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Britain, Germany and the Battle of the Atlantic

A Comparative Study

Dennis Haslop

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Abbreviations

German

Agru-Front	Technical Training Group for Front-line U-boats
Alberich	U-boat Anechoic Tile Covering
Ausbildungsfliegerführer	Aircraft Commander Training
BA-MA	Bundesarchiv-Militärarchiv, National Military Archives
B-Dienst	Beobachtungsdienst, or Surveillance Service
BdU	Befehlshaber der U-boote, Flag Officer U-boats
BdU.org	BdU Organizationsabteilung, Flag Officer U-boat Organization
CPVA	Chemisch-Physikalische Versuchsanstalt, Naval-Physical Chemistry Development Institute
Fähnrich	Junior Midshipman
FdU	Führer der U-boote, U-boat Leader
Feindfahrt	War Patrol
FEP	Forschungs, Erfindungs und Patentwesen, Naval Research Institute
FAT	Flächenabsuchendertorpedo, 'Curly'
Fliegerführer	Flight Leader/Commander
Forschungsabteilung	Research Department
Forschungsaustausch	Exchange of Research Results
Fregattenkapitän	Commander
Führer	Leader
FuMT 1 and 2	Radar Decoys
Geleitzugtorpedos	Convoy Torpedoes
General der Luft	General Air Commanding
Geschwader	Flight [Wing]
Großadmiral	Admiral of the Fleet
HAS	Hauptausschuss Schiffbau, Principal Committee, Shipbuilding

HKU	Höheres Kommando der Unterseebootsausbildung, U-boat High Command Training Centre
Heer	Army
Kapitän Leutnant	Lieutenant Commander
Kapitän zur See	Captain
K-Amt	*Hauptamt für Kriegsschiffbau,* Main Shipbuilding Office
Konteradmiral	Rear Admiral
Korvettenkapitän	Lt Commander (1st Class)
Kriegsmarine	German [War] Navy
Kriegsmarinearbeitsgemeinschaft	Naval Unions
Kriegswissenschaftlicheabteilung	Military Naval Science
KTB	Kriegstagebuch, War Diary
Kurier	Signal Compression, 'Squash'
Küstenfliegerverbände	Coastal Command Units
Lagevorträge	Situation Reports, known in Britain as Führer Conferences
Lagezimmer	Situation Room
Leutnant zur See	Sub-Lieutenant
Li. Bericht	Engineer's Report
Luftflotte	Air Fleet
Luftwaffe	German Air Force
LUT	Lagenunabhängigertorpedo, Position Independent Torpedo
MAP	Militärarchiv, Military Archive Potsdam
MPA	Marine Personalabteilung, Personnel Department *Marineleitung* Naval Command
MKrGesch	Military Science (*Kr*) Division
MND	Marinenachrichtendienst, Communications Division
MRue	Naval Armaments
MWa	*Marinewaffenämte*, Naval Weapons Departments
NVA	Nachrichtenversuchsanstalt/ Communications Development Institute

NVK	Nachrichtenversuchskommando, Communications Development Command
Oberfähnrich	Midshipman
Oberleutnant zur See	Lieutenant
ObdL	Oberbefehlshaber der Luft, Commander in Chief of the Air Force
ObdM	Oberbefehlshaber der Marine, C-in-C of the Navy
ObdW	Oberbefehlshaber der Wehrmacht, C-in-C of the Armed Forces
OKH	Oberkommando des Heers, Army High Command
OKM	Oberkommando der Kriegsmarine, Naval High Command
OKW	Oberkommando der Wehrmacht, Armed Forces High Command
Reichsforschungsrat	Research Council
Reichsmarine	National Navy
Rudeltaktik	Pack Tactics
Seekriegsleitung	Naval War Staff
S-Gerät	ASDIC (SONAR)
Staffel	Squadron
Technische Hochschulen	Technical High Schools
TVA	Torpedoversuchsanstalt, Torpedo Development Institute
TI	Torpedoinspektion, Torpedo Inspection
Torpedoschußmeldung	Torpedo Usage Log
UAS	Unterseebootabwehrschule, U-boat Defence School
UZO	Überwasserzieloptik, Surface Target Optics
Vizeadmiral	Vice Admiral
WFM	Wissenschaftlicherführungsstab der Marine, Naval Scientific Directorate
WO	Wachoffizier, or Watch-keeping Officer
xB-Dienst	Cryptographic Service
Zaunkönig	Wren, Acoustic Torpedo
Zerstörerknacker	Destroyer Killer

British

ACAS	Assistant Chief of Air Staff
ACHQ	Area Combined Headquarters
ACI	Admiralty Convoy Instructions
ACNS	Assistant Chief of Naval Staff
ACNS(UT)	Assistant Chief of Naval Staff (U-boats and Trade)
AOC	Air Officer Commanding
AOC C-in-C	Air Officer Commanding Commander in Chief
A/S	Anti-submarine
AS	Anti-submarine Squadron
ASE	Admiralty Signals Establishment
A/SEE	Anti-submarine Experimental Establishment.
ASDIC	Early British name for Sonar
ASSB	Allied Anti-submarine Survey Board
ASW	Anti-submarine Warfare
ATW	Ahead Throwing Weapon
AUC	Anti-submarine Warfare Committee
AUD	Anti-U-boat Division
BAC	Battle of the Atlantic Committee
C-in-C	Commander-in-Chief
C-in-C WA	Commander-in-Chief, Western Approaches
CAFO	Confidential Admiralty Fleet Orders
CAOR	Chief Advisor on Operational Research
CCDU	Coastal Command Development Unit
CID	Committee for Imperial Defence
CNS	Chief of Naval Staff, First Sea Lord
CVE	Carrier Escort Vessels
DAUD	Director of Anti-U-boat Division
D of Ops	Director of Operations, Air Ministry
DASW	Director of Anti-submarine Warfare Division
DAUD	Director of Anti-U-Boat Division
DAW	Director of Air Warfare
DC	Depth Charge
DCNS	Deputy Chief of Naval Staff
DCOS	Deputy Chief of Staff
DDI	Deputy Director of Intelligence

D/F	Direction Finder
DNC	Director of Naval Construction
DNI	Director of Naval Intelligence
DNOR	Director of Naval Operational Research
DOD	Director of Operations Division
D of P	Director of Plans Division
D of TD	Director of the Tactical Division
DTASW	Director of Torpedo, Anti-submarine and Mine Warfare Division
DTD	Director of Trade Division
DTM	Director of Torpedoes and Mining
EG	Escort Group
FAA	Fleet Air Arm
Foxer	Noise Maker
GAP	Area South of Greenland
GC&CS	Government Code and Cipher School
GNAT	German Naval Acoustic Torpedo,'Curly'
GRT	Gross Register Tons
HE	Hydrophone Effect
H/F	High Frequency Radio
HF/DF	High Frequency [Radio] Direction Finding
HMS	HM Ship
HMCS	HM Canadian Ship
HQ	Headquarters
HUS	High Underwater Speed U-boats
MAD	Magnetic Anomaly Detector
MAP	Ministry of Aircraft Production
NARA	National Archives, Washington
NCO	Non-commissioned Officer
NCSO	Naval Control Service Officer
NHB	Naval Historical Branch
NID	Naval Intelligence Division
NOR	Naval Operational Research
OIC	Operational Intelligence Centre
OR	Operational Research
ORS	Operational Research Section
POW	Prisoners of War
PPI	Plan Position Indicator
RAE	Royal Aircraft Establishment

RAF	Royal Air Force
RCAF	Royal Canadian Air Force
RCN	Royal Canadian Navy
RN	Royal Navy
RNR	Royal Naval Reserves
RNVR	Royal Naval Volunteer Reserve
RP	Rocket Projectile
SASO	Senior Air Staff Officer, of an RAF Command
SBT	Submarine Bubble Target
S/D	Submarine Detector Branch
S/D I	Submarine Detector Instructor
SOE	Senior Escort Commander Sunday Soviets Free Discussion Groups
TAS	Torpedo and Anti-submarine Warfare
TNA	The National Archives, formerly PRO
TRE	Telecommunications Research Establishment
U-boat	Submarine
USN	United States Navy
VCNS	Vice Chief of Naval Staff
VHF	Very High Frequency (radio)
VLR	Very Long Range
WA	Western Approaches Command
WATU	Western Approaches Tactical Unit

Introduction

The Battle of the Atlantic, although only announced as such by Winston Churchill in March 1941, is generally regarded as beginning on 3 September 1939 with the sinking of the liner *Athenia*.[1] The British surmised that there would be unrestricted submarine warfare[2] and implemented a planned adoption of the Convoy system, albeit only partial, due to a lack of available escorts.

Both Germany and Britain presided over a navy with certain weaknesses, due to prevailing circumstances. The *Kriegsmarine* abandoned its planned long-term strategy of a balanced surface fleet with which to challenge the Royal Navy (RN); had too few U-boats to mount a big offensive; and started out hemmed in by British territory surrounding their naval bases. Attempts were made to secure co-operation with the *Luftwaffe* and had some initial success. In the longer term it could not be sustained, largely because of inter-service rivalries. The British began the war with too few escorts for the provision of adequate convoy protection to operate efficiently, with tactics too basic to be effective,[3] and the provision of air escorts by Coastal Command of the Royal Air Force (RAF) proved to be a challenge,[4] and they suffered from a lack of training. They also had no defined rôle in anti-submarine warfare. Each navy had problems in urgent need of attention, and much to learn. At the outset both were to discover that parts of their organization were ill-equipped to deal with change and in order to learn from past mistakes it was found necessary to modify the existing organization.

On 24 May 1943, Admiral Dönitz (now C-in-C *Kriegsmarine*) called for a temporary withdrawal of U-boat operations from the North Atlantic, due to the heavy losses sustained in the previous three months. This event, together with others in this month, probably signalled the end of the Battle of the Atlantic and has been so cited by numerous historians and by Dönitz, who

said, 'We had lost the Battle of the Atlantic'.[5] On that date a part of what he signalled to his U-boat commanders was,

> 'In the meantime we must overcome the situation with the measures already determined and with a temporary change in operational areas . . . '. [6]

Dönitz had much to think about how this situation could have arisen given that the U-boat arm, although slow to start, had reasonable success against convoys for three years,[7] up until three months prior to withdrawal. What could have happened in that short time-span that could explain how things had gone so badly wrong? What were the options left open to him and how could he explain the dilemma to the *Führer*, Adolf Hitler?

The high point of the battle had been reached, but 'historians of the Second World War usually abandon the story of the Atlantic at this stage'.[8] Much has still to be written since the conflict between the U-boat and A/S forces was just beginning to enter a most interesting phase. The main questions, however, linger. To what degree had the two nations prepared for this war; how appropriate were their existing organizations to learn the many lessons of the past; what organizational choices were available to them that could improve their learning capacity; how much training effort and application did they commit to the *guerre de course* (commerce warfare); and how effective were they in translating the feedback of problems into remedies?

Features of the book

This book provides a new insight into how lessons in Convoy Warfare were learned and how they impacted on the Battle of the Atlantic, and is a focused work. There is an examination of organization, training and operational research (OR) and how the feedback and lessons learned were assimilated in these disciplines during this long campaign. In the process it also highlights where some important opportunities were lost. It demonstrates how changing circumstances, that could not have been foreseen prewar, had to be coped with by both navies. What is not discussed is the FAA (Fleet Air Arm), since British CVEs (Carrier Vessel Escorts) did not see service until April/May1943,[9] by which time the Battle of the Atlantic was virtually over; also, from late April 1943, MACs (Merchant Aircraft Carriers) began to replace the CVE.[10]

The *Kriegsmarine* had learnt practically nothing in terms of inter-service co-operation at the front line level with the *Luftwaffe*, and were thus unable to

acquire any long-standing agreement on joint sea/air operations that would have simplified detection of convoys and attack procedures. It invested vast sums of time and money into training their fledgling U-boat arm and in the late pursuit of advanced technology, using the medium of inter-service 'OR' – the latter being too late to be of any practical value in the outcome of the Battle of the Atlantic, but percentage gains were in orders of magnitude. They co-operated with the other two services and their departments of research in pursuit of common technology goals by sharing knowledge, and were thus able to learn from each other. Britain too invested heavily in training and was able to show steady progress in anti-submarine warfare measures and tactics. Similar to the Germans the Admiralty also had a degree of inter-service co-operation in OR and the sharing of knowledge of weapons technology but it will be revealed that British 'OR' outcomes were modest and restricted to percentage gains, not orders of magnitude and less in the development of new technology – with the single exception of Radar. In several instances Britain decided to devolve the responsibility for building and supplying items of national interest to the Americans, for example the 'cavity' magnetron, at the heart of centimetric radar development, the 'homing' torpedo,[11] as well as the manufacture of 'bombes' which were at the very core of the GC&CS (Government Code and Cipher School) computer project used in sophisticated decryption techniques; unsurprising when one considers the woeful state of British electrical and electronic manufacture of the time.[12] Thus, several mistakes were made in development strategy; but ultimately some useful improvements to weapons efficiency and convoy strategy were obtained.

This book provides an innovative basis against which to assess the German and British approach to convoy warfare during the Second World War. It contains analyses that highlight some of the deficiencies that both Navies faced and how they attempted to overcome their earlier mistakes, in more subtle and forward-thinking methods than is generally known. Moreover, this book takes the radical approach of making comparisons of the methods used by both sides, something that does not appear to have ever been attempted before.

Several historians start out from a false premise of a U-boat crisis. A good account by Duncan Redford provides the reader with an overview of the 'myth' of the March U-boat crisis in the Battle of the Atlantic of 1943;[13] the 'crisis' scenario was probably started by Stephen Roskill after having viewed the CB 04050 December review of 1943, and drew the conclusion from a viewpoint given by a member of the Naval Staff. Several historians have referred to the crisis, but are incorrect in their interpretation.[14] Redford, a more revisionist historian,

is more correct, as may be determined from Roskill's later subtle retraction.[15] Most convoys got through unscathed, but some did not. There are also historians who have availed themselves of the post 1974 'Ultra' secrets and tended to give too much credit of the Atlantic victory to code breaking.[16] However, the more revisionist historian, Milner, for example, tames it down somewhat by suggesting that evasive routing provided by Ultra in 1941 probably saved the Allies about 300 ships.[17]

The typical weakness of many previous accounts of the Battle of the Atlantic is that they tend to concentrate on an apparently continuous succession of convoy battles in 1942–3, almost on a blow-by-blow account, without any discussion on tactical methodology or the training required to implement tactical solutions. Where lessons of tactical or strategic importance were learned they make no distinction about how these lessons learned may have been assimilated through organization, training or 'OR' methods.

Some German historians point to the difficulties faced by a relatively new navy, following the collapse of the last one.[18] The Versailles treaty placed severe restrictions on what assets could be held and it was not until Hitler arrived on the political scene in the early 1930s that they became emboldened in their demands for a stronger navy. But this action presented the administration with a new dilemma. They were not yet organized to present a credible fighting force capable of taking on their arch rival, England (Britain),[19] with whom they were not expected to go to war with for some time.[20] These same historians, however, do not appear to have highlighted many of the lessons which may have been learned from the last war. The German perception of the U-boat war is covered in both primary and secondary sources. German primary material may be found in the captured German documents of the PG (Pinched German) series, which starts with the appointment of Dönitz in 1936.[21] When the *Tambach* collection was microfilmed in Britain after the war, not all documents were included, only those of interest to the Admiralty. The *Bundesarchiv* Freiburg, Germany has the original written documents, including some of those missing from the British collection. The documents relating to the efforts of the *BdU* to work with the *Luftwaffe* provide a good insight into the difficulties faced.[22] Of particular interest in this book are the original documents related to OR conducted on sub-surface rocket technology, the forerunner of the modern sub-surface ballistic missile.[23]

Good information on both British and German assessments may be found in the pages of F. Barley and D. W. Waters's combined versions of the former CB 3304 (1A) and (1B), later BR 1736 (51) A and (51) B, *The Defeat of the Enemy Attack on Shipping 1939–1945: A Study of Policy and Operations.* Of particular

note are the explanations of various issues dealt with in this work, and statistical data showing chronological trends in both ship and U-boat losses. The National Archives Kew also has some good evaluations of the U-boat war from a German perspective, and the British response, contained within the ADM and HW series of documents. German organization and training sources come primarily from captured German documents of the PG series and Admiralty appreciations on the subject plus secondary sources, some of which were researched after the war. RN ASW (Anti-submarine Warfare) training is well covered in the ADM series and by good secondary source material, including the ASW tactical school WATU (Western Approaches Tactical Unit).

Although there are several valuable and critical analyses, the delineation of battles against packs of U-boats leads to an exaggeration of their overall historical importance, for in many respects these battles are simply indicative of the general progress made in Convoy and anti U-boat warfare and do not take account of how feedback helped to fashion lessons learned, and how progress was achieved, on both sides.

Of particular interest to readers of naval history is how this book addresses gaps in the existing literature on convoy warfare by first examining the structure of the German and British Navies for the purpose of convoy warfare. It addresses the lacuna of knowledge of how the U-boat arm was organized and how it fitted into the overall structure of the *Kriegsmarine* and the operations department of the *Seekriegsleitung*. It had to build-up the U-boat arm from very modest beginnings in 1936 into a sizeable force by 1943 and interface it with the signals intelligence branch, known as the *B-Dienst,* in order to successfully conduct its operations against allied merchantmen. The literature surrounding the *Kriegsmarine* and the *Seekriegsleitung*, other than in German, is virtually non-existent, except for some pictorial overviews of a non-academic nature that have been written by several authors.

In the prosecution of the commerce warfare the U-boat arm had hoped to secure the co-operation of the *Luftwaffe* but due to intense rivalry between the two heads of the respective services, this became a dismal failure. This work describes the essence of that failure and examines the relationships between the U-boat arm and the *Luftwaffe* and where important lessons could have been learned, which is a subject that historians have barely touched upon. There are two exceptions. One German historian, Horst Boog, provides a good insight into the background of where some of the possible reasons for this dilemma lie, some of which date back to the First World War.[24] Another, Sönke Neitzel, has extensively researched Luftwaffe maritime operations, which fills in part of the

gap.[25] That too is discussed in order to obtain a clear understanding of how inter-service rivalry influenced the outcome of what might have proved to be a good symbiotic association. Evidence from other sources is provided in the text that helps to complete the picture, including primary material from the PG series, interspersed with official extracts from the navy's situation reports to Hitler, known as *Lagevorträge*. A German PhD Thesis on the subject of the *Luftwaffe*,[26] and a good book on naval fliers, also provides some input, which adds to this theme. A recent publication, *The Luftwaffe and the War at Sea 1939–1945*, has some limited findings on the Battle of the Atlantic, based on a US Navy post war report. Its signal weakness lies in the lack of much editorial introduction, or comment as to accuracy, and no footnotes to assist the reader.[27]

A good source of material for U-boat training may be found in the pages of the commissioned volumes of the GC&CS series on the Germany Navy. A report commissioned by the Admiralty on the interrogation of enemy prisoners also serves the subject well; as does new unpublished material found at the U-boat archives in Altenbruch, Germany. The new material in Altenbruch deals with the early days of *UAS U-bootabwehrschule,* a cover name used for U-boat training prior to the outbreak of war; *UAS* was the forerunner of the main U-boat training schools, but then continued as a separate entity for specialized training up to the end of the war; a point overlooked by other historians.

The means of communicating the current German situation of the war on convoys was through the medium of regular discussions with the leadership and is another gap in historical knowledge that needs to be filled. Situation reports (*Lagevorträge)* were a feature of the Second World War when the *Kriegsmarine* presented its findings to Hitler on a regular basis. While the anglicized 'Führer Conferences' of the *Lagevorträge,* more correctly translated as Situation Reports, have been published by Brassey the German version is preferred by the author.[28] In the writer's view, the sentiments presented in German are more notionally correct than the English version. The Anglicized Führer Conferences suffer further in that many of the meetings have been abridged, and therefore miss some important aspects. Furthermore, having read some of the English translation version it was felt that some of the nuances, often missed in translation, appeared to occasionally distort matters. For instance, a more definitive account of the failure of the *Luftwaffe* may be read in the various pages of reports given to Hitler by the *ObdM* of the *Kriegsmarine* in his regular meetings, or in his absence by his Chief of Staff. These are guarded comments but emphasize the degree of co-operation, or lack thereof. Such an example is given on page 197 of the *Lagevorträge*, but there were many more.

This book has a section devoted to a brief review of the Admiralty and some interwar considerations. It recounts the early events in the war, describing two committees that were formed in an effort to steer the joint-chiefs of staff in a common approach direction. It discusses the initial assets available to the RN for convoy protection and provides an insight into some of the reasons surrounding the failure of the Admiralty to learn valuable lessons from the First World War. The nub of the RN efforts to provide adequate protection for convoys lay in the structure of WA (Western Approaches Command) and its development as the centre for controlling ship movements, both naval and merchant, as well as air patrols. The book describes the necessity for the physical move from Plymouth to Liverpool in 1941 and the degree of co-operation that existed between the RN and Coastal Command of the RAF. In contrast to the German experience, co-operation with the Coastal Command was one of the success stories of the Battle of the Atlantic and the vein of information is used for comparison purposes with the German experience; and this can be seen in good primary sources of the ADM and AIR series, plus secondary material. Supporting the efforts of WA (Western Approaches Command) was the OIC (Operational Intelligence Centre), the origins of which are briefly described. Also discussed is the training provided to the ASW branch of the RN from its earliest days until the main practical training effort was centred on the WA, which also initiated a tactical school. Tactical doctrine is covered, where applicable.

A necessary part of improving weapons and methods in convoy warfare was achieved through 'OR', a subject never before compared. British OR is quite well documented, but still needs to be put into context of what was meant. A comprehensive body of literature may be found in both primary and secondary sources, thus providing an in-depth interpretation of its origins and what was achieved, by both. German OR is poorly understood and several historians have claimed that it either did not exist, or was only exercised at a 'local' level. Since German OR, as a subject, has never previously been identified and quantified, either in English or German, this work presents a great deal of hitherto unseen material in the subject area.

Evidence of German OR comes principally from captured German documents that fell into British hands in 1945, but a mention should be made about the restrictions of availability. While much survived, having been captured at 'Tambach' Castle in Germany, many of the documents that could have been an invaluable source for several of the subjects discussed in this monograph, were either deliberately destroyed, on orders, or subject to loss by severe bombing

raids in and around Berlin in November 1943. Of particular interest, and relevant to the subject of 'OR' in this work, are those lost documents that were housed in the Department of *OKM/FEP* – in the Shell building, Berlin. The loss would probably add little to the definition of German OR but it does limit our documentary knowledge of the extent, and effect, that OR had on new designs, current weapons and countermeasure applications. That said there is ample evidence on the subject for definition purposes.

The subject of OR is dealt with thoroughly in this book so that the difference in approach, by each side, may be better understood. It describes how the RN and the *Kriegsmarine* addressed their specific needs for more efficient weapons systems and notes that both relied heavily on feedback from the front; largely through the use of end of patrol reports, but also through open discussion meetings – often on a one-to-one basis. The contributions made by OR to the outcome of the Battle of the Atlantic are difficult, if not impossible, to measure. In general, British OR gains in terms of achievements were modest, except in the case of radar. The greatest contribution of OR during the war was achieved by TRE (Telecommunications Research Establishment), a civilian body; followed by the ORS (Operational Research Section) group of Coastal Command. German OR, while contributing to better applications in torpedo technology and early sub surface rocket technology, suffered because many of the projects undertaken were either abandoned through lack of funds, developed technology and materials, or were too late to have any impact on operations. Post-war advances made by the Allies in many of the areas of development, involving the projects started by German OR, demonstrate that the *Kriegsmarine* was on the right track.

This book has a thematic approach and much of the chapter contents are entwined, so much so that it is difficult to separate the threads entirely without risking the loss of interconnectivity. In order to preserve any dislocation of the themes they are presented as a chronological analysis interspersed with factual, and sometimes conceptual, presentation.

Notes

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1

Elements of German Planning for Convoy Warfare

The German Navy was reconstituted after the First World War and U-boats were far from its first priority, which still believed in a Mahanian battle-fleet philosophy. At the start of the war, they had neither a strong surface fleet nor a large U-boat arm, and the U-boats were not radically different from those of the last war.[1]

Naval problems and Hitler's style of leadership

In the years between 1933 and 1939 under National Socialist leadership, while Germany was moving ahead with her rearmament programme, the *Kriegsmarine* made little headway in the struggle to secure recognition in the nation's Defence Council.[2] Unlike the RN, the *Kriegsmarine* was not the senior service but the lowest and most junior of the services.[3] Hitler had planned for a European war that largely consisted of using the *Heer* in conjunction with the *Luftwaffe*. The Navy's potential contribution to the early phases of the programme for continental expansion was at first viewed as little more than a series of supporting manoeuvres to decisive battles on land, or possibly in the air, by protecting vessels carrying materials to a particular destination, or protecting harbours. Hitler's view was that in expanding his military aims the force required an emphasis be placed upon the expansion of the *Heer*, not the *Kriegsmarine*.[4]

The Navy had been denied its strategic aims in building by the prohibitions of the Treaty of Versailles, especially a ban on submarines.[5] In May 1935, the *Reichsmarine* became the *Kriegsmarine* and achieved, at least superficially,

a greater degree of recognition within the War Ministry, and a five-year construction plan that was initially based on the treaty.[6] Some naval appointments were made to the War Ministry as a means of obtaining an increased presence along with a substantial authorized increase in the departmental staffs of the Naval Command, as the *Marineleitung* was then known, and the *ObdM, General Admiral* (later *Großadmiral*) Raeder, was admitted to the Defence Council.[7] However, in spite of these additions the Navy's influence was not perceptibly strengthened, nor was Hitler's view of its responsibilities in time of war in any sense modified.

In 1938, Hitler created the *OKW* with General Wilhelm Keitel at the head of the organization to help him command the German *Wehrmacht*.[8] The *OKW* was given no authority to give orders on its own.[9] Instead, it was responsible for the issuing of directives from the *Führer* to the three services, the general allocation of resources, military policy and the representation of the *Wehrmacht* in government. In general, the *OKW* was only as powerful as Hitler wanted it to be and its power resulted from his delegation.[10] This point cannot be emphasized enough since he could, and did, issue directives via the *OKW* to the *Seekriegsleitung*. These instructed the *ObdM*, and the more separate command of the *BdU*, to comply with orders to support a given plan of action devised by them. This may seem a curious state of affairs in that the *Seekriegsleitung* was able to bypass the *ObdM*, but this only demonstrates that the *OKW* was acting on behalf of the orders given by Hitler himself. For example a campaign of collaboration with the *Heer* and *Luftwaffe*, required the diversion of U-boats to assist in the invasion of Norway;[11] a Mediterranean support for Rommel's forces;[12] and the defence against 'D' day landings to name just three.[13] To highlight just the first campaign, Norway, on 5 March 1940 all available U-boats, including those used for training, were ordered to concentrate in German harbours in readiness for the attack on Norway.[14] Hitler's method of planning was predicated on his First World War experience as a non-commissioned officer in the army, with no knowledge or experience in naval matters. This alone would lead to a lack of understanding of direction in the sea war on commerce.[15] His method of decision-making was also solipsistic, making genuine communication with others impossible. Hitler's early successes covered many weaknesses but his failure to coordinate government departments that were concerned with a given problem would help to cause its ultimate failure. Dönitz later wrote in his memoirs contrasting the British system with that in Germany.[16] 'The *OKW* just did the paper work, with Hitler as the final arbiter in any inter-service quarrel.'[17]

While the British armed services had their 'Battle of the Atlantic' and Anti-submarine Warfare Committees, the German armed services had their '*Führer* Conferences', or *Lagevorträge*. However, none of the new Navy's higher officers, who had grown up in the 'Großeur' (Largesse) of the Imperial Navy system, could be comfortable socially with the domineering Austrian ex-corporal whose conferences were essentially self-centred monologues, and at his briefings rejected proposals that did not suit his preconceptions. In his time as *ObdM*, *Großadmiral* Raeder visited Hitler every three to four weeks to discuss naval issues on strategy and to keep him abreast of how both the surface fleet and the U-boat arm were performing in the war at sea, not to provide feedback on how matters could be improved.

In theory, the conferences constituted an ideal forum to conduct an appraisal of the war situation and recommend a given course of action. However, Hitler kept the services largely ignorant of the ideas of others, rarely admitted to mistakes in his planning or judgement, and was never to benefit from lessons that could have been learned.[18]

Naval organization and its changing relationships during the war

Großadmiral Dr Erich Raeder remained at the head of the *Kriegsmarine* until 31 January 1943. In the judgement of one historian 'Admiral Raeder was a stiff disciplinarian, an intense worker and an extremely practical thinker.'[19] He 'applied himself vigorously to the development of the Navy, and saw that task together with the building of a competent officer corps and well-trained and disciplined crews as his main responsibilities.'[20] It was in his new and independent rôle as *ObdM* that he was able to exercise a range of military and budgetary powers that in Britain were invested in the Board of Admiralty.[21] In a similar manner to the First Sea Lord he directed the Navy's war effort, determined its strategies and through his materiel departments provided the means to execute them, subject to the constraints of Hitler and the *OKW*.[22] A chart in Appendix 1 provides an overview of the organization showing the lines of responsibility.

Admiral Raeder's military responsibilities were discharged through a COS supported by staff directorates known collectively as the *Seekriegsleitung,* equivalent to VCNS (Vice Chief of Naval Staff) in the British Admiralty. Originally modelled on the earlier General Staff, the *Skl* underwent a succession

of reforms during the course of the war to meet unforeseen needs and to relieve its head of duties less immediately connected with the conduct of operations.[23] It kept independent departmental war diaries.[24] In contrast the RN, generally, did not. Raeder had always insisted that Hitler should be advised by the *OKM* on maritime questions and was determined to create a more significant rôle for the Navy in Hitler's rearmament plans and to support the *Führer's* expansionist ideology.[25] To this end he presented his ideas to Hitler and other senior political and military leaders on 3 February 1937. In his carefully prepared talk, he provided a detailed explanation of the principles of naval warfare and proposed a build-up of naval assets complete with an air-arm, thus advocating the Navy's rôle as the key player in time of war.[26] One German historian argues that Raeder was merely voicing the sentiments of another, Wolfgang Wegener. Wegener rejected the narrow definition advocated by Tirpitz, which called for a blanket command of the seas, and thus trade.[27]

The initial intention was to build a balanced fleet using the U-boat in a supporting rôle to the main fleet for his intention was to attack British merchant shipping, as predicted by the British.[28] The problem with his ambitious proposals was that the *Kriegsmarine* in fact aroused the jealousy of its rivals and weakened its own position in the war group. When the more powerful *OKW* was created a year later he was unable to get support for the *Kriegsmarine* to go against Herman Göring, Head of the *Luftwaffe*, with whom Raeder had many differences on the conduct of the war;[29] and whom he was never able to best. When war came the German Navy was not as well prepared as the *Luftwaffe*.[30] The result, when war began, damaged Raeder's relations with Hitler. When he had a meeting with Hitler at his Head Quarters on 29 June 1942 the subject of a modification to the current fleet construction programme was discussed. Hitler declared himself against all the planned changes and argued that in view of the encouraging results obtained in the U-boat arm all resources should be used in a U-boat building programme.[31] He had lost all confidence in the surface ships given that *Scharnhorst* had been seriously damaged by air-laid mines on 13 February, as she reached German waters; *Prinz Eugen* had been torpedoed by the British submarine *Trident* on route to Trondheim on 23 February and *Gneisenau* had suffered two direct hits in a Bomber Command attack on Kiel on 26/27 February 1942.[32] Although Hitler did not yet know it the *Scharnhorst* would be sunk on 26 December 1943. Uppermost in his mind may have been the *Bismarck*, thought to be unsinkable, which went down ignominiously in May 1942. Furthermore, at the end of December there was the failure of operation *Regenbogen* (Rainbow) in the Barents Sea against convoy JW51-B.[33] Thus by the

end of the year Hitler wanted the surface fleet programme scrapped and berated the combat efforts of ship commanders. Many subsequent differences of opinion with Raeder were to follow. Following severe disagreements with Hitler in December 1942, he resigned his position as *ObdM*, effective 31 January 1943.[34] His position was then taken over by Admiral Karl Dönitz, until then Flag Officer U-boats, a move regarded by Britain's NID (Naval Intelligence Division) as being 'to the great disadvantage of the junior service'.[35] Raeder had a preference for his Admiral of the Fleet, Admiral Rolf Carls, who had vastly more experience in both strategy and tactics, and whom he regarded as a more suitable candidate.[36] Hitler probably made a serious misjudgement based more on what the U-boat had achieved over the surface fleet but without considering his own part in its decline; this is another demonstration of Hitler's incapacity for logic. While Dönitz was without doubt a good tactician, he could in no way be compared to Admiral Carls in terms of a balanced approach to strategy and tactics, taking all assets and variants into account. Since Hitler was not one to be taught he would never learn the lesson.

From 1 February 1943 Dönitz succeeded Raeder but in order to maintain control of the U-boat arm he transferred his staff from Paris to Berlin.[37] It was the start of when things for the U-boat arm began to go seriously wrong; although not completely the fault of Admiral Dönitz it demonstrated a lack of judgement on the part of Hitler. That was followed by an error of judgement on the part of Dönitz too in that he did not plan to delegate more control of the U-boat arm and was to become grossly overstretched, and was to remain so for the rest of the war.[38]

Naval War Staff and U-boat Command

Prior to the outbreak of war the *OKM* had its own Naval Staff, more akin to that of the RN, which performed activities in the fields of control of operations, logistical methods and administration.[39] However, in 1938 the Navy was put onto a war footing and the Naval Staff, once called '*Stab der Marine*', moved to a different format similar to that set-up by Admiral Scheer at the end of the First World War, the *Skl*.[40] The new *Skl* retained its original three divisions of Naval Command, Operations and Fleet Organization and Communications, and all were subordinated to a new Vice Chief of Naval War Staff, Admiral Otto Schniewind, who also served as the COS of the *Kriegsmarine*.[41] One omission in the *Skl* organization, to be rectified in 1939, was a special *Skl* section for

the U-boat arm. This was formed on 12 September1939 and catered for their needs and became known as *Skl*/U – U for U-boats. The departmental group *Amtsgruppe Skl*/U dealt with U-boat organization, training and development, and with anti-U-boat measures, more of which is discussed in a later chapter.[42]

1/*Skl* was the operational staff representing the *ObdM* and primarily responsible for initiating all 'purely' naval operations and planning aspects for any combined operations that might arise in terms of strategic and operational concepts, in a manner similar to the Admiralty's Plans and Operations Divisions. It co-ordinated Fleet and Flotilla dispositions, mine warfare, aviation – and initially the U-boat Arm – and acted as an interface in matters relating to merchant shipping, economic warfare and inter-service relations;[43] in this latter rôle they were only marginally successful.

A rich source of British merchant ship movement information came from the *B-Dienst*, and the *xB-Dienst* (decryption service) who were able to decipher much of the encrypted Allied radio communications for a long period of the war, to the great benefit of the U-boat arm. Initially, from 1939 until the end of 1940 they were able to decipher most of the low-level Intel, which caused the RN problems for warship movements. But they were only partially successful in reading of code for Atlantic Merchant-ship traffic. The turn-around in fortune came after the full introduction of the British Naval Cipher No. 3 in February 1942, when the cipher system actually became easier for *B-Dienst* to read. This was the start of when convoy information was more speedily passed on to U-boat command, sometimes within hours of transmission.[44] Such SigInt became the U-boat arm's richest source of information on convoy movements and dispositions, the organizational control of which was in the hands of the *MND*.[45]

The Head of the *MND* (communications division) had under him three subordinated *Generalreferate* (advisory offices) *MND* 1, 2 and 3 that were responsible for the administration of:

> *MND* 1. Central section of communications liaison with axis navies, radar, personnel training and communications security. For example when it was thought that ENIGMA was compromised this section was heavily involved in the steps to trace the source. This included the use of the services of the two other sections in the group.[46]
>
> *MND* 2. Dealt with W/T services, ciphers, visual signals, tele-printers and telephone lines, as well as the manning of the *OKM's* own W/T and land line service.

MND 3. Formerly known as 'Signals Intelligence Control' became *Funkaufklärung*, with specific responsibility for the interception of foreign W/T transmissions and cryptanalysis,[47] which included the *B-Dienst* – which after 1940 was probably the single most relied on source for U-boat arm intelligence.[48]

It was *B-Dienst* that provided assessments of the enemy situation, foreign navies and their merchant shipping and, among other things, an evaluation of intelligence information that was received from the *xB-Dienst* and *B-Dienst* de-coding centres for use against allied convoys. Equally important was their rôle in the processing of U-boat reports of enemy ships sunk, and these are referred to later when dealing with the functional 'OR' activities of the *Kriegsmarine* and U-boat arm.[49] In this connection it should also be noted that a division of the Naval War Staff, *Skl* (*KA*) (Appendix 2, item 3 *Kriegswissenschaftlicheabteilung*), included the *Skl* (*MKrGesch*), the 'Military Science' (*Kr*) Division, which was involved in connection with 'OR' as well as helping to form the basis of feedback to other divisions.[50] The *Kr* Division exchanged important feedback with the naval institutes engaged in weapons development, and is discussed later in Chapter 10. The whole *MND* system might appear to be complex, due to its frequent use of alpha numeric titles, but it did have an interlocking system that when analyzed, made sense.

The re-birth of the U-boat arm

Without question it is the U-boat arm that has been the focus of attention for many historians since the end of the First and Second World Wars, and was the most effective naval weapon in both. Its effectiveness in World War Two was in no small way attributable to Karl Dönitz, leader and *BdU*. Dönitz had been a submariner of no great distinction in the First World War but had an enthusiasm and drive that made him instantly recognizable to the *ObdM*, Admiral Dr Erich Raeder. In one of the official assessments it was noted in a personnel file that Dönitz was a 'smart', 'industrious', ambitious officer and possessed an excellent professional knowledge, as well as displaying good military and technical competence;[51] there was no mention of his ability in naval strategy. Karl Dönitz was a good choice as commander of the new U-boat arm. He had gained general naval experience on an international scale but it was his service on U-boats during the Great War that had determined his future.

By the end of 1932, the *Reichsmarine* had already considered the construction of U-boats. To them it was a momentous occasion and would be the first time since World War I that construction of U-boats had taken place on German soil. Under the Peace Treaty of Versailles there had been a ban on possession or production of U-boats, but to circumvent this proscription U-boats were handled by 'dummy firms', and financed by the Navy. The *Reichsmarine* (as it was then) used *Ingenieurskantoor voor Scheepsbouw* (IvS), which was a construction office in Holland and where former U-boat designers (mostly from Germaniawerft, Kiel) were able to evaluate and extend their experience of U-boat construction.[52]

Dönitz was head of the U-boat arm during its three stages of development.[53] His big opportunity came during the first stage when he became senior officer of the 1st U-boat flotilla, after the Anglo-German agreement of the 18 June 1935. He then consolidated his position on 1 January 1936 when the organization created a new post for him known as *FdU* (U-boat Leader). Thoughts could now be given to a construction programme for the new U-boat arm.[54] It might be thought that Hitler's rise to power had a great influence on the reconstruction programme, which aimed mainly at attaining parity with France, but this was not the case – although it did cause a slight setback to U-boat planning, due to his priorities for resource allocations. Nevertheless after some debate it was decided to push ahead with the construction of Type VII and Type IX U-boats. At this stage Dönitz had little influence on the future direction of the U-boat arm and in order to implement changes to the overall organization he would have to wait until 1943.

On the day that 'Total Germany' was declared to all British fleets and stations Admiral Raeder had been visiting Dönitz and his staff at Wilhelmshaven, the main base of U-boat operations and administration.[55] According to Dönitz, after the initial shock of hearing the news of war, Raeder told an assembled audience that Germany now had the ideal weapon with which to strike against England – the U-boat.[56] His declaration had more to do with morale boosting than his total belief in the U-boat. In reality, for Raeder, the war had come too soon[57] and he was forced to discard a former plan put together by his Chief of Staff Commander Heye known as the Z-plan.[58] The original Z-Plan was to consist of a force of 13 Battleships and Battle cruisers, 4 Aircraft carriers, 15 Panzerschiffe, 23 cruisers and 22 large Destroyers.[59] The proposed doctrine was for individual high-endurance warships to engage British commerce and compel the RN to disperse in the defence of trade.[60] Meanwhile, two small, but powerful, battle groups each formed around battleships plus a single aircraft carrier, and