eastward and then north-eastward towards Paris. On 11 August he modified these instructions. 12th US Army was to swing towards Alençon and Argentan in an attempt to close the gap from there to Falaise; but the directive of 6 August would stand if it appears likely that the enemy may escape us here’.

The British and Canadian thrusts towards Falaise and Argentan, beginning on the night of 7–8 August, met heavy resistance, but they were within 7 miles of Falaise by 14 August. On the western flank First US Army held the German forces in the Mortain sector. Third Army continued its sweep to the south and west, capturing Le Mans on 8 August and turning the American spearhead (XV US Corps) towards Alençon to meet up with the advance on Falaise. XV Corps took Alençon on 12 August and was directed on Argentan. With these moves taking the fighting in Normandy into its last stage, Sigint became even more copious, and it was obtained so promptly that every important enemy decision was disclosed with little or no delay.

On 9 August Hitler ordered a new surprise attack from the Domfront area to the sea at Avranches, if possible on 11 August, by an armoured force under General Eberbach. The order was decrypted early on 10 August and decrypts later that day gave the location of Eberbach’s HQ and listed the formation he would use – XLVII Panzer Corps with 2nd and 116th Panzer, 1st, 2nd and 20th SS Panzer and the main body of 9th SS Division. On 11 August, however, the increasing risk of envelopment forced von Kluge to extract armoured divisions from the line to stop XV US Corps’ thrust, and Sigint gave the first indication that Hitler had decided that Eberbach’s force should eliminate this threat instead of attacking from Domfront: a decrypt disclosed that Eberbach was moving his HQ to the north-east of Alençon. Decrypts during 12 and 13 August showed that XLVII Panzer Corps was withdrawing to this sector and that von Kluge had on 11 August ordered a general withdrawal on the western flank to free armoured forces for an attack on US XV Corps’ advance.

On 13 August XLVII Panzer Corps halted the US advance on Argentan with
116th Panzer Division, and decrypts disclosed that 1st SS and 2nd Panzer Divisions were joining it. Reconnaissance observed considerable eastward movement during the day, though 21st Army Group believed in the evening that the fighting parts of five German Corps, including most of the armour, was still west of the Falaise-Argentan road. On the following day General Bradley switched part of XV Corps eastwards in accordance with Montgomery’s instructions of 11 August, which allowed him to make for the Seine if it appeared that the enemy would escape through the Falaise-Argentan gap: he knew that Eberbach was attempting to concentrate before Argentan and he no doubt assumed that other German formations were streaming through the gap. During 14 August Army Y and the Enigma decrypts were providing locations inside the Falaise pocket for many formations, but the intelligence picture was confused in a rapidly changing situation. Moreover, the British and Canadian thrusts to Falaise had still not reached the town.

On 15 August the decrypts included signals in which the enemy had issued conflicting appreciations during 14 August. Eberbach had reported at 1100 that the situation could not be cleared up by an attack, at 1400 that no attack was possible unless his fuel and ammunition were replenished, and at 1710 that he proposed attacks by formations arriving from the west, both from Argentan and north of Argentan against the Polish Armoured Brigade which was advancing towards Trun. No attack developed. On the other hand, while other decrypts during 15 August showed that the Germans were pulling back from the western end of the pocket and on its northern flank, and decrypts on 16 August reported that the previous day, with resistance collapsing at Falaise, the narrowing of the gap was causing heavy losses of men, morale and material, the order for general evacuation of the pocket was not decrypted till the evening of 16 August.

Von Kluge’s urgent recommendation that evacuation must be sanctioned without delay, as only a narrow channel still remained open, was transmitted in the early hours of 16 August, it was decrypted that evening, as was the order issued in the afternoon by Army Group B for a general withdrawal to the line of the Ome in two to three nights beginning on 16–17 August. In sanctioning the order, Hitler had stipulated that Falaise must be held as the northern bastion while Eberbach attacked south-east to enlarge the gap. His instructions were not decrypted, but his replacement of von Kluge by Field Marshall Model on 17 August was disclosed in a decrypt of 18 August.

During the night of 16 August, when Falaise fell to the Allies, Sigint and Army Y indicated that the best part of five Panzer divisions and a mass of infantry were still in the pocket. Between then and 20 August, before the Allies could complete the encirclement in strength, a sizeable number of men escaped, but a comparatively small number of these were combat troops. The Germans lost some 10,000 men killed and 50,000 captured ~ between 50 and 60 per cent of Seventh Army and Panzer Gruppe West (recently re-named Fifth Panzer Army) according to a decrypt obtained on 22 August ~ together with huge quantities of tanks, artillery, vehicles, horses and equipment. They had suffered a resounding defeat.

Throughout the battle the high-grade Sigint had regularly given advance warning of the efforts made by JK IPs light forces and, from time to time, by the bombers of Fliegerkorps IX, to assist the Army in what, as the decrypts made abundantly clear, the GAF recognised was a grave crisis. Its operations, which were concentrated in the Caen sector to begin with, were switched to the
western flank in the closing days of July in a vain attempt to check the
American breakthrough and, later, to support the German counter-attack
towards Avranches. By 11 August the threat of envelopment posed by the
advance of Third US Army towards Alençon was clearly recognised and JK II's
efforts were concentrated on reconnaissance and support of the crumbling
defences. In the closing stages of the battle JK II strove to cover the withdrawal
of the Army and keep open the Falaise-Argentan gap. In the event the GAF's
influence on the battle was negligible, while the cost to the light forces of JK II
was severe.

At the start of the battle Allied intelligence which, as had been the case
since D-day, enjoyed comprehensive knowledge of the identity, locations and
strengths of the units involved, appreciated that as a result of the cautious
policy followed in July except for a few days before and during Operation
Goodwood, JK II disposed of some 500 single-engined fighters. The strength of
Fliegerkorps IX in northern France and Belgium, which until just before
Goodwood had devoted most of its effort to mining operations, was put at
around 210 aircraft. By the middle of August decrypts showed that close-
support sorties had been averaging about 100 a day and the Air Ministry revised
downwards its estimate of JK II's strength to about 375 aircraft. On 16 August,
when high-grade Sigint reported further planned withdrawals and replace-
ments, and operations orders stipulating that battle formations must be made
up in such a way that there was an experienced Gruppe providing top cover, the
Air Ministry appreciated that the GAF had suffered a crippling defeat. The
close-support forces operating in France since D-day had been virtually
eliminated by overwhelming Allied air superiority and replaced by second-rate
material.

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In the morning of 15 August, when the situation of Army Group B was already
desperate, Seventh US Army landed east of Toulon in the area Frejus-St Tropez
(Operation Dragoon). Its task was to capture Toulon and Marseilles and exploit
towards Lyons and Vichy. It was opposed by Army Group G's Nineteenth Army
with seven relatively low-grade infantry divisions and 11th Panzer Division.

The GAF forces immediately available consisted of 65 serviceable aircraft
(45 torpedo-bombers, 15 FX and/or Hs bombers and 5 single-engine fighters).
High-grade Sigint disclosed that a fighter Gruppe was being brought in from
Italy, but that the move of two fighter Gruppen from northern France had been
turned down by Berlin. On 18 August the Air Ministry described GAF
operations in southern France as 'too insignificant for comment'.

The beachhead was quickly secured and developed. At 1408 on 17 August
the decrypt of a message sent at 0940 that morning informed Admiral Atlantic
of orders from OKW. All troops and authorities of all branches of the armed
forces in the area of Army Group G, west of the line Orleans-Clermont,
Ferrand-Montpellier, except those required for the defence of fortresses and
the fighting troops of Nineteenth Army, were to transfer behind the line
Sienne-Yonne-Canal de Bourgogne beginning immediately. Twenty-four hours
later another signal disclosed orders from Hitler to C-in-C West at 1730 on 17
August. As the development of the situation with Army Group B created the
threat that Nineteenth Army would be cut off within the foreseeable future. Army Group G, except for forces remaining in Toulon and Marseilles, was to disengage from the Allies and gain contact with the south wing of Army Group B. The development of an intermediate line Sens-Dijon-Swiss frontier was to begin at once. The main body of 11th Panzer Division was to stay in the Rhone valley to protect the area against airborne forces and later to become the rearguard of Nineteenth Army. LXII Corps with 148th and 157th Reserve Divisions was to withdraw, when pressed, into the Franco-Italian Alpine position, meanwhile protecting the east flank of Nineteenth Army, and was subordinated to C-in-C South-West. The latter was to assume responsibility immediately for the defence of the Alpine position from the Swiss frontier to the Ligurian Sea. Fortresses were to be held to the last man - Marseilles and Toulon by a division each.

Decrypts on 20, 21 and 22 August reflected the implementation of Hitler’s orders. C-in-C West designated the fortresses in Army Group G’s area as La Pallice, La Rochelle, areas north and south of the Gironde, Sète, Marseilles and Toulon. Army Group G told LXIV Corps (which had taken over from First Army from the Loire southwards to Bayonne) to evacuate its forces to the general area of Dijon, except for elements left to defend fortresses. The covering forces on the Loire were to be withdrawn last. Army Group G reported to C-in-C West that LXIV Corps would withdraw via Bourges, except for elements using the Garonne valley which would reach Avignon on 23 August. LXIV Corps told C-in-C West that the movement of 100,000 men, including civilians with 2,000 women, would not reach Moulins (on the river Allier) before 12 September. C-in-C South-West issued instructions to 148th Reserve Division to defend the area round Grasse as long as possible and then withdraw via Nice to Mentone.

Nineteenth Army left 242nd and most of 244th Divisions to hold Toulon and Marseilles (both fell on 28 August) and withdrew in two groups up the Rhone valley. But it was seriously hampered by guerrilla attacks and a bold attempt by Seventh US Army to cut its lines of retreat.

In the light of the decrypts disclosing the German orders for the withdrawal and of the success of a thrust towards Grenoble from Nice by an armoured task force and 36th US Division, Seventh US Army turned this spearhead westward along the Drôme valley. By late on 20 August the forward US troops were within artillery range of the roads on both sides of the Rhone at Montelimar. German attempts to clear the block began on 23 August: a decrypt warned that 11th Panzer Division would attack that day. The major effort, however, was made on 25 August. Decrypts available that morning disclosed that Nineteenth Army had ordered 198th Infantry Division to be brought up speedily to open the Rhone gorge and had announced that it would try to break through that day with the reinforced 148th Infantry Division and 11th Panzer Division. The attack was partially successful, and Nineteenth Army’s intentions for 26 August, decrypted before mid-day, were to continue the attack and pass 338th Infantry Division through the gap. But decrypts of 1 and 3 September disclosed that 198th and 338th Divisions had been surrounded while crossing the Drôme and had fought their way out heroically with heavy losses. 198th Division had escaped with 1,050-1,200 men and 29 guns, 338th Division with 1,100 men and 10 guns.

The German position at Lyons had by then become untenable. Decrypts of 25 and 26 August had disclosed that IV GAF Field Corps was making a forced march to the city and that 11th Panzer Division was to be despatched there as
soon as the Montelimar gap was cleared. Early on 2 September a report from Nineteenth Army, decrypted in the evening, announced that the city was to be evacuated that night, and the LXXXV Corps and IV GAF Field Corps were to continue their withdrawal northwards.

Decrypts received since 25 August had meanwhile reflected grave anxiety on the part of the German High Command that Nineteenth Army from the Rhône valley and LXIV Corps from south-west France would fail to make contact with First Army in time to fill the gap on the left wing of the line that was being hastily formed across northern France.
CHAPTER THIRTY-TWO

The Soviet Offensives and the German Withdrawal from Greece and in Yugoslavia

Before Soviet Russia embarked on her summer offensive in 1944 she advised the western Allies that following a first attack in one sector about the middle of June, her operations would develop at the end of June and during July into a general offensive. And so it turned out.

After attacking from the Leningrad front on 10 June, the Soviets opened a major offensive against the northern sector of the central front on 22 June, taking Minsk on 3 July after inflicting on Germany a defeat of Stalingrad proportions. On 4 July they crossed the Polish frontier north of Minsk and, striking towards the Baltic states, were close to the East Prussian border by 16 July and 20 miles south of Riga by 1 August. The Germans attempted counter-attacks with reinforcements brought in from the central front, but, while holding on in Riga till October, were forced to begin the evacuation of Estonia and Latvia in the middle of August. In the middle of July the Soviets launched two more major attacks. Their advance against Germany’s Army Group North Ukraine took Lwow on 27 July and by the first week of August was on the Vistula to the north and close to the Czecho-slovak frontier in the south. Their renewed offensive against Germany’s Army Group Centre was 15 miles from Warsaw by 31 July.

The Soviet authorities were unusually forthcoming in supplying information during these offensives, and the western Allies were also kept abreast of developments by the Fish and Enigma decrypts. Sigint was especially voluminous from the Baltic front, where the Navy, struggling to keep the retreating German armies supplied through Riga, provided a continuous Enigma commentary on the further Russian offensive which took Riga and cut off some 30 German divisions in Courland and Memel by the middle of October.

The Russians had meanwhile struck on the Romanian front on 20 August in an advance which produced the immediate collapse of Romania and Bulgaria. The Romanian Government declared war on Germany on 25 August. Bulgaria announced her withdrawal from the war the next day. Russian troops took Bucharest on 31 August and entered Bulgaria unopposed on 8 September. The decrypts showed that what remained of the Romanian army had gone over to the Russians by the end of August, and that of the German divisions in eastern Romania and Moldavia – between 22 and 25 in all – between 10 and 12 were then surrounded by the Russians at Kishinev. Between 23 August and 1 September further decrypts disclosed Germany’s anxiety at the news that Bulgaria was preparing to withdraw her forces from Yugoslavia and Greece, where they had been guarding the German lines of communication, and reported the beginning of her own retreat from Greece.
Down to the beginning of August the Germans were still contemplating the retention of the Greek islands: and down to the third week of August Enigma decrypts showed that they continued to carry out large-scale anti-guerrilla operations in the Peloponnesian. But on 26 August the C-in-C South East was instructed to withdraw from the Aegean and southern Greece, and early in September he was ordered to evacuate the Aegean and Ionian Islands and the Peloponnesian, but to hold the mainland for the time being. These orders were not decrypted, but Admiral Aegean’s orders for withdrawal from the islands were decrypted on 31 August.

Sigint covered the withdrawal in detail. Decrypts of 8 and 9 September disclosed that the Peloponnesian was to be evacuated by 15 September, excluding Corinth, and listed the order of withdrawal from the islands – the Ionian islands first, then Crete and the Dodecanese, next Lesbos and Chios as soon as possible, finally the Cyclades. They distinguished, however, between evacuation and thinning-out. Only fighting men with their equipment were to participate in the thinning-out: coastal defence troops were to fight to the last cartridge until evacuation was ordered. On 13 September it emerged that C-in-C South-East had ordered that the Ionian islands were to be held until the Peloponnesian had been evacuated, but other decrypts had shown by then that the evacuation of Cephalonia and Zante began on 9 September following the landing of a small British party on Cephalonia. Thereafter there was a flood of Sigint about the withdrawal from the Peloponnesian and the Ionian islands, where the evacuation of Corfu was ordered on 24 September and completed on 10 October. Decrypts from the Aegean between 11 and 21 September had meanwhile disclosed that, while the whole of 22nd Infantry Division was to be withdrawn from Crete, the western end of the island was to be held as a fortress; that troops were being withdrawn from Samos, Cos, Rhodes and Scarpanto; that Paros, Milos and Syros were being retained temporarily as bases for transports. Plans for turning Rhodes and Leros into fortresses were decrypted on 15 October.

Withdrawal from the mainland was by then in full swing. By 10 September decrypts had revealed that 1st Mountain, 4th SS Police PG and 11th GAF Field Divisions were transferring from anti-guerrilla operations in Greece, Macedonia and Serbia to replace the Bulgarian divisions which had hitherto defended the Belgrade-Nis-Skopje-Salonika railway. By 13 September they added that 117th Jäger Division was moving from the Peloponnesian to central or northern Greece, that 22nd Infantry Division was moving from Crete to the Struma sector in Thrace, and that 104th Jäger Division was on Hitler’s orders leaving Epirus for the Pindus heights to defend the main route to Salonika. Decrypts reported the evacuation of Piraeus on 9 October, of Athens on 14 October, of Chalkis and Volos on 16 and 18 October. Early in October, following the evacuation of Corfu, it emerged from Sigint that XXI and XXII Mountain Corps were abandoning a third of Albania and withdrawing to the line Durazzo–Elbasan–Kastoria–Metsovo.

Although that part of it which dealt with individual air and shipping movements – a large part – normally arrived too late to influence particular Allied operations, the Sigint nevertheless afforded the Commands a detailed account of the enemy’s situation when, from 9 September, they opened their air attack against the evacuation of the islands. It was known by then that as the withdrawal of all German aircraft from the islands had been ordered on 6 September, and most of the few fighter aircraft in Greece had moved to
Yugoslavia to meet the threat of a Russian advance, the enemy’s ability to protect his convoys was, as the JIC put it, ‘practically negligible’. And from the time when warships joined in the Allied offensive, sinking a convoy of small ships between Crete and Santorini on the night of 12–13 September and working north of Crete from 15 September for the first time since May 1941, a succession of decrypts reported on the increasing seriousness of the shipping situation, the damage that was being inflicted on ports, and the progressively severe restrictions the Germans were forced to place on the sea routes that could be used. By the end of September they were having to route the bulk of the shipping along the east coast to Salonika.

The efforts to evacuate the islands were brought to an end by 27 October. A few days later the decrypt of a report on the German Navy’s contribution to them disclosed that it had employed 52 merchant vessels in all and that, of those of medium and large tonnage, 29 had been sunk; in addition, the Navy had lost 5 torpedo–boats, the mine–layer Drache, one R–boat and three anti–submarine craft. The 29 merchant vessels no doubt included the four available large war transport (KT) ships, valuable for their heavy–loading gear; the fact that these had been sunk or damaged beyond repair between 14 and 20 September had been disclosed by decrypts at the time. Of the torpedo–boats, three were Italian. From 9 September decrypts had disclosed the intention to transfer the boats from Pola and, following their arrival in the Piraeus on 24 September, Sigint reported the destruction of all three between 6 and 16 October. The destruction by air attack of the Drache on 22 September followed the disclosure in the Enigma that she was to take the German garrison from Samos on that day; it was reported in decrypts of 23 September. The sinking of the last German torpedo–boat on 19 October was disclosed by a decrypt on 23 October. In the last few days of October the Enigma reported the dissolution of Admiral Aegean’s command, together with the scuttling of all ships remaining in Salonika and the German destruction of the harbour.

As well as recording its losses, the Navy’s report on the evacuation claimed that it had brought over 37,000 men, 400 guns and 2,000 vehicles off the islands between 23 August and 27 October, and that only 380 men had been lost at sea. The GAF’s estimate of its contribution to the evacuation from the islands and mainland Greece was decrypted on 12 November; it claimed that between 1 September and 31 October it had transported 40,298 men and 1,266 tons of equipment. German estimates eventually concluded that 67,000 men were brought off the islands by sea and air, and that 28,000 tons of supplies were withdrawn by sea and 1,000 tons by air.

The Germans carried out their evacuation of mainland Greece to the accompaniment of increasing guerrilla activity and mounting tension between the rival guerrilla movements. The British plan for sending an army contingent and an air contingent to mainland Greece as the Germans withdrew called for negotiations with the Greek government and the leaders of the main guerrilla movements, and also depended on detailed information about the German withdrawal, and was not put into effect till the second week of October. The many decrypts signalled to the Commands during this period added little to the information the British authorities were receiving about the activities of the guerrillas and the progress of the German withdrawal from the SOE liaison missions and the Greeks themselves.
The collapse of Romania and Bulgaria had meanwhile forced the Germans in Yugoslavia to abandon concentrated operations against the Partisans, to turn round their front so as to face east and to pull back their forces from the Dalmatian coast in an effort to build up a defence line against a Russian advance.

The German drive against the Partisans early in June had soon petered out. Reports from the SOE liaison missions in July revealed that the Partisans had begun to establish themselves in Serbia in clashes with Cetnik forces and were presenting an increasing threat to German communications in Montenegro. In a message of 19 July, decrypted early in August, the Commander of Second Panzer Army had supported his request for permission to use 1st Mountain Division against the Partisans in Montenegro by drawing attention to the fact that the increased supply of Allied material and personnel from Italy, the arrival of more Allied missions, the 'W/T picture' and the adoption by the guerrillas of 'strict modern conduct of operations with employment of general staff' all pointed to the growing danger in that area. But British plans for disrupting the German lines of communications by coordinating the operations of the Partisans with attacks by the Balkan Air Force and Land Forces Adriatic, two new commands set up at Bari in July, were thwarted until the end of August by mounting distrust between Tito and the Royal Yugoslav Government and by British suspicions, fuelled by reports of fighting between Partisans and Cetniks in Serbia, that Tito was primarily concerned to use his forces and the increased scale of Allied supplies to consolidate his control in Yugoslavia.

These difficulties were only partly overcome in discussions between SACMED and the Prime Minister and Tito at Caserta during August, but Tito then agreed to participate in a sustained offensive against German communications throughout Yugoslavia. This offensive (Operation Ratweek) took place in the first half of September. The targets attacked by the Strategic Air Force and the Balkan Air Force were selected in the light of PR and of information provided by the Partisans via RAF liaison officers at the main Partisan HQs.

Evidence about the relations between the Germans and the Cetniks was conflicting. On 17 June the decrypt of an OKH appreciation of Allied intentions in Yugoslavia indicated that the Germans were not entirely confident of Mihailovic's loyalty, as did a telegram from the Japanese Ambassador in Berlin, decrypted at the end of August, to the effect that Mihailovic was maintaining a superficial co-operation with Germany but would betray her when the chance arose. Reports received from the British liaison officers in Yugoslavia in August spoke of open Cetnik co-operation with the Germans, and in particular of the presence of Mihailovic at a staff conference with the German Command at Ruma on 13 August. A decrypt of 6 September disclosed that Hitler had decided that his forces would continue to work with 'higherto reliable' Cetnik formations in Serbia, but that they were to be used only in local operations under German control. Decrypts available by 16 September disclosed that V Mountain Corps was to maintain contact with the Cetniks through Mihailovic's representative, Bacevic, and that Mihailovic was in touch with the roving German diplomatic representative in the Balkans. In a message of 15 September, decrypted on 27 September, Fremde Heere Ost believed that Mihailovic was co-operating with the German-controlled Nedic government, in a message of 9 September, on the other hand, decrypted on 13 September, the Sea Defence Commandant Dalmatia reported that Cetniks and Ustashas were for the first time uniting with the Partisans: a complete Ustashi brigade had gone over to Tito. Other decrypts disclosing Cetnik opposition to the Germans and Ustashi defections were received late in September and early in October.
The Soviet Offensives and the German Withdrawal

Reports on the attacks were obtained from several Enigma decrypts; one disclosed that as a result of attacks on 3 September the Metkovic–Ploca railway would be out of action for a week. The results of the offensive, as estimated at Bari in mid-September, were that over and above the destruction of road bridges, river ferries, rolling stock and motor transport, rail traffic would be impossible on the main lines to Greece and Albania for two months, between Belgrade and Ljubljana for two weeks and for a week between Dalmatia and the Sava valley. The effects of the disruption on German movements were indeed severe for the rest of September, and were never to be entirely overcome.

Operation Ratweek coincided with the early stages of the withdrawal of German forces in Greece and Yugoslavia and their redeployment in an effort to build up a defence line against the Russians from the Bulgarian frontier to Turnu Severin on the Romanian border. Their withdrawal from the southern Dalmatian coast was completed by the end of September. Messages ordering the evacuation of the islands of Korcula and Mljet and the western part of the Peljesac peninsula on 8 September, of Brae on 9 September and of the eastern part of Hvar and the small islands Supetar and Sumartin on 12 September were decrypted between 10 and 14 September. Decrypts reporting the completion of the evacuation of Mljet, Supetar, Brae and Korcula, in some cases in the face of Allied opposition, followed on 14 and 16 September. Parties of British troops and Partisans had been landing on Hvar and Brae and parts of the mainland since 6 September: Hvar was already in their hands when the Enigma reported the completion of the German evacuation on 22 September. By 25 September further decrypts had reported the withdrawal from the island of Solta on 23 September and from the Peljesac peninsula on the following day. On 25 September, as was disclosed by a decrypt of 29 September, the Partisans seized the coast between Peljesac and Omis, south of Split. In messages decrypted at the end of the month the naval authorities recognised that the Army had abandoned the defence of the southern Dalmatian coast to naval units with inadequate artillery, but nevertheless issued instructions to the effect that in accordance with army policy the Navy was to hold out to the last man.

The Russians had meanwhile begun their advance into Yugoslavia from Turnu Severin on 22 September. By the beginning of October, accompanied by strong Partisan forces, they were pouring across the Danube north and east of Belgrade. On 8 October they reached the river Morava, cutting the main railway to Belgrade from the south, and advanced northwards to reach the capital on 14 October.

The threat to Belgrade was revealed by decrypts of 5 October onwards. On 5 and 6 October they disclosed that C-in-C South-East had moved his HQ from the city of Vukovar, to the north-east, and that the HQ of GAF South-East was to withdraw as soon as possible. In another message decrypted on 6 October the naval authorities warned that withdrawals ordered by the Army to meet the Russian thrust north of Belgrade would mean abandoning the coast between Sibenik and Split and leaving only one battalion to defend each of those important harbours. On 10 and 11 October it emerged that, to encounter the Russian threat to Belgrade and its communications from the south, C-in-C South-East, with Hitler’s approval, had withdrawn Second Panzer Army’s two remaining German divisions (118th Jäger and 264th Infantry) and ordered Second Panzer Army to pull back from the coast, withdrawing all equipment by 21 October. Decrypts on 11 and 12 October showed that the Russians had crossed the river Tisa at several places north of Belgrade and that 117th Jäger
Division had encountered them at a bridgehead only 17 miles to the south-east. Between 16 and 18 October they disclosed the entry of Russian tanks into the city on 14 October and the failure of the German reinforcements to reach it in time to support the garrison. Nis had meanwhile fallen to a combined attack by Russian, Bulgarian and Partisan forces on 15 October: a decrypt available on that day gave the GAF order of 12 October for the evacuation of the city and the destruction of the airfield.

With the fall of Nis and Belgrade the Germans concentrated their forces in the centre of Yugoslavia and confined themselves to protecting the retreat route to Istria and Italy and keeping open the main lines of communication to the south. C-in-C South-East’s detailed orders of 9 October for the withdrawal of Second Panzer Army to a line in the mountains running from the coast east of Fiume to Mostar and Gacko were decrypted on 18 October. They specified that the army and naval batteries on the coast were to provide tactical and moral support by fighting to the end, the destruction of batteries being forbidden so long as they could hold out. But naval protests that the policy of retaining strongpoints on the coast was misguided had already been decrypted on 11, 12 and 13 October, and plans for evacuation of the remaining islands, to be followed by withdrawal from the Split and Zara sectors and then from the area between Biograd and Sibenik, were decrypted on 17 October. In a decrypt of 20 October OKW approved the C-in-C’s request that the strongpoints should be abandoned when the Army had completed its withdrawal.

By the end of October Second Panzer Army had completed its withdrawal and established contact with Army Group E in the south, thus enabling the Germans to form a front of sorts, and Germany was preoccupied with the task of withdrawing her remaining forces from further south to form the strongest possible defence line from the head of the Adriatic across northern Yugoslavia and south-west Hungary. Throughout November, though it generated a mass of intelligence from high-grade Sigint, Allied air reconnaissance and the liaison officers with the Partisans, the withdrawal proceeded without much interruption except on the coast — where the Partisans, following up Second Panzer Army’s retreat, seized all the main ports south of Fiume with assistance from Allied naval and air attacks on the enemy’s coast defences and shipping movements — and on the escape route of XXI Mountain Corps, with 181st and 299th Infantry Division and two Fortress Brigades, from Albania. The Corps’s withdrawal was held up at the river Tara for a fortnight by Partisan attacks, which were assisted by a small British artillery contingent, by Allied air raids.

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These lines, which the Germans had succeeded in stabilising by the end of November, ran inland of the coast from Fiume to Mostar, thence to Sarajevo, and thence northwards to the Danube at Vukovar, north-east of Belgrade. As Sigint disclosed, C-in-C South-East held the front with Second Panzer Army and Army Groups E and F until the beginning of December. When, with a motley collection of battle groups surviving from the fighting in Serbia, Second Panzer Army was then transferred to Army Group South in Hungary to strengthen the front south of Lake Balaton, its two Corps (XV Mountain Corps and V SS Mountain Corps) and the largely Croatian formations that were all that remained to them were subordinated to Army Group E. But the Germans were to hold their front throughout the winter, the Russians having switched their forces to the north for their offensive in Hungary.

In Hungary by the third week of October the Russians were threatening Csap (Cop) in the north-east, had reached the Danube to the south of Budapest, and were forcing the German and Hungarian armies into a long and increasingly narrow salient in Transylvania.

In this salient - the Szekler tip - Germany’s Army Group South (formerly Army Group South Ukraine) had Eighth Army in the north-east with three German and three Hungarian divisions and Sixth Army in the south with four German and six Hungarian divisions. Sixth Army had only precarious contact with the German forces in Yugoslavia. Eighth Army had First Hungarian Army on its left; this formed part of Army Group A (formerly Army Group North Ukraine) which was itself under attack from the Russian armies and, following an uprising in Czechoslovakia in August, from Slovak forces. Second Hungarian Army was at Cluj on the south-eastern edge of the salient and Third Hungarian Army was forming on the western flank. The Hungarians were unreliable allies; desertions had been widespread since the Regent had announced Hungary’s withdrawal from the war in the middle of October and the Germans had replaced him with a puppet government.

MI knew from Enigma and Fish decrypts that the Germans had been reinforcing Army Group South from the end of September, mainly from Army contact with Mihailovic after his final dismissal by the Royal Yugoslav Government following Tito’s discussions with the British authorities in August. It was known from a decrypt of 19 November that he had provided Second Panzer Army with a list of his local leaders on 2 November, but that Second Panzer Army had dismissed the Cetniks as ‘almost devoid of military importance’. In a decrypt of 9 November, however, Army Group E, reporting on discussions with a delegate from Mihailovic’s HQ, had remarked on the ‘vacillating’ attitude of the Cetniks and expressed anxiety that they might turn against the Germans; the Army Group advised continued negotiations with them, and help on a limited scale, to keep them neutral at least until its forces had completed their withdrawal to the Sarajevo–Mostar area. Thereafter Sigint showed that the Cetniks continued to maintain contact with the Germans and collaborate with them in military operations until April 1945, when it was referring to a ‘Serbian Volunteer Force’.
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Group A in the central sector but also with formations from Yugoslavia. By 1 October it had information from a Hungarian General Staff Mission - given during talks with the Allies in Italy - that the Germans intended to defend southern Hungary by holding the line of the river Tisa. And by 8 October, when MI 14 noted that the Army Group had received five Panzer divisions and four PG divisions from Army Group A, including 1st, 23rd and 24th Panzer Divisions, and 4th SS Police PG Division from the Belgrade area, it seemed clear from the decrypt evidence that the Germans hoped to stem the Russian drive at the river Tisa after first counter-attacking in an effort to extricate their forces from the salient. The intention to counter-attack was confirmed by GAF Enigma decrypts during the battle for Debrecen from 12 October, and in a message decrypted on 18 October Luftflotte 4 hoped that the expected arrival of 24th Panzer Division would bring a 'decisive turn in the battle'.

Attacking west of Cluj in the middle of October, the Russians had taken Debrecen and Nyiregyhaza by 22 October, cutting off Eighth Army. The German counter-attack took place between 23 and 29 October: it recaptured Nyiregyhaza and enabled Eighth Army to withdraw to the west bank of the Tisa. But the Russians were already across the Tisa further to the south, where their advance was not halted until it was within a few miles of Budapest, and on 11 November they attacked from the north-east, driving Eighth Army and the left flank of Sixth Army back to the Matra Hills by the end of the month. Among many other decrypts obtained during this phase, one of 16 November gave Army Group South's appreciation on 7 November that the Russians were massing for the advance on Budapest on both sides of the Danube to the south, in the east and in the north-east. By 19 November it was clear from other decrypts that the Germans had prevented a major Russian penetration east and north-east of the capital only by concentrating most of Army Group South’s forces there, and that a division was being brought up from Istria in an attempt to maintain contact between Army Group South and the northern forces of C-in-C South-East and strengthen the defences to the south of the city. On 26 November MI 14 reported that the Germans had developed a strong delaying position between Lake Balaton and Ercsi (Erd) to counter the encirclement of Budapest from the south-west; and in the first week of December decrypts gave details of this position in the sector south of the Lake where it was held by Second Panzer Army, brought in from Yugoslavia.

The Russians resumed their advance in the middle of December, and by the end of the month, against desperate German resistance, their armies had reached Esztergom from the north and the south-west and completed the encirclement of Budapest. That they had succeeded in doing so was confirmed by the decryption on 3 January of a message from Army Group South dated 27 December, but other decrypts had made it plain by 28 December that despite bringing up 3rd Panzer Division from East Prussia, 6th Panzer Division from Warsaw and 8th Panzer Division from Cracow — reports of these transfers were decrypted on 22 and 24 December — the Germans had failed to stem the tide.

In an attempt to relieve the capital the Germans ordered further reinforcements to the Budapest front in the shape of IV SS Panzer Corps with 3rd and 5th SS Panzer Divisions from Army Group Centre. The Corps re-took Esztergom on 5 January and then, putting the Russians off balance near Balaton, got to within twelve miles of the city before its advance was stopped towards the end of the month. Whitehall received its first news of the counter-attacks in the first week of January from a Russian communiqué.
which announced that elements of six Panzer divisions, including 3rd and 5th SS Panzer Divisions, were involved; MI 14 commented that the presence of these divisions, if confirmed, would mean that half of the Panzer divisions on the eastern front were in Hungary. A decrypt on 11 January reported that 5th SS Panzer Division had been arriving on 31 December. The arrival of IV SS Panzer Corps was foreshadowed in a decrypt of 8 January and this was followed on 16 January by a decrypt containing promises from Himmler that the city would be relieved. On 28 January MI 14 knew that the Germans were still trying to break through to Budapest ‘despite the obvious need for armour on the central sector’.

It had long been obvious that should they fail to relieve the city, the Germans would hold it as a fortress for as long as possible. Hitler’s order of 30 November insisting on the defence of the city, and stating that ‘an evacuation . . . without fighting does not come into question even in the case of an unfavourable development of the situation’, was decrypted on 17 December. But it was equally obvious that the resources did not exist for a prolonged defence. By 28 December, as was disclosed by a situation report from Army Group South decrypted on 4 January, deep Russian penetrations had forced the garrison to fall back to an inner defence ring on the city perimeter. In a message of 8 January, decrypted on 11 January, GOC Waffen SS in Hungary, who was commanding the garrison, reported that the supply situation was ‘extremely critical’. On 17 January (decrypted on 19 January) he reported that it had been impossible to construct a defence line and that house-to-house fighting was in progress in parts of the city. His increasingly desperate situation reports included a message to Himmler of 29 January (decrypted on 31 January): the defences were at ‘the last ditch . . . If Gille [IV SS Panzer Corps] does not arrive almost at once, he will come too late. We are at our last gasp . . . His last message, sent out on 8 February and decrypted three days later, reported desertions by Hungarian troops and the fact that the supply of the garrison by air had failed for several days. The Russians announced the capture of Budapest on 13 February.
CHAPTER THIRTY-THREE

The Advance to Florence and the Gothic Line Battles

As soon as his forces had reached Rome on 4 June 1944 General Alexander ordered an advance with all possible speed by Eighth Army on the general area Florence–Bibbiena–Arezzo and by Fifth US Army on the general area Pisa–Lucca–Pistoia. As the Germans retreated Fourteenth Army’s position west of the Tiber became critical, and Kesselring, the C-in-C South–West, prevented its collapse only by bringing up reinforcements from the rear (162nd, 20th GAF Field and 356th Divisions) and transferring XIV Panzer Corps HQ and 26th Panzer and 29th and 90th Panzer Grenadier Divisions from Tenth Army. Tenth Army, under less pressure, withdrew in comparatively good order.

Before their advance the Allies were well supplied with Enigma decrypts on the condition of Kesselring’s armies and the measures he was taking to reinforce them.

A return of 12 May, signalled to the Commands on 15 May, had shown that when Operation Diadem (the Allied advance on Rome) began the German armoured forces in Italy were at peak strength with 405 tanks, of which 311 were serviceable, 238 assault guns (168 serviceable), 255 Italian assault guns (182 serviceable) and 737 heavy anti-tank guns (697 serviceable). Decrypts between 31 May and 3 June, covering the period up to 30 May but omitting some important formations, reflected the severe losses that had been suffered. Thus 26th Panzer Division had lost 28 Pzkw lVs out of 76 and 15th PG Division 14 out of 40. Heavy Panzer Abteilung 508 had lost 17 out of 48 Tigers (Pzkw VI). 90th PG Division had lost 13 out of 42 assault guns and 3rd PG Division 19 out of 44. Among infantry divisions which had been specially hard hit, 71st had lost 34 out of 40 anti-tank guns, 94th had lost 26 out of 29, and 715th had lost 38 out of 39.

In a long message decrypted on 8 and 9 June C-in-C South–West assessed the state of his divisions. By 2 June they had reported 38,024 personnel killed, wounded or missing; but this figure would continue to rise. The C-in-C’s signal went on to assess the fighting value of his divisions in infantry battle strengths, artillery and heavy anti-tank guns as a percentage of their strengths at the start of the retreat. Apart from 278th and 356th Divisions, which were shown as complete, the figures were startling. 4th Parachute Division was the only one credited with 50 per cent in all three categories. The infantry battle strengths of 1st Parachute, 44th Infantry, 15th PG, 71st Infantry, 26th Panzer, 114th Jäger, 94th Infantry, 3rd PG, 362nd Infantry, 715th Infantry, 90th PG and 29th PG Divisions were all assessed at 20 per cent or less.

From the beginning of June high-grade Sigint showed that some losses were being made good. Orders of 2 June for unloading and despatching tanks arriving in Florence were decrypted on 5 June. The order for the movement of Heavy Panzer Abteilung 504 from France, dated 2 June, was decrypted on 10 June. A message from C-in-C South–West reporting the arrival on 19 June of trains bringing 34th Infantry from the Russian front was decrypted on 22 June.
A message of 12 June from the C-in-C, decrypted on 13 June, stated that 715th Infantry Division, which earlier decrypts had shown to be under orders to transfer to France, would stay with his Army Group C to rest and refit in the Ravenna area. Decrypts of orders of 20 June from OKH for re-forming this division and refitting 65th Division with troops from Germany were available on 23 and 24 June.

Kesselring's re-disposition of his forces was well covered in high-grade Sigint. The forward movement of 20th GAF Field and 162nd Infantry Divisions to the Orbetello area behind the German right wing was disclosed by decrypts of 2 and 6 June. Decrypts on 7 June revealed that LXXVI Panzer Corps was now under Tenth Army, that the Tiber was the boundary between Fourteenth and Tenth Armies and that the latter had been ordered on 5 June to withdraw by stages to the Caesar line, shifting its main effort behind its right wing. At midnight on 8 June GC and CS signalled an order issued by Kesselring late on 6 June: 26th Panzer Division must by using detours move as quickly as possible to the area south-west of Orvieto. Decrypts on 8 and 9 June showed that Fourteenth Army commanded a Battle Group Göritz as well as I Parachute Corps, which had been joined by 356th Infantry Division from Genoa. On 11 June it was learnt that Battle Group Göritz comprised 20th GAF Field, 65th and 162nd Infantry Divisions. By 17 June decrypts had disclosed that Heavy Panzer Abteilung 504, recently arrived from France, had been placed under Fourteenth Army in the Grosseto area.

The extent to which Fourteenth Army had been reinforced by formations from Tenth Army became apparent from decrypts on 13, 14 and 15 June. A decrypt on 13 June disclosed that 29th PG Division was north-west of Lake Bolsena on 12 June and that 90th PG Division’s battle headquarters was also west of the Tiber near Acquapendente. Later decrypts that day revealed that 26th Panzer Division was coming into I Parachute Corps’s front line between 3rd PG and 4th Parachute Divisions and that Kesselring had given orders for 29th PG Division to be moved north of Grosseto with all speed. On 14 June a decrypt revealed a message addressed to XIV Panzer Corps care of Fourteenth Army and others on 15 June showed that this experienced HQ was now commanding Fourteenth Army’s right wing. Its intention late on 14 June was to withdraw to a line from Castiglione della Pescaya – north of Grosseto (which was captured on 15 June) – Istia. Its left-hand neighbour was 29th PG Division under I Parachute Corps, which also commanded 26th Panzer, 4th Parachute and 355th Infantry Divisions. A message from Kesselring on 15 June saying that the right wing of Fourteenth Army had been taken over by XIV Panzer Corps commanding 90th PG, 20th GAF Field, 162nd and 65th Infantry Divisions (the last of which was being withdrawn for rest and refitting) was decrypted early on 17 June.

Decrypts referring to the withdrawal of Fourteenth Army into the Albert line followed on 20 and 21 June, by which time the Allies had learned from high-grade Sigint that this line ran from Castiglione della Pescaya on the west coast to the east coast south of Ancona through Grosseto, Lake Trasimeno and Gualdo Tadino: that Kesselring had strict instructions from Hitler to hold it; and that he had grave doubts about his ability to do so.

* * *

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At the beginning of June, in view of the heavy defeat of their armies, Kesselring and his Commanders, von Vietinghoff of Tenth Army and Lemelsen who took over Fourteenth Army from von Mackensen on 7 June, envisaged a steady withdrawal into the Fisa–Rimini line running through the Apennines – the Gothic line as the Germans called it until mid-June. Hitler thought differently. His customary reluctance to surrender territory was heightened by uncertainty about Allied Mediterranean strategy and his view that Italy was a bastion for the Balkans. Moreover, he had a poor opinion of the defensive qualities of the Gothic line.

On 3 June Jodi told Kesselring that Hitler had agreed that the centre of Army Group C should be withdrawn with all speed to the Caesar line, but had ordered that the reconstruction of the front north of Rome was to be attempted as far south as possible. On 6 June General Warlimont, Jodi’s deputy at OKW, was sent to look at the Gothic line and to meet Kesselring and his Commanders. On 9 June Kesselring issued a directive which envisaged a staged withdrawal to the Gothic line. On the following day, however, he was again told by OKW that on the Führer’s orders he was not to pursue delaying tactics back to the Gothic line but to stand firm on a line as far as possible to the south, the course of which was to be reported to OKW. 19th GAF Field Division, which was arriving in Italy from Belgium, was to be held in reserve on the Ligurian coast. On 12 June the C-in-C was ordered to reinforce the Genoa–Leghorn sector. Two days later a directive was sent to him which had been signed by Hitler personally. The text opened by stating that the Apennines from La Spezia to Pesaro represented the last obstacle which could prevent the enemy from breaking into the Po valley, a development which would have immeasurable military and political consequences. At present, however, the Apennine line did not offer security against attacks by superior forces and it would take many months of intensive work to achieve this. The operations of Army Group C must be geared to gaining this time. It must therefore go over to defence on a line Piombino–Lake Trasimeno–Civitanova or, if possible, on a line even further south, Orbetello–Spoletto–Rieti–River Tronto–Adriatic. After a categoric order that Elba was to be held and not evacuated (as Kesselring had intended) Hitler declared that any erroneous idea entertained by officers and men of Army Group C regarding the existence of a fortified defence system in the Apennines must be eradicated. On 15 June he hammered home this point by decreeing that as the name Gothic line was liable to create ‘false impressions’ it was to be changed to Green line.

The most southerly line indicated by Hitler being already impracticable, on 14 June Kesselring ordered his armies to bring the Allies to a halt on the Albert line. Allied advances quickly threatened to breach the western coastal sector of this line and on 18 June Fourteenth Army was instructed to prepare a switch–line, Anton, running eastwards from the coast at Follonica, Reporting his plans, Kesselring asked if he could see Hitler in order to justify his conduct of operations and to discuss future possibilities. He was told that this visit must be postponed for a few days. In consequence on 18 June he sent Jodi an account of his conduct of the campaign since the fall of Rome which could be presented to the Führer ‘to correct certain inaccuracies’. Kesselring pleaded that only the use of delaying tactics had made it possible to rally and to some extent re-organise the battered formations of Tenth and Fourteenth Armies. The armies had been ordered to stand on the Albert line and he would do everything in his power to ensure its defence, but he was ‘concerned’ for its prospects. He
was convinced of the necessity to defend Italy as far south of the Apennines as possible, and was 'doubly bound' thereto by the Führer's orders, but he wanted to be sure that he had the latter's confidence.

Until high-grade Sigint began to disclose the substance of these German exchanges, which it did from 9 June, the Allied assessment of Kesselring's situation and intentions was the same as that made by Kesselring himself: the Germans had little choice but to withdraw to the Pisa–Rimini line. On 9 June, however, GC and CS signalled the message of 3 June in which Jodi informed Kesselring that Hitler had ordered him to withdraw the centre of Army Group C with all speed to the Caesar line and to reconstruct the front north of Rome as far south as possible. On 10 June two decrypts contained orders of the previous day by Kesselring to his armies to withdraw to a line from Orbetello through Terni and Rieti. Tenth Army gradually wheeling its left wing to the line Aquilla–Gran Casso–Pescara. Armee Abteilung von Zangen was to bring up the artillery of 356th and 162nd Divisions as soon as possible after the divisions and prepare a deep defence zone between the coast and the Orvieto–Siena road: the preparations were to be chiefly against tanks and to be heaviest in the Grosseto area where the rearward battalions of 162nd Division were to form a protective garrison. AFHQ's intelligence summary issued three days later appreciated that the Germans intended to make a stand on the general line Trevi–Lake Trasimeno–Grosseto, and that this was presumably because of a pressing need to improve the defences of the final Pisa–Rimini line.

The next information about Hitler's intervention was obtained on 19 June from decrypts referring to Elba. The decrypt on 16 June of a message from the German naval command in Italy had revealed that on the previous day Kesselring had instructed Fourteenth Army to discontinue transport to Elba. On 19 June, however, by which time the Allies had invaded Elba and the last defenders were being evacuated, GC and CS signalled a message of 18 June in which Kesselring told the naval authorities that the defence of Elba to the uttermost was of decisive importance to the whole conduct of the war on the southern front. Hitler had insisted on this in his directive of 14 June. No other part of that directive was to appear in the decrypts for some days, but on 20 June an incomplete message gave part of the appreciation which Kesselring had submitted on 18 June for presentation to the Führer. After referring to the weakness of some of his divisions, it said that Kesselring was convinced of the need to hold as far south–west of the Apennines (ie the Gothic line) as possible. Doubly anxious to do so because of Hitler's order, he had initiated all possible measures to accomplish this. But the Führer's confidence was a prerequisite for success in directing the next phase of the battle.

It was not until 27 June that a summary of Hitler's directive became available in the decrypt of a message of 17 June to the naval authorities in Elba. The decrypt disclosed that Hitler had ordered that the Apennine position was to be held as a final blocking line since Allied entry into the Po valley would have incalculable military and political consequences, but was at the same time insisting that in large parts of the position nothing had so far been done in the way of defence works. The misconception in the minds of commanders and men that there was a fortified Apennine position should therefore be eradicated once and for all. C-in-C South–West must conduct his operations to gain time until adequate development of the Apennine position was achieved – a task which would take months. In consequence Hitler had ordered that the armies should go over to the defensive in the Albert line. Elba must not be evacuated
as this would endanger the coastal flank. At this point there was a gap in the
message. It went on to say that possession of efficient harbours such as
Leghorn and Ancona would provide the Allies with springboards for landings to
outflank the Apennine position and concluded by stating that on 17 June Hitler
had again ordered that Elba was to be held at all costs.

The evidence available from Sigint about the state of the enemy’s forces
and the nature of his intentions encouraged the British authorities to persist in
a renewed attempt, on which they had embarked after the fall of Rome, to
persuade the Americans to abandon Operation *Anvil* (plans for landings in the
south of France) in favour of an all-out campaign in Italy.

The latest directive Alexander had received from SACMED (General
Wilson), on 22 May, had informed him that his operations would have
over-riding priority until he captured Rome, but that SACMED had been
ordered to mount an amphibious operation which might be in close support of
Alexander’s advance or in areas outside his responsibility, and had warned him
that if that operation were to be Operation *Anvil* he might be called on to
release one US division by 17 June, one French division by 24 June and a
second US division by 27 June: in addition, an experienced US Corps
headquarters would be required. On 8 June Alexander recommended to
SACMED and the CIGS that his armies should attack the Pisa–Rimini line in
August and carry the offensive into the Po valley in order to form a base for
operations into either France or Austria. He noted that this plan would be
practicable only if the forces and the administrative backing at his disposal
were left intact. During the next fortnight Alexander, Wilson, the British Chiefs
of Staff and the Prime Minister argued strenuously, in favour of Alexander’s
proposal, that high-grade Sigint left little doubt that the Germans intended to
stand on the Pisa–Rimini line and that the condition of Kesselring’s armies was
such that they would be unable to resist an all-out offensive unless given
substantial reinforcements at the expense of other vital theatres. This argu-
ment accorded with the assessment of German intentions and capabilities with
regard to the Pisa–Rimini defences that was made by the JIC(AFHQ) on 15 June
and circulated in Whitehall on 20 June. JIC(AFHQ) considered that Germany’s
withdrawal to the Pisa–Rimini line had become a military necessity and that
the defeats the enemy had suffered had resulted in the destruction of the
forces, perhaps five divisions, which could have been made available for
operations in other theatres if he had made a voluntary withdrawal earlier.
Nothing could now be withdrawn from Italy unless he decided to abandon
virtually the whole country. There was no indication of such an intention, but
every sign that he proposed to stand on the Pisa–Rimini line. This was a
defensive position of considerable natural strength which had been partly
fortified. Withdrawal beyond this line might compromise the defence of
southern France, lead to an Allied advance to the Austrian frontier and open
the gateway to Yugoslavia, whereas by holding it the enemy would deny the
Allies airfields in the Po valley which would bring important targets in east
Germany, Poland and Czechoslovakia within bomber range. By the time the
enemy reached the Pisa–Rimini line he would probably be some four to six
divisions short of the forces needed to man it. He might scrape together five
infantry divisions from other theatres and, assuming that the battle in France
had not taken a critical turn meanwhile and the Russians had not broken into
the Balkans, he might well move these into Italy by mid-July when the Allies
should reach the Pisa–Rimini line.
In a final memorandum on the subject to the US Chiefs of Staff, dated 28 June, the British Chiefs argued that the decrypt of 27 June giving the gist of Hitler’s directive completely vindicated their conclusion that it would be a grave strategic error not to take advantage of the opportunity of destroying the German forces presently in Italy and drawing further reserves to this front. The US Chiefs of Staff, however, had already put in train the withdrawals of which Alexander had been advised in May. VI US Corps was withdrawn on 14 June, 3rd and 36th US Divisions on 17 and 27 June, a French division on 17 June and another on 1 July. They believed that the forces left to Alexander would be adequate for successful action against all enemy forces then in Italy or likely to be brought there. And they had been advised by Eisenhower that the Allied forces in Italy did not directly threaten any area vital to the Germans, who therefore had the initiative in deciding whether or not to withdraw out of Italy, and that he and his Commanders were convinced of the transcendent importance of Anvil, which provided the most direct route to northern France and another major port for deploying reinforcements from the United States. Despite a final appeal from the Prime Minister to the President, they therefore stood firm for Anvil. On 2 July SACMED was instructed to launch Anvil at the earliest possible date and to use all available Mediterranean resources not required for Anvil to carry out his existing directive regarding operations in Italy. On 5 July a new directive from SACMED informed Alexander that priority for all resources in the Mediterranean theatre was given to Anvil to the extent necessary to complete a build-up of ten divisions in the south of France. He would lose three US divisions and four French divisions together with their necessary Corps, Army and Service troops. His task continued to be the destruction of the German forces in Italy. To this end he was to advance to the Apennines and secure the area Ravenna–Bologna–Modena. Thereafter he was to advance north of the Po and secure the line Venice–Padua–Verona–Brescia.

The battle known to the British as the battle of the Trasimene line had meanwhile occupied the last ten days of June. By 26 June Fourteenth Army’s front was dangerously eroded and on 28 June Lemelsen reported that the physical and moral stamina of his troops was noticeably reduced and only a concerted disengagement could save his army from possible disintegration. Von Vietinghoff’s defensive battle had been more successful, but Fourteenth Army’s retreat was endangering his own forces.

When the battle began the Enigma had established the dispositions of all the forces under Tenth and Fourteenth Armies. While the battle was in progress Enigma decrypts of corps and divisional situation reports were obtained with an average delay of 12 hours, and Army Y, derived principally from the enemy’s divisional VHF links, yielded a constant supply of immediate operational intelligence. The Enigma decrypts disclosed the main decisions taken by the enemy about redispersions and the conduct of the battle. They clearly reflected the comparative stability of Tenth Army’s front and the developing crisis on Fourteenth Army’s, where Kesselring was forced to permit withdrawals from 26 June.

On 1 July Kesselring reported to Hitler. The defensive battle enjoined on
his armies had led to heavy casualties: as further weakening would jeopardise retention of the Green line, he proposed to revert to delaying tactics while they withdrew to a new line north of the Arno; he would stand there until the Green line was consolidated. This report was not decrypted. Nor did the Allies learn of the directive which, following an audience with Hitler, Kesselring received on 5 July. This reiterated Hitler’s insistence that he must continue to defend a line as far south as possible, while taking special steps to deny Leghorn and Ancona against outflanking landings, but conceded that he could withdraw step by step when Allied break-throughs made retreat inevitable. It added that two Italian divisions forming in Germany would arrive in July, but that no other fresh formations could be sent. On 11 July, however, GC and CS decrypted a message from Kesselring to his armies which referred to his meeting with Hitler and repeated the Fuhrer’s exhortation that every square kilometre must be defended tenaciously.

The Germans, resisting stubbornly, continued to pull back before the Allied advance, which took Ancona on 18 July, Leghorn on 19 July and Florence on 5 August. Their nightly withdrawals and other tactical moves were revealed currently by their VHF, which was intercepted in large quantities from practically every formation, and in a stream of Enigma decrypts. The Enigma was rarely received by the commands in time to be of tactical value, but it enabled them to follow, and often to anticipate, Kesselring’s major decisions. It also disclosed on 14 and 15 July that the Hermann Goring Division was being transferred to East Prussia, and reported its withdrawal from the line on 17 July. On 16 July it gave the composition and lay-out of a new Army of Liguria that was being formed under Marshall Graziani with the Italian San Marco and Monte Rosa Divisions and the German 34th Infantry Division, all arriving from Germany. At intervals during the retreat the decline in the battleworthiness of the German formations was recorded in decrypts giving the casualty figures for individual units and revealing that, in view of their losses, reduced infantry and PG divisions were being re-organised as battle groups or amalgamated. A tank return for 13 July, decrypted on 25 July, showed that Kesselring had 145 serviceable out of 262. A return of armoured vehicles for 30 July, decrypted on 8 August, showed 136 serviceable tanks out of 163, and 83 assault guns, 96 Italian assault guns and 320 heavy anti-tank guns serviceable. The comparable figures for 12 May had been 311 tanks (out of 425), 168 assault guns, 182 Italian guns and 697 heavy anti-tank guns.

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The Allied objective after the capture of Florence was to drive the Germans out of the Gothic line, a system of strong points connected by a continuous line of positions through the northern Appenines from the Magra river on the west coast to Pescara on the Adriatic.

In the lull before the start of this next offensive (Operation Olive) on 25 August the Allies received from high-grade Sigint a full account of the changes that were being made to the German order of battle. Some of the decrypts disclosed the German response to the Allied landings in the south of France which took place on 14–15 August. Orders issued by Hitler on 17 August, decrypted on 18 August, withdrew LXII Corps from the south of France with
two infantry divisions and subordinated it to Kesselring for the defence of the Franco-Italian border. By 23 August it was known that 15th and 3rd PG Divisions were being withdrawn from the line in Italy and transferred to France, and that 90th PG Division, in reserve in Italy, and 5th Mountain Division, from the Adriatic front, had been committed to the Franco-Italian frontier. On the eve of Operation Olive other decrypts established the chain of command and the disposition of every corps and division in Tenth Army, Fourteenth Army and the Army of Liguria - 26 German and 2 Italian in all.

Eighth (British) Army’s offensive on the Adriatic front, reaching the Gothic line on 31 August, forced Kesselring to bring across 26th Panzer and 29th PG Divisions and an infantry division from Fourteenth Army. With these reinforcements he brought the advance to a temporary halt by 6 September and began a general withdrawal into the Gothic line on Tenth Army’s right wing and along the whole front of Fourteenth Army. The Allies, who had been alerted by Enigma and VHF to the transfers from Fourteenth Army’s front, attacked there on 10 September with Fifth US Army. This attack produced a crisis in the German centre; by 21 September Fifth Army was advancing through a gap in the Gothic line and threatening to cut off Tenth Army. On that day Eighth Army entered Rimini; and after 10 days of severe fighting on the Adriatic front the Germans were compelled to make a further retreat despite bringing in further reinforcements, including 90th PG Division, from the Franco-Italian frontier.

The arrival of these reinforcements, like most of the enemy’s re-dispositions along the whole of his line, came as no surprise to the Allies. As part of a drive to improve security, the German army had brought a new field cypher into force on all links down to company level on 1 September. But nearly every German formation resorted increasingly to the use of plain language on VHF during active operations, and the Enigma continued to give advance notice of the more important re-deployments as well as retrospective reports of the decline in the state of the enemy’s formations. The decline was so marked that on 27 September Kesselring requested permission to begin a withdrawal beyond the Po, which had been under discussion with Hitler’s HQ since 23 September. The fact that it was under discussion in Italy was disclosed by high-grade decrypts on 21 and 22 September: they stressed that no river-crossing equipment was to be left behind for the Allies, above all on the Po, and that all other equipment that could not be transported was to be destroyed. On 6 October, however, an order from Hitler, communicated to all ranks and intercepted by Army Y, announced that the Appenine position was to be held indefinitely for political, economic and military reasons.

After further heavy fighting between 10 and 23 October the Allies failed in their effort to take Bologna. As Eighth Army made slow progress in atrocious weather, the Germans stripped their left wing to strengthen their centre in front of Bologna. Of these transfers, as of the still larger reduction of their western flank which enabled the Germans to hold Fifth US Army’s thrust against Bologna, the Enigma gave timely warning; but neither this intelligence nor prolific tactical Y was of much avail against the stubbornness of the enemy’s resistance. At the beginning of November the Allies, unable to exclude the possibility that the Germans would carry out a voluntary pull-back to a line on the Adige in order to release divisions for other fronts, decided to continue their offensive till mid-December with the aim of detaining Kesselring’s armies in Italy.
They succeeded in this aim, though the Germans moved two infantry divisions from Istria to Hungary, but they were frustrated in their hope of capturing Bologna. US Fifth Army was preparing to resume its attack there on 9 December when the Allies were alerted to the danger of a German counter-attack on their western front. The extensive precautions taken against this threat unbalanced Fifth Army’s preparations and contributed to the postponement of the assault on Bologna to the spring of 1945.

Of this counter-attack (Operation Wintergewitter), which was carried out between 26 and 28 December in the Serchio valley, intelligence gave only a general warning. It came from the decrypt on 10 December of a message from the Japanese Ambassador attached to the Italian Government, then at Brescia. He reported that Mussolini was urging Hitler to agree to an attack on the weakly held western sector of the Allied front by two German and two Italian divisions to cut the supply route between Leghorn and Florence and possibly regain the Arno valley. The warning received some slight support in the middle of December from PR evidence that roads and bridges in that sector were being repaired; and the Allies took the threat all the more seriously because the German counter-offensive in the Ardennes had recently come as an unpleasant surprise to them. But no further intelligence was received, from Sigint or any other source, before the attack was delivered.

This was partly because, notwithstanding the fact that Mussolini was exerting pressure on Hitler, C-in-C South West carried out the operation without consulting OKW. But it was mainly a result of the fact that the supply of high-grade Sigint from the Italian front had been greatly reduced since the middle of November by the extension to Italy of modifications to the Enigma machine which, for security reasons, the Germans were gradually bringing into force in all theatres. From that date GC and CS rarely broke the Army-Air liaison key for the Italian front (Puma). Puma had hitherto been read regularly and nearly currently, and it had been the chief source of intelligence about the order of battle and the immediate intentions of both the army and the air force. Its disappearance was off-set by the fact that GC and CS had in October recovered the key of the Fish link between C-in-C South West and Berlin (Bream), after an interval since July, and went on to recover before the end of November an Enigma key which it had ceased to exploit in August because its decrypts had added little to those of Puma — that of Tenth Army (Albatross).

The loss of Puma was reflected in the fact that between the last week of November and the end of the year, when the Allied advance was halted for the winter, Allied knowledge of the frequent changes made to the German order of battle, though still considerable, was less complete, especially on Fourteenth Army’s front, than it had been for many months. But Fish decrypts of the weekly reports on the state of the enemy’s divisions disclosed that at the end of November all were rated as either fully or conditionally suitable for defensive employment, and none as suitable for even limited offensive employment. On the other hand, when the Allied Commands studied C-in-C South West’s returns for rations and armoured fighting vehicles for 20 December, decrypted at the end of the month, their satisfaction with their success in tying-down so large an enemy force must have been mixed with some disappointment at his success in managing to maintain it through so much heavy fighting. His ration strength was 1,084,649 men and 125,557 horses; the corresponding figures in May 1944 had been 995,122 and 76,500. Compared with the position at the end of July, he had 241 tanks (231 serviceable) as against 263 (136 serviceable): 219
serviceable assault guns as against 83; 133 serviceable Italian assault guns as against 96; and 446 serviceable heavy anti-tank guns as against 320. In the total of tanks the number of Panthers had risen from 23 to 32; the number of Tigers had dropped from 60 to 36, but all 36 were serviceable as compared with 22 in July.
CHAPTER THIRTY-FOUR

The Check in the West

On 5 June the JIC had assessed Germany’s capacity to resist on the assumption that Overlord went according to plan: ‘viewing the picture as a whole ... and making full allowance for the efficiency of the German military machine and of Nazi control of the Home Front, we believe that ... Germany’s defeat should occur before 1945’. A month later, by which time the Germans had failed to prevent a Russian breakthrough north of the Pripet marshes and to stem the Allied build-up in Normandy, and had been thrown out of their defensive positions south of Rome, it was more emphatic, ‘All the elements for a collapse ... already exist ... when collapse comes it is likely to develop with startling rapidity’. With the Nazi party in control of some of the higher positions in the Services, and in the absence of organised civilian opposition, it was unlikely that the enemy would seek an armistice before the collapse came. ‘It is impossible ... to predict how long this unprecedented state of affairs can last since ordinary standards cannot be applied. It is, however, equally difficult to see how Germany can ... prolong the struggle beyond December’.

Later in July the excitement aroused by the attempt to assassinate Hitler was quickly dampened by the news that the attempt had failed. But decrypts of Japanese diplomatic messages from Berlin stressed that, while the Nazi regime had easily re-asserted its authority, Germany’s deteriorating military situation was producing widespread demoralisation. On 10 August the JIC ruled out the possibility of another coup, at least until Hitler was dead or Himmler’s control of the country broke down, and thus expected that Germany’s military defeat would be accompanied by a state of disorganisation, with no central authority capable of negotiating her capitulation. It still believed, however, as it reported on 14 August, that her military defeat would come before the end of 1944, even though it was evident that her leaders were determined to prolong the war through the winter in the hope that improved fighter defences, the further dispersal of industry and increased production of the new weapons – rockets, U-boats, midget craft and mines – would enable them to retrieve the situation. On 27 August an Anglo-American review concurred: ‘the German strategic situation has deteriorated to such a degree that no recovery is now possible ... unmistakeable signs of the imminence of collapse are unlikely to be apparent until the end of resistance is close at hand, but... we consider that organised resistance is unlikely to continue beyond 1 December 1944 and that it may end even sooner’.

SHAEF and 21st Army Group agreed with these assessments. SHAEF commented on 19 August: ‘Two things are certain. The enemy has lost the war and the defeat of Seventh Army and Panzer Gruppe West will hasten the end. One thing is uncertain. Would it have been more profitable for the Allies if Hitler’s bomb had been a better and bigger one? Or ought the Allies to feel grateful that he has lived to continue his strategic blunders’. A week later it was euphoric. ‘The August battles have done it: have brought the end of the war in Europe in sight, almost within reach.’ 21st Army Group echoed these sentiments on 27 August.
The War Cabinet and the Chiefs of Staff did not dissent. On 4 September, for planning purposes, the Cabinet accepted 31 December as the date for the end of the war in Europe. On 8 September the CIGS informed the Prime Minister that while they were not ignoring the possibility that Germany would prolong her resistance into the winter, the Chiefs of Staff were inclined to share the JIC’s belief that she could not survive for long. But the Prime Minister was by no means convinced. On 8 September he argued that ‘it is at least as likely that Hitler will be fighting on 1 January as it is that he will collapse before then. If he does collapse before then the reasons will be political rather than military’. The western Allies had still not secured a major port other than Cherbourg and their advances into Germany could well be delayed by the enemy’s evident determination to hang on to the Channel ports and defend the Scheldt. This might give him time to withdraw his forces from the Baltic states and Italy and concentrate them on the Siegfried line; and the ‘fortifying and consolidating effect of a stand on the frontier of her native soil should not be underestimated’.

The force of some of these arguments became apparent in the next few weeks when the momentum of the Allied advance was checked by Germany’s retention of the Scheldt, her defeat of the Allied attempt to establish a bridgehead at Arnhem and her increasing resistance to the American armies on the Rhine and the Moselle.

On 20 August, as the battle of the Falaise pocket was ending, Montgomery issued a new directive. His intention was to complete the destruction of the enemy in north-west France and then to advance northwards, with a view to the eventual destruction of the enemy in north-east France. Second British Army was to cross the Seine between Mantes Gassicourt and Louviers and First Canadian Army in the neighbourhood of Rouen. Second Army was to cross the Somme between Amiens and the sea and clear the Pas de Calais while First Canadian Army cleared Le Havre peninsula. 12th US Army Group was to advance to the general line Orleans-Troyes-Rheims-Amiens and be prepared to advance north-eastwards towards Brussels and Aachen and, perhaps, due east towards the Saar.

First US Army spearheads secured Louviers and Elbeuf on 25 August. Here they were relieved by XII Corps and II Canadian Corps and turned south towards Paris. Paris was liberated on 25 August, with its bridges intact. South-west of the city Third US Army secured bridgeheads between Sens and Moulins and occupied Troyes on 26 August.

Meanwhile high-grade Sigint had thrown further light on Hitler’s response to the crisis facing his armies. An order circulated by OKW on 19 August and signalled to the Commands by GC and CS the next day directed that the line Dijon-Lyons-Aix les Bains was to be held as long as possible. Bordeaux town and harbour might only be given up under heavy pressure. First Army was to stay west of the Seine and its reinforcement was to be speeded up, even at the expense of Fifth Panzer Army if necessary. The decrypt of orders by C-in-C West on 20 August for the reinforcement of First Army was signalled on 21 August. Decrpts of 24 August disclosed the instructions which Hitler had given in a
directive four days earlier for the conduct of operations by C-in-C West and C-in-C South-West. C-in-C West was told that his most important task was to hold a bridgehead west and south of Paris to prevent an Allied thrust between the Seine and the Loire towards Dijon. Fifth Panzer Army and Seventh Army were to re-organise behind the river Touques, the armour being shifted to the southern flank. If it proved impossible to stand in front of the Seine then, with the exception of the bridgehead south-west of Paris, all forces west and south-west of a line Seine-Yonne-Bourgogne Canal-Dijon-Dôle-Switzerland were to be withdrawn behind this line. Fifth Panzer Army was to ensure that Seventh Army got safely across the Seine and was to prevent the Allies crossing the river below Paris. The city was to be held at all costs, even if this meant its destruction. First Army was to be reinforced as soon as possible by the forces from south-west France; meanwhile it was to cover their withdrawal and maintain contact with the south wing of Fifth Panzer Army. Nineteenth Army, led by its fighting elements, was to make a junction with Army Group B north-west of Dijon, its withdrawal being co-ordinated with developments on the southern wing of Army Group B. Any forces that were cut off were to join C-in-C South-West via the Mt Cenis and Little St Bernard passes.

Hitler’s long directive of 20 August ended with a promise that orders would be issued about bringing up personnel and material to C-in-C West. The most important reinforcements proved to be 15th PG and 3rd PG Divisions from Italy. The withdrawal of 15th PG from the line in Italy had been disclosed by high-grade Sigint on 15 August, and a decrypt of 20 August showed that the division was destined for C-in-C West. Orders on 21 August for 3rd PG to move to Châlons-sur-Marne, east of Paris, were decrypted the next day. Decrypts of 21, 24 and 25 August disclosed that two SS Grenadier Divisions (26th and 27th) were being brought up to First Army for incorporation in 17th SS PG Division; two LE divisions (59th and 64th) were being moved to the Channel coast; two SS Grenadier Divisions (29th and 30th) were being brought up west of Paris; and Panzer Brigades 106 and 109, three Volks Grenadier Divisions (553rd, 36th and 563rd) and other miscellaneous detachments were moving on various dates towards the western frontier of the Reich. The intended transfer to First Army of 47th and 49th Infantry Divisions from Fifteenth Army and of XLVII Panzer Corps HQ from Fifth Panzer Army was also disclosed by high-grade Sigint.

*The decrypt of 25 August of an order by Hitler on 23 August reiterated his instruction. The defence of Paris and its bridgehead was of decisive military and political importance. Their loss would tear open the whole coastal front and deprive Germany of the base for the V weapons. History showed that the loss of Paris meant the loss of all France. The sharpest measures must be taken against the first sign of insurrection, e.g. public execution of the ringleaders. Demolition of the Seine bridges must be prepared. Never or only as a heap of rubble must Paris fall into Allied hands.

*On 27 August MI 14 assessed the SS Grenadier Divisions as weak and low grade. The Volks Grenadier divisions were expected to be three-regiment, six-battalion LE divisions. By 12 September it had been learnt from captured documents that a series of Panzer Brigades was being set up and that a brigade comprised a lorry infantry battalion, a tank battalion with 11 assault guns and 33 tanks (Pzkw f or Panthers), an engineer company, a supply company and a workshop.
On 24 August Eisenhower told Montgomery that the task of 21st Army Group was to operate north-eastwards, west of a line Amiens–Lille, to destroy the enemy's forces, seize the Pas de Calais and airfields in Belgium, get a secure base at Antwerp and, eventually, advance eastwards to the Ruhr. 12th US Army Group would be directed to thrust its left wing forward with its principal mission for the moment to support 21st Army Group. It would also be told to clear up Brittany and build up strength to advance towards Metz. Montgomery issued a corresponding directive on 26 August. First Canadian Army was to secure Dieppe and Le Havre and clear the coastal belt as far as Bruges. Second Army was to secure the area Amiens–St Pol–Arras, make an armoured dash for Amiens and be prepared to advance through north-east France into Belgium. 12th US Army Group had selected First US Army to support 21st Army Group and it would advance north-east to establish itself in the general area Brussels–Masstricht–Liège–Namur–Charleroi.

On 29 August Second Army’s XXX Corps broke out from its bridgehead over the Seine at Vernon. Two days later Amiens was captured. Brussels was liberated on 3 September and Antwerp was taken the next day with its port almost intact. On the left of XXX Corps, XII Corps crossed the Somme at Picquigny and Longpré on 1 September and by 4 September was about 25 miles from Ghent. By then First Canadian Army had taken Dieppe and St Valéry and invested Le Havre, and its leading elements were approaching Boulogne and St Omer. On Second Army’s right First US Army crossed the Somme on 1 September and on 3 September was in Tournai. Further east its right flank crossed the Aisne between Soissons and Compiègne on 1 September. It was then turned northwards and on 3 and 4 September corralled a large number of retreating Germans in a pocket south-east of Mons. Third US Army attacking eastwards took Châlons sur Marne (29 August), Rheims and St Dizier (31 August) and, pressing on, had established bridgeheads across the Meuse at Verdun, St Mihiel and Commercy by 1 September when it ran out of fuel.

The speed of these spectacular advances, which outpaced all the sources of detailed tactical intelligence (high-grade Sigint, Army Y, POW interrogation and captured documents), and the disintegration of the German forces made the maintenance of an accurate enemy order of battle virtually impossible, particularly in the north-western sector. However, high-grade Sigint continued to provide a few valuable insights.

Decrypts signalled to the Commands on 27 August disclosed orders on 25 August to Fifth Panzer Army to withdraw to the Seine and develop the defences on the river. The armour which had escaped from the pocket was to be formed into two tactical reserve corps stationed north-east of Rouen and in the Beauvais area. Seventh Army was to withdraw the remnants of eleven divisions (84th, 89th, 263rd, 276th, 277th, 708th, 272nd, 273rd, 343rd and 326th Infantry Divisions and 5th Parachute Division) and the army troops behind the Somme to the area Flixécourt–St Quentin for rest and refit and was to employ all available manpower on building defences. The staff of II Parachute Corps was to refit at Nancy under First Parachute Army. Other decrypts signalled on 31 August showed that C-in-C West had intended to hold a defence line running from Dieppe to the Marne Canal. This was to be commanded from the sea to a line Arras–Flixécourt–Neufchatel by Fifteenth Army, thence by Seventh Army to the river Oise. Fifth Panzer Army with LVIII Panzer, 1 SS Panzer and 1 SS Panzer Corps and 347th Division (being brought up from Holland) was to be responsible for the Aisne sector eastwards to a junction with
First Army on a line Rethel–Rheims–Melun. Fifth Panzer Army had been
ordered to close the gaps in its sector by an offensive conduct of operations. A
decrypt signalled on 2 September covered orders by C-in-C West for 9th
Panzer, 21st Panzer, Panzer Lehr, 3rd PG and 15th PG Divisions to refit in the
area St Avold–Saarbrücken, 2nd Panzer and 116th Panzer Divisions to refit
south of Liège and 1st, 2nd, 9th, 10th and 12th SS Panzer Divisions to refit
north of Namur–St Trond. A decrypt signalled the following day disclosed
orders of 28 August for the despatch of all personnel of 276th, 277th, 326th,
363rd and 708th Infantry Divisions to refitting areas in the Reich and
Denmark, and the disbandment of 243rd Infantry and 5th Parachute Divisions,
the remnants of the latter being incorporated in 3rd Parachute Division which
was to refit at Nancy.

High-grade Sigint was most informative about the situation on the
German left wing. Decrypts signalled on 1 September reported First Army’s
vain efforts on 31 August to prevent Third US Army’s advance across the Meuse
with XLVII Panzer and LXXX Corps, 3rd and 15th PG, 17th SS PG and
elements of Panzer Lehr Divisions. Orders to First Army from Army Group B to
employ XLVII Panzer Corps to eliminate Allied bridgeheads over the Meuse,
and to develop a defence line on the Moselle between Thionville and Nancy,
using 559th and 553rd Grenadier Divisions, were also decrypted on 1
September, when First Army was told that it would be given Panzer Brigade
105 and possibly Panzer Brigade 106. A message from Blumentritt, C-in-C
West’s Chief of Staff, on 3 September, signalled by GC and CS on 5 September,
drew attention to the importance of the West Wall on the German–
Luxembourg, German–French frontier between Trier and Merzig. An Allied
thrust towards Trier would tear open the West Wall before it was ready for
defence.

On First Army’s left there was a gap which the German High Command
hoped to plug with Army Group G, using the forces withdrawing under LXIV
Corps from south–west France and under Nineteenth Army up the Rhône
valley. An exhortation from Blaskowitz on 23 August calling for the speediest
possible withdrawal of Nineteenth Army in view of the situation south–east of
Paris was decrypted on 25 August. In a message to OKW on 25 August,
signalled by GC and CS on 28 August, summarising the withdrawal situation of
Army Group G, Blumentritt said that C-in-C West and the Army Group were
alive to the danger of the Allies reaching Dijon first, and of Nineteenth Army
being outstripped and surrounded from the mountains east of the Rhône. A
message from C-in-C West on 28 August, decrypted the next day, said that
Army Group G’s task was to hold a blocking line Dijon–Dôle–Swiss frontier
west of Geneva. To assist it, besides Sicherungs units and Ost battalions in the
area, 553rd Grenadier Division was being brought up and subordinated to the
Army Group, whilst 21st Panzer Division was being transferred to the Langres
area to refit and as C-in-C West Reserve.

The decrypt of an appreciation by Blaskowitz of Army Group G’s situation
on 1 September was signalled on 4 September. A rallying position with weak
covering forces had been established running from Chaumont (on the
Dôle–Swiss frontier. Advance elements of 16th Infantry Division had reached
the rallying position and were being put in on the line Châtillon–Montbard.
159th (Reserve) Division was moving towards Vesoul, but would not arrive
there before 10 September. The rest of LXIV Corps was expected to cross the
on 9 September. This must be expedited if possible. Nineteenth Army was making a fighting withdrawal north of Lyons. The Army Group was making every effort to collect men and material to bring Nineteenth Army up to strength on arrival in the Dijon area. Nineteenth Army had to co-ordinate its movement with those of LXIV Corps, which would be subordinated to it after arrival at Dijon. The danger point for the Army was its northern flank. The situation along the Swiss frontier was obscure, but was not an imminent threat. Frontal Allied pressure against Nineteenth Army could be borne.

This appreciation was closely followed by the decrypt on 4 September of a message to Jodi on 2 September in which Blumentritt argued that the gap between Luneville and Belfort could not be closed until elements of Army Group G were available. The main body of LXIV Corps would not cross the Loire before 9 September and only mobile elements would be over the Canal de Bourgogne by 8 September. The main body of Nineteenth Army would not reach Dijon before 12 September: even that depended on the development of the situation and the condition of the troops would be very doubtful. C-in-C West therefore renewed his request for the bringing up of three infantry divisions to close the gap. As the Allied forces consisted of armoured and motorised divisions plentifully supplied with tanks, the divisions brought up must be adequately equipped with anti-tank weapons. The allocation of Panzer brigades was specially desired.

* * *

On 1 September General Eisenhower took personal command of the ground forces. The next day he allocated fuel to keep both First and Third US Armies mobile and ordered both towards the Rhine. First Army was to advance eastward towards Koblenz and Cologne and send one corps through the Ardennes to cover the gap between it and Third Army, which was to advance towards Mannheim and Frankfurt. On 3 September Montgomery agreed with Hodges, in command of First US Army, that Second Army would resume its advance on 6 September and seize the Rhine bridges between Wesel and Arnhem, airborne troops being used to capture the main bridges in advance of the ground troops. On 4 September Eisenhower issued a directive. The northern group of armies and part of the central group (21st Army Group and First US Army) were to secure Antwerp, breach the Siegfried line and capture the Ruhr. The central group of armies was to capture Brest, protect the southern flank, occupy the Siegfried line covering the Saar and seize Frankfurt. He thus reaffirmed the ‘broad front’ strategy, recommended by the SHAEF planners, which he had approved on 27 May, but which had been challenged by Montgomery as the end of the Battle of Normandy came in sight. To the extent that intelligence influenced Eisenhower’s decision, the enemy’s sensitivity about his left wing, disclosed by high-grade Sigint, would have tended to support it.

Although on 3 September ANXCF alerted SHAEF and 21st Army Group to the fact that the capture of Antwerp would be of little value without the seizure of the Scheldt estuary, Eisenhower’s directive placed no special emphasis on this objective. Almost at once, however, high-grade Sigint made it abundantly clear that the Germans were attaching great importance to the defence of the
estuary, both as an escape route for Fifteenth Army on their right wing and as a
means of denying the Allies the use of Antwerp. A decrypt signalled on 5
September disclosed that in the evening of 3 September Army Group B had
been informed of Hitler’s orders that, in view of the Allied breakthrough to
Antwerp, it was of decisive importance for the conduct of future operations to
hold the fortresses of Boulogne, the Calais defence area and Dunkirk,
Walcheren Island with Flushing harbour, a bridgehead round Antwerp and the
Albert Canal position to Maastricht. Decrypts signalled earlier in the day
contained orders which evidently reflected Hitler’s directive. GOC Netherlands
was told to leave only covering forces on the coast, except in fortresses, and
prepare flank protection on the general line of the Albert Canal. Fifteenth Army
was to withdraw to the general line Heyst-Namur and put in 70th Infantry
Division to hold a rallying position both sides of Ghent. Elements of Fifteenth
Army were to break through to Louvain-Hasselt and other elements with the
Army staff towards Breda via Flushing. The Albert Canal and Louvain were to
be held. Decrypts signalled early on 6 September gave fuller information about
Hitler’s directive of 3 September for the future conduct of operations. The
fortresses were to be stocked up with ammunition by Fifteenth Army, and with
supplies from the countryside. Their population was to be ruthlessly evacuated.
First Parachute Army was subordinated to Army Group B for the defence of the
Albert Canal between Brussels and Maastricht.

A decrypt of 6 September disclosed that the Navy had ferried a GAF
division and several smaller groups across the Scheldt from Breskens and
Terneuzen, and that a survey preparatory to ferrying larger army units had
shown that landing points on South Beveland were intact. On 7 September the
decrypts included orders from Naval Commander West for the defence of
Walcheren as essential for the defence of the Scheldt, together with a veto on
giving up any battery south of the estuary; orders to the effect that Fifteenth
Army was to make a fighting withdrawal to the line Zeebrugge–Bruges–Ghent
and then redistribute its forces to exploit the serviceable crossings to Flushing
and South Beveland; and orders that morning by Hitler to Fifteenth Army that
if Antwerp could not be recaptured the harbour must be made unusable by the
Allies for a long time: the mouth of the Scheldt must be barred by adequate
occupation, including infantry, and by obstinate defence of the islands of
Walcheren and Schouwen and the batteries south and west of Breskens. A
message from C-in-C West, signalled by GC and CS early on 8 September,
stated that Hitler had given ‘strictest instructions’ for blocking the west
Scheldt by all conceivable means. A bridgehead was to be formed round the
batteries on the south bank and surrounded by a belt of water and bog created
by ruthless inundation. This was closely followed by a decrypt containing plans
for minelaying on the night 8–9 September.

High-grade Sigint continued to provide prompt and copious evidence
about the evacuation of Fifteenth Army across the river. On 8 September, for
example, naval decrypts disclosed the locations and availability of ferry services
from Breskens and Terneuzen to Flushing and other points for the night 7–8
September and estimated that so far 25,000 men, 350 vehicles and 50 tons of
equipment had been ferried across. On 10 September it was known from
decrypts that Fifteenth Army’s LXXXVI Corps, commanding 59th, 70th and
712th Infantry Divisions, intended that day to hold its main defence line,
running north–east from Bruges to some two miles from the western Scheldt,
and to ferry forces across at Terneuzen. A message signalled to the Commands
on 12 September referred to ferrying being impeded by Allied air activity. In its intelligence summary for 12 September 21st Army Group appreciated that Germany had realised that the best defence of the Rhine was to impede the supplies of the troops advancing to cross it, and that the enemy intended ‘to hold out as long as possible astride the approaches to Antwerp, without which the installations of the port, though little damaged, can be of no service to us’.

The British Chiefs of Staff were quick to recognise the implications of Hitler’s orders of 3 September. On 7 September, at a meeting in Quebec before the opening of the ‘Octagon’ conference, they discussed the necessity of reducing the defences of the Scheldt, but agreed that it was unnecessary to bring this matter to the attention of SHAEF and its Commands as they must clearly have recognised its importance. Since the break–out in Normandy, however, SHAEF and its Commands had been deep in controversy as a result of Montgomery’s demand that rather than advance into Germany on two axes north and south of the Ardennes, as planned, the Allies should concentrate on a single thrust under a single command. On 4 September Montgomery pressed his case once more in a telegram to the Supreme Commander, calling for ‘one really powerful and full–blooded thrust’ towards Berlin via the Ruhr. Eisenhower stood firm on his broad front strategy, but agreed to give Montgomery’s northern thrust temporary priority. On 12 September he placed First Allied Airborne Army at Montgomery’s disposal to help seize a bridghead across the Rhine at Arnhem and conceded emergency arrangements for supplying 21st Army Group at the expense of Third US Army. On the same day, at the instigation of the British Chiefs of Staff, who may have been influenced by the continuing flow of Sigint about the Scheldt and disturbed at receiving no evidence that it was having an impact on Command plans, the Combined Chiefs drew Eisenhower’s attention to the importance of neutralising the defence of the Scheldt, preferably by air attack, ‘in view of the apparent massing of German forces on the islands guarding the port of Antwerp’. In a separate telegram to Montgomery the CIGS doubted whether bombing would be adequate and brought up the possibility of airborne operations to secure Walcheren. Montgomery at once advised the CIGS that he intended to ‘launch airborne operations to secure the Antwerp approaches’ and Eisenhower at once reassured the Combined Chiefs that he attached importance to the early opening of Antwerp.

On 13 September Eisenhower issued a directive in which, after emphasising the fragility of the supply position, he stated that the general plan was to secure bridgeheads over the Rhine and then concentrate for a final drive into Germany. During this time the northern group of armies must secure the approaches to Antwerp or Rotterdam, so that one of these ports could provide maintenance for the drive into Germany, and the central group of armies must open up Brest. On the same day he wrote to Montgomery detailing the emergency supply arrangements which he was willing to make for a limited time ‘to enable you to cross the Rhine and capture the approaches to Antwerp’ and, after referring to plans under discussion for opening the Scheldt estuary, concluded: ‘In any event I consider that the use of Antwerp for future operations is so important. .. that I am prepared to go a long way to make the operation a success’.

In his own directive, issued on 14 September, Montgomery stated that ‘the real objective’ was the Ruhr. He added that ‘on the way to it we want the ports of Antwerp and Rotterdam’. In that part of the directive which addressed the
clearing of the ports he instructed First Canadian Army to devote its 'whole energies' to Antwerp after capturing Boulogne and Calais. It is recorded that he had nevertheless emphasised to General Crerar that the use of Antwerp had become 'probably' more important than Boulogne and Calais. But it is also recorded that he had concluded on 9 September after 'careful consideration' that he could advance on Berlin with the use of Dieppe, Boulogne, Dunkirk and Calais, together with 3,000 tons of cargo per day through Le Havre, and that he could reach the Münster triangle with one good Pas de Calais port, an airlift of 1,000 tons per day and additional motor transport. He was later to admit that he had made 'a bad mistake'. 'I underestimated the difficulties of opening up the approaches to Antwerp. I reckoned the Canadian Army could do it while we were going for the Ruhr. I was wrong.'

Montgomery’s directive for the advance to Arnhem (Operation Market Garden) was issued on 14 September. 101st US Airborne Division was to seize bridges at Eindhoven, Zon and Veghel. 82nd US Airborne Division was to take the bridges at Grave and Nijmegen. 1st British Airborne Division was to take the bridge at Arnhem. XXX Corps was to advance from its bridgehead over the Meuse-Escaut Canal, which it had established on 10 September, to link up with the airborne divisions and establish a bridgehead at Arnhem, 65 miles from its starting point, by D+3 or D+4. These were ambitious plans, the more so as it had become apparent while they were being drawn up that the Germans were no longer retreating in this sector, and were making efforts to stabilise a front.

An order from Hitler was decrypted on 6 September subordinating First Parachute Army, hitherto a training command, to Army Group B and making it responsible under General Student for the defence of the Albert Canal between Brussels and Maastricht. It was to command all Parachute Army formations from the Reich, including 3rd, 5th and 6th Parachute Divisions which were to be brought up to strength by 1st GAF Training Division: LXXXVIII Corps with 719th and 344th Infantry Divisions; battle groups from the Netherlands formed from SS training units and Training Regiment Goring; and ten Flak battalions equipped with heavy anti-tank guns and short-range weapons. Subsequent decrypts gave details of the deployment of some of these formations. By 9 September Second Army had identified on the Albert Canal elements of 136th, 119th, 347th and 176th Infantry Divisions, two companies of Parachute Regiment 2, GAF Regiments 51 and 53 and Parachute Regiment 6, and had noted that strong resistance was preventing its enlargement of the bridgeheads over the Canal. It was known Ika! .some of these formations were among those that had withdrawn across the Scheldt. South of the Scheldt the Germans were still putting up strong resistance, and the decrypts showed that the withdrawal of Fifteenth Army was steadily continuing. On 17 September MI 14, in the light of evidence from reconnaissance and decrypts, calculated that 70,000 men had been ferried across by that morning.

It was no doubt in the light of these developments that, as General Dempsey noted in his diary on 10 September, the decision was taken to expand the earlier plan for an airborne operation (Operation Comet) by raising the number of airborne divisions to three 'because of increasing German strength.
The Check in the West

... in the Arnhem–Nijmegen area'. It must be assumed, moreover, that this decision took some account of the knowledge at the high level of command that high-grade Sigint had referred to the presence in Holland of Panzer divisions. A decrypt signalled by GC and CS on 5 September had reported that those elements of 2nd and 116th Panzer Divisions and 9th and 10th SS Panzer Divisions that were not still operating were to rest and refit in the area Venlo–Arnhem–s'Hertogenbosch. A decrypt of 6 September had disclosed that II SS Panzer Corps was to be subordinated to Army Group B and to move to Eindhoven to supervise the refit of 2nd and 116th Panzer, 9th SS Panzer and Heavy Assault Gun Abteilung 217.¹

By 12 September, however, 2nd and 116th Panzer Divisions had been identified on Seventh Army's front; and 21st Army Group's intelligence staff on that date was clearly not disposed to regard 9th and 10th SS Panzer Divisions, which had not reappeared in the decrypts and had not been located, as constituting a threat that called for further revision of the Market Garden plans. It noted that what was left of them was no longer in the line and might have found its way into Holland, but did not believe that much of them was left. Second Army had used the Sigint references to the refit of Panzer formations in its summary of 6 September, attributing them to POW, but had dismissed them as 'wishful thinking'. Its summary of 13 September reported that elements of 9th and 10th SS Panzer had been 'seen in small pockets', but thought they were in no condition to operate as a division. Presumably from Second Army – they were not themselves Ultra recipients – I Airborne Corps and XXX Corps had learned that 'one broken Panzer Division' had been sent to the Arnhem area for refit and that the presence of II SS Panzer Corps was suspected. But XXX Corps's G2 subsequently recalled that as the planning of Market Garden progressed the feeling grew that either the evidence for the presence of the division was weak or that the division was not fit for action.

In the few days before the operation was launched, on 17 September, this feeling was challenged in some quarters. The US Army archives record that on 16 September Eisenhower's Chief of Staff visited 21st Army Group to convey a warning based on recent indications that there was German armour in the Market Garden area, and that the warning was not taken seriously. As recorded in SHAEF's intelligence summary of 16 September, these indications were to the effect that '9 SS Panzer Division, and with it presumably 10, has been reported as withdrawing altogether to the Arnhem area of Holland to be equipped with new tanks from Cleves'. According to one post-war account, this intelligence had been received by 14 September from the Dutch Resistance, which had located 9th SS Panzer between Arnhem and Apeldoorn; it had also reported that Field Marshal Model was at an HQ at Osterbeek, four miles from Arnhem. According to the same account the G2 of I Airborne Corps claimed that he received similar information from the Dutch Resistance via Second Army and Dutch liaison officers at the Corps's HQ, and was sufficiently anxious by 12 September to request air reconnaissance of the Arnhem area; taking place on 15 September, this convinced him of the presence of German armour, but it did not impress the Corps Commander.

¹Low-grade Sigint was limited at this stage. Its only contribution as to what opposition might be met was DF bearings on a call-sign suspected of belonging to 10th SS Panzer Division.
With regard to this account it may be noted that Sigint had pointed to the presence of an Army Group B HQ at Osterbeek on 15 September; a decrypt despatched to SHAEF, 21st Army Group and Second Army on that day disclosed that the Flivo attached to Army Group B had arrived there the previous day. There is a discrepancy between the account and the Air Ministry’s post-war narrative which records that there was no reconnaissance of Arnhem on 15 September, when the weather was bad. But it adds that in sorties on 12 and 16 September, employing only eight aircraft in all, nothing significant was detected, and observes that ‘a greater effort should surely have been made’. The fact that the PR effort was so limited provides further testimony to the euphoria with which 21st Army Group and I Airborne Corps, as briefed by Second Army, responded to the interventions from SHAEF and I Airborne Corps’s G2. They clearly felt that the warnings added nothing to their existing intelligence and called for no revision of their latest estimate of the strength of the German opposition.

This estimate was given in I Airborne Corps’s subsequent report:

‘It was considered that once the crust of resistance had been broken, the German Army would be unable to concentrate any other troops in sufficient strength to stop the break-through. It was not expected that any outside force larger than a brigade group, with very few tanks and guns, could be concentrated against the airborne troops before relief by the ground forces . . . Thus the general picture, before the operations started, was that the flight and landings would be hazardous, that the capture intact of the bridge objectives was more a matter of surprise and confusion than hard fighting, that the advance of the ground forces would be very swift if the airborne operations were successful, and that in these circumstances the considerable dispersion of the airborne forces was acceptable.

It was known from Sigint that the Germans appreciated that the Allies probably intended a thrust to Arnhem and might carry out airborne landings. Decrypts signalled to the Commands on 13 September disclosed that on 10 September Luftflotte 3 had intended reconnaissance to find out whether the Allies were preparing a thrust to Aachen or a thrust against First Parachute Army and Arnhem, and that on 13 September its orders included reconnaissance to establish whether there were gliders in the area of The Wash. On 14 September the decrypt of an assessment issued on 11 September drew attention to Abwehr reports of arms-drops in the Apeldoorn–Zwolle areas and mentioned the danger of landings. The decrypt of an assessment of 9 September, signalled on 15 September, believed that the probable intention of Second Army’s XXX Corps was to thrust to Arnhem and that there might be an operation west of Nijmegen and Wesel to surround German forces in western Holland.

The airborne landings on 17 September nevertheless achieved tactical surprise: in a report of 1 October, decrypted on 4 October, von Rundstedt attributed this to the fact that the preparatory bombing did not appreciably exceed the normal level of Allied air activity, and that, in particular, the attacks on the Flak near Arnhem were thought to be aimed at the destruction of the bridges. The US airborne divisions thus obtained early successes, 101st taking Zon and Veghel on 17 September and Eindhoven on the following day and 82nd taking the Grave bridge, a bridge on the Mass-Waal Canal and important high ground in the Nijmegen area. As luck would have it, however, at the time of the landings Model was at the Osterbeek HQ, in a position to organise the prompt
resistance which frustrated 1st British Airborne Division at Arnhem and delayed the Allied advance further south.¹

The forces at Model’s disposal were four divisional battle groups of First Parachute Army on the Meuse–Escaut Canal, Fifteenth Army’s 59th Infantry Division, which was already in transit in First Parachute Army’s sector, and 9th and 10th SS Panzer Divisions. 9th SS Panzer mustered one company of Panthers, an armoured infantry regiment, an artillery battalion, two assault gun batteries and its reconnaissance battalion. 10th SS Panzer probably had an armoured infantry regiment, two artillery battalions and a reconnaissance battalion. At the news of the landings 9th SS Panzer was ordered to reconnoitre towards Arnhem and Nijmegen, to occupy Arnhem and the bridge and defeat the Allied troops west of the town, and 10th SS Panzer, some of which had begun to move towards Germany, was ordered to re-group and march on Nijmegen. Later in the afternoon II SS Panzer Corps sent a battalion of 9th SS Panzer Division to the south across the Arnhem bridge before 1st Airborne Division had taken it. 10th SS Panzer, arriving later, had to cross by ferry; but it arrived at Nijmegen in time to stop the first US attempt to take the bridge there. At the same time Model ordered Student, reinforced by 59th Infantry Division from Fifteenth Army and Panzer Brigade 107, which had been en route to Aachen, to contain the Allied ground offensive from the Meuse–Escaut Canal and destroy the airborne force at Eindhoven; sent makeshift troops to hold the high ground at Nijmegen and help to hold the bridges; and ordered a hastily assembled collection of defence and training battalions to attack from the north and north-west against Arnhem, where 16th SS PG Training and Research Battalion was also available.²

XXX Corps, which did not reach Veghel till 19 September, joined 101st Airborne Division in routing 59th Infantry at Best on that day. Its efforts to take the Nijmegen bridge in conjunction with 82nd Airborne did not succeed, however, until 20 September. Its medium artillery was supporting 1st Airborne Division at Arnhem from 21 September, but its efforts to reach Arnhem in strength were then held up by the attack from Panzer Brigade 107 towards Zon and a concerted drive by Panzer Brigade 107 and 59th Infantry Division to cut the road north of Veghel. These counter-attacks were spent by 23 September, with heavy losses to the Panzer Brigade; but II Parachute Corps had meanwhile contained the Americans at Nijmegen and II SS Panzer Corps had stepped up

¹The claim that the Market Garden plan had been betrayed on 15 September by a member of the Dutch Resistance (code name King Kong) and that his treachery accounted for the presence of the two SS Panzer Divisions near Arnhem, was refuted by US and Canadian official histories and a Dutch Parliamentary Commission of Inquiry on the grounds that these divisions had already been moved into the area; and Student denied that he received any such warning. The Dutch official history of the Resistance subsequently concluded that King Kong warned the Abwehr in Holland on 15 September that an airborne operation was imminent, but that he was disbelieved.

²An Abwehr agent in Stockholm also sent a warning to Berlin on 16 September that the Allies were to make an airborne landing at Arnhem. It arrived too late to be useful to OKW. Later investigations into the possible source of his information proved inconclusive: the most likely explanation was that he had made an intelligent guess.
its operations at Arnhem. At Arnhem, moreover, the plan to reinforce 1st Airborne by the Polish Parachute Brigade had gone awry. The Brigade’s drop had been reduced by bad weather and had had to be made south of the Rhine at Driel. Some of the Brigade managed to cross the river on 23 September and troops from XXX Corps’s 43rd Infantry Division crossed on 24 September. But it was clear by then that there was no prospect of consolidating a bridgehead. The evacuation of 1st Airborne Division was ordered on 25 September and took place that night.

Once the operation had begun the Allied forces received no great advantage from intelligence. The information that Germany was bringing in further reinforcements was obtained from high-grade Sigint on 21 September; a decrypt then disclosed that on the previous day Hitler had ordered the transfer of XII SS Corps from the eastern front to Army Group B, where it was to command 180th and 190th Infantry Divisions, brought in from the Reich. Another message bearing on the enemy’s response to the offensive was issued by OKW on 19 September, but was not decrypted till 24 September. It stated that as the situation in Holland demanded the employment of all available forces, Hitler had ordered the immediate formation of battle groups from elements east of the Rhine belonging to 1st, 2nd, 9th and 12th SS Panzer Divisions. These decrypts apart, high-grade Sigint added little to the information that had already been obtained from Army Y and POW. These sources, together with the Dutch Resistance, provided a fair amount of intelligence in some sectors: it appears to have given advance notice of the German counter-attack on XXX Corps at Veghel.

With the failure to establish a bridgehead at Arnhem the Allied hopes that Germany might be defeated before the winter set in were finally dispelled, for First US Army had already been checked at Aachen and in the Ardennes and Third US Army at Metz.

The fact was that, by the time the US armies renewed their advance, the enemy’s defence was consolidating under von Rundstedt who had been reinstated as C-in-C West on 6 September. On his left wing the fighting elements of Nineteenth Army and LXIV Corps had escaped encirclement in the south and passed Dijon, Army Groups B and G had managed to join up, and the German armies were fighting along the whole front with renewed resolution in a recovery which the Germans were later to call the ‘miracle of the West’. To the east of Fifteenth Army (Channel ports and Walcheren) and First Parachute Army (Albert Canal) the line was held from right to left by Seventh Army (Maastricht to Libramont, north-east of Sedan), First Army (Libramont to exclusive Lunéville), Nineteenth Army (Lunéville to the Swiss border south of Belfort).

On 12 September, the day First US Army began the attack on the Siegfried line, a decrypt showed that an order of 8 September had been signed by von Rundstedt as C-in-C West: the order was to the effect that the Allies were in no circumstances to be allowed to pass through the west position and the West Wall. A naval situation report decrypted on 13 September claimed that some 150,000 men were at work on the western fortifications. On 15 September a
decrypt disclosed that Seventh Army had received an important reinforcement in the Aachen area: Hitler had ordered 12th Infantry Division to be brought up by battle groups beginning on 13 September, with the Assault Gun Abteilung in the first battle group. On 16 September SHAEF’s intelligence summary reported that Seventh Army had been reinforced in the Aachen area and had delayed Allied progress considerably, and this despite the fact that the enemy had given highest priority to the area between Nancy and Metz: the fighting there had been very heavy and several new formations had been identified.

The German recovery was quickly reflected in the decrypts of telegrams from the Japanese embassy in Berlin. On 11 September one had shown that the representative of the Japanese Ministry of the Interior believed that it was only a matter of time before Germany collapsed and that the war might be over before the end of the year. But early in October others disclosed that the same authority no longer saw any signs of internal collapse and that the Ambassador believed that because the lull in the fighting had strengthened the will to fight to the end, ‘the progress [of the Allies] would not be so simple’, and that the war would carry over ‘till next year’. A change of tone had by then been registered by the Allied intelligence summaries. On 27 September 21st Army Group admitted that ‘with the Allies still adjusting their maintenance ... the enemy has gained a respite of which he has taken fuller advantage than it was supposed he might manage’, and on 30 September SHAEF agreed that the Germans had fared better than might have been expected. Nor was it long before Sigint disclosed that the enemy planned a sizeable counter-attack on the Allied salient at Nijmegen.

During the battle of Arnhem, and for a few days afterwards, the Germans had made strenuous efforts to pinch off the salient at Nijmegen by cutting its supply line. When these failed Allied intelligence had thought that the enemy would stand on the defensive with the aim of preventing exploitation by the Allies north of the Waal and the extension of their bridgehead eastwards across the Meuse in the Venlo area. However, it became clear from decrypts of 28 and 29 September that a serious offensive was in the offing. A message from Army Group B on 28 September requested a bombing operation on Nijmegen town and roads to it during the night 28–29 September. A decrypt signalled to the Commands at 1052 on 29 September disclosed that Army Group B’s Chief Quartermaster urgently required additional ammunition and fuel for offensive operations involving numerous motorised troops, including two Panzer divisions. Decrypts signalled in the evening disclosed that at 0800 on 29 September Army Group B had asked for attacks by strong bomber forces against Nijmegen on the nights 29–30 September and 30 September–1 October, and had suggested that as the attack was on Hitler’s orders it might be possible to bring in Fliegerkorps IX. Meanwhile Army Y had obtained indications that elements of 116th Panzer Division were south-east of Emmerich, and further evidence that the Division was in the vicinity was provided by the same source on 30 September. On 1 October attacks were made in some strength on the bridgehead north of the Waal and it was established from prisoners and Army Y that, along with elements of 116th Panzer and 10th SS Panzer Divisions, units of 9th Panzer had taken part and that 9th SS Panzer had been close at hand. Both 116th Panzer and 9th Panzer Divisions had come from south of Aachen. On 2 October elements of 1st SS Panzer Division and Panzer Brigade 108 were identified in an attack from the Reichswald against the eastern flanks of the salient. On 3 October a decrypt disclosed that by 1 October new reporting
centres had been established in the sector of First Parachute Army for Panzer Brigade 107 and 108, 9th Panzer Division (with Panzer Brigade 105) and 116th Panzer Division. During the next few days enemy pressure was directed against the western flank of the salient by the newly arrived 363rd VG Division.

On 8 October 21st Army Group appreciated that although there were all the signs of a serious counter-attack from the enemy’s bridgehead at Arnhem by II SS Panzer Corps, which controlled 116th and 9th Panzer Divisions, Panzer Brigade 105 and 9th and 10th SS Panzer Divisions, it looked as though the ineffectual attacks which had been broken up by the Allied artillery and air forces represented the enemy’s best efforts. This appreciation proved to be correct. It was not long before Allied intelligence had evidence that First US Army’s offensive towards Aachen, which had been renewed at the beginning of October, was drawing the German armour to the Aachen sector. A decrypt of 9 October revealed that I SS Panzer Corps HQ was moving to Julich the next day. Second Army reported on 10 October that Panzer Brigade 108 had moved from the Reichswald to Aachen and on 11 October that there was evidence from Army Y that 116th Panzer Division, which had not been identified on Second Army’s front for three days, had almost certainly gone the same way. A decrypt of 12 October disclosed that on the previous day C-in-C West had subordinated I SS Panzer Corps, with 3rd PG and 116th Panzer Divisions, to Army Group B, which was to try to put the divisions into battle as a unit. Later on 12 October high-grade Sigint reported that 1 SS Panzer Corps had taken over its new sector, north-east from Aachen, by 0800 that morning, with 116th Panzer, 3rd PG, 183rd and 49th Infantry Divisions under command. Elements of 1st SS Panzer Division were also encountered in the Aachen sector on 12 October.

These reinforcements failed to prevent the capture of Aachen, which was virtually surrounded by 16 October and taken on 21 October. But they were sufficient to bring First US Army’s offensive to a halt after the capture of Aachen. On the Moselle Third US Army had meanwhile fought a hard and ultimately unsuccessful battle for Metz.

* * *

In these operations the Allies were increasingly handicapped by the fact that their supply position was deteriorating. Boulogne, the first port to fall in the Pas de Calais, had been taken on 23 September, and Calais, Le Havre and Brest were captured by the end of the month. But the possibility that the Scheldt would soon be cleared had quite disappeared. A naval decrypt of 24 September had disclosed that the evacuation of Fifteenth Army was nearly complete: 82,000 men, 530 guns, 4,600 vehicles, 4,000 horses and much valuable equipment had been ferried over. First Canadian Army had by then cleared all the country south of the estuary except the Breskens pocket behind the Leopold Canal. But in the Breskens pocket, as in Walcheren, German garrisons were firmly dug in, and east of Antwerp the Canadians were held up at the Antwerp–Turnhout Canal by three divisions, two of them from among those that had crossed the Scheldt. Sigint had disclosed on 20 September that Breskens had been declared a fortress on Hitler’s orders; on 25 September it had referred to Fortress Walcheren. 21st Army Group had recognised on 23 September that the Germans had no intention of withdrawing from these positions.
On 22 September Eisenhower had insisted that priority should be given to operations for freeing the approaches to Antwerp, its use being indispensable for the drive into Germany; and on 29 September he informed the Combined Chiefs that he had ordered 21st Army Group to make a major effort to reduce Walcheren and South Beveland as a matter of urgency. But Montgomery was then facing German attacks on Nijmegen and hoping to destroy the German bridgehead west of the Maas as a preliminary to a thrust to the Rhine. On 25 September he ordered First Canadian Army to continue its operations to secure Calais and Antwerp while Second Army attacked with all available strength from the Nijmegen area against the north-west corner of the Ruhr and took an opportunity to seize a Rhine bridgehead. It was not till the effort to clear the enemy from the west bank of the Maas had been frustrated that in the middle of October, following a conference at SHAEF on 4 October at which his argument that he could take the Ruhr without the use of Antwerp was vigorously disputed, he gave absolute priority to the clearance of the Scheldt by ordering Second Army to employ all its offensive power in a westward drive to assist First Canadian Army.

First Canadian Army had meanwhile encountered stiff resistance before reaching the approaches to South Beveland on 10 October. Orders from Jodi and GOC Fifteenth Army of 3 and 7 October, insisting that the defence of the approaches to Antwerp was decisive for the further conduct of the war, were not decrypted, but as MI 14 noted on 8 October there was no doubt that the enemy would hold out to the bitter end. Not until the end of October, after further hard fighting which drew in Fifteenth Army’s last reserves and included a German spoiling attack on Second Army’s flank in the Venlo area from 27 October, were the Breskens pocket and South Beveland finally cleared. And not until 8 November, after British Army and Royal Marine commandos had assaulted Walcheren on 1 November and taken Flushing on 4 November, was all resistance brought to an end. Allied minesweeping in the Scheldt had begun by then, but it was not till 28 November that the first convoy entered Antwerp, 84 days after the capture of the city.

In the course of these operations high-grade Sigint provided a good deal of detailed intelligence. Much of it related to the measures the Germans took to mine the Scheldt and to foul its harbours before giving them up to Allied attack. But the decrypts also covered the composition and the state of the forces defending the estuary. By 27 September 21st Army Group knew that only two divisions were involved, 64th Infantry in the Breskens pocket and 70th Infantry at Flushing, and that even scantier forces held North and South Beveland. By 8 October decrypts had disclosed that only one regiment of 70th Infantry remained on Walcheren, the other two having been withdrawn to strengthen the line north of Antwerp. Decrypts during the second half of October showed that 64th Infantry was being supplied by convoys of small craft running from Flushing to the Cadzand area. They also showed that the attempt to evacuate the remains of the division through Cadzand were frustrated by the speed of the final Canadian advance.

The German spoiling attack in the Venlo sector on 27 October fell on 7th US Armoured Division, which was temporarily under command of Second Army’s VIII Corps. It achieved tactical surprise despite the knowledge from a decrypt on 25 October that Army Group B wanted close air support for a limited attack and had called a conference at the battle HQ of LXXXVI Corps (which was responsible for the Venlo sector). Second Army’s intelligence
summary for 25 October reported that its front facing east had been generally quiet but that it was difficult to forecast what the enemy would do, the complete absence of air reconnaissance because of the weather being a severe handicap. The summary for 26 October again reported a generally quiet front to the east and added that tactical reconnaissance had been largely abortive because of the weather. Very short warning was provided by a decrypt signalled by GC and CS to the Commands with high priority at 2154 on 26 October disclosing that on the next day JK II intended to provide a fighter screen and support for the Army in the Venlo area and by an emergency signal from GC and CS at 0134 on 27 October reporting that I/KG 51 had been ordered to attack Eindhoven that day in support of a German tank attack in the area. Thereafter high-grade Sigint provided useful information about the attacking forces engaged and their intentions. An emergency signal at 0108 on 28 October gave JK II’s intention for the day as support of the further attack by XLVII Panzer Corps in the Venlo area. Another emergency signal at 0256 reported that I and III/KG 51 were to support the attack by bombing Allied concentrations. The decrypt of a message of 27 October from Army Group B, signalled at 2140 on 29 October, stated that the attack by 9th Panzer Division under XLVII Panzer Corps was designed to tie down the Allies and relieve Fifteenth Army, and that 15th PG Division was held ready to exploit success. A decrypt signalled at 1644 on 31 October reported that by 0800 that morning 9th Panzer Division had gone over to defence, and Army Group B’s situation report for 31st October, decrypted the next day, confirmed that the attack had been called off after drawing 15th British Infantry Division and 4th Armoured Brigade away from Fifteenth Army’s front.

General Eisenhower’s plan for the autumn offensive was to make the main effort in the north, defeat the enemy west of the Rhine, secure bridgeheads, and then advance deep into Germany. The central group of armies north of the Ardennes was to advance to the Rhine and gain bridgeheads south of Cologne. Concurrently the northern group of armies, after clearing the approaches to Antwerp, would drive the enemy across the Meuse and advance to the Rhine. Subsidiary operations by Third US Army, timed so as best to support this main effort, would destroy the enemy in the Saar and secure crossings over the Rhine which could be used as and when required. On the extreme right flank in the south 6th US Army Group would also act aggressively to overwhelm the enemy west of the Rhine. In the early part of November, before these offensives began, high-grade decrypts brought to a head Allied speculation about Germany’s intentions. They came from the Japanese diplomatic cyphers as well as from the German Sigint.

In the first of a series of telegrams from the Japanese embassy in Berlin, the decrypt of which was sent to the Commands on 24 August, the Ambassador had reported that the Foreign Ministry had informed him on 21 August that no large-scale German offensive would be possible for about two months, but that by then ‘the recent very thorough mobilisation’ would have made it possible to form 100 to 125 divisions and an air force, primarily fighters, capable of standing up to the western Allies. In a second signal of 23 August the Naval Attaché had repeated that Germany was mobilising for an offensive which, according to the Chief of Staff of the Home Army, would come by about November or December. A third, from the Ambassador on 4 September, had reported on an interview with Hitler and had quoted him as saying that when 1 million new troops now being formed were ready, together with units
 withdrew from other fronts, and as soon as the replenishment of the air force was concluded, the intention was to undertake a great offensive in the west ‘probably from November onwards’.

At the end of September Enigma had disclosed that 1st, 2nd, 9th and 12th SS Panzer Divisions, Heavy SS Panzer Abteilungen 501, 502 and 503 and the Corps troops of I SS Panzer Corps were to withdraw east of the Rhine for rest and refitting and to be subordinated to Sixth Army, which was being set up under Sepp Dietrich. Orders decrypted by 7 October had added Panzer Lehr Division to this list and had required I SS Panzer Corps and its Corps troops to be withdrawn from operations and despatched to Sixth Panzer Army at once. Decrypts of 9, 11 and 12 October had revealed that First US Army’s advance had obliged the enemy to bring I SS Panzer Corps into the front at Aachen, but had insisted that it must be with Sixth Panzer Army by 20 October at the latest. By 22 October Sigint had established that Sixth Panzer Army and its subordinated units were OKW Reserve; that delays in getting its divisions out of the line had prompted orders to the effect that battle groups of 2nd and 9th SS Panzer Divisions were to be pulled out by 22 October and those of 1st SS and 12th SS Panzer and Panzer Lehr Divisions as soon as possible; that I SS Panzer Corps was to be withdrawn as a matter of priority; and that the programme for completing establishments in tanks and other weapons for the SS Panzer divisions and probably three Army Panzer Divisions would extend into November. A message decrypted on 18 October had disclosed that the order for the rest and refit of the armoured divisions had emanated from Hitler. Messages decrypted on 24 October had referred to the withdrawal from the line of I SS Panzer Corps, of battle groups of 1st, 2nd and 12th SS Panzer Divisions, of Panzer Lehr Division and of the remainder of 9th SS Panzer Division, all of which were to report to centres in Westphalia, and had also mentioned that the withdrawal of 11th Panzer Division from the front in the south was being delayed by lack of loading space. Sigint and ground sources had also indicated that three Parachute divisions were out of the line and in the Terborg area under First Parachute Army HQ. Further evidence that 3rd, 5th and 6th Parachute Divisions were refitting in Holland was obtained from a decrypt on 28 October.

Sigint received between 18 October and 12 November had disclosed other changes in the enemy’s order of battle. At the beginning of October it was known that the front from the mouth of the Scheldt to Trier was held by Army Group B with Fifteenth Army, First Parachute Army and Seventh Army, and that Army Group G held it from Trier to Switzerland with First Army, Fifth Panzer Army and Nineteenth Army. Decrypts available on 18 October had disclosed that Fifth Panzer Army was moving with all speed from the Nancy area to Army Group B, and a decrypt of 27 October had reported that it had taken over the sector between Roermond and Stolberg. Between 4 and 12 November it had emerged from Sigint that a new Army Group H, thought to comprise Fifteenth Army and First Parachute Army, had been set up under Student, previously GOC of First Parachute Army.

By that time Sigint had provided evidence of extensive troop movements towards the front. A message from First Parachute Army of 5 November, decrypted on 6 November, ordered those of its formations that were not at the front to observe wireless silence. It was followed by ground reports to the effect that refitted Parachute divisions had moved off in buses. Requests from Army Group B for air cover for important troop unloadings at places from 25 miles
north-east of Aachen to south of Trier, together with the corresponding orders from JKII, were decrypted between 3 and 11 November, on 12 November MI 14 estimated that these movements involved perhaps two more divisions. On 12 and 13 November decrypts provided important information about Sixth Panzer Army. It was being moved by rail to the west of the Rhine on a tight schedule which could be maintained only if all formations were despatched promptly. 2nd and 12th SS Panzer and Panzer Lehr Divisions had either begun to entrain or would do so shortly, but were behind schedule.

Decrypts of 27 and 28 October had meanwhile provided startling information about measures being taken by the GAF. A decrypt of 27 October had disclosed that Luftgau VI (stretching from the Dutch-Belgian border approximately to the line Hanover-Kassel) was preparing to stock up eleven airfields north of Aachen with fuel and ammunition in connection with the switch of a large force of day-fighters to close-support operations in 'a lightning blow' (Schlagartiger Einsatz) under JK I and 3rd Jagd Division in the first few days of November. Decrypts on 28 October had included a request from one of the airfields for ammunition for three operations by 53 FW 190s and orders by JK I for spoof wireless traffic in the first days of November during bad weather and during 'operational attack'.

The Allied authorities recognised by the end of September that the enemy was making a supreme effort to mobilise new divisions: thus, MI 14 reported on 24 September that 30 Volksgrenadier divisions were being formed expressly for the defence of the Reich, and that 30 more were to follow. But they were undecided and by no means unanimous in their views as to the significance for his intentions and capabilities of the evidence about Sixth Panzer Army and the GAF's preparations.

On 15 October MI 14 believed that, although the new mobile reserve of Sixth Panzer Army was being created 'to meet the emergency of an Allied break-through', it would have to be dissipated in local counter-attacks. On 22 October, noting signs of re-grouping between Army Groups B and G and

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\*At the end of October some decrypts had referred to it as Sixth SS Panzer Army, and thereafter it was sometimes so called by the German and the Allied authorities. But in almost all official German records it continued to be Sixth Panzer Army.

\*Since reporting the formation of Volks Grenadier divisions at the end of August (see above, p. 536) and fn) MI 14 and SHAEF had continued to note in their intelligence summaries the movement of these divisions out of Germany to the west. By the end of November enough was known about the composition of the VG divisions for SHAEF to include a special item on their chain of command, personnel strengths and weapons. Features common to all the VG divisions, which distinguished them from previous infantry divisions, were the inclusion of young, but experienced naval troops, as well as some GAF personnel and new, young call-ups: innovations in equipment and organisation such as the concentration of heavy weapons under higher control, all anti-tank guns, for example, coming under divisional command: the fall in strength to about 10,500 per division against 12,700 in the 1944 class and 17,000 in the 1940-43 class of division. The main lack was in training. VG divisions were designed for a relatively static role, being brought up in order to relieve Panzer-type divisions for reserve and counter-attack.
forecasting the appearance of a new Army Group, it appreciated that Germany was making use of the probability that the Allied offensive would be delayed by supply difficulties for some weeks; but it still doubted whether she would be able to prevent an armoured reserve from being frittered away under Allied pressure. To begin with SHAEF had shared these views. On 3 October it believed that 'Hitler’s projected November offensive tends to fade into the distance'. On 19 October, however, it allowed for the possibility of a German offensive: 'Hitler wants a November offensive. Possibility not excluded of Sixth Pz with I and II SS Corps plus three Para divisions (also refitting) putting in spoiling attack in North before we start large-scale offensive action. Such action however depends entirely on enemy’s ability to retain his front... This unlikely unless more infantry arrive...'. On 22 October, on the other hand, its intelligence summary noted that 'the general picture remains unchanged – unbroken determination to hold the West Wall (despite the loss of Aachen and the Vosges) and to deny base ports to the Allies, assiduous efforts to build up a reserve of Pz and Parachute troops by November, lack of hope of reinforcements before November and of anything really substantial even then. Meanwhile to fight back wherever the Allies strike, and reinforce wherever they strike in force, with a growing conviction that the really essential sector is in the north, opposite the Ruhr'. At this juncture AI intervened with its appreciation of the GAF decrypts of 27 and 28 October. AI had no doubt that they were more consonant with a German plan for a spoiling attack than with preparations for a counter-attack.

Before reaching this conclusion, AI pointed out that there was evidence that Hitler had long entertained the project of a November offensive: this was clearly a reference to the Japanese decrypts. It also rested its conclusion on the knowledge that the GAF would have no difficulty in providing substantial reinforcements for close support for the Army. It had learned from Sigint by the middle of October that the GAF’s close-support forces, which had been virtually eliminated during the fighting in France, had been restored 'on a scale that could hardly have been foreseen two months ago'. At the beginning of October AI had estimated that the GAF had 2,000 single-engined fighters and that an increase to 2,500 was not impossible over the next six months.

AI's appreciation of 28 October was all the more noteworthy, however, in that it was made in the knowledge that as between defence of the Reich and close-support operations, the GAF was still giving priority to the former. A message decrypted on 26 October had stated that defence of the Reich was unambiguously the GAF’s main task; further withdrawals of close-support fighters were to be made accordingly, though the substantial increase in fighter strength would soon allow better close support. A message decrypted on 18 October had disclosed Luftflotte Reich’s orders regarding the use of the close-support forces: their main task was to engage the Allied air forces in the rear of the operational area and over the population working on the West Wall, and direct support of operations at the front would be undertaken only in especially critical situations. Moreover, from a message from C-in-C West decrypted on 27 October it might well have been concluded that the close-support forces would be increased only to meet the threat from the Allied offensives. This had stated that OKL planned to bring up very strong fighter forces for close-support operations in the event of large-scale Allied attacks – but not before. There can be no doubt that it was in the light of the decrypt references to the GAF’s ‘lightning blow’ and its ‘operational attack’ that the Air
Ministry set this interpretation aside on 28 October and came down in favour of the view that the enemy was planning a spoiling offensive.

MI 14 and SHAEF reacted somewhat differently to AI’s appreciation. On 29 October MI 14 believed there was no evidence from army sources that an attack was intended. ‘Moreover, any major German offensive operations would seriously interfere with the refitting programme of Panzer divisions’, and although the enemy might have to use them in an emergency before they were fully refitted, it was too early to judge whether he considered that such an emergency had arisen. Also on 29 October SHAEF commented that the enemy was doing his utmost to collect a striking force of at least four refitted Panzer divisions, with 400 tanks, and went on to say that: ‘Assuming it all remains at the disposal of C-in-C West, there is a doubt whether it is to be used for counter-attack when the expected Allied offensive against the Reich has developed, or whether the intention is, before that time, to launch an ambitious spoiling attack. The latter course is no doubt over-ambitious and considerably the less likely of the two, but it would be very tempting to try to put the Allies off until the winter is really here and so until next spring, by which time some miracle may have happened’. It believed that if the Germans chose to make a spoiling attack, it would scarcely be made except in the sector between Arnhem and Roermond, where the Ruhr was most directly threatened and the parachute infantry assembled. On 31 October it observed that ‘the recent reorganisation of the fighter force and project for first few days of November might signify intention to carry out offensive in the near future, and presumably current operations by XLVII Pz Corps might develop into large scale operations. To recapture Nijmegen would be considerable achievement, and successful spoiling attack might settle the campaign in the North for the winter months. Must be an important factor in enemy’s appreciation to undertake such an operation before port of Antwerp fully developed. ... No evidence yet about Sixth Pz Army crossing the Rhine. Forecast during November continuation of Pz refit. Part of Sixth Pz Army might be called to other fronts, but is probably wanted for use in West. No reason to suppose oil situation could not support intensive offensive fighting for, say, one week’.

Further references to the GAF’s special project were obtained from the decrypts in the first week of November. They included an order by Goring that provision must be made for fitting out all fighters as fighter-bombers at 24 hours’ notice; reports about the equipment of 24 day-fighter Gruppen (almost the entire fighter force available for defence of the Reich) and of the movement forward of some of their advance detachments; a warning from Luftgau VI to Kassel and Düsseldorf that advance detachments of fighter squadrons would arrive at short notice; detailed messages about the units involved; and a message indicating that 12 November was the last date for making preparations to receive the fighter reinforcements.

The Air Ministry summed up this information on 7, 9 and 12 November. On 7 November it appreciated that ‘German plans for rapid, secret, build-up of close-support forces on Western Front in connection with a still undefined “project” appear to be nearing maturity’. It went on to say that the latest Sigint not only bore out the view it had expressed in the appreciation of 28 October to the effect that the Germans were planning a spoiling attack but also gave more details about their intentions. The further details available were that the enemy planned to transfer up to 400 single-engined fighters: envisaged ground-attack operations by day and night on a scale in excess of anything he had yet
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attempted on the western front; and that the main focus of the air concentra-
tion was Aachen-Düsseldorf, a sector over which the GAF had been providing
fighter cover for the unloading of troops. AI remained uncertain, however, as
to whether the objective of the German "blow" was to be sustained attacks on
Allied ground forces or attacks to neutralise Allied tactical air forces by
destroying airfields. On 9 November it raised its estimate of the fighters the
Germans planned to have available to between 600 and 700 in 24 to 25
Gruppen, adding that although airfields in northern Holland and the Darm-
stadt area were now involved, this was probably due to pressure on accom-
modation and did not invalidate the conclusion that the focus of the
concentration was to be Aachen-Düsseldorf. On 12 November it again raised its
estimate of the scale of the concentration ~ to between 800 and 850
single-engined fighters in 28 to 30 Gruppen. On 6 and 11 November further
decrypts had disclosed that II and III Gruppen of SG 4, a specialised
ground-attack Geschwader, were being transferred to Germany from the
Russian front for training in bad weather ground attack and with new anti-tank
weapons for operations in the west, and that Fliegerkorps III, which had been
directing ground-support operations on the Baltic front, had been assigned to
co-operate with the two northern Army Groups in the west.

Once again, the responses of the other intelligence authorities to this
evidence varied in emphasis. In an exchange of views on 8 and 9 November
between the DMI and SHAEF the DMI said that the recent Sigint had increased
‘my hunch’ that a German offensive against the flanks of the Aachen salient was
planned for the near future while SHAEF, though agreeing that a spoiling
attack in the Aachen sector was not excluded, felt that a counter-attack was
more likely once it was clear where the Allies were to concentrate their efforts.
The use of Sixth Panzer Army for a large counter-offensive was improbable at
present; it was much more likely to be dragged in piecemeal with ‘bits’ going to
other fronts. On 10 November, noting that Sixth Panzer Army was so disposed
that it was within easy reach of any part of the front north of Aachen, 21st Army
Group doubted whether the enemy had either the will or the ability to commit
it as a unit; it was more likely that its divisions would be used for plugging
gaps, as in Normandy. On 12 November with reference to Army Group B’s
requests for air cover, MI 14 commented that the enemy clearly appreciated
that an Allied offensive was coming and was bringing up reserves to meet it.
Decrypts of appreciations and reconnaissance orders had indeed made it plain
by then that he expected to be attacked both in the Aachen sector and in the
Saar. Also on 12 November SHAEF’s intelligence summary concluded that,
though Sixth Panzer Army was formidable, it was incapable of staging a ‘true
counter-offensive’ for lack of size and adequate fuel supplies; the most obvious
use for it was in ‘counter-attack if and when and wherever a determined Allied
attack towards the Ruhr develops’. On the other hand, it would soon be capable
of a ‘spoiling attack of considerable power’, and SHAEF repeated what it had
said on 29 October: if an opportunity offered, the risks involved in making a
spoiling attack might be taken.

Meanwhile, the JIC had been drawing up its own appreciation. Dated 11
November and entitled ‘Recent Intelligence on German Intentions in the West’,
the JIC report drew attention to the refitting of the five divisions under Sixth
Panzer Army, the possible move to the front of two and later of all three
divisions of First Parachute Army, the wireless silence ordered by First
Parachute Army and the fact that important troop movements had taken place
on 3, 4 and 6 November in the Cologne–Trier area. It recapitulated the intelligence on which the Air Ministry had concluded that the Germans planned to bring forward a large proportion of the air forces in Germany to the Aachen–Düsseldorf area for close support of the Army in the west, with 12 November as the date for the completion of preparations. It did not refer to the Japanese diplomatic decrypts of August and September to which the Air Ministry had given some weight in its appreciation of 28 October. Whether this was an oversight, or whether the JIC felt that these decrypts had ceased to be significant with the passage of time, it is now impossible to say. It should be noted, however, that so far from mentioning German plans for an autumn offensive, Japanese decrypts since September had been speculating on the possibility of German peace negotiations and of Germany’s collapse, and that one recent appreciation from the Japanese Naval Mission in Berlin had even gone some way towards discounting the earlier reports. Dated 30 October and decrypted on 6 November, it had said that the Germans were making frantic efforts to put their defences in order but would not be ready for a general counter-offensive for several months: they believed that their mobilisation, their aircraft production, their development of new weapons and their oil supplies would all begin to tell from November and December 1944, and they had great expectations of staging a counter-offensive about April 1945, but the Mission believed that in face of the expected Allied offensives on the whole front the Germans would probably have to make a second step-by-step withdrawal.

Before turning to the enemy’s intentions the JIC’s report observed that whatever Germany’s intentions might be, the scale and the fighting efficiency of the air operations would be limited. Shortage of fuel would prevent close-support operations for more than two to three days; most fighter-pilots were ill-trained; most of the airfields were in poor condition, few having concrete runways; and over and above these considerations, the enemy’s effort would be severely hampered by Allied air attacks. It nevertheless accepted that the evidence pointed either to a ‘limited spoiling attack’ aimed at putting off the Allied offensive, possibly even till the spring, or to the decision to use the rested and refitted divisions against the Allied offensive, which the Germans knew to be imminent. But it preferred the latter interpretation on the following grounds. The enemy must realise that ‘only by bringing up all possible land and air reinforcements could the Germans hope to have available sufficient striking power for a major counter-attack’. On the other hand, a spoiling attack would be a dangerous gamble: if it failed it would substantially reduce not only the prospects of holding a subsequent Allied offensive but also the strength of Germany’s strategic air defence.

This conclusion was given in paragraph 11 of the report:

‘We do not think that the evidence .. warrants the conclusion that the Germans are planning a spoiling offensive. It seems to us that this evidence is consistent with the movement forward of land and air forces to meet the expected Allied offensive. The Germans must realise that the failure to hold this offensive would involve decisive defeat in the field’.

At the same time the JIC added a final paragraph 12, which was not wholly consistent with its own conclusion and which was put in, we may suspect, at the insistence of AI:
'We conclude that the enemy are planning to spring a surprise which would almost certainly include attacks on Allied airfields'.

The Chiefs of Staff considered this report on 13 November and decided to discuss paragraph 12 with the Directors of intelligence on the following day. On 14 November they approved the JIC appreciation subject to the deletion of paragraph 12 and the insertion of an additional sentence ('Attacks on Allied airfields are likely to be included.') in paragraph 11, as the penultimate sentence. SHAEF, which had as usual received the original version, was informed of the amendment made by the COS.

The JIC’s conclusion, especially as modified by the Chiefs of Staff, was the wrong one. Under Hitler’s direction preparations had been going forward since August for launching a major offensive, code-named *Die Wacht am Rhein*, in November.

Hitler had announced at a staff conference on 19 August that he proposed to take the initiative in the west at the beginning of November, when the Allied air forces would be unable to fly. On 13 September he had ordered the SS Panzer divisions in the west out of the line for refitting and re-constitution under the new Sixth Panzer Army. On 16 September he had told a select staff conference that the counter-offensive would be delivered in the Ardennes, with Antwerp as the objective. On 11 October, after the discussion of several alternative plans, he had approved an attack in two prongs, far apart, the main one striking north-westwards through the Eifel and the Ardennes before turning due north to meet the secondary thrust from north-west of Aachen. Under this plan, which was revealed to the Chiefs of Staff of C-in-C West and Army Group B only on 22 October, Army Group B was to have three Armies, Fifth and Sixth Panzer Armies in the van, Seventh Army in the rear to cover the exposed southern flank. C-in-C West and Army Group B were to hold their front in the west, if necessary at the cost of giving ground, without committing any of the earmarked formations. GAF support was promised on the scale of 1,500 fighters, 100 of them being new jet aircraft, though the scale of support was later reduced. Preparations were to be completed by 20 November and the attack was to begin on 25 November.

Von Rundstedt (C-in-C West) and Model (Army Group B) had regarded this plan as over-ambitious. By the end of October they had drawn up a more modest one, and Jodi had tried to persuade Hitler to accept a compromise by which the offensive was limited to the seizure of Liège and the envelopment of the Allied forces east of the Meuse. Hitler had refused and had signed the directive for *Die Wacht am Rhein* on 1 November. Von Rundstedt had accepted the directive on 3 November, thinking it futile to appeal against it in person.

From the middle of November the Allied offensive necessitated postponement of *Die Wacht am Rhein* and prompted von Rundstedt and Model to press again for a less ambitious operation. To no avail. On 26 November the start of the attack was put back to 10 December. On 11 December Hitler set the date as 15 December. On 12 December he altered the attack order to read the 16th. But otherwise he remained obdurate.
Preparations for the attack, which involved the transfer of HQ Fifteenth Army to relieve Fifth Panzer Army and, at the last possible moment, the shift southwards of HQ Seventh Army and the assumption of control in their allotted sectors between Fifteenth and Seventh Armies by Fifth and Sixth Panzer Armies, went forward under strict security precautions and accompanied by extensive deceptive measures. HQ Fifteenth Army left Holland to relieve Fifth Panzer Army in the middle of November and was itself relieved in Army Group H by HQ Armed Forces Command Netherlands (GOC General Christiansen). Christiansen’s Command took over the name Fifteenth Army while Fifteenth Army itself was re-named Gruppe von Manteuffel and Fifth Panzer Army was re-named Feldjäger Kommando zbV. HQ Sixth Panzer Army, which was moving from Westphalia, was given the cover-name Rest and Refitting Staff 16. No special effort was made to conceal the concentration of forces in the Cologne area, which was represented as being in preparation for a counter-attack north-west of Cologne. But it was put about that in the Eifel, where the attack was to come, a relatively small force of battered divisions was preparing to contain the right flank of the Allied advance, and the deception was accompanied in that sector by severe security measures.

It stands out clearly enough after the event that on the one hand the German Generals and, on the other, the British Chiefs of Staff and the JIC were in close accord in emphasising the limitations on Germany’s military capabilities, the former using them to urge that Germany should not undertake too ambitious an offensive and the latter relying on them for the conclusion that she would not do so. At the time the Allied authorities had no evidence that Hitler and his Generals were at odds on this issue; but in view of Hitler’s well-known control of German strategy and his past preferences for the offensive, and given the existence of positive evidence from Sigint about the formation of Sixth Panzer Army and the movement forward of the German fighter force, it is not a misuse of hindsight to hazard the judgment that the British COS and the JIC made a fundamental mistake in mid-November in failing to allow that he might ignore the limitations on which they themselves set great store. The alternatives of a spoiling attack or preparations for holding, and if necessary counter-attacking, the Allied offensives should both have been kept open.

Once committed, the mistake went uncorrected. From the middle of November von Rundstedt conducted a skilful resistance. He gave much ground in the south, and was driven back behind the Roer in the north, but the force of the offensives and their success in delaying Hitler’s plan, coupled with their own failure to reach the Roer, coloured the interpretation the Allies placed on such further intelligence as was received about the German preparations.

Before reviewing the intelligence obtained from the most productive source — high-grade military Sigint — we may note what little information was obtained from the others. The SIS and SOE supplied no reports on the German preparations or intentions. Neither, according to its post-war history, did the OSS. The Dutch Resistance gave some information about the transfer of HQ Fifteenth Army and about movements of the Parachute divisions. An unidentified POW stated early in December that SS divisions in reserve were to counter-attack as soon as the Allies crossed the Roer, and on an unspecified date another POW, the Commanding Officer of 553rd VG Division, stated that a meeting of divisional commanders had been told early in November that a large-scale counter-attack would be made through Metz and Paris to the
Channel by an army under Dietrich at the end of December. The evidence from POW and deserters was otherwise unremarkable until First US Army obtained at the last minute statements from POW that a large offensive was coming, probably on 16 or 17 December and certainly before Christmas, and, on 16 December itself, a report from a refugee that troops had been massing in woods near Bitburg on 14 December. Y was unproductive in view of the wireless silence imposed on the German formations. As for PR, although flying was hampered by bad weather, it was impossible on only one day in the month before the attack – 13 December – and the Tactical Reconnaissance Group supporting First US Army flew 361 sorties in that period over the build-up area. Together with those obtained by fighter-bombers on armed reconnaissance, the results disclosed increasing road and rail activity, including the movement of hospital trains and tank-carrying rolling stock. But priority was given to photographing the Roer and Saar fronts: between 10 and 15 December only three sorties, all on 14 December, were flown over the Eifel sector. And the interpretation put on the photographs was that the Germans were reinforcing their reserve formations behind the Roer, such activity as was detected in the Eifel being regarded as routine movements.

Insofar as attention was paid to the Japanese diplomatic decrypts received after the middle of November they can have done nothing to correct this generally-held presumption. In a telegram of 16 November, decrypted on 23 November, the Japanese Ambassador reported on an interview with Ribbentrop. Questioned on the prospects of the German counter-offensive to which Hitler had referred, Ribbentrop had said that although a counter-offensive was planned, it was impossible to say when Germany would be ready for it; moreover, although she intended to deliver the offensive primarily against the west, a situation might arise which compelled her to concentrate considerable forces to the east. In a further telegram of 22 November, decrypted on 27 November, the Ambassador informed Tokyo that he accepted Germany’s assurance that, though she could not say when, she intended to carry out an offensive: it was not beyond her power to strike at some point, possibly in the west, and the opportunity to do so would arise when she had broken the present Allied offensive.

Decrypts of high-grade German military messages ensured that the preparations for the transfer of Fifteenth Army to relieve Fifth Panzer Army and for the subsequent deployment of Fifth and Sixth Panzer Armies were not wholly concealed from the Allies. But as a result of the German deception and security measures the decrypts gave a confusing account of what was taking place. Decrypts of 18 and 19 November referring to the sector known to be held by Fifth Panzer Army spoke of Gruppe von Manteuffel (the cover-name for Fifteenth Army), from which SHAEF had concluded by 26 November – naturally but wrongly – that Fifth Panzer was now being referred to by the name of its old GOC. Further decrypt references to the Gruppe on 1, 4 and 18 December appeared to confirm this assumption. A decrypt of 19 November disclosed that HQ Armed Forces Netherlands had been renamed Armee Abteilung Christiansen, and a decrypt of 27 November indicated that, together

The measures were taken to distort gossip, and to prevent the facts from reaching the Allies through PR, POW, deserters, refugees and agents. There is no reason to think that the Germans believed that their cyphers were unsafe.
with First Parachute Army, it was subordinated to Army Group H. On 3 December 21st Army Group believed that Armee Abteilung Christiansen was on the right of First Parachute Army, and, noting that the role and location of HQ Fifteenth Army were therefore unclear, speculated that HQ Fifteenth Army might have gone back to Germany or might reappear between First Parachute Army and Fifth Panzer Army: it thought it ‘disquieting in the fifth year of the war to find an Army HQ disappearing from the map’. This uncertainty was not cleared up by decrypts on 4 and 8 December disclosing that Army Group H’s front was held by Fifteenth Army on the right and First Parachute Army on the left: the fact that HQ Armed Forces Netherlands/Armee Abteilung Christiansen had also assumed the name Fifteenth Army went unsuspected.

Decrypts yielded considerable information about the forces known to belong to Sixth Panzer Army but divulged no clues as to the role it was to play. By 19 November air reconnaissance had indicated that SS Panzer divisions were moving to the Cologne–Düsseldorf area and POW had reported that three divisions known to be associated with Sixth Panzer Army were behind the front in the Aachen sector: 1st, 9th and 12th SS Panzer. Decrypts on 25 November located 1st SS Panzer Division west of Bonn and 9th SS Panzer Division south of Bonn. SHAEF’s intelligence summary of 26 November concluded that Sixth Panzer Army, complete except for Panzer Lehr Division, was deployed west of the Rhine and forward of Cologne: SHAEF believed that its centre of gravity might be south of Cologne, behind Seventh Army rather than behind Fifth Panzer Army. On 27 November the decrypts of a message of the previous day contained orders to a detachment to join 1 SS Panzer Corps twenty kilometres south–west of Cologne and report on the locations of Panzer Lehr Division and 1st, 2nd, 9th, 10th and 12th SS Panzer Divisions. SHAEF summed up the evidence on 3 December: the whereabouts of Sixth Panzer Army were still not wholly clear, but 2nd, 12th and 1st SS Panzer Divisions were in a line from Grevenbroich to Zülpich and 9th and 10th SS Panzer might be further north, perhaps under II SS Panzer Corps.

As for the Panzer and PG divisions under Army Group B, these were satisfactorily accounted for. On 27 November a decrypt disclosed that 10th SS Panzer Division, which had been in the line facing Ninth US Army, was being relieved by 9th Panzer Division. 116th Panzer Division was no longer at the front, but was believed to be refitting close at hand, as was confirmed later in the decrypt of a message of 1 December disclosing that tanks for the division were to be delivered in Bergisch–Gladbach. 3rd PG Division had been in the Roer battle under LXXI Corps from the start, but was relieved in the line at the beginning of December. 15th PG Division had been committed in the Geronsweiler section in mid-November and was still facing Ninth US Army.

On the whereabouts of the Parachute divisions there was similarly no lack of information, but equally no indication that they were being prepared for offensive action. A decrypt of 12 November having confirmed the existence of 8th Parachute Division, the Allies were satisfied that there were six in all (2nd, 3rd, 5th, 6th, 7th and 8th) in Holland and north Germany. Thereafter, decrypts disclosed on 23 November that 6th Parachute Division had entered the line in the Arnhem area, and on 5 and 6 December that 2nd Parachute Division was at Oldenburg. There was ground for thinking that 5th Parachute Division was at Leyden but might be moving. Meanwhile 3rd Parachute Division had appeared in the Dieren sector on 27 November.

Many decrypts disclosed information about train movements. From the
middle of November Army Group B issued almost daily requests for fighter cover at first light for trains that were bringing up troops and supplies to specified areas behind the front in the Aachen sector and as far south as Trier. On 3 December decrypts listed train movements which included that of 326th VG to Gerolstein–Bitburg; that of 62nd VG to Wittlich–Kochem; that of 560th VG to Densborn–Speicher; that of the Führer Begleit Brigade and Assault Gun Brigade 200 to Traben–Trabach–Kirn; and of Army Engineer Brigade 47 to Münster–Eifel.

The GAF decrypts gave unmistakable signs that preparations for some contingency were still going forward. On 14 and 16 November they included references to special security precautions to be adopted by fighter units arriving in the west, and on 20 November disclosed the arrival of the first of the planned GAF reinforcements. Also on that day the decrypt was received of a message of 16 November which called for a daily report on the serviceability of the airfields in ‘the assembly area’. By 26 November AI had detected no urgency, but it knew that eleven Gruppen (some 500 aircraft) had already arrived; and several decrypts disclosed that although some of this considerable force was committed in close support of the hard-pressed German fronts in Alsace and the Aachen sector, it was so committed only on a day-to-day basis. Other decrypts in the first few days of December disclosed that the GAF was insisting on especially stringent precautions and emphasising the importance of equipping fighters to operate in a ground-attack role.

This intelligence was being received while the Allied offensives were in full swing. In the south Third US Army’s advance against First Army captured Metz on 22 November, and by 3 December it had reached the river Saar on a ten-mile front round Merzig. In Nineteenth Army’s sector First French Army took Belfort on 19 November and reached the Rhine through Mulhouse the following day, while Seventh US Army took Strasbourg on 23 November and then pressed forward to the Siegfried line between the Saar and the Rhine. In the north the main offensive by Ninth and First US Armies on the Aachen front made slower progress. Ninth Army was not up to the river Roer on most of its front till 9 December. On Ninth Army’s right, First Army did not gain the Roer from Bergstein to Düren till mid-December. Apart from assisting in the attack on Geilenkirchen, 21st Army Group confined itself to clearing the enemy from his salient west of the Meuse. Its operations did not prevent the Germans withdrawing forces southwards to meet the Aachen attack.

High-grade Sigint was plentiful during the fighting. SHAEP’s interpretation of it on 23 November was that the enemy’s intentions were ‘quite clear’: to blunt the Allied offensive in the Aachen sector without if possible using Sixth Panzer Army but, if necessary, to commit Sixth Panzer Army in heavy defensive fighting on the Roer line, counter-attacking any bridgehead that was formed. Its intelligence summary of 26 November more or less repeated this conclusion: possibly because Hitler was unwell, Germany was conducting the battle sensibly: she was maintaining a reasonably satisfactory position in the north with her infantry and the armour of Fifth Panzer Army, and was keeping Sixth Panzer Army behind the Roer either to prevent the Allies from seizing bridgeheads or to counter-attack if a favourable opportunity arose. On 19 November MI 14 felt that it was too early to say what form the German reaction to the Allied offensive would take but that it was likely that Sixth Panzer Army would be retained as a mobile reserve and be thrown in when the German High Command had decided that the psychological moment had arrived. On 26
November it believed that German policy was to exhaust the Allies before they reached the Roer, using local reserves but trying to avoid committing Sixth Panzer Army. On 3 December SHAEF had nothing new to say about the enemy’s intentions and MI 14 reported that Sigint had shown that three VG divisions were going to ‘the quiet Eifel sector’, which, it noted, had become the usual destination for divisions going north or south to other sectors, and that Sixth Panzer Army was still uncommitted, the enemy apparently being prepared to yield as far as the Roer without bringing it in.

21st Army Group’s summary of 3 December rehearsed at considerable length its reasons for discounting a German ‘counter-stroke’. The summary concluded that von Rundstedt was fighting the battle intelligently, ‘obviously without higher intuition’, and that if he continued to conduct it unimpeded, it ‘seemed more probable that he will wait to smash our bridgeheads over the Roer, then hold his hand. He is 69’. It noted that although the battle had sucked in almost all the enemy’s tactical reserves, it had not yet, with the one exception of Panzer Lehr Division which had been committed on the Saar front, involved his strategic reserve: but it believed that von Rundstedt was unlikely to risk this ‘precious guard over the Rhine’ until the Allied advance had crossed the Roer and could no longer be blunted by the tactical reserves, or unless an opportunity offered for a counter-stroke which would disrupt the Allied advance for the winter. It recognised that the disruption of the Allied winter campaign would justify many risks. But on the one hand, the loss of Sixth Panzer Army might be an irreparable disaster and, on the other, the pre-conditions for an effective stroke hardly existed. The enemy needed bad weather for it, but that would clog his own movements. He needed guaranteed fuel supplies and more and better infantry than he possessed, and he would have to be sure that the Allies were tired and unbalanced. Moreover, he needed vital ground, but ‘there is nowhere obvious for him to go which would hurt us deeply. The bruited drive on Antwerp ... is just not within his potential’. In the remaining archives of the time there is no reference to this report or rumour that the Germans planned a drive on Antwerp, the receipt of which had obviously prompted 21st Army Group to reconsider the previous assessment of their intentions.

When the Prime Minister called for an up-dated version of the JIC appreciation of 14 November on 3 December he was told that there was ‘very little new material to add’. But the development of AI’s views had clearly reflected the influence of the Allied offensive and the successive postponements of the German initiative. On 12 November, the date which Sigint had given for the completion of arrangements for the concentration of the German fighters, AI had no evidence to suggest that the GAP had changed its plans. On 18 November it still remained puzzled as to why the timetable for the transfer of the fighters was behind schedule, but felt that this might be partly explained by the fact that, with the initiative firmly in Allied hands, the GAF was being compelled to devote an increasing proportion of its fighter effort to defence, particularly to support of the Army and to defence of vulnerable lines of communication against Allied ground-strafing. ‘There is thus reason to think that Allied pressure, if maintained as at present, may prevent the consistent development of GAF plans and lead instead to a series of short-term expedients which may prevent the GAF from using to full advantage
the large forces which they are still preparing to switch to the west'. It did not believe that the plan for the redistribution of the GAF—the largest to take place since the invasion of Russia in 1941—could be reversed; but it did not exclude the possibility that the redistribution might have been intended to give the fighter force greater flexibility to switch between operations in support of the Army and operations against the Allied bombing of the Reich.

In its next two appreciations, issued on 26 and 28 November, AI noted that the fighter movement to the west was still continuing, but without any sign of urgency, and that although the main fighter effort was still being made in defence of the Reich despite the Army’s need for close support, ‘the intention ... not to commit strong fighter forces to tactical operations until a German counter-attack can be launched must be envisaged ...’. The further reinforcement that was known to be intended was probably being held back till the last moment to preserve secrecy and avoid the bombing of the airfields. Unless the plans were upset by the Allied advances, therefore, it would probably be timed to coincide with the major Army counter-attack. But the fuel and airfield situation was probably such that only one major effort over 5 to 6 days could now be assured, and further deterioration might jeopardise all possibility of offensive close support.

AI’s next appreciation followed on 6 December. The GAF had made no serious attempt to meet the demands of the Army for air support. The need for such support in the Aachen sector had been met by switching units from the southern sector. Otherwise, except occasionally and in limited numbers, the fighters were still being held back for the defence of the Reich. Its conclusion was that:

‘Increased emphasis over the past fortnight on defence of Reich suggests that, whatever intentions GAF may have for further reinforcement of western front, the original plan for “lightning blow” and sudden attack in the west may with some certainty be said to have lapsed ... . It appears that GAF is after all committing its fighters piecemeal on western front... and is also clearly thrown back on the defensive’.

* * *

After the event GC and CS described AI’s appreciation of 6 December as ‘a disaster’. There is indeed a cruel irony in the fact that instead of prompting a review of the conclusion reached by the JIC and the Chiefs of Staff in the middle of November— and perhaps a readiness to listen to the contrary warnings which AI had issued earlier— the intelligence received by 6 December had precisely the opposite effect of persuading AI that its warnings had ceased to be valid. It scarcely needs to be added that the outcome would have been different if any of the intelligence had explicitly contradicted, or had at least strongly conflicted with, the assumptions that were being made about how Germany would respond to the Allied offensives. On the other hand, it had given such clear warning that she was planning a counter-offensive requiring long and exceptional preparations that it is difficult to disagree with GC and CS’s subsequent criticism, from which it was not itself immune. Its verdict was that the Allies were misled by ‘the besetting tendency in intelligence ... to become too wedded to one view of the enemy’s intentions’— in this case, the
belief that 'the Germans would counter-attack, head-on, when they had been pushed hard enough, probably in the Roer sector'. And if this was true up to 6 December, it was still more so after that date. The possibility that the Allies would reach the Roer were rapidly fading; but intelligence showed that the German preparations were continuing and indicated more clearly than before that a build-up was taking place further to the south.

Not least on account of Germany's security precautions, the Sigint was still not conclusive. Thus, it provided further evidence that Fifteenth Army was moving, but no firm indication that it was Gruppe von Manteufel and was relieving Fifth Panzer Army, until a message was decrypted on 14 December which was signed by General von Zangen (known to be GOC Fifteenth Army) as acting GOC Gruppe von Manteufel. There was no new information about Sixth Panzer Army, the reason being that the Germans had resorted to using its cover-name (Rest and Refitting Staff 16) in their messages. The first references to the cover-name were decrypted on 8 and 9 December. In a signal decrypted on 12 December it was listed with Jäger Kommando ZDV (the first reference to the cover-name for HQ Fifth Panzer Army) as being under Seventh Army. But no firm evidence that it controlled a front-line sector was received until 16 December, when the decrypt of a signal sent on 15 December gave the boundary between the Rest and Refitting Staff and Gruppe von Manteufel (the cover-name for Fifteenth Army).

These decrypts gave no grounds for associating the Rest and Refitting Staff with Sixth Panzer Army or the Jäger Kommando with Fifth Panzer Army. But decrypts of 12 and 13 December associated formations with Sixth Panzer Army without mentioning the Rest of Refitting Staff: II SS Panzer Corps and 2nd SS Panzer Division; I SS Panzer Corps and 1st, 9th and 12th SS Panzer Divisions. Decrypts on 12 December listed four corps under Gruppe von Manteufel and three under Seventh Army. By that date other decrypts had dealt with new signal instructions that were to come into force from 0300 on 14 December for twelve corps in all; GC and CS omitted to send these to the Commands. It subsequently explained this oversight by pointing out that similar sets of new instructions had sometimes been issued in Italy and borne no operational significance; and it must be added that while some of the twelve corps did not take part in the Ardennes offensive, the list did not include two which did. With hindsight, it is easy to attach importance to the decrypts but it was clearly more difficult to do so at the time.

Evidence received from Sigint, ground reports and reconnaissance about the movements of divisions left no doubt, however, that armoured formations were being withdrawn from the line and relieved by infantry. On 10 December, by which time it was known that 10th SS Panzer, 116th Panzer and 3rd PG Divisions had been removed in the Aachen sector and Panzer Lehr Division in the Saar, and it was suspected that 9th Panzer and 15th PG Divisions were following 10th SS Panzer out of the line facing Ninth US Army, SHAEF's intelligence summary noted that the withdrawal of armour for rest and refitting had been the main development in the past week. Another development did not go unnoticed: an increase in the movement of troop trains to the Aachen-Trier sector. Decrypts obtained between 7 and 10 December requested air cover for the arrival of 25 trains on 7 December, of 15 on 8 December, of 18 on 9 December and of 28 on 10 December. On 7 December MI 14 noted that all new arrivals were being sent to 'the quiet sector' north of Trier, where it believed the enemy had six infantry divisions and possibly 2nd Panzer Division.
SHAESF noted on 10 December that a lot of movement had been taking place into, and probably also out of, 'the quiet Eiffel sector'.

SHAESF showed more concern about this sector in an exchange of views with MI 14 on 13 December. It believed that the Germans still regarded the battle for the Roer as the decisive one but, no doubt because the possibility that the Allies would breach the Roer was now fading, could see no sign that they intended a counter-offensive: Sixth Army was unlikely to attack across the Roer, but it would probably make heavy attacks if the Allies broke through. It repeated that the Ardennes area was very quiet and thought it was being used as a training ground for unblooded VG divisions. On the other hand, it was uneasy about the superfluity of VG divisions there, and suggested that if some of them were not soon moved away to an active front, 'some relieving attack' in the Ardennes might become a possibility.

These comments may be compared with statements made subsequently by General Strong (Assistant Chief of Staff G2 at SHAESF) and General Bedell Smith (Chief of Staff at SHAESF). General Strong claimed that for a fortnight before the German offensive he had believed that a relieving attack through the Ardennes was one of three possible uses for Sixth Panzer Army. General Bedell Smith confirmed that General Strong's view that an attack might come through the Ardennes or east of the Vosges had persuaded him to send Strong to see General Bradley (GOC 12th Army Group) 'about the first week of December'. The US Army archives record, however, that, as is evident from SHAESF's comments to MI 14, 12th Army Group and the other US formations responsible for the Eiffel sector, First Army and VIII Corps, took the movements to the area to indicate 'a definite pattern for the seasoning of newly-formed divisions . . . prior to their despatch to more active fronts'.

The GAF Enigma might still have given last-minute warning that a large-scale offensive was imminent. On 14 and 15 December decrypts disclosed that night-fighter crews and pathfinder aircraft had been assembled to enable large formations of fighters and fighter-bombers to take off and find targets in bad weather. The formations included SG4, which had been brought to Germany from the eastern front to train with a new anti-tank weapon in bad weather, but the important news that the whole of SG4 was concentrated in the Cologne area was not decrypted till 16 December. On 15 December another decrypt revealed that night-fighter formations were under orders to carry out intruder operations against Allied bomber airfields. In the early hours of 16 December GAF Y traffic disclosed that a large force of Ju 52s and Ju 88s were to carry out a paratroop drop. AI's first instinct was to think that this operation, which was cancelled almost immediately in further low-grade signals, was bringing reinforcements to the Aachen area. Not until the evening of 16 December did it finally conclude on the evidence of the clues it had received since 14 December that 'the long-lasting plans, never suspended, for major German aggressive operations in the west are nearly matured . . .

Germany had opened her preliminary artillery bombardment and the launching of Vi's over the battle area at 0530 that morning. The news of the offensive reached SHAESF in the afternoon from 12th US Army Group and First US Army, which were slow to recognise that they were facing more than a diversionary attack.

The German objective in the Battle of the Bulge was to establish a front from Antwerp to the West Wall running through Brussels, Namur and Dinant. The offensive gained dangerous momentum during 18 and 19 December but
had reached its limit a week later. From 27 December the Germans tried to establish start-lines for a renewed attack. By 29 December they had failed in this and were being forced to switch important reinforcements against an advance by the Allies from the south.

On 1 January the GAF achieved surprise in a major attack on Allied airfields, destroying 150 aircraft but itself losing 270. The attack was preceded in the early hours of 1 January by two urgent Enigma decrypts ordering 'Codeword Goldregen from 0400', but they were unintelligible. Otherwise, thanks to the exceptionally prompt decryption of copious high-grade Sigint, the Allies encountered no surprises once they had overcome the initial shock. The GAF’s operational and reconnaissance orders for each day were decrypted in the early hours; those for the night were usually available the previous evening. The evening situation reports of Seventh Army, Sixth Panzer Army and Army Group B, and other announcements of their intentions, were usually decrypted with delays between 6 and 12 hours. Urgent signals from the German spearhead battle groups, divisions and corps were sometimes decrypted within three hours.

The Sigint was not decisive for the outcome of the battle, but it gave the Allied Commands an enormous advantage. On the evidence of the decrypts they appreciated on 24 December that the enemy, checked in the north but still determined to press on, had switched Sixth Army’s axis of advance in an attempt to take Liège from the south. By the same date AI was able to conclude from its analysis of the GAF’s tactical signals that the GAF’s effort had reached its peak and might be expected to decline rapidly. On 27 December it appreciated that the decline in strength and serviceability was such that the GAF could not continue its support unless the weather allowed it a period for recuperation. A situation report issued late on 27 December, and decrypted early the following evening, gave the lines on which the attacks of Sixth and Fifth Panzer Armies had finally stalled and on which Seventh Army was trying to stem the Allied advance from the south. The unsuccessful German attempts to establish start-lines for a further thrust to the north-west were reflected in decrypts on 28 and 30 December.
CHAPTER THIRTY-FIVE

The V-Weapons Offensives

Intelligence about the characteristics and performance of the V 1 flying bomb of course leapt forward from the start of the German offensive on 12 June 1944. The first observations of the V 1 in flight established that it normally flew at between 2,000 and 3,000 feet, and that speeds up to about 300 miles an hour were usual, these heights and speeds being lower than had been foreseen. By 20 June, after examining wreckage, including a reasonably intact missile, AI had built up a virtually complete scientific and technical understanding of the weapon and its propulsion system. By 26 June, as a result of the over-running of some of the launching sites in the Cherbourg peninsula, it had also learned a good deal about the catapult system used for launching the missile.

The intelligence acquired about the propulsion and launching of the weapon had little bearing on defence measures. Their preparation had not been held up by earlier lack of information on these subjects, and the planned deployment of the defences – fighters, guns and balloons – was begun on 16 June and was all but complete by 22 June. The fact that the weapon’s heights and speeds were lower than had been expected hampered the guns, so that most of the interceptions were carried out by the fighters. By 25 June, when intelligence indicated that the reliability and accuracy of the flying bomb were such that 65 per cent of those fired would otherwise have reached the Greater London area, the defences had reduced to 40 per cent the actual proportion impacting. By that date radar had estimated that 1,263 missiles had been launched, of which over 300 had been destroyed by the defences and 450 had landed in the Greater London area. Thereafter, operational research and technical analysis based on observation of the weapon’s performance helped in the development and deployment of better equipment for radar detection, fire control and gun performance, and pointed to the need to raise the speed of the British fighters in case the Germans introduced a new flying bomb with a better performance. There were reports from agents that a bigger flying bomb existed, but they carried less weight than a theoretical study which showed that the speed of the missile might be increased without difficulty by between 30 and 50 miles an hour and thus be placed beyond the reach of current fighter aircraft.

In the event, this danger did not materialise and the performance of the defences continued to improve. Of missiles reaching England they destroyed 74 per cent in the third week of August, 83 per cent in the last few days before the main offensive ended on 5 September.

Meanwhile, except for the advance of the Allied armies in France, offensive counter-measures had been far less effective than the defensive counter-measures. Air attacks on the launching sites and the supply system that served them and on plants engaged in the production of the weapon and of hydrogen peroxide were the only available means of attack or retaliation, others which were considered – landings in the Pas de Calais and the Dieppe area; the destruction by bombing of selected German towns; the use of gas – having been rejected by the beginning of July. But the bombing effort against the
production plants and against the launching sites and their supply system was handicapped by a shortage of intelligence.

A report obtained by the SIS from a neutral engineer with the Siemens firm had said that the rate of production was 1,200 a month, and that stocks stood at 8,500. On 27 July, after reconstructing the evidence, such as it was, Al still could not improve on his information, but pointed out that it was no guide to the future production rate. On 17 August it suggested that on the evidence of works numbers the monthly production might have risen to nearly 7,000, but it admitted that works numbers were a totally unreliable guide. These estimates may be compared with Germany’s actual production figures during 1944 and the first three months of 1945: they averaged 2,000 missiles a month, with a maximum of 3,419 in September 1944.

There was similarly no improvement in the information available about the places and methods used in the production. Reports from agents, the only source on the subject, continued to show that the final assembly of the flying bomb was undertaken at or near the launching sites, the manufacture of the parts having been dispersed and subcontracted to an unprecedented degree among factories, some of them probably underground, in Germany and the occupied countries. By 6 July the Air Ministry had listed some of the factories that might be involved. Although the list rested only on a general knowledge of German industry, and although the factories were so widely dispersed, they were then accepted as first priority targets. But it was recognised that the production programme could not be seriously disrupted by Allied bombing.

In view of the lack of information about production plants, highest priority for the counter-bombing was first given to supposed assembly sites. On 13 June, in response to the opening of the V 1 offensive, Whitehall decided to mount heavy raids against four such sites in the Pas de Calais even though it recognised that no connection between them and the launching sites had been definitely established. Although the Germans were not using these sites for the flying bombs, the bombing of them continued to have highest priority after the heavy V 1 attacks had begun. Not until the end of June did the suspicion that they were not being used become strong.

Meanwhile, since Whitehall was also unaware that the Germans were making no use of the ski sites, second priority in the bombing programme had been given to them until 22 June, by which time PR had photographed 71 of the 88 sites since 12 June. It was then concluded that ‘there is no proof that any of the ski sites is at present being used’. By then, on the other hand, modified sites were being identified in increasing numbers. Up to 16 June, when the modified sites were given third place among the bombing priorities, the PRU had been handicapped by bad weather, and only twelve were listed as being operational. By 22 June, however, the PRU had located 44 in the Calais–Some area, 24 of which were believed to be operational, and the number reported by agents but not yet confirmed by reconnaissance brought the total to over 120. A large proportion of the agents’ reports came from the Polish network, which was instructed at the beginning of the German offensive to give priority to locating launching sites.

Bombing attacks against modified sites increased as attacks on the ski sites...
were suspended. In the week ending 27 June they absorbed over 40 per cent of
the Allied bombing effect; and by 26 June 46 had been raided, of which twelve
were known to have sustained severe damage. But it now became clear that the
Germans could bring modified sites into service at least as quickly as the Allies
could eliminate them by bombing. The number of sites identified continued to
rise as the location of firings by radar supplemented the findings of continuing
air reconnaissance. Excluding the 20 sites located in the Cherbourg peninsula,
which had been overrun or evacuated, it was 63 by 30 June, 76 on 2 July, and
by the end of July it had increased to 94. Moreover, radar tracks of V Is had
established that a substantial number of new sites were coming into action
before they were detected from the air; improved German camouflage methods
were making it difficult to identify sites from the PR photographs, and the
layout of the sites overrun in the Cherbourg peninsula was so simple that the
enemy could probably make good the heaviest bomb damage in about ten days.

From the last week of June an increasing amount of the bombing effort
was directed against a new target. The first evidence that the Germans, having
brought the components from the factories by rail, were assembling the V Is at
underground depots (to be distinguished from the supposed sites) in the
Paris–Rheims area, and then moving them by road to the firing points, had
been obtained from Enigma decrypts. In May they had shown that the German
V–weapons organisation, LXV Corps, were interested in a cavern at a place
called Nucourt. On 10 June they had mentioned three supply dumps and on 17
and 19 June further decrypts had confirmed the suspicion that the dumps were
associated with the V 1 and had stated that they were at Nucourt, St Leu
d’Esserent and Rilly la Montague in the Oise valley. At about the same time the
SIS began to receive reports of assembly or supply depots in this area, from
which the missiles were transported to the firing sites by road. On the strength
of this intelligence Eighth Air Force attacked Nucourt and St. Leu
early in July an Enigma decrypt gave the numbers of flying
bombs received and issued by St. Leu between 9 June and 2 July; and Bomber
Command attacked St. Leu on 4 and 7 July. As a result of these raids there was
a sharp, though temporary, decline in the VI firing rate. This was quickly
explained by the Enigma, which reported damage at St. Leu and said that
missiles were being diverted to Nucourt. Nucourt was bombed again on 10 and
15 July, decrypts showing that the roof had collapsed as a result. On 17 July
Rilly was attacked and repair work was observed in progress after the raid.

Except for a decrypt which, after another raid on St. Leu on 3 August,
reported that one of the dumps there had been badly damaged, there were no
further reference to supply dumps in the Enigma. But agents were reporting
that flying bombs were being sent to similar depots elsewhere. Three other
sites had been attacked by 17 July; thereafter the PRU reconnoitred some fifty
locations at which agents had reported depots. But only five of them were
judged to be depots, and only one was added to St. Leu, Rilly and Nucourt on
the list of first priority targets. Raids on the modified firing sites continued to
absorb the bulk of the bombing effort against VI targets, however, until the
end of July. They were then relegated to the list of second priority targets, and
first priority was restricted to seven supply depots, four being added to the
three identified by the Enigma, and to seven fuel production centres thought to
be associated with the flying bomb.

Attacks on the launching sites were finally suspended on 5 August, when
another suspected fuel dump and three airfields in Holland were listed as first
priority targets. The airfields were singled out when it was discovered, belatedly, that they were being used for the launching of Vis from aircraft. Radar had plotted tracks from the east since 9 July; by 18 July over 20 per cent of all firings were from this direction. But all attempts to find launching sites in the area had failed. Enigma decrypts which associated III/KG3 with VI operations had meanwhile been obtained since 11 July. But they had been ambiguous, and it was not until the end of July that they prompted a re-examination of earlier Sigint relating to the trials in the Peenemünde area. It showed – what had previously been overlooked – that a training programme for launching Vis from aircraft had started in the middle of April.

The supply depots were heavily attacked until 9 August, but from that date the bombing effort was being switched to V2 targets. Reviewing the whole of the bombing since June, the official history of the air war attributed its ineffectiveness to the failure to make a clear choice between various targets: it added that the attacks on the depots were the most successful and suggested that ‘a bolder investment in that class of operation might have achieved much’. There can be no quarrel with this general verdict. Even when allowance has been made for the fact that the Allies could not judge on the intelligence available how far the irregular scale of the VI offensive was the result of their bombing and how far it was due to German tactics or supply problems, the vast expenditure of effort against the other VI targets, especially against the firing sites, continued for much longer than was justified by the observable results. The remarks about the depots need qualification. There was no delay in singling out the depots at Nucourt, St. Leu and Rilly as prime targets once the Enigma had disclosed their function. But while the intelligence about them was accurate, that which led the Allies to attack four other supposed depots equally heavily from the beginning of August was incorrect. Captured documents later established that the VI offensive used only the depots mentioned in the Enigma decrypts.

On 5 September, in the belief that the whole of the launching area would soon be in Allied hands, bombing against VI and V2 sites was brought to an end, and the defences were re-disposed on the assumption that the only remaining threat was from airborne VI launches. In relation to the VI this decision was not untimely: except for air-launched attacks the offensive against England was virtually over by early September.

In mid-September, however, the air-launched offensive was resumed from bases in Germany, and from early in October the Enigma and the analysis of plots in test firings in the Baltic gave notice that it was to be intensified by showing that two more Gruppen of KG53 (80 aircraft) were being trained. Low-grade Sigint established that one of these was operational from the beginning of November and the other from early in December. It also assisted the defences by exploiting the fact that the movements of the aircraft were now being notified by radio to the German anti-aircraft batteries in and near their flight paths. In the period September–December 1944 Cheadle gave the defences advance notice on 73 per cent of the occasions on which aircraft launched flying bombs, and more than half of the warnings were given 70 minutes before the radar tracks were received. From September 1944 to 13 January 1945, when the offensive came to an end, some 1,200 Vis were fired by aircraft, almost all of them against London, but as only 50 per cent crossed the coast and as over 60 per cent of these were destroyed by the defences, only 66 reached the London area.
The defences had been helpless, on the other hand, in the face of the V2 rocket offensive which had begun on 8 September.

Whitehall had feared that the V2 offensive was imminent since the middle of July 1944, when it was discovered that the rocket was designed to be fired from a simple platform and POW disclosed that a large German organisation had been preparing firing sites under a programme due to be completed that month. Contingency measures for the evacuation of 2 million people and of factories and hospitals from London were approved at the end of July in the light of the conclusion that, short of the earliest possible occupation of the Pas de Calais and Holland by the allied troops, no counter-measures were available.

Anxiety was all the greater because nothing was known about the weapon’s characteristics, apart from PR evidence as to its size, and because its size had persuaded the scientists that it weighed between 30 and 40 tons, and that its warhead might weigh 7 tons as compared with the one ton warhead of the VI. They found it difficult to see why the Germans would have gone to great trouble and expense to produce a rocket if it was not far more destructive than the flying bomb.

By the middle of August intelligence from various sources had led to a reduction in these estimates. Trolleys and documents captured at sites over-run in Normandy, reports from POW and agents and references in Enigma to the transfer of objects weighing 1,000 kg (one ton) between Blizna and Peenemünde had all indicated that the missile weighed no more than 14 tons overall if, as some knowledgeable POW had insisted, the main fuels were alcohol and liquid oxygen, and that its range was probably between 200 miles with a warhead of one ton and 120 miles with a warhead of two tons.

No intelligence had then been received as to when the Germans might open the offensive beyond a report from the Japanese ambassador in Italy that Ribbentrop had told the Italians on 20 July that the V2 would be brought into use shortly. This was decrypted on 14 August. A few days later, however, a POW, a General, stated that the offensive was to start in the middle of September, possibly preceded by small-scale attacks, and that the German High Command had ordered that the firing area was to be held at all costs. In the light of this information, little consolation could be derived from reports from agents in the area of the Blizna trials that the Germans were not yet achieving great accuracy with the weapon, and were still encountering trouble in controlling the firings: the reports were no doubt reliable but the enemy would be anxious to bring the rocket into use at the earliest feasible date. At the end of August it was accepted that the offensive would start at any minute, without further warning.

As for the scale of the offensive, anxiety had by then given way to optimism. Next to nothing had been learned about the rate of production of the missiles, the number and location of completed firing sites or the number and storage capacity of the forward depots. Mainly by analogy with the scale of the

^ce above, p.471.
VI attacks, however, the intelligence authorities conjectured that the attack might begin at the rate of between 30 and 60 firings a day: and in view of the reduced estimate for the size of the warhead and the evidence about the continued inaccuracy of the weapon, they believed the damage to London, additional to that which was being wrought by the Vis, would be supportable. More important, the intelligence and operational authorities were confident that the threat would not last long, and might not even materialise, in view of the advance of the Allied forces in Europe. Eisenhower had estimated that they would reach the Franco-Belgian frontier some time between 25 September and 15 October; it was thought that rockets, though having a longer range than the VI, could not reach the United Kingdom on any appreciable scale from beyond that line, and PR had in any case detected no evidence of the construction of forward depots in that area. On 1 September Ministers decided that the emergency civil defence contingency plans should not yet be implemented. On 5 September, on the advice of the CAS, the Chiefs of Staff recommended to the War Cabinet that bombing and radio counter-measures against V2 targets, as also against those associated with the VI (other than its airborne launchings), should cease. At a press conference on 7 September Duncan Sandys, though confining his remarks to the flying bomb since the existence of the rocket had not been made public, announced that 'except possibly for a few last shots, the Battle of London is over'.

The decision was later to be severely criticised on the good grounds that it was notoriously difficult to detect the depots and firing sites and that the search for them in Holland by PR and agents had been far from thorough. That it was incautious, not to say euphoric, was shown as early as the evening of 8 September when, a week after the Allied advance into Belgium had put an end to the heaviest VI attacks, the first V2s landed in the London area – the first of 27 to reach England out of 35 launched from The Hague and the island of Walcheren before the offensive was briefly halted on 18 September by the Allied advance into Holland. By 8 September, however, the Allied decision to suspend offensive counter-measures had hardly come into force: and, more to the point, the counter-measures proved to be quite ineffective when the attacks were resumed.

* * *

Radar tracks and the examination of debris quickly established that the missile's trajectory, speed, size and weight of warhead were close to what had been expected. Sound-ranging, radar and reports from agents showed that most of the weapons were being launched from a suburb of The Hague. But the hope that they could be jammed and that early warning could be obtained of their arrival was dashed by the failure to find any evidence that they were radio-controlled.

Between 25 September and 8 October, from sites which agents reported to be near Appeldorn and in Friesland, some thirty V2s landed in England, most of them in the Norwich area, and the Germans extended the offensive to Paris and the Lille-Liege area. Thereafter, the stabilisation of the land front enabled the Germans to re-establish firing sites in western Holland and to concentrate the offensive against London and Antwerp, and there being no possibility of
obtaining advance notice of firings or developing defensive counter-measures
against them, the Allies resigned themselves to a prolonged bombing offensive
against targets associated with the production, transport, assembly and
launching of the weapon.

Some intelligence had been obtained about these targets by 10 November,
when the Prime Minister announced that long-range rockets were being used
against the United Kingdom. But none of it could be turned to account in the
bombing campaign. Documents captured at a factory in Luxembourg had
shown that it was one of five factories producing components, but they did not
identify the other factories; and while they showed that the Germans were
falling behind in their plan to produce 12,360 rockets by October 1944, and
1,000 per month thereafter, they indicated that production would be adequate
to maintain the existing rate of firings. The interrogation of POW had indicated
that an underground plant at Nordhausen was the most important, perhaps the
sole, assembly point for the V2, and was turning out thirty rockets a day; but
close examination of the plant from the air revealed that it was protected by
about 300 feet of gypsum and was likely to be impervious to the heaviest
bombing. The bombing offensive was thus concentrated against the launching
areas around The Hague. It had little effect. Within the launching areas the
firing points were difficult to pinpoint and were changed so frequently that
precision bombing of them was impracticable. Proposals for mass attacks on
the areas by heavy bombers were rejected; they would have achieved only a
temporary interruption of the attacks at the expense of death and damage to
civilians on a scale that was felt to be unacceptable.

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The United Kingdom obtained little relief from the V2 offensive until the
Germans were driven, at the end of March 1945, from the last launching areas
that remained within range. Early in March, moreover, the Germans, having
increased its range at last, resumed ground-based attacks with the flying bomb
for the first time since September 1944.

Since September 1944 the VI offensive had continued against Belgian
targets at the rate of 150 firings a week. From the middle of January 1945
Antwerp became the sole target, but firings rose to a peak of 600 a week in the
third week of February before coming to an end at the end of March. In
February it was found that on some of the missiles landing in Antwerp the
weight of the wings and of the warhead had been reduced, and the Enigma
disclosed that the range in test firings of the VI was to be increased from 150 to
230 miles. With this range the missile could be used against London from bases
in Western Holland, and further evidence of this threat was obtained from an
Enigma decrypt of 18 February; it revealed that the VI authorities wished to
establish within ten days a post in Dunkirk from which it could observe the air
situation between The Hague and the English coast. On 25 February AI warned
the Chiefs of Staff that an offensive on London would begin at any time from
the end of the month and that the Germans might be able to sustain it at the
rate of 30 to 50 firings a day for a considerable period. Extensive PR had by that
time failed to locate any launching sites in South-West Holland. On 27
February, however, it detected one on a disused airfield near The Hague and
another in a factory district six miles west of Rotterdam; on the evidence of earlier PR sorties, they had been erected in the past ten days.

Ground-launched flying bombs hit London on 1 March. Their accuracy was poor, and wreckage established that the missile had undergone no significant change in design. And the scale of the attack proved to be smaller than Al had allowed for. Up to the end of this final VI offensive, on 29 March, 125 Vis had been detected over England, perhaps as little as a half of the number actually launched. 91 of them had been shot down and 13 had reached the London area. Sigint had by then disclosed that the V Weapons Command was surveying for new launching sites between Bremen and Emden and had authorised a further reduction in the weight of the warhead that would increase the range to about 350 miles. But on 13 April the last Enigma decrypt to refer to the flying bomb added that the Command was closing down its experimental unit.

The rocket attacks had meanwhile created growing anxiety about the state of morale in London and some ministers had begun to complain of the inadequacy of the bombing attacks on the V2 sites, which were concentrated near The Hague. But on 7 March the Chiefs of Staff insisted that the scale and frequency of precision attacks on the sites were such that it would not be profitable to increase them and that no direct damage could be achieved by bombing the Nordhausen factory. By 20 March there was some evidence from the firings that the Germans had abandoned launchings from the heavily populated area near The Hague, but the number of V2s launched from south of the town, from Eastern Holland and from the Koblenz area declined only slightly until the offensive came to an abrupt halt, on 27 March against England and on the following day against Antwerp. By that time eleven rockets had been fired, inaccurately, against the Allied bridgehead over the Rhine at Remagen. A total of 1,054 had landed in England, and 61 close off-shore, killing over 2,500 people and seriously injuring about 6,500.

Between 6 and 9 April Enigma decrypts disclosed that on orders from OKW the Army was to defend Nordhausen at all costs, so as to secure the production of V2s and jet fighters ‘until the last moment’, and that a veto had been placed on the use of V weapon troops for any other purpose. The last signals containing references to the V2 were decrypted between 9 and 13 April: they ordered the destruction of a rocket in Bromskirchen railway station to prevent capture by the Allies.
The Allied Strategic Bombing Offensive

In June 1944, for the first time in the war, the Allies were able to attack a vital target system in the knowledge that their air forces had the power and skill to destroy it. The system was Germany’s oil production. An obvious target, it had beckoned since the war began; but it had hitherto eluded serious attack on account of technical limitations and competition from other strategic targets. Now, when these obstacles were being removed, Sigint established that the enemy’s fuel shortage had reached critical proportions. Unlike the evidence supplied for other bombing targets, its testimony was unambiguous: in GC and CS’s view, this was ‘the outstanding service rendered by Special Intelligence to the strategic air war in Europe’. PR, the other main source, complemented the Sigint by locating the German refineries and synthetic oil plants and identifying the damage they sustained once the offensive began.

In January 1944 the Combined Chiefs of Staff reaffirmed that the primary objective of the strategic air forces was destruction of the GAF while preparations for Overlord went ahead; and the Air Staff resisted suggestions from the JIC that priority should be given to attacks on oil refineries. By the beginning of March, however, General Spaatz was in favour of giving priority to an oil offensive over the Transportation Plan. He argued that the campaign against the German fighters had made so much progress that they were avoiding combat: they would be bound to operate in defence of the oil plants, and if they were then defeated the German High Command might conclude that it could not continue the war. But the Transportation Plan was preferred after MEW had insisted that German oil stocks were such that attacks on oil production would be of no assistance in the initial phase of Overlord.

On 8 June, as soon as the progress of the Normandy landings permitted, Spaatz directed that oil plants were to be first priority targets for the US Strategic Air Force. US Fifteenth Air Force had already begun to bomb Ploesti from Italy in April, and in May, with Eisenhower’s approval and with a view to seeing whether it could force the German fighters to give battle, US Eighth Air Force had made three large raids against oil installations including, on 29 May, the huge plant at Politz in Silesia. These attacks had been strongly opposed by the GAF but PR reported that, like those on Ploesti, they had achieved excellent results. From mid-May, moreover, Sigint had revealed Germany’s grave disquiet at the threat the raids posed to her supplies. In a message decrypted on 3 May the Japanese military attaché in Berlin noted that, whereas attacks on coal and aluminium had had no effect on German production, an alarming situation would arise if the Allies turned against synthetic oil, which had not yet been attacked. In a decrypt of 14 May, two days after Eighth Air Force’s first large raid, Luftflotte 3 was informed that Flak batteries intended for France were being diverted to protect the plants at Troglitz, Politz and Bleckhammer. As these refineries had not yet been attacked, this intelligence strongly pointed to German apprehensions. A decrypt of 21 May disclosed that OKM had advised Naval Gruppe West on 19 May that in consequence of Allied action against Romanian oil and German hydrogeneration plants, extensive failures in
production were to be expected, and considerable reductions in the June allocation of ‘furnace oil, diesel etc.’ A later decrypt disclosed that Admiral Black Sea had been informed that he would receive no fuel allocation for June.

The thrust of this intelligence was reflected in a report by the JIC on 27 May: ‘Although ... it is impossible to be precise on the time factor, we feel convinced that there is now sufficient evidence to justify the conclusion that a concerted and successful attack on German sources of oil production would, within a period of from 3–6 months, produce a shortage of oil so serious that it would render it impossible for her to carry out full operations on three major fronts ... Both on the short and on the long-term, oil has therefore become a vital factor in German resistance’. It is safe to assume that as well as encouraging Eighth Air Force to persist with its raids, this appreciation prompted the British Air Staff to ask Bomber Command on 3 June to consider attacking ten synthetic oil plants in the Ruhr as soon as its commitments to Overlord allowed.

On 7 June the decrypt of an Enigma message advised First Parachute Army, which was based at Nancy, that as a result of Allied interference with the production of aircraft fuel, the most essential requirements for training and production plans could scarcely be met. During June allocations of general purpose aviation fuel could be made only to trainer, bomber, fighter and ground-attack units and to the Director General of Supply. At least until the beginning of July units would have to arrange their entire operations so as to manage with their present stocks or with the small allocations that might be possible. The date of arrival and the size of the July quotas were still undecided and ‘in no circumstances could greater allocations be made’. In order to ensure the defence of the Reich and to prevent the collapse of the GAF’s readiness for defence in the East it had been necessary to break into the OKW strategic reserve. In a minute on this decrypt for the Prime Minister the CAS commented on 8 June:

‘I regard this as one of the most important pieces of information we have yet received. On the strength of it the Chiefs of Staff have asked for a completely up-to-date appreciation from the JIC and the oil experts. I think that there is little doubt that in the light of this appreciation the strategic bombers should be turned over to synthetic oil plants as soon as Overlord can spare them.

On the same day, 8 June, Spaatz made the oil plants first priority targets for the USSTAF, as already noted.

On 20 June the Chiefs of Staff ordered the JIC to produce a fortnightly appreciation of the German fuel situation. On 3 July the JIC issued the first such report after reviewing the effects of the bombing of oil targets in June. Although Bomber Command and US Eighth Air Force were still heavily occupied in support of the land forces in Normandy and in attacks on the V-weapon sites, aircraft factories and rail centres, these effects had nevertheless been considerable. US Fifteenth Air Force had raided Ploesti and oil installations in Austria and Yugoslavia: Eighth Air Force had attacked the important refineries near Hamburg and five major synthetic plants in eastern and central Germany: Bomber Command, unable as yet to operate by day over Germany or to attack distant targets there by night, had made its first large-scale raids against synthetic plants in the Ruhr on 12–13 June. In its assessment of the effects the JIC believed that the total output of oil products in German—
controlled Europe had been reduced by the end of June from the previously
normal level of 1,200,000 tons a month to about 670,000 tons, and it compared
this with the current requirement for operational efficiency of about 1,000,000
tons. In a reference to the decrypt of 7 June, it added that recent intelligence
had confirmed its view that Germany had no free reserve which would absorb
the impact of a sudden drop in production. Its conclusion was that ‘assuming
that Allied air attacks can keep the total output of refined oil products ... down
to its present level of about 670,000 tons per month and that the Germans are
forced to fight intensively on three fronts, current supplies would fall short by
some 35 per cent of the minimum needed to avoid hampering military
operations. This is, however, taking an average for all products: the deficiency
in certain products, especially petrol and lubricating oil, will be even more
pronounced’.  
This report relied for its evidence mainly on PR. This had established, for
example, that Bomber Command had done great damage at Gelsenkirchen and
that the synthetic plants at Politz and Magdeburg had ceased production on 20
June. A decrypt had disclosed that in Bomber Command’s raid on the
installation at Gelsenkirchen on the night of 12–13 June plant of the ‘highest
priority’ had been put out of action for several months and that some 5,000
tons of stored oil had been destroyed. ¹ But Sigint had produced no other
evidence on the damage done by the bombing, and no evidence for its effect on
the German oil shortages, since the decrypt of 7 June.

The JIC’s assessment was nevertheless sufficiently encouraging, and steps
were taken early in July with a view to increasing the effectiveness of the oil
offensive. In order to improve photographic reconnaissance and interpretation,
oil experts were attached to the oil division of the Allied CIU, new photographic
machinery and processes were introduced and the Spitfire XIX was brought
into service for high-speed and high-altitude reconnaissance – this last step
being necessary to counter the fear that the Mosquito and the earlier marks of
Spitfire might be no match for the new German jet fighters that were now
coming into service in small numbers. And on 7 July the Air Staff and USSTAF
set up a new Working Committee (Oil) of the Combined Strategic Targets
Committee to supervise the oil campaign ‘more scientifically’ by reaching
quicker decisions on the priority with which the individual oil targets were to
be attacked and re-attacked.

¹This information was obtained, exceptionally, from a decrypt in the medium-grade police cypher.
Traffic in this cypher had been intercepted from Germany regularly since May 1944, and it was read
currently till September, when the introduction of a new cypher produced some delay in
decryption. The traffic was voluminous, as the cypher was now used also by the fire services, ARP
authorities and ad hoc administrations set up to deal with breakdowns in war production. It
supplied much information about damage to factories, breakdowns in water, gas and electricity
supplies, emergency movements of coal and other supplies, evacuations of civil population on the
eastern front, and the drafting of manpower from industry to the armed forces. But most of the
information relating to the war concerned with the effects of raids on the cities, and it
did not produce any further decrypts bearing on the effects of the oil offensive.
US Eighth and Fifteenth Air Forces prosecuted the oil offensive throughout July to the limit that visual conditions and their other commitments allowed. Fifteenth Air Force devoted most of its effort to it, making five attacks on Ploesti and others on refineries and synthetic plants in Silesia, Austria, Hungary and Yugoslavia, and mining the Danube.¹ Though still heavily engaged in army support operations and attacks against V-weapon sites, Eighth Air Force attacked several refineries, including the great complex near Hamburg, and several synthetic plants in central and eastern Germany, including the plant at Leuna near Leipzig; Leuna, the only plant apart from Politz that was capable of producing over 100,000 tons a year, was attacked three times. Bomber Command, which also had to meet many calls for battlefield support and attacks on V-weapon sites, attacked five synthetic plants in the Ruhr towards the end of the month in its first operation against oil targets since that of 12–13 June; but the bulk of its effort over Germany was still devoted to area bombing. In its June raids on oil targets Bomber Command’s losses had been higher than the average casualties incurred during the battle of Berlin: 93 bombers lost out of 832, 65 of them to night-fighters. In the July raids losses were low; Bomber Command was now using the ‘Mandrel’ screen over Germany and deploying ‘Long Window’ against SN2, the existence of which had recently come to light. In June PR had shown that except at Gelsenkirchen the results of the raids were disappointing. After the July raids PR revealed considerable damage at all five plants and Sigint confirmed that production had been interrupted at two of them.

Several decrypts in July testified to Germany’s continued anxiety about the effects of the raids. It was known from a message decrypted on 8 July that on 26 June Luftflotte 3 had reported that ‘Allied attacks had caused considerable reduction in fuel supplies’ and that June allocation would have to last into July. A decrypt of 11 July disclosed that on 5 July Goring had banned all non-essential flying on account of deep inroads into fuel supplies. In a message decrypted on 19 and 20 July the Japanese Ambassador reported that the Allied attacks on the synthetic oil plants were ‘a source of very great concern’; the damage being done was so extensive that ‘the question arises whether large-scale operations by the German Army may not be affected’. On 27 July a signal from the Japanese Naval Mission disclosed that in an interview on 22 July General Korten, the German Chief of Air Staff, had said that while there had been scarcely any damage to the oil depots of the armed forces, which were mostly underground, damage to the synthetic oil plants had been considerable; Germany was therefore abandoning the policy of concentrating production in large plants and embarking on dispersal to about 3,000 self-contained plants.

Korten’s reference to plans for dispersal was not the first indication from Sigint that the Germans were now attaching highest priority to countermeasures against the offensive. In the infrequent decrypts reporting on individual raids there had been references to the improvement of the defences at the targets. Decrypts of 29 July, commenting on a raid on Ploesti on 15 July, said that smoke from 1,500 canisters had caused most of the bombs to fall wide. In a telegram decrypted on 19 July the Japanese Consul in Vienna

¹Speer was later to testify that the mining of the Danube with the object of preventing oil shipments to the Reich had even more serious effects than the bombing of Ploesti. The mining was carried out by No 305 Group RAF, operating under US Fifteenth Air Force.
reported that as a result of raids in June on two oil plants near Vienna, all refining would come to an end from 10 July for four weeks, perhaps for longer, and that as the raids had destroyed all petrol stored above ground – several hundred thousand tons – supply was now dependent on available underground stores until repairs had been carried out; Hitler was exerting the highest pressure for a repairs programme and had sent Speer to Vienna on 4 July.

This information in no way qualified the enthusiasm of the intelligence authorities for the oil offensive. In a paper of 20 July the JIC insisted that Germany’s chief weakness was the seriousness of the overall oil shortage. On 7 August it put the monthly rate of production in July at 550,000 tons, 42 per cent of the production level in the previous April (now thought to be 1,360,000 tons); estimated that the military petrol consumption in July had exceeded the production of 233,000 tons by nearly 50 per cent, and that total production in the months of May, June and July had been 2,584,000 tons as against total consumption of 3,166,000 tons; and concluded that at this rate of depletion German reserves would soon be exhausted. But it gave two warnings. The first was that in the absence of continued bombing of oil, the enemy might achieve a total production of one million tons in August, 75 per cent of the April level. The second was that the Germans had resorted to exceptional measures for restoring production. A special commission had been appointed to oversee repairs to production plants; these had been given priority for labour and materials even over armaments production; and PR had shown that intensive repairs were already in train at plants throughout Germany, Austria and Hungary. Immediately after the completion of this report a telegram drafted by the JIC was sent by the CAS to the Mediterranean air commanders advising them that ‘the speed with which the Germans are now repairing oil producing plants’ threw the emphasis in Allied bombing operations on to the prevention of any recovery in oil production.

The emergency organisation for the repair of oil installations was to be the enemy’s most effective counter-measure; dispersal of the highly complex installations was soon found to be impracticable, as was the attempt to put some of them underground. The discovery that the organisation had been deployed was one of the considerations which led the USSTAF to intensify its campaign against oil targets in August. It carried out about 60 raids on oil targets throughout Germany and south-eastern Europe, half against storage, a quarter against synthetic oil plants and a quarter against refineries. The targets included (on 9, 17, 18 and 19 August) the refineries at Ploesti, where production was completely stopped before the Russians occupied it at the end of the month, and the synthetic plants at Blechhammer (on 7 and 22 August) and Pölitz (on 25 August, just when it was recovering from the June attack). But Bomber Command’s effort in the oil campaign slackened appreciably in August: the twelve major night raids it made over Germany were directed against the cities. Although it also carried out on 27 August a daylight raid on the synthetic oil plant at Homberg, the first in which Bomber Command had ever penetrated beyond the Rhine by day with fighter cover, the AOC–in–C was complaining that the diversion of his force to oil targets and other tasks was harming the area bombing offensive.

References in high-grade Sigint to the existence and the effects of the growing fuel shortage were becoming increasingly frequent. Between 1 and 14 August several decrypts reported a serious shortage in Normandy; they culminated in von Kluge’s request on 16 August for permission to withdraw
from Falaise in view of tank deficiency and shortage of fuel, which was ‘the decisive factor’. Decrypts of 4 and 5 August disclosed that fuel shortage was hampering the GAF in the Lyons area and on the eastern front. In a message decrypted on 12 August OKL ordered a general curtailment of operational activity because of further damage to fuel production by Allied air attacks: reconnaissance was to be flown only when it was essential; four-engined aircraft were to operate only after application to OKL; all other aircraft were to operate only in cases where action would be decisive or when chances of success were good. This was the first reference to restrictions on operational activity, as distinct from non-essential flying. In another message decrypted on 12 August GAF units withdrawing from western France were ordered to evacuate fuel stocks ‘down to the last drop’. Messages decrypted on 21 August ordered that all convertible motorised vehicles in German Army supply units on all fronts were to be converted to producer gas by 1 October. In a message not decrypted until 27 August OKL warned Luftflotte 3 on 15 August either that operations must be further curtailed, so as to release fuel for training crews a month for the west, or that the present very low allocation to training for the west be accepted, in which case only one-third of replacement requirements could be met.

The Japanese diplomatic decrypts also testified to the extent of the German anxiety. On 7 August the head of the Japanese Naval Mission in Berlin, more emphatic than he had been in July, stated that ‘oil is Germany’s problem’. In a telegram decrypted on 18 August the Ambassador reported that Speer had told him that oil production had been badly hit, especially by the daylight raids, and that although some oil plants were being put underground, they were not yet in production. Speer said that up to the time that the daylight raids on Germany’s oil-industry had begun, Allied air attacks on the German economy had been unco-ordinated, but that since then it could be said for the first time that the Allied air offensive ‘might deal a fatal blow to Germany’. A signal from the head of the Naval Mission on 14 August, decrypted on 21 August, stated that there had been heavy damage in 12 raids in July and that if such raids continued, ‘Germany’s capacity to prosecute the war will be seriously affected’: he considered that production had dropped to about 50 per cent and said that ‘if things continue as at present, stocks of oil will not last more than six months.

Relying mainly on the Sigint evidence, which was all the more valuable in view of the all but total lack of PR during August, the JIC’s fortnightly report for the first half of August, issued on 21 August, concluded that ‘the Allied policy of attacking German oil production, stocks etc is for the first time threatening her with a potentially fatal situation . . .’. It stressed once again, however, that the enemy had embarked on an emergency repairs programme and that production would soon rise if there was no further damage. In its next report on 4 September it estimated that total German output for the whole of August had been only 40 per cent of normal (that is, of the April 1944 level) and that on 1 September the rate of production was under 25 per cent of normal at 300,000 tons, of which only 90,000 tons was motor spirit and none was suitable for normal fighter aircraft. These estimates depended on the evidence of PR, which had been resumed on 1 September after a long gap and on the news of the Russian capture of Ploesti. The report believed that even in the absence of further attacks, total output in September was unlikely to exceed 43 per cent of normal but added that production from the synthetic oil plants would rise in
The Allied Strategic Bombing Offensive

September to 54 per cent of normal as a consequence of the vigorous German repair programme unless the plants already out of action were kept out of action.

During September, while PR coverage of the effects of the raids remained patchy, Sigint references to the fuel situation were less frequent. On 7 September a decrypt disclosed that in order to avoid the expenditure of fuel on training, all branches of the GAF had been asked to call for volunteers for the fighter arm. A decrypt of 11 September showed that Goring had issued new orders for fuel economy in the GAF on 1 September: flights were to be restricted to the bare essentials 'so that every drop goes to operational training,' and all infringements were to be reported. A message of 12 September, decrypted on 15 September, disclosed that Hitler had taken the exceptional step of ordering all bunker fuel to be removed from sea-going vessels and coasters in the eastern Baltic. The JIC on 18 September noted that the Germans had doubled the Flak defences at Pölitz, Leuna, Brüx and Zeitz, and had obviously reduced consumption to conform to output. But it also noted that there had been heavy attacks on 23 synthetic plants since its last report on 4 September, and it did not doubt that although assessment of the results had been hampered by bad weather, enemy production, especially of petrol, had been further reduced. The Combined Intelligence Committee believed on 20 September that 'provided Allied air attacks on oil targets, particularly on synthetic oil plants, continue on a heavy scale, the GAF will be reduced to a nullity by the middle of November 1944.' By the end of September PR had indicated that German production had suffered a further marked decline, as the JIC stated in its report on the whole month. Issued on 2 October, this estimated that total German oil production had been reduced in that month to 330,000 tons, or 25 per cent of the April 1944 norm.¹

These estimates had sustained the USSTAF in the still more intensive attacks which it directed against oil targets in September in the face of increasing day-fighter opposition. The intelligence had produced no change, on the other hand, in Bomber Command's programme. In September Bomber Command made daylight attacks on three synthetic oil plants in the Ruhr: PR indicated that heavy damage was done to two of them and that the third raid, a renewed attack on the plant at Gelsenkirchen, was moderately successful. It was in this month heavily occupied with attacks on French Atlantic ports, V2 sites and targets relating to the Battle of Arnhem. But its major operations over Germany were area bombing attacks by night.


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The JIC’s report recapitulated the estimates made since April. They are here compared with the figures later compiled by the US Strategic Bombing Survey.

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<th>JIC</th>
<th>USSSB</th>
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<tr>
<td>April</td>
<td>1,344,000 (100%)</td>
<td>810,000</td>
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<td>May</td>
<td>1,082,000 (80%)</td>
<td>734,000</td>
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<tr>
<td>June</td>
<td>800,000 (59%)</td>
<td>511,000</td>
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<tr>
<td>July</td>
<td>671,000 (50%)</td>
<td>438,000</td>
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<tr>
<td>August</td>
<td>526,000 (39%)</td>
<td>345,000</td>
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<tr>
<td>Sept</td>
<td>330,000 (25%)</td>
<td>281,000</td>
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¹
On 25 September the Combined Chiefs of Staff took over from SHAEF the control of the strategic air forces. The CAS had obtained approval for the transfer at the 'Octagon' conference earlier in the month on two grounds. The Air Staff, who would exercise their control through the DCAS (Bottomley) and General Spaatz, were better placed than the operational HQs to ensure that the expertise and the intelligence available to the Joint Oil Targets committee were utilised in a concentrated offensive against enemy oil before the approach of poorer weather reduced bombing accuracy: and they alone were in a position to direct other bombing in such a way as to give maximum help to the Russian advance. The CAS had not stated his more particular reasons for wanting the transfer. The Air Staff knew that proposals were being framed at SHAEF for a bombing campaign against German transportation similar to that which had been carried out in western Europe before Overlord, and feared that SHAEF would give this campaign priority over the offensive against oil. Above all, it was looking for some means of asserting its authority over the direction of Bomber Command's operations.

By September 1944 Bomber Command had become a truly formidable force. The huge building programmes which had started in the winter of 1941–1942, and which had absorbed as much manpower as that devoted to production for the entire British Army, were coming to fruition. The German retreat in the west was reducing the onerous commitment of the heavy bombers to attacks on the V–weapon sites and the French transport system. In the last nine months of the war the weight of bombs Bomber Command dropped on Germany was to exceed by far the total dropped in the first five years. With its acquired skills and the powerful assistance of improved devices for navigation, bomb–aiming and marking, it was at last capable of bombing with accuracy, even in bad weather, by night and by day, and could now do so anywhere in Germany except in the most difficult conditions. Daylight bombing had become feasible since the US air forces had established day–time air superiority. As late as the end of August the enemy night–fighters had remained a fearsome opponent, the more so as with the contraction of Germany's front they were increasingly concentrated in the Reich: AI reported their final withdrawal from France and the Low Countries on 27 August, and on the previous day the JIC noted that their performance was still improving with the transfer of pilots from bomber units and the increased production of twin–engined fighters. But their withdrawal deprived them of their early warning installations at French and Belgian bases and thus of their capacity for instant response to Bomber Command's raids, as AI recognised on 5 September: on this account, as much as in consequence of fuel shortage, their performance dropped markedly from the beginning of that month except on rare occasions. By then, moreover, the Allies had at last uncovered the secrets of the SN2 and other night–fighter plotting and location devices, while Bomber Command was provided with new jamming devices and well served by improved and largely successful techniques of feint and diversion. Though they still jumped on occasions to 5 or even 10 per cent, Bomber Command's casualties averaged only one per cent after September 1944.

Bomber Command nevertheless continued to make only token gestures to the oil offensive, a strategy by which the Air Staff now set great store, and to devote the bulk of its effort to the attack on German cities, a strategy in which the Air Staff had had little faith since the battle of Berlin, and the Air Staff's frustration on this account was all the greater in that the intelligence sources
were still providing no grounds for supposing that the effects of area bombing on civilian morale would contribute to Germany’s collapse. On 26 August the JIC had made this point emphatically. Allied bombing was probably ‘playing a relatively much less important part in determining civilian morale than it did up to a few months ago; it was most unlikely to foment such opposition or produce such chaos as might lead to a collapse of the home front’. Like all earlier judgements on the subject, these assertions rested mainly on negative evidence, or on the indirect testimony of many Japanese decrypts, like that of 30 July which noted that while the bombing of the cities was having no military effect, the Allied oil offensive was achieving ‘catastrophic results’, and on the interrogation, for what that was worth, of German POW. But if they were weakened by the lack of support from direct and explicit evidence, they still stood in sharp contrast to the JIC’s assessments of the effects of the oil offensive, for which there was abundant positive evidence.

The directive issued to Bomber Command on the transfer of control of the strategic air forces reflected the Air Staff’s concern in uncompromising terms. Harris was instructed to give first priority to oil targets including storage, with special emphasis on petrol, and second priority equally to transportation targets and to tank and MT production plants and depots. He was informed that attacks should be delivered on industrial areas only ‘when weather or tactical conditions are unsuitable for operations against specific primary objectives’. The only other qualification was that support of land and naval operations was ‘a continuing commitment’.

Bomber Command continued to ignore the wishes of the Air Staff. In October it dropped more bombs than in any previous month in the war. Seventy-four per cent of them (over 42,000 tons) were dropped on towns, most of them in eight major raids against the main Ruhr centres, and 16 per cent (over 12,000 tons) in operations in support of the armies. Only six per cent (3,653 tons: a smaller tonnage than it had dropped on oil in June, when so much of Bomber Command’s effort had been diverted to support Overlord) were used against oil targets, most of them in daylight raids towards the end of the month against six synthetic oil plants in the Ruhr which had been damaged earlier and were being re-built.

The performance of the US air forces stood out in sharp contrast. Spurred on by the knowledge that the approaching winter would reduce the efficiency of their bombing, and by evidence from PR that the Germans were making desperate efforts to restore the tremendous damage done to the oil installations during September, and undeterred by the fact that the Germans were increasing the defences at the oil targets with heavy Flak, smoke and camouflage, the USSTAF again devoted to the oil offensive all the effort its other commitments allowed. But it was unable to keep up the September rate

*The police cypher was however an important new source of negative evidence. In view of the contents of the messages sent in this cypher, it may be presumed that they would have revealed the existence of any civil unrest, but the only reference to the subject related to a revolt of foreign workers after a raid on the marshalling yards at Saarbrücken in July 1944.

*Rut it should be remembered that much damage was done during Bomber Command’s area attacks to benzol plants which were mainly in industrial cities. Bomber Command’s area attacks from October included cities containing these plants ard greatly reduced benzol production.
of attack. There was some anxiety, moreover, that they were not achieving the earlier degree of accuracy as a result of cloud and the increase of smoke and camouflage. For the same reasons, on the other hand, PR was less efficient than before in disclosing the extent of the damage done. As early as 6 October plants were being re-attacked by blind bombing and without waiting for PR evidence that they had resumed production. Nor was this development the only cause for disquiet. In the first week of October Sigint disclosed that the GAF was carrying out a massive reinforcement of its day-fighters in the Reich.

The prospect of increasing fighter resistance added to the anxiety with which the Allied operational authorities contemplated the wavering of the oil offensive in October, when the confidence of the intelligence authorities was in any case beginning to wane. In its fortnightly report of 16 October on the offensive the JIC repeated the view that many factors, but mainly the Allied bombing, were bringing about a condition of under-equipment that was incommensurate with Germany’s minimum defensive requirements. But it now conceded that this condition would not be brought about for the German Army for about six months and that the GAF might secure such degree of ascendancy over central and eastern Germany as to enable it to protect some vital elements of war production during the coming winter. And its next report on the oil situation, dated 30 October and surveying the offensive during the whole of the month, was still more gloomy.

The report noted that because of incomplete PR the results of some of the Allied raids - a total of 32, against 26 targets - were not known, but accepted that 'total production in October was almost certainly more than in September as the effects of repairs outstripped destruction’. It guessed that total output might have been 430,000 tons (32 per cent of norm) as compared with 316,000 (23 per cent) for September. In a special section entitled 'Recovery of Output’ it reiterated that 'the enemy’s repair effort has, for the time being at least, overtaken the downward trend of production since the attacks . . . began’. As another indication of the scale of the German defensive effort it added that Politz was now protected by 310 heavy guns, as compared with 325 in Berlin. Its conclusion was that the repair programme would raise the output to nearly double that of September if Allied attacks ceased and that, in view of the virtual lack of reserves and the low level of current allocations, any substantial increase in production would probably be reflected in the increased operational efficiency of the armed forces within a few weeks.

* * *

At the end of October SHAEF argued that the strategic air forces should join in the attacks the tactical air forces were already making against communications between the Ruhr and the fronts; their attacks on oil targets should be limited to keeping production down to the September level. The Air Staff insisted that oil should retain first priority, though it eliminated other targets in favour of transportation targets, and in a directive of 1 November it further reduced Harris’s freedom of action by requiring that, should Bomber Command be forced by tactical considerations and weather to return to area bombing, he must select areas where attacks would make the maximum contribution to the destruction of oil and communications. This directive, unprecedented for the forcefulness of its attempt to avoid ambiguity, produced a long correspondence
between Harris and the CAS which lasted till Harris offered to resign in January 1945. The CAS felt unable to accept the offer for fear of the effects on the morale of Bomber Command; but he had failed to win Bomber Command’s willing support for the oil offensive.

The CAS argued that ‘in the light of all available intelligence ... the whole war situation is poised on oil as on a knife edge, and ... by a real concentration of effort at this time we might push it over on the right side’. Harris expressed distrust of intelligence: under its influence the experts ‘had never failed to over-state their case for “panaceas, e.g. ball-bearings, molybdenum, locomotives, etc.”’. At the same time, he expressed unbounded faith in his own ‘panacea’: area bombing was succeeding and it was ‘idiotic to throw over a policy that was seven-tenths complete in favour of another attempt to seek a quick, clever, easy and cheap way out’. In addition, area bombing was incurring few casualties, and he objected to precision bombing from the need to keep casualties down.

From the beginning of November Bomber Command at least gave priority in its area programme to areas with benzol plants and, late in the month, it increased its attacks on other oil targets in Hamburg and the Ruhr. In the same month, however, US Fifteenth Air Force was practically unable to cross the Alps on account of bad weather and US Eighth Air Force and was forced to reduce the day-time oil offensive by the recovery of Germany’s day-fighter force. From the beginning of October Sigint had shown a startling increase in the strength of the GAF’s single-seater fighter force in the Reich. As a result of withdrawals of the close-support forces on the fighting fronts, of the transfer of pilots from disbanded Bomber and Transport units and of the continuing increase in fighter production, the Air Ministry estimated that it had risen from 690 aircraft in mid-September to 1,330 by mid-October, and foresaw that sorties of up to 700 fighters might be encountered before long. In the event, an Eighth Air Force raid on Leuna on 2 November was opposed by 400, the largest number since early in the summer, and as many as 500 and 750 were encountered in the second half of the month.

A decline in the skill and persistence of the fighters, reflecting poor training, was observable by the end of November. By then, however, attacks by the strategic air forces on transportation targets were beginning to exceed their attacks on oil. The Air Staff had been concerned since early November that although the oil offensive nominally enjoyed first priority, SHAEF’s enthusiasm for its transportation plan, together with its overriding authority to divert the heavy bombers to army support, was relegating oil to second or third place. There was no lack of Sigint for the damaging effect of the plan. Among many other decrypts, one on 29 October had reported that between 30 and 35 per cent of all arms factories were at a standstill because of the destruction of communications and power installations, and one on 30 November disclosed that despite the drastic shortage of MT throughout the armed forces, an emergency mobilisation of lorries from all other fronts had been ordered in the hope of overcoming the difficulties imposed on the armies on the western front by the destruction of railways throughout the Ruhr. But the Air Staffs anxiety for the effects on the oil offensive was equally well-founded.

On 1 December, reporting on the oil offensive in November, the JIC drew attention to the fact that, as most of the oil attacks had been on plants in the Ruhr, the eleven synthetic plants in central and eastern Germany had achieved ‘a remarkable recovery’. Total enemy production had risen to about 450,000
of this, the distant plants had produced 175,000 tons as compared with 30,000 in September. In December these plants might, if they remained undisturbed, produce 240,000 tons, but successful attacks on them in the next few weeks would reduce their production to or below the September output.

In the annex to its report the JIC printed a statement by the head of the German oil administration in Bucharest, who was then in Russian hands. He disclosed that stocks had dwindled fast from May, that in June Berlin had feared that there would be no reserves by August, and that in July, when Hitler had appointed the emergency commission for repairs, with priority over U-boat and aircraft production, Berlin had feared that the war would be lost if the rebuilding of synthetic plants and refineries did not keep up with the damage done to them.

* * *

It proved impossible to maintain the oil offensive at its previous level during December. Even before operations by Eighth Air Force and Bomber Command against oil targets were all but eliminated by the vast demands for ground support and transportation bombing that followed the opening of the enemy’s Ardennes offensive, their attacks on oil were reduced by the intensification of the transportation bombing that formed part of the preparations for the planned Allied advance into Germany. Bomber Command devoted 11 per cent of its total effort—a small increase—to oil targets. More important, it made a heavy night attack on Leuna, at long last, on 6 December: the raid did great damage, PR indicating that production had practically stopped, and incurred only light casualties. During the Ardennes offensive it delivered a night attack on Pölitz on 22 December: casualties were again light but the damage done was not extensive. Eighth Air Force attacked Leuna twice before the Ardennes offensive, but was otherwise occupied in ground support and unable to raid the distant targets on account of bad weather. Fifteenth Air Force, however, concentrated most of its bombing against the oil plants in Silesia, where it had virtually immobilised Blechhammer before the Russians occupied the area.

The JIC’s report on the oil offensive in December was not discouraging. It estimated that total production had fallen to 410,000 tons, from 430,000 in November. On the evidence of good recent PR, however, it observed that this was due in part to the fact that the enemy had found that repairs became more difficult after each attack; whereas in October repairs had been outstripping destruction, this had ceased to be so. Total production might rise to 530,000 tons in January if attacks were to cease, though the declining rate of recovery of the plants after attacks might keep the output below this level. It would probably decline to the September level if the few remaining active synthetic plants were damaged in the next few weeks.

Some encouragement could be obtained from two Japanese diplomatic decrypts. A signal from the Naval Attaché in Berlin, decrypted on 8 December, reported that the transfer of oil plants to underground locations was ‘very much behind schedule’ despite strenuous effort, and that although aircraft production was good, the fighter aircrew were losing many opportunities for combat on account of oil shortage. From the decrypt on 14 December of a telegram from the Japanese Ambassador it was known that the oil repair squads
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employed 72,000 workers, and that oil production underground was unlikely to start before March; he estimated that total German output was running at only 300,000 tons a month and commented that oil was 'clearly Germany's greatest worry'.

In Whitehall the Chief of the Air Staff continued to take this view. As late as 22 December, in the correspondence with AOC-in-C Bomber Command which had begun on 1 November, he was still insisting on the merits of the oil offensive. It was not 'another panacea'; if the Allies could 'put out and keep out of action eleven synthetic plants in central Germany' they would achieve 'an early decision in the German war'. He persisted in his advocacy on 3 January 1945, rebutting Harris's argument that attacks on the plants would produce excessive casualties by pointing out that the oil offensive had cost only 1 per cent casualties in the past three months; criticising him for not having sent three times as many bombers to Politz on 22 December; and insisting that far from resting solely on appreciations from MEW, the oil plan had been adopted on the advice of the JIC, which had itself relied on Sigint.

From the middle of January 1945 the CAS's pleas were finally answered, Bomber Command embarking on a series of heavy and accurate attacks on the oil plants deep in Germany. Between then and the middle of February the proportion of its total bombing effort devoted to oil was raised to 26 per cent; and although it still devoted 36 per cent to the bombing of cities, it succeeded in reducing German oil production to a trickle - with immediate consequences on all the fighting fronts, and not least on the Soviet fronts.

In the light of this outcome it is not possible to doubt that, effected in July or August and maintained into the autumn, comparable diversion of its effort from area bombing to the oil offensive would have brought forward to an earlier date the reduction of German production to the low level it reached in September and would at least have prevented it from recovering. It is frequently argued that tactical considerations kept down the proportion of the effort Harris devoted to oil, and they certainly have to be taken into account; but on 12 November the CAS - himself a former AOC-in-C Bomber Command - wondered whether it was not 'the magnetism of the remaining German cities, rather considerations of weather and tactics', that had caused Harris 'to deflect our bombers from their primary objectives'. There is much force in this remark, for Harris did not attempt to conceal his belief that the oil targets were of less strategic value than area bombing or his disregard for the intelligence which conflicted with it.

From the beginning of 1945 the cumulative effects of the Allied air offensive against the oil targets mounted steadily, not least as a result of Bomber Command's greater participation. In the first four months of 1945 Bomber Command dropped 181,000 tons of bombs over Germany, one-fifth of the total dropped in the whole war, and while the proportion directed against cities fell to 35 per cent, as compared with 53 per cent in the last quarter of 1944, the proportion dropped on oil targets rose from 14 to 26.2 per cent.

In its reports on the results of the oil offensive during January the JIC estimated that, in conjunction with Russian seizures of plants, it had reduced
total production of all types to between 345,000 and 375,000 tons and that no fighter aircraft petrol was being produced by the end of the month. It predicted that within six weeks of mid-March the German ground and air forces would be completely immobilised and noted that while the Navy might be in less severe straits, there was evidence that supplies were insufficient for the full U-boat training programme and that bulk reserves of heavy diesel were exhausted.

Early in February the lack of heavy diesel reserves was confirmed by a decrypt in which OKM announced that supplies were now available only from current production. By 8 February decrypts had reported that German troop movements on 21st Army Group’s front were being slowed down by lack of fuel. On 21 February a decrypt disclosed that GAF personnel immobilised in the west through fuel shortage were to be drafted into army units on the eastern front. The JIC’s review early in March of the effects of the oil offensive in February estimated that total German production had been ‘the lowest it has ever been’: 280,000 tons or 21 per cent of the production norm of the spring of 1944, and that the low output of MT fuel and diesel had hampered the distribution of other oil products.

The last of the monthly JIG reports on the offensive, issued on 3 April, concluded that ‘the final stage in the destruction of Germany’s oil resources had been reached by the third week of March’. Production had fallen by then to a monthly rate of 30,000 tons, 6 per cent of the norm, and with the disintegration of the German transport system, the distribution of even that small output had become impossible.

Bomber Command increased its contribution to the attack on transportation targets only marginally, from 13 to 14.4 per cent of its bomb load, but the increased weight of the total Allied offensive against those targets was having consequences no less devastating than the attack on oil from the beginning of the year. On 19 March the JIC reported that Germany’s war production had fallen steeply during the past two months due to loss of territory and air attack on transport, and by that date the offensive was bringing about in a final concentrated phase the complete sealing-off of the Ruhr.

Pressure for this more concentrated objective, as against SHAEF’s preference for attacks on widespread targets, mounted from the middle of January, when high-grade Sigint began to provide evidence of the general disruption of the railways and, in particular, of its effect in producing a serious shortage of ammunition and coal. A message decrypted on 18 January disclosed that ‘in view of the raw material, production and transport situation, supplies of ammunition for large-scale fighting can only be met if consumption is restricted to operations of strategic importance’. A decrypt of 20 January added that ‘in certain cases even the engagement of worthwhile targets must be foregone’. On 2 March a decrypt revealed that 88 mm Flak ammunition was to be used against Allied bombers only exceptionally, on account of serious deficiencies. The decrypt of a situation report addressed to Army Group G on 16 January disclosed that the rail system was ‘very strained’ in the Mainz area, ‘strained’ at Cologne, ‘extremely strained’ in the Saarbrücken district, ‘unsatisfactory’ in the Karlsruhe district, and that the Rhine bridge at Maxau would probably be impassable for a fortnight. In a message of 28 January the Armaments Ministry complained that factories were closing owing to lack of coal. In a signal decrypted on 3 February the Japanese Naval Attaché reported that the inability of the Germans to move commodities such as coal was having an adverse effect on various war supplies. And by that date AI had compiled a
mass of evidence on coal shortages from decrypts of signals sent by the local armaments production Kommandos. On 8 February, prompted by MEW, the JIC used this evidence in support of the argument that the interruption of coal supplies from the Ruhr could halt all rail transport and have ‘effects as important as oil’.

A plan for bringing about ‘the interdiction of the Ruhr’ was not implemented until early in March, but between then and 24 March when the Ruhr had been completely sealed off, concentrated bombing of the area paralysed the railways and created a coal crisis throughout Germany, and brought about a further precipitate fall in all forms of war production. On 19 March the JIC calculated that in the past two months tank production had dropped by 40 per cent and ammunition and armaments production by between 30 and 35 per cent.

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The implementation of the plan to seal off the Ruhr had been held up by, on the one hand, anxiety that it would divert some effort from the oil offensive and, on the other hand, by the lingering belief of both the British and American air authorities that by some dramatic use of their air superiority they might precipitate a German surrender. Beginning on 3 February they embarked on the blitz in eastern Germany which culminated in the bombing of Dresden.

In a minute to the Prime Minister the Chiefs of Staff had observed in the first week of July 1944 that ‘the time might well come in the not too distant future when an all-out attack by every means at our disposal on German civilian morale might be decisive... They were not contemplating an intensification of area bombing of towns – the Air Staff no longer had faith in this strategy as a means of bringing about the defeat of Germany by its effects on either civilian morale or industrial production – but were thinking that when the war had been all but won by a combination of all arms, a catastrophic single blow from the air might push Germany over the brink of surrender and avoid a final protracted phase of desperate resistance and guerilla war. This was made clear in a memorandum drawn up by the Chief of the Air Staff at the beginning of August after consultation with the Foreign Office, the Political Warfare Executive and MEW. The plan he outlined would be put into effect ‘once the issue of the war is clear beyond doubt’, and its object was to persuade the German political and military authorities that they ‘must accept the necessity of organised surrender... or be replaced by an alternative Command which does so’.

In this memorandum the preferred operation was a shattering attack of ‘catastrophic force’ on Berlin, though similar blows against large towns such as Hamburg and Munich were mentioned as alternatives and yet another suggestion was that ‘immense devastation could be produced if the entire attack was concentrated on a single big town other than Berlin and the effect would be especially great if the town was one hitherto relatively undamaged’. Approving the memorandum on 5 August, the Chiefs of Staff chose the Berlin proposal. The JIC was requested to take all steps to improve target intelligence for ‘the attack on the German government machine’ and to advise when the conditions had arisen in which the attack might appropriately be made. This
request had been made on the recommendation of the Joint Planners, who had, however, reported on 17 August that they did not believe the plan was likely to achieve any worth while degree of success.

The remaining months of 1944 saw a steady waning of Allied confidence in the prospects of bringing Germany to the brink of defeat before the end of the year, and it was in different circumstances that the plan (now called Operation Thunderclap) was revived at the beginning of 1945. On 16 January, following the start of the new Russian offensive, the JIC asked the JIS to assess how much of the German military and civil administrative machine was still located in Berlin, and to report on the effect on the Germans of a concentrated attack carried out on 'the heart of the Government quarter in Berlin' in conjunction with the Russian offensive. By 22 January the Director of Bomber Operations in the Air Ministry had also suggested that 'if the operation were launched at a time when there was still no obvious slackening in the momentum of the Russian drive, it might well have the appearance of a close co-ordination in planning between the Russians and ourselves. Such a deduction on the part of the enemy would greatly increase the moral effect of both operations'.

On 25 January the JIC issued two reports. The first, entitled 'Bombing in Berlin', pointed out that the value of such attacks must now be judged by reference to their effects on the eastern front, and would depend on the care with which they were timed to coincide with developments there, but went on to state:

'(e) We do not believe that, even so timed, the devastation of Berlin would of itself break Germany's will to resist, shatter the control of the Nazi regime or lead to a plea for an armistice.

(0) No benefit to be derived from the bombing of Berlin would justify any diversion whatever from the task of putting out of action oil plants and tank factories, which remains of paramount importance...'

It conceded, however, that as raids on Berlin carried out without prejudice to this paramount task would materially assist the Russians, and might even have a political value in demonstrating to the Russians a desire on the part of the British and Americans to assist them, they would justify temporary diversion from any targets other than oil plants and tank factories. In the second report, which was entitled 'Strategic Bombing in relation to the present Russian Offensive', the JIC stated that the Russian offensive was likely to have a decisive effect on the length of the war and explored the various ways in which the Strategic Air Forces might assist it in the next few weeks. It repeated that, even for the purpose of assisting the Russians, attacks on oil targets and tank factories merited the highest priority, but it again suggested that a series of raids on Berlin would justify temporary diversion from other targets before going on to recommend that sea-mining in the Skagerrak and the Baltic to delay the reinforcements of the eastern front from Norway and Latvia, attacks on rail bottlenecks to delay its reinforcement from Italy and Hungary and attacks on rail communications in Germany, to delay its reinforcement from the western front, also deserved consideration.

The CAS told the DCAS on 26 January that he thought attacks on Berlin on the Thunderclap scale would not be decisive, and should not be attempted 'in the near future' at the expense of the absolute priority for attacks on oil targets and the need to deal with jet factories and submarine yards. But the long-standing interest in delivering a 'single catastrophic blow' had now been
submerged in the wish to demonstrate that the strategic air forces could contribute to the Soviet offensives, and the CAS agreed that, subject to observing those priorities, ‘we should use available effort in one big attack on Berlin and attacks on Dresden, Leipzig, Chemnitz, or any other cities where a severe blitz will not only cause confusion in the evacuation from the East but will also hamper the movement of troops from the West’. And if any doubt remained as to whether this programme should be carried out, it was dissipated by the intervention of the Prime Minister. Answering an enquiry from him on 26 January as to whether Berlin and other large cities in east Germany should not now be ‘considered especially attractive targets’, the Secretary of State for Air advised him that such a programme was under examination and received the following reply: ‘. . . i am glad that this is “under examination”. Pray report to me tomorrow what is going to be done’.

On the following day the DCAS sent Harris the two JIC reports, explained that the CAS had doubts about the full-scale Thunderclap plan, but requested him, subject to the over-riding claims of oil and other approved targets, to carry out as soon as conditions allowed one big attack on Berlin and related operations against Dresden, Leipzig, Chemnitz and ‘any other cities where a severe blitz will not only cause confusion in the evacuation from the East but will also hamper the movement of troops from the West’. In discussions with General Spaatz and at SHAEF in the next few days these attacks were granted second priority after synthetic oil plants for the strategic air forces operating from the United Kingdom, and on 3 February the US Eighth Air Force carried out a massive daylight attack on Berlin.

These decisions were made independently of any consultation with the Russians, with whom the subject was first discussed at the Yalta conference on 4 February. On that day the Russians submitted a memorandum on the progress of their offensive which included, among other suggestions as to how the Western Allies might assist it, the suggestion that the Germans should be prevented from moving troops to the east from the western front, Norway and Italy by air attacks against communications, and in particular that the bombers should ‘paralyse the centres: Berlin and Leipzig’. In the remaining discussion at Yalta, however, which centred on the wish of the Russians to establish a bombline to the east of which the western air forces would not operate, they seem to have been anxious to discourage attacks by the western air forces in eastern Germany, and agreement on a bombline proved impossible.

Bomber Command’s attack on Dresden with just over 800 bombers took place on the night of 13 February. As part of the concentrated attack authorised at the end of January, which continued with heavy daylight raids by US Eighth Air Force on Dresden on 14 and 15 February and 2 March and on Berlin on 24 February and with a heavy night raid by Bomber Command on Chemnitz on 14 February, it is unlikely that either its target or timing were influenced by intelligence. The only references in the intelligence archives relating to the raid occur in a last-minute exchange of signals. In the afternoon of 12 February AI informed HQ US Strategic Air Force that General Spaatz had just told the DCAS that there was evidence of troop concentrations in the Dresden area; it added that it had no confirmation of this from Sigint or PR, asked for the source of General Spaatz’s statement and was told that it was HQ Eighth Air Force. On the afternoon of 13 February another signal from AI to Spaatz’s HQ reported that as far as could be established Eighth Air Force had ‘no evidence for the assertion about Dresden. Apparently the information came from SHAEF.
Rear but they disown it and have nothing to support it.' To this signal HQ USSTAF replied in the early hours of 14 February that it had found no evidence to substantiate the statement and that SHAEF (Main) had no knowledge of any such movements.

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The GAF made no significant impact on operations in the west after the beginning of 1945. By the end of January the Enigma had disclosed that some 800 single-engined fighters had been switched to the eastern front since the beginning of the Russian offensives and that the roughly similar number that remained in the west were severely restricted by exhaustion, the loss of skilled aircrew and the lack of adequate training of aircrew that followed from the mounting fuel shortage. Even before the completion of this massive transfer - ever since the GAF had wound up its contribution to the Ardennes battles with the great attack on Allied bases on 1 January - these restrictions had been so apparent and the GAF had already been so vastly outnumbered that Allied operations were being carried out without considering the intelligence that still flowed in from Sigint about the enemy's order of battle and tactical intentions. From early in February, when Sigint established that the GAF had made no move to reinforce its strength in the west as the Allies crossed the Rhine, the Air Ministry ceased to issue the regular commentaries by which the Commands had for so long been kept informed about Sigint's coverage.

Sigint remained useful in that it assured the Allies that they would not be surprised by unexpected recovery on the enemy's part or by unannounced decisions, either strategic or tactical. It showed that no withdrawals from the east were made when the Russian offensive paused from the end of February. From the beginning of the year the Enigma decrypts confirmed POW reports and indications from Y to the effect that the GAF, unable to offer more than token opposition to the Allied bombers over Germany, was preparing to carry out intruder operations by night-fighters over Bomber Command's bases - a tactic which it had contemplated at the beginning of the Ardennes offensive but which had then been foiled by bad weather, and which it finally abandoned, as Sigint disclosed, in March. Decrypts giving warning that the GAF had ordered suicide attacks against the Remagen bridge in mid-March gave the Allied Commands time to strengthen the AA defences there and to mount attacks on the enemy's airfields.

Above all, however, the decrypts were valuable for the evidence they provided about the extent to which the GAF was transferring production and training from conventional to jet aircraft and succeeding in bringing jet aircraft into the front line. Still a source of considerable Allied anxiety in mid-January 1945, when Spaatz gave jet aircraft targets equal priority with the oil targets, the jet aircraft continued to alarm the Allies for brief periods from time to time down to the end of hostilities, and Sigint, the main source of intelligence about them, was sometimes the cause of the alarms. But its over-all effect was to keep the Allied anxiety in check.

The decision to give high priority to jet targets was to no avail in January, weather preventing any attacks on them. In February there were some attacks, but the targets were no longer given priority. The speed and scale of the
Russian advances, and the hope that they would lead to a quick end of hostilities, had generated renewed confidence that the new aircraft could not decisively influence the course of the war. Moreover, the jets had made no attempt to interfere with Allied bombers since early December, and though the 20–30 available ground-attack Me 262s had been used to support the Army in Northern Alsace, they had operated to little effect. Me 262s opposed the US bombers on 9 February in small numbers, but were not again encountered until the end of the month, when they evaded combat. Enigma decrypts of 6 and 21 February threw some light on their continued inactivity: they disclosed that jet fuel had become so scarce that the restrictions which already applied to conventional aircraft must in future be observed by jet aircraft. The latter also suffered a serious setback on 16 February in a US raid on the jet airfield near Regensburg in which 23 Me 262s were destroyed and 19 damaged on the ground. The decrypts of signals from the Japanese Naval Attaché testified, however, to the high hopes the Germans were still placing in the Me 262s. in one of 3 February, referring to the inability of the GAF to offer any defence against the US bombers on account of the superiority of the US fighters to the FW190, he reported that they hoped to bring the Me 262 into service on a large scale; and in signal decrypted on 28 February he disclosed that over and above the jet ground-attack aircraft already active on the western front, the Germans were forming a corps of about 500 Me 262s and reserving the necessary fuel for their ‘trump card’.

AI was confident that such a corps would not become operational in 1945. It also noted that the Attaché had not mentioned in connection with the corps the rocket-propelled Me 163, and drew attention to the fact that he had reported that only one-tenth of the special fuel required for this aircraft was available. Little had been heard of the Me 163 since the beginning of the year. It is now known that its development had been held back not only by fuel shortage, but by the fact that it was being superseded by the He 162. The single-engined jet-propelled He 162 was developed under such stringent security conditions and with such rapidity that Sigint was for some months the sole source of information about it. The first reference to it had been provided by the decrypt of a signal by the Japanese Naval Attaché on a visit he had made to Dr Heinkel on 11 and 12 October 1944. He referred to it as a rocket aircraft with a speed of 530 mph and a flight duration of about 30 minutes: it was expected to reach the test stage in December 1944 and, as it was easy and economical to make, as many as 1,000 might be produced by the spring. Hitler having recently approved manufacture by other large companies as well as Heinkel. The next evidence had come in the decrypt of another signal from the Attaché early in December. He called it the Volksjäger (People’s Fighter) and explained that it was a single-engined jet with the engine mounted on top of the fuselage. Later in December, after a visit with Speer to an experimental establishment, the Japanese Ambassador had referred to it as ‘the 162, a plane with a rocket engine like the Me’. In January 1945 the He 162 at last figured in a GAF Enigma decrypt, which referred to the 162 as being ‘of the greatest importance for breaking the enemy’s air terror’. In February an Enigma decrypt disclosed that five Me 262s taxi-ing for five minutes consumed enough fuel for one He 162 sortie. In the same month the decrypt of a signal from 7th Jagd Division indicated that the He 162 programme was progressing rapidly and enabled AI to establish that an aircraft seen by PR at the Heinkel works at Vienna/Schwechat in December was an He 162.
At the end of February there was anxiety not only on account of the uncertainty about the He 162, but also as a result of references in Sigint to mounting aircraft production. The decrypts of a long report from the Japanese Naval Attaché estimated that Germany’s total monthly production of front-line aircraft, which had been expected to double from 3,000 to 6,000 during 1944, was between 2,800 and 3,000 and went on to give current monthly rates of production by types of aircraft to the end of January 1945. AI commented on the figure for total output that although it was markedly lower than those previously provided by the Attaché it was still considerably above that derived from other intelligence sources. The other sources indicated that production had failed to reach 3,000 by the beginning of 1944 and that it had been falling steadily for the last three months from a lower starting point than that given by the Japanese – that it had been 2,035 in November, 1,900 in December and 1,600 in January. The Japanese decrypt also gave cumulative output to the end of January 1945 for the Me 163 (400–500 aircraft) and the Me 262 (about 1,000). AI’s estimates were about 135 for the Me 163 and 750–800 for the Me 262.

In March AFs assurances had to compete with a marked increase in jet-fighter activity. During the first three weeks of the month a force of 80 Me 262 and Ar 234 operated at the rate of 50 sorties a day against the Remagen bridge and Allied preparations for crossing the Rhine. Their operations were not highly effective, and they were brought to an end from 21 March by intensive Allied strikes against their airfields. These strikes, which continued after decrypts had disclosed that 26 jets had been destroyed and 29 damaged, put a stop to ground-attack operations, but they only temporarily reduced the GAF’s capacity to offer jet opposition to the Allied bomber raids. Following the resumption of this opposition on a small scale at the end of February, the largest number of new-type fighters yet encountered – 50 Me 262 and Me 163 – had operated against US attacks on oil targets on 2 March. There had been no further opposition from jets till 15 March, when a few appeared but made no organised efforts at interception. On 18 March, however, during a raid on Berlin, US Eighth Air Force lost 24 bombers and 5 fighters, mainly to jet aircraft which attacked in formations as large as 36 aircraft and displayed a greater range of interception than had been expected. Although the jet opposition met with on several days during the rest of March was smaller and less determined, it was on a scale sufficient to make the Allies think in terms of ‘a new phase in the air war’ and of ‘a new GAF’.

From the middle of March Sigint left no doubt that the Germans were making further efforts to expand the Me 262 fighter force by every available means. Night-fighter units were being called on to surrender crews for emergency training on Me 262, and by the end of the month the call had been extended to other arms of the GAF including day-fighter units, V1 launchers and even jet ground-attack units. And evidence that they were making a supreme effort to accelerate the production programme culminated in the disclosure in a Fish decrypt of 5 April that Hitler had on 27 March appointed SS Engineer General Kammler, the plenipotentiary for V-weapons, as plenipotentiary for jet aircraft in charge of every aspect of the jet programme except tactical control of the units themselves. But a signal from the Japanese Naval Attaché decrypted on 19 March had reported that in an interview on 13 March the German Chief of Air Staff had confessed that Allied bombing, technical problems and ‘ceaseless modifications’ were giving rise to ‘disappointments
and vexations' in the production of the new types, and that in spite of every effort it would take time to raise the GAF from the 'regrettably low ebb' to which it had been reduced mainly by shortage of fuel due to bombing and transport problems.

From the end of March, with the western Allies across the Rhine in strength and the Russians advancing into Germany, the effort to maintain jet production rapidly collapsed as the western Allies and (in the case of Ar 234) the Russians over-ran the jet factories. The small operational jet force disintegrated no less rapidly as the Allied air attacks on its operational airfields developed into an all but continuous offensive. From the end of March Sigint revealed that, while conventional units were being disbanded, it was still hoped that the equivalent of two Geschwader of Me 262 fighters could be rushed into service. But from mid-April a series of decrypts ordered the disbandment of all jet training units other than those for Me 262 fighters, then of front-line jet ground-attack units, and eventually of front-line fighter units. The first few operational He 162 were caught up in the collapse. In March the decrypt of a signal from the Japanese Naval Attaché had reported that 46 He 162 had been produced in February and that 100 were expected in March. GAF Enigma decrypts showed that on 12 April five He 162 were with units of JG 1, and on 19 April that OKL had ordered JGs 1 and 301 to operate with He 162s and such Ta 152 (an aircraft which had been developed as a replacement for the FW 190) as were available. But by that date other signals were being decrypted which showed that these units were to be disbanded once their aircraft stocks were exhausted.
CHAPTER THIRTY-SEVEN

The Last Year of the War at Sea

The Germans had little success in disrupting the Allied supply lines in the Channel after the third week of August 1944. The Enigma then revealed that the GAF carried out its last mine-laying operation in the invasion area and that the E-boats were withdrawn from Le Havre to Dutch bases. During July and August the activities of the GAF and the E-boats were supplemented by the operations of a Small Battle Unit using one-man torpedos, one-man submarines and radio-controlled explosive motor-boats. Though at a heavy cost to themselves, these weapons sank or damaged several Allied warships in surprise attacks before the Unit was withdrawn, also at the end of August, to operate with the E-boats against Antwerp and in the Scheldt.

The relative success of the Small Battle Unit provides some indication of the operational value of Sigint against the E-boats. The Unit used an Enigma key of its own (Bonito), which was rarely broken with less than two days’ delay. The decrypts never gave the time and destination of a sortie, decisions on such matters being left to the men on the spot. In the case of the E-boats, in contrast, the Home Waters naval Enigma decrypts regularly disclosed how many were leaving which base for what area on what type of operation, a mine-laying sortie or a torpedo attack; and frequently, if not invariably, they did so a few hours before the time of departure. The Admiralty telephoned this intelligence to the commands and, though the E-boats with their speed and manoeuvrability escaped serious losses, it assisted the operations which restricted the damage they did to Allied shipping — the night sorties by Coastal Command and the Fleet Air Arm, the defensive patrols by MTBs under the control of specially equipped frigates, and the repeated attacks by Bomber Command on the E-boat bases.

Against the U-boats in the Channel, as against the operations of the Small Battle Unit, Sigint was of no tactical value. Decrypts disclosed that U-boats continued to sail from Biscay in groups of two or three at intervals of about ten days from early in July, and that the number on patrol in the Channel reached the maximum of six on 14 August. But they gave no details of the patrol areas, and the Admiralty could only guess at their casualties and their successes. On 27 August it estimated that 44 U-boats had operated in the Channel since D-day, of which 25 had been sunk and 3 probably sunk, and that they had sunk 10 merchant ships and 7 naval vessels. On that date the Enigma revealed that the U-boat Command had abandoned the campaign, ordering all U-boats in the Channel to leave for Norway and directing all U-boats remaining in the Biscay ports to sail for Norway or for operational areas off the British West Coast.

The exodus from Biscay had begun on 17 August, following the news from Sigint that the Germans had decided to withdraw from the south of France. By the end of August twelve U-boats had been sunk in port or off the coast by naval and air attacks and 26 had left for Norway, of which 4 failed to clear Biscay and the remainder reached Norway undetected. Three had sailed for the Bristol Channel and an area south of Ireland, and by 28 August decrypts had confirmed that the U-boats were embarking on a campaign in British in-shore waters by
revealing that 9 had been ordered from Norway to patrol areas in the North Channel, North Minch, the Moray Firth and off Reykjavik.

The in-shore campaign was unforeseen by the OIC, which had expected the U-boats to return to the Atlantic convoy routes. It was indeed a bold move, and one that would have been impracticable but for the determination with which the U-boat Command had pressed on with equipping the U-boats with Schnorchel. Decrypts had shown that every U-boat leaving the Baltic after July had been converted and that efforts to convert those in Biscay had continued up to the evacuation of the Biscay bases; and the effect of this had been reflected in a decline in Allied sightings and in the number of U-boats attacked. During the second half of August, while decrypts showed that 8 outward-bound and 14 inward-bound U-boats had passed through the northern transit area, Coastal Command had made only four sightings and only two attacks.

Between 30 August and 8 September no U-boats were sighted while the enemy administered an enormous shock by sinking in the North Channel and off northern Ireland two large tankers, an escort frigate and two large freighters. A week later, however, the decrypt of U-482’s patrol report disclosed that she had been responsible for all but one of these sinkings, and it then emerged from the decrypts of other patrol reports and of frequent criticisms issued by the U-boat Command that most of the U-boats were waiting at periscope depth away from the shipping lanes to avoid the anti-submarine patrols. They had achieved no further successes by the end of October, by which date Sigint had shown that the number on patrol in in-shore waters had dropped to 2 or 3 from 13 on 11 September.

On 9 October decrypts showed that six U-boats were leaving Norway for Cape Clear, the south-west tip of Ireland. One of them was sunk on passage, and intensive air and surface patrols off Cape Clear had sunk another and damaged a third by 11 November. Sigint then disclosed that the group was destined for the English Channel. It was in the Channel that the U-boat Command deployed its main effort and achieved most of its limited successes during November and December. Sigint showed that the number of U-boats committed to the in-shore campaign again increased, from 6 at the beginning of November to 20 at the end of the year, and that while one was usually on patrol in the North Channel, one in the Minches and one in the Irish Sea, the majority were in the English Channel.

If Allied losses in in-shore waters were low in relation to the number of U-boats employed, this was partly because, as was known from Sigint, most of them were brought about only by three determined U-boat commanders. Decrypts of the reports the U-boats submitted at the end of their patrols indicated that some of them had used the Schnorchel to remain submerged for periods of 50 or even 70 days. This was one reason why, in the absence of sightings, the accuracy of the OIC’s U-boat plot, which had begun to suffer during the battle in the Channel up to the end of August, continued to decline. A more worrying explanation, however, was that Sigint was providing less and less intelligence about the movements and the whereabouts of the individual U-boats. Partly because the U-boats in in-shore waters were operating singly, and partly, perhaps, as a precaution against the increasing risk of compromise by capture of cypher material, the U-boat Command discontinued in the autumn its practice of signalling patrol instructions to them while they were at sea. Increasingly, the signals sent to them merely supplemented or modified sailing orders given in advance and known only to the U-boat concerned. From
early in December, moreover, some signals were encyphered not in the general U-boat Enigma key, but in special keys which, being different for each U-boat, GC and CS could not decypher. At the same time, as the general decrypts revealed, the U-boat Command was carrying out experiments with a system of off-frequency high-speed transmissions (Kurier), which threatened to make it difficult to intercept and DF signals from U-boats, and POW were reporting that U-boats were training with a new search receiver (Samos) capable of intercepting centrimetric radar.

An indication of the potential threat from these developments was obtained from a decrypt in the middle of December. It ordered two U-boats to 'get right up to the entrances' at Scapa Flow. This was the first evidence that U-boats had been sent there, and the thought that U-boats might operate in such a sensitive area without warning from Sigint was disturbing. It seemed all too clear that if the U-boat Command intensified the in-shore campaign, the defence of shipping would call for a still greater concentration of surface and air defences. But the Admiralty was even more anxious at the prospect that, with the new-type U-boats reinforcing its still formidable conventional fleet, the Command would soon renew the offensive against the Atlantic convoys.

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Though still considerable in numbers, the conventional U-boats had presented a declining threat outside British waters in the second half of 1944.

Between 25 and 30 of them were kept in the Arctic, where they operated in groups of between 6 and 20 against the Russian convoys after these were resumed in August. Sigint continued to provide comprehensive information about the strength and location of their patrol lines and to disclose the orders issued to them when a convoy was sighted: although they used a new four-wheel Enigma key (Narwhal) in place of the Home Waters key from September, this was read by GC and CS without delay. The decrypts assisted the convoy escorts - surface ships and an escort carrier - to go ahead to attack the U-boats in their known positions. The U-boats suffered the further disadvantage that, most of them were without the Schnorchel until the end of the year and that they lacked air support. The GAP Enigma revealed at the end of October that 40 JU 88 torpedo aircraft had been sent to north Norway - the first to be based there since the end of 1942 - but they were withdrawn in the middle of December without having operated against the convoys. By the end of 1944 six U-boats had been sunk in operations against 8 convoys in return for the sinking of one escort vessel and two merchant vessels and damage to two escort vessels.

Sigint disclosed that there were usually two U-boats off the north American coast, two off west Africa and three in the Caribbean until the end of August 1944, but that none was sent to the Caribbean or west Africa after that date. With the loss of the Biscay bases, they could no longer operate there without being supplied at sea, and the last of the U-boat tankers had been sunk in June. In the last three months of the year the number off north America slightly increased, and there was usually one U-boat between the Azores and Gibraltar. There were usually 12 or 13 on passage, some to the Indian Ocean.

Since they were operating singly, Sigint provided no details about their
exact patrol areas. But decrypts of instructions issued while they were on passage contributed to the sinking of several of them, in June US carrier groups sank U-940 (the last tanker), U-860 and the ex-Italian 152 with the assistance of Sigint while they were en route for the Indian Ocean. In September U-871 and U-863, also on passage to the Indian Ocean, were sunk by US aircraft and U-1062, returning from Japan with valuable cargo, was sunk by a US carrier group after decrypts had disclosed their positions. In August a British submarine sank U-859 off Penang, decrypts having given advance notice of her date of arrival and approach route. In September, again with assistance from decrypts, a US submarine sank another U-boat as it left Penang.

Between June and mid-September 5 U-boats operating from Penang with 2 Japanese submarines sank 17 ships — the highest level of U-boat successes in any theatre during that period. At the end of September, however, Sigint revealed that although the Japanese were pressing for increased U-boat operations in the Far East, the U-boat Command had decided to bring its U-boats back to Europe: and further decrypts showed that five had begun the return passage by mid-January 1945.

From the beginning of January 1945, in the last four months of the war, the conventional U-boats accounted for 263,000 tons of Allied shipping, a rate of sinkings higher than they had achieved at any time during 1944. In the Arctic their numbers declined slightly, but they achieved more successes and sustained fewer losses: most of them were now fitted with Schnorchel and they concentrated in the approaches to the Kola Inlet. As Sigint showed, the number of Schnorchel U-boats operating from other Norwegian ports increased from 75 on 1 January 1945 to 110 by 1 April, and the number on patrol from 32 to 55. Refitted and newly worked-up U-boats, about 100, easily made up for the loss of 50 U-boats, and their departures from the Baltic, though delayed by Allied mine-laying, became hazardous only when the German mine-sweeping organisation collapsed at the end of March. U-boats were still leaving Bergen for war cruises on 4 May, when the enemy’s surrender in north Germany led to the order for their recall.

Most of these U-boats continued to operate in the North Channel and the English Channel until the end of March, when their losses rose to such a pitch that, in order to deflect the enormous concentration of British anti-submarine forces in the in-store waters, Donitz deployed a number of them south of Ireland and in mid-Atlantic in an attempt to return to pack attacks on the convoy routes. Signals allotting 7 U-boats to a patrol line south of Ireland were decrypted at the beginning of April: 5 of them had been sunk by British patrols by 10 April. On 2 April 6 U-boats were ordered to sweep along the convoy lanes in mid-Atlantic and, once again, the fact that they were operating as a group meant that Sigint revealed their instructions. On 2 April they were told to attack on the surface and advised that this would surprise the Allies, who had not experienced these tactics for 18 months. On 9 April decrypts disclosed the co-ordinates of the 12 successive patrol lines through which they were to sweep. By 24 April four of them had been sunk by two US escort carriers and 20 destroyers: they had sighted no convoys. They were then ordered to operate off Halifax and New York. The two which remained from the group were sunk soon after their arrival.

Ten of the 16 U-boats sent to that area in 1945 had been sunk by the end of the war, most of them with the assistance of decrypts: they had scored few
successes. Except in that area, and except that one was occasionally off Reykjavik and one west of Gibraltar, U-boats had ceased to operate in distant waters after the middle of January.

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For Donitz the failure of the old U-boats to recover the initiative had emphasised the need to bring the new-type forward since the end of 1943. With their streamlined hull and their new electric motors, the 1600-ton Type XXI and the 200-ton Type XXIII could maintain underwater speeds of 18 knots, as fast as most Allied escort vessels, over one and a half hours, and of 12 knots over ten hours, faster than any convoy. As compared with those of the conventional U-boat, which could barely cover 200 miles submerged at 2 knots, these specifications would present the Allies with insuperable problems. The Allies were fully informed by Sigint of the specifications, but they were not seriously disturbed by the threat until October 1944. PR had established that the number of Type XXI boats under construction on the assembly slips or launched alongside was 31 by 7 August 1944, 46 by 5 September and 61 by 16 October. The number commissioned, which was disclosed by the naval Enigma, had risen from two at the end of July to six by 5 September and 15 by 16 October. But it had seemed unlikely that any could be operational before the end of the year, and the Allies were confident until well into September that Germany would be defeated by then.

At the end of September, when their optimism was declining fast, the decrypt of a signal from the Japanese embassy in Berlin disclosed that, although the planned period of 12–15 weeks from the construction of the sections to commissioning had not been achieved, the Germans hoped to have reached a planned monthly output of 30 Type XXI boats ‘before long’; and the Admiralty, while preferring the PR evidence which suggested that monthly output would reach 16 in December, concluded that enough of the new type would have finished working up before the end of the year to enable the U-boat Command to return to the offensive in the Atlantic. On 23 October it issued a general warning that an all-out U-boat campaign would start between mid-November and mid-December with up to as many as 140 old and new U-boats at sea at any one time.

That this was Germany’s aim had by then been repeated in further decrypts from the Japanese embassy. On 1 October, reporting on recent interviews, they stated that Donitz hoped to deploy the new U-boats to the front line in October, and that he had great confidence in the outcome: they had three times the endurance of the existing U-boats and would be able to operate from Kiel, Hamburg, Bremen, Trondheim and Bergen, at all of which bases bunkers had been built. On 14 October another Japanese decrypt added that the Germans had assigned a long-range version of the Do 335 aircraft for ‘cooperation with the new type U-boats in opensea operations due to begin shortly’. This was followed on 23 October by the decrypt of a special address from Donitz to the Atlantic U-boat Services. It announced that ‘the new U-boat war must be, and will be, the most important German aim in the war against the Western powers; that the prospects for it were wholly favourable; and that its effects must make themselves felt before the end of the present year. At the end of
October a signal was decrypted in which the Abwehr reminded its station in Madrid that intelligence about Atlantic convoy sailings from north America was urgently required from December, together with information about American east coast shipping and Allied air patrols in the Atlantic.

It can now be seen that Donitz's address, which avoided any explicit reference to the new-type U-boats, was partly prompted by his embarrassment at the delay in bringing them forward. And at the time the Admiralty's alarm was soon checked by further Japanese diplomatic decrypts. In the middle of November these disclosed that the new U-boats would not be operational until December or January. On 8 December they added that the U-boats would not be ready till March 1945: they had been due to operate from November but construction had been delayed by Allied bombing and the need to make alterations and improvements in design and assembly.

By the middle of December, however, when PR and the Enigma had shown that the number of Type XXI boats under construction had risen to 95 and that the number commissioned had reached 35, the Admiralty estimated that the rate of construction had reached 15 a month and that, of the 35 commissioned boats, 20 would have been working up for 2 months by the end of the year. These calculations slightly underestimated the German output: the rate of construction was between 15 and 20 a month from November 1944, and at the end of December, when the Admiralty estimated that the number commissioned had reached 42, the actual figure was 67. But the evidence was sufficient to persuade the Cabinet's anti-submarine committee to approve on 19 December some diversion of the bombing effort from the highest priority targets - oil production and communications - to the U-boat assembly plants, slipways and berths.

When the Allied bombing was increased, Bomber Command's mine-laying in the Baltic had for some months prolonged the time taken by completed U-boats to carry out their working-up. It finally forced the Germans to transfer their U-boat training and acceptance trials from the Gulf of Danzig to Libbeck Bay, a greatly inferior location, at the beginning of 1945. This was reported by Sigint, which added in a decrypt of 5 January that acceptance trials were at a complete standstill and that the Navy had ordered the transfer of mine-sweepers from Norway to remedy the situation. But the Allies did not know that the Germans were then calculating that only one or two Type XXI boats - instead of the 40 they had planned for - would become operational before April 1945.

Decrypts from the Japanese in Berlin had meanwhile, in September 1944, provided full details of the technical characteristics of the Type XXIII U-boat. They had confirmed what had already been established by PR and the naval Enigma: it displaced about 200 tons and was 110 feet in length, and thus intended for short-range operations off focal shipping points in the North Sea, the Channel and the Mediterranean.

The numbers completed and commissioned, as detected by PR and the naval Enigma, had remained small until mid-October, when the Admiralty believed that production was planned at the rate of 4 a month. It had raised this estimate considerably by the end of November, PR having located a more extensive assembly plant at Hamburg and a new plant at Kiel. At the end of December it calculated that 47 Type XXIII were under construction and that 18 had been commissioned, of which between 10 and 14 had been working up for two months: and it expected a few to become operational at any time.
The expected imminent arrival on the scene of Type XXIII’s added to the Admiralty’s anxiety. On 6 January 1945 the First Sea Lord warned the Chiefs of Staff that a major U-boat offensive was likely to start in February or March; the arrival of Type XXI and Type XXIII boats might increase the total number of U-boats on patrol to 70 in the spring and 90 in the summer, and might raise Allied shipping losses to half as much again as in the spring of 1943. He pressed for a decision to halve the planned despatch of destroyers and escort vessels to the Far East and for a large reinforcement of Coastal Command. These recommendations were still under discussion at the end of the month, when decrypts disclosed that two Type XXIII’s had arrived in South Norway, the first of the new-type U-boats to leave the Baltic. On 2 February the Combined Chiefs of Staff approved the recommendations and also sanctioned an increase in the bombing of U-boat bases and assembly yards and the doubling, if possible, of Bomber Command’s anti-U-boat mine-laying operations.

Put into effect at once, the increase in bombing and the mine-laying did substantially delay the completion and the working up both of the new-type U-boats, which were also held up by the need to rectify numerous technical faults, and of those of the old type that were still coming off the stocks. But the OIC could not be sure how far this would be so. Early in February, when it estimated that the total number of all types that were operational was 72 and the total number working up was 159, it feared that the number of operational U-boats would grow so as to permit the Germans to launch, no later than the end of March, a large-scale offensive in the Atlantic while also increasing her effort in the in-shore battle. It was alarmed, moreover, because the number of Type XIX’s commissioned and ready to begin working up had risen from 54 on 29 January to 63 on 5 February, the largest weekly increase so far: because the increasing use of special Enigma keys for individual U-boats was having ‘gravely adverse’ effects on its U-boat plot; and because it feared that the Kurier system might at any time become operational, making it impossible for the convoy escort to intercept and DF U-boat signals when the Type XXI U-boats resumed pack attacks.

The Admiralty’s concern seemed to be justified during February. Although Sigint had given no notice of their sailings, it revealed by the end of the month that two Type XXIII’s had been operating off Newcastle and the Firth of Forth. On 21 February decrypts from the Japanese Naval Mission in Berlin reported that Dönitz had claimed in a recent interview that large-scale operations would begin ‘very soon’ using Type XXI’s in a total front-line force that was increasing ‘in a steep curve’. By 5 March, however, when it thought that as many as 41 of them might be fit for operations, OIC was commenting on ‘the mystery of the non-appearance of the Type XXI U-boats’. And on 12 March the mystery was cleared up by another decrypt from the Japanese Naval Mission. In an interview on 5 March Dönitz’s Chief of Staff had admitted that, although a few Type XXI’s might sail in March, they were not likely to start operating on any large scale till May or June: they had been delayed by air raid damage to the U-boats and their bases, by the risks from mines, and by the fact that they were still developing faults from having been put into mass production before the technical problems had been solved.

The OIC revised its estimates accordingly. On 19 March it advised that there would be no Atlantic offensive before the end of April. By 26 March it believed that, although Sigint showed that the number of U-boats working up had risen from 172 (including 54 Type XXI’s) at the beginning of February to
201 (including 95 Type XXI’s), the number of operational U-boats had risen over that period from 159 to only 168, of which only one was Type XXL On 30 April it estimated that six Type XXI’s were ready for operations. In fact, 13 Type XXI’s were operational and 91 working up when Germany surrendered.

The narrowness of the margin by which the Allies had escaped the threat from the new U-boats had meanwhile been underlined by Enigma decrypts. They disclosed on 19 March that U-2511, the first Type XXI to leave the Baltic, had moved to Norway: Sigint showed that she had been the eleventh to commission and had been working up for five months. Subsequent decrypts showed that defects delayed the beginning of her first operational cruise till 3 May. No signals relating to her were decrypted before she was ordered to return to Bergen in accordance with the surrender decree: but it was learned later that she then carried out a dummy attack on a cruiser. Between the beginning of February and the German surrender six Type XXIII’s made eight cruises to patrol areas off Newcastle, the Firth of Forth and the Thames estuary. In each case the Enigma mentioned that the boat was, or had been, at sea, but it gave no advance notice of their departures and no reference to their patrol areas. On 30 April the OIC estimated that 14 Type XXIII’s were operational, 43 working up and 15 under construction. In fact, only 6 were operational by that date: 17 had moved to south Norway but were not yet fully operational, 38 were still working up and two had been destroyed in air attacks.

From early in April other decrypts revealed that U-boats which had barely finished working up and which still lacked equipment were leaving the Baltic for Norway: 48, including five Type XXI and ten Type XXIII, had left by the end of the month, when Sigint added that the U-boat Command was establishing an operational W/T control centre at Bergen. In intensive Allied air attacks against the continuing exodus, 23 U-boats were sunk in the last few days of the war.

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In the battle in British waters and against the Allied supply routes to the Scheldt the Germans had meanwhile sprung a final surprise in January 1945. As many as 40 E-boats continued to carry out torpedo attacks and mine-laying operations against shipping on the East Coast and off the Scheldt until the end of April. They suffered few losses, and despite the fact that Sigint often deprived them of the advantage of surprise, their successes were considerably higher than those of the small battle units. These units ~ midget submarines, one-man torpedos and explosive motorboats ~ incurred heavy losses in return for negligible damage to Allied shipping in their operations, mainly in the Scheldt estuary, despite the fact that they were carried out without advance warning from Sigint. But at the end of January 1945 the Small Battle Units Command carried out the first attack with a new and longer-range midget submarine, the *Seehund* or Type XXVIIIB U-boat. Sigint had given no indication that *Seehund* was being developed. POW had referred to it by the beginning of 1945, but their evidence had indicated that it was unsuitable for operations off the East Coast. The Enigma decrypts which provided details of its first operational cruise disclosed that although only 5 out of 12 of the craft had reached the East Coast, and only one had carried out an attack, the Command was encouraged by this first sortie.
Sigint rarely gave advance notice of Seehund sorties which followed in the next two months, but it usually reported after the event the numbers involved, the areas in which they had operated and the German estimates of their successes and casualties. When the German claims had been corrected by reference to Allied operational reports, the decrypts indicated that in February and March 74 Seehund operated between Yarmouth and Dungeness, of which about 50 reached their operational area, and that they sank 5 or 6 ships for the loss of 28 or 29 of the craft. In terms of crew lost per Allied casualty, this was roughly the same return as the Schnorchel U-boats were achieving in in-shore waters. Though it still remained much lower than that of the E-boats, Seehund performance improved in April, when the Enigma disclosed that Germany planned to keep the number available at Dutch bases up to 80. The Enigma also disclosed that its range was being increased from 320 to 450 miles, and from a signal decrypted just before Germany surrendered it emerged that a Seehund was under orders to operate off Spithead.
CHAPTER THIRTY-EIGHT

The Land Fronts Meet

In the middle of January 1945, as soon as stable winter conditions allowed, the Soviet armies renewed their offensives in the north and the centre. By the end of the month their thrust through East Prussia had reached the Baltic at Elbing, cutting off Königsberg, Memel and Courland by land, and those through Cracow and Warsaw had crossed the Oder and were within 40 miles of Berlin and 100 miles of Dresden. Especially on the Baltic front, where the German navy was heavily engaged in bombarding Soviet troops and evacuating their own, the Western Allies learned more of the progress of the offensive from Sigint than from the Soviet authorities. Early in February, however, the Soviet authorities reported to the Yalta Conference that they had routed 45 German divisions, were about to eliminate a further 15 which were surrounded in Poland, and had cut off 53 in East Prussia and Courland. They undertook to continue the present offensives for as long as the weather allowed and, pending their summer offensive, to do all in their power to prevent the transfer of German divisions from east to west. They urged the Western Allies to launch offensives as soon as possible to prevent German troop movements eastward, and especially to stage an advance in Italy to assist the Soviet advance towards Vienna.

The Western Allies promised their best endeavours. But they could give no assurance that they would be able to prevent German reinforcements from reaching the eastern fronts: between 1 and 5 February they were learning from Japanese Sigint that Hitler had decided to accept temporary loss of territory and resources in the east while assembling forces for a big counter-offensive in a week or two. At the end of the Conference they decided to resume the supply to Moscow, under the previous precautions, via the British Military Mission, of Sigint about Germany’s intentions and order of battle. ¹ Before the end of February the War Office was also sending a weekly summary of the German Army’s orders of battle to the Soviet Military Mission.

Notwithstanding the weather, the Soviets pushed on from 10 February. By the end of March they had over-run Pomerania, closed in on Stettin and Danzig, and completed the conquest of Upper Silesia. During these operations Sigint can have been of little operational value, the Enigma and the Fish decrypts being obtained with up to a week’s delay. But it showed that although the Germans were bringing in reinforcements – they included the inexperienced HQ Upper Rhine, which reappeared near Stettin as Eleventh Army, the SS Belgium Division and 10th SS Panzer Division, also ordered to Stettin from the west – their forces were in increasingly desperate straits. This was also reflected in the Japanese diplomatic decrypts. Throughout February they continued to refer to a German counter-attack, aimed at recovering Upper

¹See p.115 for this service. After earlier and briefer interruptions, it had again been suspended after the battle of Stalingrad.
Silesia and East Prussia, but did so with less and less conviction that it would
ever take place.

By mid-February, however, German decrypts had established that Hitler
had switched the long-planned counter-attack to the south east in an attempt
to recapture Budapest and eastern Hungary. Before the end of January Fish and
Enigma decrypts had indicated that Sixth Panzer Army was to be withdrawn
from the western front. On 9 February, when they revealed that 2nd and 9th SS
Panzer Divisions from that Army were moving to Hungary, MI believed the rest
of it would be sent to stem the Soviet advances on the northern fronts; but on
13 February it was able to inform the Mission in Moscow that the whole Army
was being transferred to southern Slovakia or northern Hungary under strict
security precautions similar to those adopted before the Ardennes offensive.
One decrypt had required all concerned with The Rest and Refitting Group’ to
give ‘a written pledge of absolute secrecy on pain of death’ and had insisted that
this move should not be shown in situation maps. But from other decrypts it
was clear that 2nd and 9th SS Panzer Divisions with 2nd SS Panzer Corps and
1st and 12th SS Panzer Divisions with 1st Panzer Corps were all involved.

On 14 February Sigint disclosed that Germany was withdrawing five
infantry divisions from Army Group E in Yugoslavia for an operation in
southern Hungary. Advising Moscow of this on 21 February, MI remained
uncertain where the attack would fall and how it would be co-ordinated with a
thrust by Sixth Panzer Army. This was still unclear when, on 24 February, a
decrypt instructed the German C-in-C South East that concentration for the
operation must be completed by 25 February. It appears, however, that by the
end of the month the Soviets had obtained detailed information about the dates
and localities for the offensive, as also about the German intention to use Sixth
Panzer Army in an offensive in the Lake Balaton area, from Hungarian
deserters and the Yugoslav Partisans.

The Germans began their offensives on 5 March, Army Group E attacking
across the Drava and Second Panzer Army, consisting of four infantry
divisions, advancing south of Lake Balaton. The main attack followed on 6
March between Lakes Balaton and Velencze with Sixth Army on the left and
Sixth Panzer Army on the right – in all, ten Panzer and five infantry divisions.
It made some progress but was overwhelmed by a Soviet counter-offensive.
Beginning on 16 March, this had cleared the Germans out of Hungary by early
April.

When ordered to release five of Army Group E’s divisions for the operation
in Hungary, C-in-C South East was instructed by OKW that, as only two of
them would be returned to him, he must contact his front and confine himself
to protecting the flanks of Kesselring’s forces in Italy and of the German front
in Hungary. Hitler intervened to limit the contraction and insist that he hold
on to Sarajevo. These exchanges were not decrypted. But in a signal of 16
February, decrypted on 25 February, the C-in-C warned OKW that he doubted
whether he could hold Sarajevo in view of the increasing numerical superiority
of the Partisans, and that the extent of his support for the armies on his flanks
would depend on his ability to withdraw without great losses from Partisan or
British attacks. On 9 March he sent another appreciation, which was decrypted
on 16 March: he would be unable to hold his line of communications from
Sarajevo through Brod to Zagreb unless German success in Hungary permitted
an early return of his divisions.

Hitler sanctioned withdrawal from Sarajevo on 20 March, and the
beginning of the German retreat coincided with the opening of an offensive by
the Partisans from the Bihac area towards Trieste. The Partisans were
supported by British naval operations and the RAF. They were held up by the
hasty return of a division from Hungary, which took Bihac on 4 April, but were
soon threatening the flanks of the German retreat. By 7 April they had
advanced up the coast as far as the island of Rab; and the disorganisation of the
German forces, as revealed in a large volume of Enigma decrypts, was such that
it seemed possible that the Partisans would reach the garrisons at Karlovac and
Fiume without meeting serious resistance. On 21 April decrypts disclosed that
the Germans had prepared a defence position running from Novska to Bares
and that OKW had advised Army Group E that any withdrawal beyond that line
would require Hitler’s approval.

On the Italian front the Allied forces, reduced by the transfer to the western
front in February of the Canadian Corps and three divisions, had been ordered
to do their utmost to prevent the withdrawal of German divisions by limited
offensive action and deception while preparing for an offensive in the spring.
They had been largely disappointed in this objective. Kesselring gave up 356th
Infantry Division to Hungary in January, 16th SS PG Division to Hungary and
715th Infantry Division to Germany in February and 710th Infantry Division to
the eastern front early in April, and in March his two parachute divisions were
required to send 6,000 men to Holland as cadres for the formation of new
parachute divisions. At the same time, Hitler permitted no change in the
strategy of yielding no ground in Italy.

Intelligence reported the German withdrawals as they occurred and kept
the Allies fully informed of the other changes made to the grouping of the
enemy’s forces. Most of the information came from Fish and Enigma decrypts,
but some came from SIS and Italian agents behind the lines and from PR. The
high-grade decrypts also established that German policy remained unchanged:
they indicated, indeed, that quite apart from Hitler’s refusal to let them pull
back to more economical lines, his armies lacked the fuel stocks to make a
major withdrawal. Comprehensive PR coverage indicated that their lack of
mobility was accentuated by the intensive Allied bombing campaign against
their lines of supply. Frequent decrypts during January and February disclosed
that fuel shortage was impeding the tactical movements required for the most
effective distribution of forces and that coal stocks were insufficient to keep the
railways running. They culminated early in March in an exchange in which
Jodi told Kesselring that he must not expect any amelioration of his shortage of
fuel, coal and ammunition, Kesselring having complained that the short-fall in
the arrival even of expected supply trains, on account of heavy Allied attacks on
the Brenner railway line, was making it impossible to build up stocks against
the expected Allied offensive: the fuel and coal used in moving divisions away
from Italy were not being replaced.

Despite the withdrawal of divisions, Kesselring was rebuffed when on 15
February, he suggested that the left wing of Army Group C should be pulled
back to a shorter line: Hitler’s orders against further withdrawal remained in
force. This exchange was not decrypted, but on 20 February GC and CS
decrypted the text of a new Hitler directive; dated 20 January and issued to all fronts, it made all C’s-in-C, GOCs and divisional commanders personally responsible for reporting every intended disengaging or withdrawal movement in sufficient time to enable Hitler to countermand the orders.

Over-all AFV returns were decrypted at fortnightly intervals. The return of 25 February showed that C-in-C South West had 252 tanks (222 serviceable), 294 assault guns (263), 530 anti-tank guns (486) and 151 Italian assault guns (138). In addition, decrypts of weekly returns from Tenth and Fourteenth Armies provided comprehensive information about the state of each of their divisions, including holdings of tanks, assault guns and anti-tank guns for the divisions and sub-ordinated army units. The returns from Fourteenth Army on 24 March and Tenth Army on 26 March gave the exact order of battle of the whole of Army Group C just before the Allies went over to the offensive on Eighth Army’s front on 9 April.

Before the Allies attacked they knew from Sigint that Kesselring had been appointed to succeed von Rundstedt as C-in-C West and that von Vietinghoff had been appointed to succeed Kesselring. They did not learn that early in April von Vietinghoff had requested permission to withdraw to more defensible positions and had been refused. On 15 April, however, the day after Fifth US Army opened the main offensive, they decrypted the appreciation in which he had pressed on 14 April for permission to retire to the line of the Po. He reported that the Allies had launched their offensive with a superiority that was unprecedented and that could not be counter-balanced by the fortitude of his troops; that he had already suffered heavily from Eighth Army’s advance since 9 April and could not long hold out against the imminent offensive by Fifth Army west of Bologna; that if his armies were to be saved, and in order to keep the Allies as far and as long as possible from the Reich, an early decision to withdraw to the Ticino–Po line was essential; they had sufficient ammunition, fuel and rations for 14 days but thereafter shortages would decisively influence their fighting strength. Hitler’s reply of 17 April to the effect that the Army Group must defend every foot of ground was not decrypted. Nor was a further signal from von Vietinghoff in which, on 20 April, he informed Hitler that he was adopting ‘a mobile strategy’ as the only way to prevent the splitting and subsequent destruction of his front. But Hitler’s reply – the last intervention by the Führer in the Italian fighting – was decrypted on 22 and 23 April. It again insisted that the Army Group must defend its positions with fanatical zeal and added that large-scale withdrawals would in any case lead to certain destruction on account of Allied air supremacy.

Bologna had been captured by then, on 21 April. From that date the German forces were either being surrounded or were falling across the Po, evacuating the Ligurian and the Adriatic ports and trying to form a line along the Adige to Verona and Lake Garda. But Genoa and the Army of Liguria surrendered on 27 and 28 April, and beyond the Po the German defeat turned into a rout. The new line was broken in two places on 29 April, and as Eighth Army raced for Trieste and Fifth Army for the Alps they encountered only a few bursts of last-ditch resistance.

* * *
When the Allies opened their final offensive in Italy the Germans were on the verge of collapse on the western front. The Allies were across the Rhine on a wide front between Wesel and Karlsruhe, had isolated the Ruhr and had captured Frankfurt and Heidelberg.

Early in January 1945, in what was to be their last offensive in the west, the Germans had attacked in the Saar and the Colmar pocket, and had achieved some initial success. Sigint had given no explicit warning of the offensive, but decrypts referring to changes in the order of battle on Germany’s First Army front, and to the presence there of divisions that were not in the line, had led the Allies to expect some action from the end of December. Decrypts disclosing the arrival of further reinforcements gave some indication of the scale of the intended operation at the beginning of January: the reinforcements included 6th SS Mountain Division and 2nd Mountain Division from Norway and XXXIX Panzer Corps from the Ardennes.

In the Ardennes, where the Allies were attacking all three sides of the Bulge, Sigint had confirmed that the Germans were disengaging during the second week of January, and in a signal of 10 January, decrypted on 17 January, Hitler had ordered that Army Group B was to give up all its SS Panzer divisions ‘for employment elsewhere’. The decrypts disclosing that Sixth Panzer Army was to be pulled out from 22 January were obtained on 21 January. The Allies had initially allowed that it might move to the Saar front: and a document captured on 26 January indicated that I SS Panzer Corps was to go to Holland and II SS Panzer Corps to Alsace. By 28 January, however, further decrypts had established that the whole of Sixth Panzer Army was moving to the eastern front: the document had been planted as part of the deception measures used to conceal its destination. During 26 and 27 January, moreover, Y and high-grade Sigint had confirmed that the enemy was withdrawing divisions and going on the defensive on the Saar front, as well as retreating before Second British Army’s attack in the triangle between the rivers Wurms, Roer and Maas.

Between 16 and 27 January the GAF Enigma had established that fighters and fighter bombers were being transferred in considerable numbers to the Soviet fronts. In the first week of February army decrypts had shown that other armoured divisions - 21st Panzer, 25th PG - were following Sixth Panzer Army in the same direction. Sigint was nevertheless providing copious evidence that the Germans expected both an Allied attack in the Colmar pocket and a major Allied advance to the Rhine in the north, and were also doing their utmost to move divisions to those sectors from the Saar and the Ardennes.

By 10 February the US armies had overrun the Colmar pocket and begun to advance towards Prum and the Roer dams, and 21st Army Group (First Canadian, Second British and Ninth US Armies) had opened its attack from Nijmegen (operation Veritable). But the Army Group’s attack across the Roer (operation Grenade), which was due to begin on 10 February, was delayed by flooding when the Germans opened the dams. Against fierce and often fanatical resistance during the rest of the month, the Allies had been unable to prevent the Germans from making an orderly withdrawal across the Rhine, blowing bridges as they went. Between 4 and 7 March, however, First and Third US Armies reached the Rhine at Cologne, Remagen and Andernach, capturing the

See above, p 606.
rail bridge at Remagen intact, and the last German bridgehead on 21st Army Group's front at Wesel was evacuated on 10 March.

The Allies had obtained good tactical intelligence during these advances from PR, POW and especially from Y, the enemy’s VHF links supplying a steady flow of information in plain language. The high-grade Sigint, though often subject to several days’ delay, had provided comprehensive coverage of the enemy’s conduct of the campaign, not least through the regular decrypting of C-in-C West’s day reports. From the second week in March, while 21st Army Group was crossing the Rhine at Wesel, and the US armies were going over to the offensive in the Saar and striking south-eastward across the Moselle in the rear of Germany’s front in the Saar, and while Germany was failing to eliminate the US bridgehead across the Rhine at Remagen and having her Fifteenth, Seventh and First Armies cut to pieces, the volume of Enigma and Fish transmissions had greatly increased and the delay in reading them had declined. If they had still contained few surprises beyond the news, received on 11 March, that Kesselring was replacing von Rundstedt as C-in-C West, this was a measure of the value of the high-grade Sigint. It had enabled the Allies to foresee the German moves, and had provided striking confirmation of Germany’s collapse. In a message of 28 March, decrypted on 31 March, Army Group H on 21st Army Group’s front reported that because of the ever-widening front, heavy casualties and the decline in the fighting strength, the Allies could break through wherever they concentrated. In a message of 30 March, decrypted on 2 April, Army Group B, facing First US Army, reported that it lacked the strength or the mobility to have a decisive influence on the movements of the Allies.

By 1 April Ninth US Army from 21st Army Group, advancing round the northern outskirts, and First US Army, breaking out of the Remagen bridgehead, had completed the encirclement of the Ruhr, and Fifth Panzer Army, First Parachute Army and the remains of Fifteenth Army were surrounded in the pocket.

* * *

The next day, 2 April, after obtaining Stalin’s agreement to his plans, Eisenhower instructed 21st Army Group to limit its advance in the north to the line of the Elbe and ordered 12th US Army Group, taking Ninth US Army back under its command, to thrust along the axis Kassel – Leipzig – Dresden while 6th US Army Group protected its right flank and prepared for a secondary advance on the axis Nuremberg – Regensburg – Linz. A fortnight later, following a series of spectacular advances, the western Allies had gained the stop line Eisenhower had laid down in agreement with the Soviet authorities: Bayreuth – Chemnitz – east of Leipzig – along the River Molde to its junction with the Elbe – northwards down the Elbe. In the south, 6th US Army Group was still held up north of Stuttgart; in the north 21st Army Group was still short of Hamburg and Bremen. But Holland and German Friesland had been virtually cleared and all resistance had ended in the Ruhr pocket. On 25 April the US armies made the first contact with Soviet forces along the Elbe, and by the end of the month the Americans had captured Augsburg and Munich and were entering Austria, and Second British Army was across the Elbe in the
The Land Fronts Meet

north and about to meet the Russians at Wismar.

In these final weeks Y was a prolific source of tactical intelligence: although the German formations ceased to use VHF in the confusion, their WT communications in plain language and simple codes provided continuous information on their locations and movements. Despite the confusion, there was no decline in the use of Enigma. The speed of events and the overwhelming superiority of the Allies on the ground and in the air combined with the wealth of Y information to render most of the decrypts superfluous for operational purposes, but they gave a clear picture of the enemy’s desperate attempts to extricate his forces from the Ruhr and of his failure to prevent the encirclement of his troops in Holland, to build up resistance in the north-west and the south-east and to hold a line in the centre.

Decrypts of 10 and 12 April disclosed that the deep Allied penetration in the centre had forced the Germans to reorganise the High Command. C-in-C West remained in command of Army Group G (First and Seventh Armies), Nineteenth Army and a newly assembled Eleventh Army. Army Group B (Fifth Panzer Army and Fifteenth Army) was subordinated directly to OKW. Field Marshal Busch was appointed C-in-C North-West with C-in-C Netherlands, First Parachute Army and an Army Group under Blumentritt subordinated. General Blaskowitz as C-in-C Netherlands commanded Twenty-Fifth Army and the GAF and naval forces, and was made personally responsible to Hitler for the defence of Fortress Holland.

In the first few days of April Sigint had shown that HQ Eleventh Army was being brought from the eastern front to the Paderborn area for an attempt to break through to Army Group B in the Ruhr, but that its attack had been abandoned before it started. On 8 April further decrypts disclosed that C-in-C West had ordered it to slow down the Allied advance by carrying out guerilla operations from blocking positions in the Harz mountains. It was trapped there with four divisions by the Allied advance to the Elbe. The decrypts included a signal from Hitler on 17 April exhorting it to attack the weakest points on the Allied flanks with detached groups which should live off the country as the Russians had done in 1942 and 1943.

When Eleventh Army capitulated on 22 April the sector from Magdeburg to Leipzig was taken over by the Twelfth Army. High-grade Sigint had disclosed on 15 April that this was being assembled with three Corps from East Prussia and Breslau. Its operational orders, decrypted on 23 April, were to bring the Allied advance to the Elbe to a halt by attacking the flanks of Ninth and First US Armies. But in a signal of 24 April, decrypted on 25 April, Kesselring instructed it to hold strong forces ready to thrust north-eastwards to Berlin.

* * *

When Stalin accepted Eisenhower’s proposals on 1 April, he had volunteered the information that he was allotting only secondary forces to an attack on Berlin: ‘Berlin has lost its former strategic importance’. On the same day, however, the Soviet authorities ordered their armies to open a major offensive on Berlin on 16 April with subsidiary thrusts against Dresden and Leipzig. They perhaps believed that, despite Eisenhower’s proposal to stop at the Elbe, the western Allies would take Berlin before Soviet forces reached it. However that
may be, the western Allies knew from Sigint by 9 April that the Germans, aware of Soviet concentrations in the Oder sector, were expecting an early attack on Berlin; and on 15 April the US Ambassador in Moscow asked for news of Stalin’s intentions on the central front. He was told that the offensive was to be renewed there, but that the main thrust would be towards Dresden.

Sigint provided no information about the Soviet offensive until 21 April. An Enigma decrypt then revealed that it had begun on 16 April and a Japanese diplomatic decrypt reported that the Germans had believed that parallel attacks across the Oder and the Neisse were developing into a single offensive against Berlin. This was the last of the many valuable decrypts to be received from the Japanese in Berlin; they had already reported that the Ambassador had gone to the south on 14 April and were soon to add that the naval attaché was moving to Hamburg and the air attaché to Salzburg. Thereafter — though with delays of up to three days — the German decrypts recorded that the Soviet armies had begun to penetrate the inner ring of the city by 24 April and had completed its encirclement on 25 April. On that day the Soviet subsidiary thrust towards Dresden and Leipzig met the US patrols on the Elbe some 50 miles below Dresden.

Hitler having refused to join other Nazi leaders in leaving Berlin, Keitel and Jodi were then trying to organise a relief operation by Twelfth Army. Kesselring’s instructions to Twelfth Army to prepare to turn east and drive on Berlin were decrypted on 25 April, as was Jodi’s approval of plans for its counter-attack. On 29 April its main force surprised the Soviets and succeeded in breaking through to the lake at Potsdam and evacuating the Potsdam garrison. On that day Sigint disclosed that on 27 April OKH had ordered Ninth Army, encircled south-east of Berlin, to break out and join in Twelfth Army’s attack. On 3 May it added that though Twelfth Army had been reached by small forces from Ninth Army, it had abandoned its advance on 1 May.

Other decrypts had meanwhile included, on 26 April, Hitler’s orders for the division of OKW into Operations Staff A under Donitz in the north and Operations Staff B under General Winter in the South and, on 27 April, an exhortation from Jodi following the news that US and Soviet forces had met on the Elbe. Jodi’s message announced that ‘the fight is to be conducted with final determination against Bolshevism ... In contrast to this, the loss of large areas of territory to Anglo-American forces fades into the background’. It stressed, however, that any transfers of forces from west to east remained subject to the permission of OKW, which remained directly responsible to Hitler. A further message of 28 April, decrypted on 29 April, repeated that ‘intentions of a basic nature’ must be submitted to the Führer, but conceded that Cs—in—C could make their own decisions if the circumstances were pressing. The last signals issued by Hitler or on his behalf were queries about the whereabouts of the armies; the signals were intercepted on 29 April and decrypted on 30 April. He committed suicide on the evening of 30 April, and at 0300 on 1 May a plain language message announced with ‘Führer priority’ that OKW had begun negotiations with the Soviets for a cease—fire in Berlin. The city was surrendered on 2 May.
The rapid American advances in south Germany had by then destroyed the possibility that the enemy would succeed in organising resistance on any large scale in an Alpine redoubt. Reports from agents and hints in German propaganda had suggested throughout the winter of 1944–45 that the Nazi leaders had such a project in mind. It is now known that the reports were the product of a deception plan mounted by the Sicherheitsdienst when it learned that the OSS in Switzerland was making enquiries as to whether the project existed. The purpose of the deception was to deflect the Allies from insisting on unconditional surrender by exaggerating the scale of the resistance Germany could put up in the form of guerilla operations from an Alpine fortress. Several circumstances had lent credibility to the story. Kesselring was in fact building defences in the southern foothills of the Alps to protect his communications with Germany – and, as he hoped, to enable him to hold out in Italy while German troops from the Soviet fronts escaped into the Anglo–American zones. Sigint disclosed that many government departments and military HQs were retreating in stages from Berlin towards the Alps from February 1945. But Sigint had provided no evidence that might support the rumours until, on 18 March, a decrypt from the Japanese embassy in Berne had reported that stocks of war material were being accumulated in ‘two last battlegrounds or redoubts’, one comprising Wilhelmshafen, Hamburg and Kiel and the other Munich, Salzburg, Vienna and the Italian Alps. Even this uncertain testimony had at once been discounted. The British military attaché in Berne reported on 18 March that German deserters interviewed in Switzerland had heard nothing of a National Redoubt and had indicated that such fortifications as were being built were so nominal that their only purpose was to keep up the morale of the local population. By 23 March SOE had made incursions into Austria and found no sign of preparations for organised resistance.

While Whitehall had thus remained sceptical of the story, SHAEF had given it serious attention; and as late as 10 April, when SHAEF recognised that the speed of the Allied advances would not permit an organised retreat into a redoubt from the north, it still believed it possible that a redoubt might be organised by forces from Italy, Yugoslavia and Austria, who could be joined by elements from the German government. On 14 April, when deciding that his next advance would be through Regensburg to effect a junction with the Soviets in the Danube valley, Eisenhower also ordered an advance on Salzburg on the grounds that ‘even then the National Redoubt could remain in being and it must be our aim to break into it rapidly’.

In the course of this advance, which reached Munich on 30 April, Innsbruck on 3 May and Berchtesgaden and Salzburg on 4 May, PR detected tunnelling and other preparations for defence positions, but the US forces saw no sign of preparations for active defences. At this last minute, on the other hand, German decrypts began to refer to the Alpine Fortress. Some Nazi luminaries, notably Hofer, the Gauleiter of the Tyrol, had been urging for some months that it should be prepared. Hitler had finally issued the necessary directive on 24 April. The directive, which had ordered preparations for an inner fortress in the Alps as ‘a last bastion of fanatical resistance’, including the closure of the area to civilians, the provision of accommodation for British, American and French hostage POW, the stockpiling of supplies and the construction of emergency munitions factories, was not decrypted. But signals from General Winter, decrypted on 1 and 2 May, indicated that he was making an effort to appear to be putting some such plan into force. In a signal of 29
April, decrypted on 1 May, he informed Jodi that the requirements for the army's attempt to relieve Berlin would delay, and perhaps destroy, the possibility of bringing food into the Alpine fortress from Czechoslovakia. A message from Winter to Hitler of 28 April, decrypted on 2 May, reported that the Allies were approaching Munich and that any attempt to make a fighting withdrawal would involve the loss of the troops intended for the front line of the fortress. Another decrypt of 2 May disclosed that Winter had appointed General Jaschko as GOC North of the Fortress with instructions to prepare for its defence in collaboration with Hofer, newly appointed by Hitler to be Reich Defence Commissar for the Alpine front.

That Himmler was involved in a separate attempt to organise resistance in the south had already been disclosed by SS Enigma decrypts. On 28 April, the day after the Allies had rejected the peace offer he submitted via Count Bernadotte, he had sent a message calling on Berger, his deputy in Bavaria, to collect together all available SS forces in the south: this was decrypted on 29 April. Berger's reply, decrypted on 1 May, stated that the disintegration that was taking place necessitated the concentration of all German forces in the south under a single command. On 2 May another signal from Himmler was decrypted: it pleaded with Berger 'to collect the SS units militarily under your command .. . Defend the entrance to the Alps for me'. On 3 May a decrypt disclosed that on 1 May Kaltenbrunner had emphasised to Himmler the suitability of the Tyrol for long-term resistance: conflicts there between the Allies and neutral states could be exploited 'by skilful political game and military energy in Tito manner, and German resistance preserved'.

Another decrypt of 3 May, however, was that of a signal of 2 May in which Winter had informed Jodi that C-in-C South-West was negotiating an armistice in Italy and that 'the southern front of the Alpine Fortress is thus open'.

* * *

General Karl Woolf, the SS Commander in Italy, had made a first approach to SOE and the OSS in Switzerland, with a view to the surrender of the German armies in Italy, early in March, but had then lacked the approval of the army commanders. He returned to Berne with a plenipotentiary from von Vietinghoff on 23 April, when the German armies were escaping across the Po. On 28 April the negotiations were transferred to Allied HQ at Caserta. The instrument of surrender was signed the following day: ceasefire to take place at 1400 on 2 May.

In an SS Enigma message of 26 April, decrypted on 28 April, Kaltenbrunner informed Himmler that Woolf was suspected of favouring surrender. On 29 April, in a message decrypted on 30 April, he sent Hitler the armistice terms and reported that Kesselring probably favoured capitulation. Kesselring had by then been appointed C-in-C South, and Sigint showed that the Cs-in-C South-East and South-West had been subordinated to him. From messages issued by Kesselring on 29 April it was clear that he initially opposed the surrender agreement. In one of them, decrypted on 1 May, he warned the commands in southern Germany that it was aimed at crippling their will to resist and insisted that there must be no further parleying without his express permission. In another, decrypted on 3 May, he called on von Vietinghoff to
continue operations in Italy in order to assist the defence of the northern Alpine front and the maintenance of communications with Czechoslovakia. But on 4 May decrypts disclosed that Donitz had authorised Kesselring on the previous day to sign the armistice terms for the Italian theatre.

A proclamation of 1 May announcing that Hitler had appointed Donitz to succeed him in place of Goring, the legal deputy, had been decrypted early on 2 May. The news did not surprise the Allies. Decrypts of Enigma signals to Himmler had revealed on 26 April that the SS had arrested Goring on 23 April at Berchtesgaden, where he was captured by US forces on 9 May; a further decrypt on 27 April made it clear that Himmler had had no prior knowledge of the arrest. As for Himmler, a message from him on 2 May, decrypted on 5 May, informed Kesselring that he was in the north with Donitz, to whom he had submitted himself ‘faithfully and loyally’.

Messages issued on 5 May, and decrypted the same day, registered the end of German resistance in the west: one instructed C-in-C North-West to surrender and another contained OKM’s order that naval action cease forthwith. On the same day a German delegation arrived at SHAEF HQ. But in signals of 4 May, decrypted on 5 May, Army Group Centre and Army Group South on the Soviet fronts and C-in-C South-East and Army Group E in Yugoslavia were told that their task was to secure a junction in such a way as to save as large an area as possible from Bolshevism. And in a directive on 5 May, decrypted on 7 May, ordering all formations in contact with the forces of the western Allies to lay down their arms, Keitel added that ‘the struggle against the East continues’.

On 6 May Kesselring informed C-in-C South-East that in accordance with the terms for unconditional surrender to be signed the next day, his forces must lay down their arms where they stood on 9 May. One third of Army Group E was still in Yugoslavia, with no hope of crossing into Austria before the deadline, and those of its forces which were defending Trieste, Fiume and the Istrian peninsula were surrounded by eleven Yugoslav divisions. The last decrypts from Yugoslavia dealt with the plight of these forces, which surrendered to the Yugoslavs on 7 May.

* * *

Sigint had meanwhile shown that after 2 May resistance on the Soviet fronts was virtually confined to the sector between Brno and Dresden, which was held by Army Group Centre with some 60 divisions. Signals decrypted between then and 6 May reported that resistance had collapsed around Danzig and on the Oder south-west of Stettin on 27 April. Further south, where Soviet forces had taken Brno on 24 April and informed Eisenhower that they intended to advance on Prague, decrypts had shown by the end of April that the Germans were weakening their front west of Vienna to send reinforcements to Army Group Centre in a desperate effort to hold the Czech Protectorate. On 27 April Hitler had entrusted General Schörner, C-in-C Army Group Centre, with full powers to suppress risings in the Protectorate and defend its industries as a base for future operations: this directive, decrypted on 28 April, was followed by SS decrypts which indicated that Frank, the Reich Protector, and the SS authorities were objecting to it and scheming to seek a separate peace with the
western Allies. A decrypt of 3 May gave Schorner’s appreciation of the situation: he expected to be driven back to the Brno - Olomouc road, but was confident that, provided deliveries of fuel and ammunition were assured, he could hold Bohemia and Moravia.

On 4 May, when the Soviets were planning to encircle Schorner’s forces by thrusting from north-west of Dresden and from south of Brno, the Prague uprising was precipitated by the news that American troops had entered Bohemia. Signals decrypted during the uprising included one from Schorner on 5 May ordering that it be put down with ‘most brutal violence’ and reports on the evening of 6 May that the SS was restoring order by ruthless suppression. But on 8 May, the day after the German government signed the surrender terms, the Czech resistance movement negotiated the surrender of German forces in the city.

A message from Schorner to his troops on 7 May, announcing that no terms involving capitulation to Soviet forces were being negotiated, was decrypted on 8 May. The same day the western Allies intercepted a plain language message from Kesselring; it ordered Army Group Centre and Army Group South to offer no resistance to the American troops advancing in the Protectorate and further south. The Soviet authorities, whose troops joined forces with the Americans on an agreed line from east of Chemnitz to north-east of Pilsen on 11 May, later claimed that Schorner had violated the surrender terms by trying to withdraw to the westward. But Sigint produced no evidence that he issued any orders for the continuation of operations after the terms came into effect.
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