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The Luftwaffe's Support of Naval Operations during World War II

1939 – 1941

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Abstract

During World War II, the Luftwaffe was the service which assisted the German navy in achieving its operational goals in the conduct of the war at sea. It is often overlooked, that at the outbreak of the war, the German navy possessed its own naval air force. In the course of this essay, the origins of the Luftwaffe and the naval air force will be analyzed as well as the suitability of the existing organizational structure. A look at the lessons learned from World War one, and at the air doctrine at that time, will show learned experience had not been lost during the interwar period. The arrangement between the Luftwaffe and navy, and the consequences for the naval air force, will be analyzed. In addition equipment and units and their subsequent employment will be examined. It will be concluded that the organizational structure of the Luftwaffe and the navy was suitable for joint and support operations but that there were deficiencies in the equipment and the command and control of forces that limited its effectiveness in supporting naval operations.

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Introduction

While much has been written about German operations during the World War II, cooperation between the different services and in particular the Luftwaffe liaison position at the “Oberkommando der Marine” (O.K.M.), the Naval High Command, has received little attention. The idea of joint operations emerged during the interwar period in the Wehrmacht, and several operations conducted during the war possessed joint aspects. The amphibious invasion of Norway in 1940, where the Luftwaffe and the Kriegsmarine cooperated significantly with the Heer to achieve the objective; the airborne invasion of Crete in 1941, where the air force played a significant part; and the Ardennes Offensive in 1944, the last attempt of the Führer, Adolf Hitler, to assume a somewhat favorable bargaining position with the western powers.

The Luftwaffe and the Kriegsmarine were rivals over control of the naval air arm and other air forces operating over the maritime environment up to early 1942, when the Commander in Chief (CINC) “Oberkommando der Luftwaffe” (OKW), the Air Force Command, Reichsmarschall Hermann Göring, gained ascendancy.

Existing literature does not specifically address the Luftwaffe support of naval operations. The published microfiche series “Essays by German Officers and Officials on World War II”¹ contains several essays that address the formation and employment of the Naval Air Force² and the employment of the Luftwaffe against enemy shipping,³ all three

¹ Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.)

² Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.) and Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the*

written by Walther Gaul, a post World War II historian and active duty officer during the war. A very brief but sequential explanation of events was published by the Great Britain Air Ministry in 1983, “The Rise and Fall of the German Air Force 1933-1945.”⁴ Very detailed and of great value in this essay’s part regarding German air doctrine were the two books published by James S. Corum which contain an extensive description about the evolution of German doctrine.⁵ No original war diary entries for the Luftwaffe could be found. Citations from the “Kriegstagebuch” are taken from the war diaries of the General der Luft and his Quartermaster files. These could be used as an outstanding source for a study regarding logistical issues, but are of limited use for this essay. Adam Claasen, in his book “Hitler’s Northern War: The Luftwaffe’s Ill-Fated Campaign, 1940-1945”, gives an insight into operations of the Luftwaffe during the invasion of Norway and in support of the German army and navy, the loss of opportunities in respect to the use of bases in Norway due to the lack of a long-range bomber and the, to his understanding, not very good cooperation between navy and Luftwaffe.⁶ Williamson Murray also provides a detailed sequence of events and a thorough analysis of Luftwaffe

First Seven Months of the War. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc).

³ Walter Gaul, *German Air Force Successes in Operations Against Enemy Shipping in the Channel, off the East Coast of Britain and in the North Sea between April and December 1940*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc).

⁴ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983).

⁵ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997) and James S Corum and Richard R. Muller, *The Luftwaffe’s way of war, German Air Force Doctrine 1911-1945*. (Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1998).

⁶ Adam R. A. Claasen, *Hitler’s Northern War: The Luftwaffe’s Ill-Fated Campaign, 1940-1945*. (Kansas: University Press of Kansas, 2001).

involvement in his book “Strategy for Defeat, The Luftwaffe 1933-1945”⁷, but does not look into equipment, organization and command and control issues of the Luftwaffe in support of naval operations. The diverse amount of literature leads to the problem that lots of different expressions are used for the same item when original German documents are translated into the English language. Often the Naval Air Force is referred to as Naval Air Arm or Fleet Air Arm.

What was the basis on which the Luftwaffe and the Kriegsmarine cooperated and interacted? Did the Luftwaffe have any directive or understanding of its functions when supporting the navy? How did the load of the operations transfer from the Naval Air Arm to the Luftwaffe? It will be analyzed that limitations in organization, equipment and command and control in the maritime air role significantly undermined effective support of naval operations by the Luftwaffe.

This paper will first look at the build up of the Luftwaffe and its organizational structure, in order to analyze its usefulness for supporting naval operations. In the same manner, the analysis of the Naval Air Arm, from now on called Naval Air Force, and its structure will follow. Were the subordinate units even in a position to execute the tasks, which were expected? Thereafter, a brief look will be taken at experiences from World War I and their incorporation into the Luftwaffe air doctrine. The significant experience that Germany had gained during World War I in encounters with enemy air forces over sea were analyzed and had been incorporated into this doctrine. This will lead to the conclusion, that there was awareness of an inter-service support requirement. Having examined the status quo, this paper will analyze the agreement signed between the CINC

⁷ Williamson Murray, *German Military Effectiveness*. (Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1992).

of the Luftwaffe and the CINC of the navy, on January 27th, 1939, which led to the creation of the position of “General der Luft beim Oberbefehlshaber der Marine” and a restructuring of the naval air force.

After taking a brief look at the function of the “General der Luftwaffe beim Oberbefehlshaber der Marine”, from now on referred to as “General der Luft”, the essay will then take a broad look at the spectrum of operations, including anti-shipping operations, mine laying, reconnaissance and torpedo options, and which units were assigned to it. In consequence, a look at the creation of Fliegerkorps X and Ninth (Air) Division has to be taken; the achievements and the “abuse” or misuse of units and assets as well as the impact on operations will be looked at. This essay will only focus on the time from the prewar period to the end of 1941.

The Origin of the Luftwaffe and the Naval Air Force

Even while being closely monitored by the victorious powers after the defeat in World War I and having been stripped of its offensive air capability and effective command and control systems, Germany managed to build up a functioning military. After its defeat in World War I, Germany was forbidden to possess an operational air force. The Treaty of Versailles allowed Germany to keep a ministry of defense and establish forces for the defense of the Reich. Therefore, the only planes available in Germany were a small number, required to practice defense operations against aerial assets. Adolf Hitler, who had accepted power in 1933 in the position as Reichskanzler, put Germany onto the course of rearmament, which he publicly declared in 1935.

Germany had started to change its course. It introduced conscription and changed the title of Defense Minister to War Minister and Commander in Chief of the Armed Forces. Initially Feldmarschall Werner von Blomberg was put in that position until 1938. After von Blomberg was dismissed, Hitler created the “Oberkommando der Wehrmacht” (OKW), equal to the Armed Forces Command. He left the position of CINC vacant and appointed Keitel as chief. Hitler himself assumed the position of CINC of the Wehrmacht at the outbreak of the war.

A look at the military chain of command clearly delineates a higher armed forces command, superior to the three services, and in a position to lead military operations. The failure of not having a military experienced officer in command but instead having the Führer himself take charge of the forces, led to the omission of a coordinating link between the strategic and tactical levels; and consequently, to an overly strong and direct involvement of the Führer in military decisions and affairs.

Building up the Luftwaffe

In a slow but steady manner, Germany had started rebuilding its military air strength. On 1 May 1933, the Reichsluftfahrtministerium, (Ministry of Air or RLM) was created, with Hermann Göring as the head of the institution. In 1935, the Luftwaffe was openly announced, with Göring becoming the CINC, and effective 1 March 1935, the Luftwaffe was officially made the third independent service.⁸ This organization was constantly growing and later divided into two offices, the OKL, which became responsible for directing the air force, and a second office, which had the responsibility

⁸ William R. Muscha, “Strategic Airpower Elements in Interwar German Air Force Doctrine,” (Master’s thesis, Fort Leavenworth, Kansas, 2001), 58.

for “ministerial problems, long-term administration, financial control, civil aviation and until 1944, aircraft production...”⁹ Göring was in charge of both offices until his removal and replacement by Generalfeldmarschall Ritter von Greim on 25 April 1944.¹⁰ Göring was a personality entirely submissive to Hitler and was not able to influence the Führer on his point of view regarding the Luftwaffe. Additionally, he had only limited expertise in matters of the air force, from World War I, and avoided making unpleasant decisions.¹¹

The OKL was further broken into nine different directorates and several inspectorates. The inspectorates were responsible for special matters that did not fit directly into the structure. The directorates were spread out over two echelons, named Kurfürst and Robinson. Robinson consisted of “the Chief of the General Staff, the Operations Staff, the Director General of Signals, the Director of Training and part of the Intelligence Department.”¹² Kurfürst, the other echelon, comprised the remaining departments of the High Command. The departments maintained good communications with each other. Attached to the OKL was the Luftwaffe General Staff, who had an advisory function and had command authority only over directly subordinated agencies, such as the Inspectorates and the Air War Academy.¹³

Below came the level of the so-called Luftflotten, which “were in fact self sustained and balanced air forces” and comprised the whole spectrum of aviation assets

⁹ Alfred Price, *Luftwaffe Handbook 1939-1945*. (New York: Charles Scribner’s Sons, 1977), 9.

¹⁰ “Feldgrau.com – research on the German Armed Forces 1918-1945.” Available from <http://www.feldgrau.com>; Internet; accessed 19 March 2004.

¹¹ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 417.

¹² *Ibid*, 9.

available.¹⁴ The numbers of Luftflotten grew from initially four at the beginning of the war to six, since the territory acquired stretched the Area of Responsibility of the Luftflotten beyond what was considered manageable. Additionally, there was a seventh, “Luftflotte Reich”, which became responsible for home defense. The Luftwaffe was a highly mobile force. To allow quick deployments, each Luftflotte was divided into Luftgauen, responsible for administration, supply and second line technical tasks.¹⁵ This organization ensured that the transfer of locations was done swiftly. Under the Luftflotten came the Geschwader, Gruppen, and the Staffeln, which were the lowest designated flying formations.

The Luftwaffe understood itself as an independent third service of the armed forces. Without exception, all aerial action was supposed to be its responsibility, including anti-aircraft measures on the ground and in the air. This duty included sole responsibility for providing air protection for areas belonging to the army or the navy. According to the OKL, “Flying units for aerial purposes of Naval warfare belong organically and administratively to the German air force.”¹⁶ The Luftwaffe explicitly stated that operational allocation of flying units to the navy was for the purpose of aircraft carriers, carrying on warships, and aerial reconnaissance over sea only.

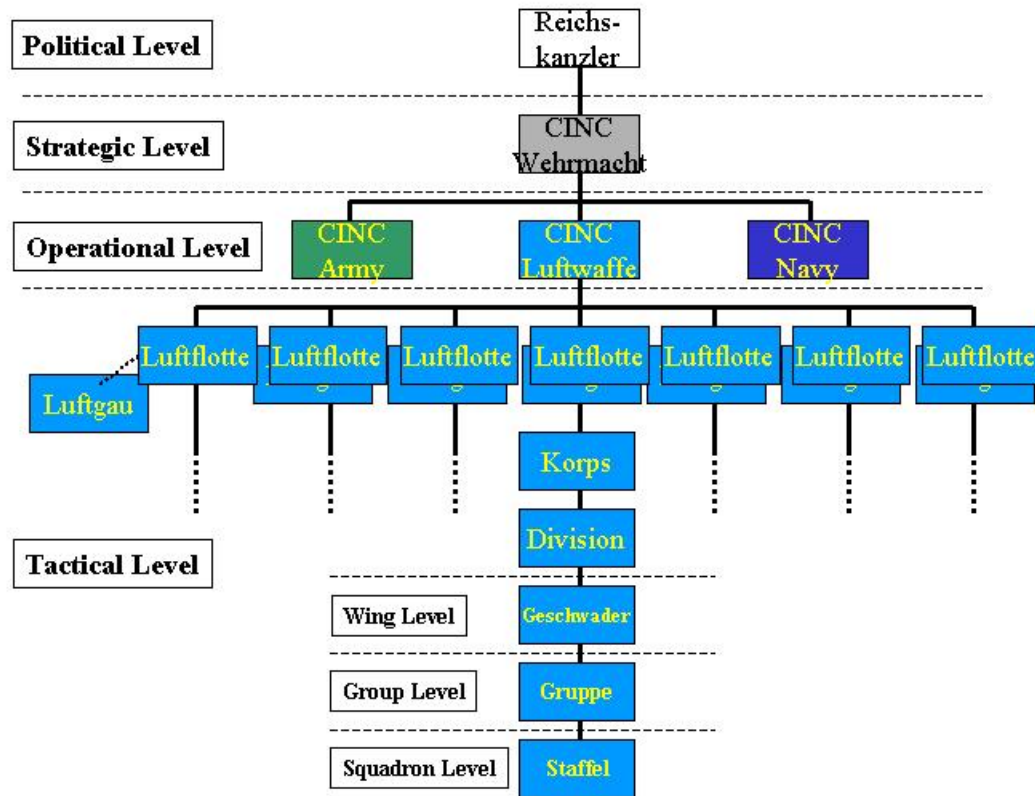
¹³ Andreas Nielsen, *The German Air Force General Staff*. USAF Historical Studies: No. 173, USAF Historical Division Research Studies Institute Air University, (New York: Arno Press, 1959), 59.

¹⁴ *Ibid*, 10.

¹⁵ *Ibid*, 10.

¹⁶ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, 7.

A sound concept, the establishment of the Luftgau and Luftflotten respectively, assured the capability of being able to deploy Luftwaffe units quickly and provided the required high mobility and flexibility without having to worry about any ground services.



State of the Naval Air Force

The defeat did not hinder the German leadership from drawing valuable conclusions from its experiences. While most of the lessons learned refer to the support of operations over land, the involvement of air assets in the air war over the sea will be the focus of this paper.

After the end of the war, the German navy had quickly recognized that the aircraft is also a valuable means of warfare at sea. In the later stage of WW I, the naval aviation had flown attacks over sea and proved the effectiveness of such actions against naval

assets. It was recognized, that the aircraft seriously increased the effectiveness of the old means of conducting war over land and sea. It was also noted that this required a high degree of coordination and that, from a naval point of view, meant aircraft involved in operations over the sea should belong to the navy. Grand Admiral Raeder, at that time the CINC of the navy, advocated the creation of an aerial structure, which belonged entirely to the navy and was able to cover the whole spectrum of naval warfare.¹⁷ The German naval war staff emphasized that a single command would be most efficient in sea warfare and that the navy should have its own air arm which was trained and experienced in naval warfare. They recognized the ability to scout and quickly respond to changes in the naval tactical situation by the use of airplanes. Therefore, they advocated the build up of a strong naval arm which capable to cover the required tasks.¹⁸

The OKL did not agree with this point of view and demanded that everything that flies, including over sea and against sea targets should be under control of the Luftwaffe. The diverging point of views led to a compromise solution and by 1935, it seemed as if the navy would have an independent Naval Air Force.¹⁹ However, by 1939, the CINC of the Luftwaffe was Reichsmarschall Göring and his intentions were to revise completely the agreement. He managed this, and eventually the only roles left for the Naval Air Force were naval reconnaissance and operation against fleets in contact with the navy. One of the consequences of this significant change was that airplanes would in the future

¹⁷ Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 1-3.

¹⁸ Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 1.

¹⁹ *Ibid*, 4-6.

be tailored to the Luftwaffe needs, which were more focused in cooperating with the army. “The planes, special equipment and weapons, except mines, were designed and developed by the German air force construction departments according to naval specifications...”²⁰

By the outbreak of the war in 1939, all that was left to the navy as a Naval Air Force were a total of 14 Staffeln coastal reconnaissance planes and 1 ship borne Staffel. The Luftwaffe had taken over operational command of almost all flying units and the only assets really under the influence of the navy were the Küstenfliegerstaffeln.²¹ The few forces that were assigned to the navy at the outbreak of the war were divided into two commands, these being Führer der Luft West (FdL West) naval air command west, and Führer der Luft Ost (FdL Ost) naval air command east. A total of 15 Staffeln were left to the tactical command of the navy. The General der Luft was the next higher commander of Führer der Luft West and Ost.

By the end of November 1939, the distribution of units was as follows:²²

Führer der Luft West		Führer der Luft Ost	
Unit	Type	Unit	Type
1.-3./KFG 106	He 115; D0 18; He 59	1.-2./KFG 306	He 60; Do 18
1.-3./KFG 406	He 60; Do 18; He 59	2./KFG 606	Do 18
		1.-3./KFG 506	He 60; Do 18; He 59

²⁰ Ibid, 3.

²¹ For further details visit “Feldgrau.com – research on the German Armed Forces 1918-1945.” Available from <http://www.feldgrau.com>; Internet; accessed 19 March 2004.

²² Gerhard Hümmelchen, *Die deutschen Seeflieger 1935-1945*. (München: J.F.Lehmanns Verlag, 1976), 51-52.

		1.+3./KFG 706	He 60; He 59
		4.-6./TG 186	Ju 87; Me 109
1./BFG 196	Ar 196	5./BFG 196	He 60

The reconnaissance units were manned by officers who came mostly from the navy and therefore had the required naval background to conduct operations over the sea.

Tasks put on the Naval Air Force were determined by the OKM. From the beginning, the navy had seen their air assets as an augmentation to their fleet and assigned the task of aerial reconnaissance and patrol.²³ It considered this task the most important, and initially, all the available equipment of the navy was acquired for the sole purpose of fulfilling this task. During the progress of the war, due to rising difficulties and ongoing negotiations, the navy also expected their air forces to engage in aerial mine laying and combat when fleets clashed. As the significance and possibilities of air power over the sea became more and more apparent, tasks were added to include anti-shipping, anti-submarine warfare and also support of maritime operations.

Germany's Luftwaffe and the Naval Air Force were clearly structured and embedded in a functioning chain of command. The somewhat unfortunate decision of having Feldmarschall Hermann Göring, who had close ties to the Nazi party, as the CINC of the Luftwaffe facing the experienced CINC of the Navy, Admiral Raeder, led to compromise solutions already during the build up phase of both services.

²³ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 265.

The navy had very early recognized, that for the effective employment of airplanes over water, they needed to control their own air assets. Backing down on the previous agreement reached between Göring and Raeder left the navy with only a small air force and little influence on the conduct of the air war at sea.

The development of German air doctrine

During WW I Germany had built up a small but effective air fleet and was flying reconnaissance and attacks against enemy shipping over the sea. The Germans had developed a small and effective seaplane, which they used for anti-shipping operations and patrols over the water.²⁴ In the later stage of World War I, the naval aviation had flown attacks over sea and proved the effectiveness of such actions against naval assets. In one specific event, German naval aviation had sunk three British merchant ships by the use of bombs and torpedoes.²⁵ It was recognized, that the aircraft seriously increased the effectiveness of the old means of conducting war over land and sea. The most impressive performance was displayed during 1917 – 1918 when German seaplanes attacked allied shipping in the North Sea. The Germans possessed air superiority over the North Sea until the end of the war.²⁶ Besides the lessons regarding close coordination and the difficulties with having two services working in the same areas, it was well realized that aircraft carriers would have a significant impact on extending the reach of a fleet's arm.

²⁴ Ibid, 43.

²⁵ Ibid, 44.

²⁶ Ibid, 43 – 45

In the time following, until the early stage of WW II, the Germans pursued the building of two aircraft carriers, as they had recognized the potential involved in naval aviation.²⁷

World War I also brought about the conclusion that the Luftwaffe should be an independent service. “By the end of the war, the general view of the army’s officer corps was that the Luftstreitkräfte had earned the right to take its place as an independent service”²⁸ It furthermore, made leaders recognize that a sound doctrinal and technical foundation was a contributor to success in the air battle.

Luftwaffe Regulation 16

The Luftstreitkräfte’s good leadership was responsible for the advantage that stayed on the side of German aviation during World War I.²⁹ The comprehensive vision of air power possibilities, and the experience drawn from the war enabled Germany to develop an air power theory. After the war, Generaloberst Hans von Seeckt was put in charge of dissolving the remainder of the Luftstreitkräfte. He had taken command of the Truppenamt, an institution with civil character but manned by military staff officers, and ordered the subordinate directorates to conduct an analysis of the lessons learned from WW I, study air power theory and develop future doctrine.³⁰ He demanded “short, concise studies of newly gained experiences of the war”³¹ and Helmuth Wilberg, the

²⁷ Ibid, 45.

²⁸ Ibid, 47.

²⁹ Luftstreitkraefte is a nomination from WW I and relates to the German Army Air Service

³⁰ William R. Muscha, “Strategic Airpower Elements in Interwar German Air Force Doctrine,” (Master’s thesis, Fort Leavenworth, Kansas, 2001), 60.

³¹ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 59.

senior aviation officer in the Reichswehr³², supported his efforts. By 1923, Germany did not have any flying assets, but an operational doctrine, consisting of two parts and both with extensive sections on air doctrine.³³ This doctrine was subject to constant refinement and improvement, and was released as Luftwaffe Regulation 16.

Despite the fact that General Walther Wever was not a navy officer, but originated from the army, he realized the effects that the naval air forces had had over the sea during the last war. He ensured, that the aspect of airplanes performing military operations over the sea found its way into Luftwaffe air doctrine. He saw air warfare as part of a larger plan and not separate from the overall battle.³⁴

General Wever, who was an officer with no flying experience at all, recognized the immense power projection capabilities of the Luftwaffe and set five operational tasks for it. Besides strategic issues, he also recognized that one of the tasks of the Luftwaffe was "... to support naval operations by attacking enemy naval bases, protecting Germany's bases and participating directly in naval battles."³⁵

Once Wever became the Luftwaffe Chief of Staff, he directed Generalmajor Helmuth Wilberg, an experienced WW I pilot, who had commanded army level aviation forces with up to 700 aircraft,³⁶ to "... create and publish a comprehensive air doctrine

³² For further details visit "Feldgrau.com – research on the German Armed Forces 1918-1945." Available from <http://www.feldgrau.com>; Internet; accessed 19 March 2004.

³³ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 63.

³⁴ William R. Muscha, "Strategic Airpower Elements in Interwar German Air Force Doctrine," (Master's thesis, Fort Leavenworth, Kansas, 2001), 61.

³⁵ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 138.

³⁶ William R. Muscha, "Strategic Airpower Elements in Interwar German Air Force Doctrine," (Master's thesis, Fort Leavenworth, Kansas, 2001), 62.

for the Luftwaffe.”³⁷ When this manual was published, it “... was entitled simply ‘The Conduct of the Air War’ (Luftkriegführung)”.³⁸ It clearly addresses the requirement of support of naval operations and underlines the fact that operations need to be closely coordinated and carried out jointly. The missions for the Luftwaffe contain operations in support of the navy, and also, independent operations at sea.³⁹ The most important directions however, are regarding that the Luftwaffe must consider all services of the Wehrmacht and see itself as one and not the part of it.⁴⁰ The Luftwaffe was supposed to integrate operations by “...commanding the war in the air.”⁴¹ The Luftwaffe air doctrine also addresses the selection of targets and its impact on mission priority. It makes clear that not only military, but also political and economic factors have to be considered and that they have to be selected in a manner that influences the ground and sea battle, in addition, to contributing to the air forces’ objectives.

The issue of air superiority was mentioned, as well as the fact that several missions will have to be carried out simultaneously. With respect to naval air operations over sea, the following was mentioned:

³⁷ James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 140.

³⁸ Williamson Murray, *German Military Effectiveness*. (Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1992), 90.

³⁹ Paul Deichmann, *German Air Force Operations in Support of the Army, German Air Force Operations in Support of the Army*. USAF Historical Studies: No. 163, USAF Historical Division Research Studies Institute Air University, (New York: Arno Press, 1962), 9.

⁴⁰ James S Corum and Richard R. Muller, *The Luftwaffe’s way of war, German Air Force Doctrine 1911-1945*. (Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1998), 120.

⁴¹ *Ibid*, 120.

- Should there be no maritime cooperation possible, the air force will be able to use its strongest forces available in air operations.
- The primary targets of the air force in this environment are the enemy fleet and air units. This will degrade his ability to execute naval operations.
- The air force can also support the navy by carrying out operations against enemy ports as well as against his import and export.
- These attacks may not always be carried out in coordination withy naval operations, but have to be in cooperation with naval objectives.
- Only a part of the air force will be used to carry out naval operations, and then, secure means of communication have to be established between navy and supporting section of the air force.
- The operations of the army navy and air force have to be coordinated in such a manner that maximum overall effectiveness is achieved.⁴²

The doctrine may not be complete; however, it does consider the significant area of air support for maritime operations and gives clear advice as to how to proceed. Elements of leadership, employment of forces, and tactical, as well as operational strategies are addressed. Unfortunately, the field manual 16 did not get further developed and the originator, who had the required vision, died in an accident in 1936. Wever was succeeded by Udet, Kesselring and Jeschonnek. Whereas Kesselring did not influence air doctrine very much, Udet and Jeschonnek advocated the use of dive bombers, an employment form which later proved to be very effective and precise against land targets

⁴² Ibid, 132-133, 148. Paul Deichmann, *German Air Force Operations in Support of the Army*, *German Air Force Operations in Support of the Army*. USAF Historical Studies: No. 163, USAF Historical Division Research Studies Institute Air University, (New York: Arno Press, 1962), 13.

but of little use to attack naval targets.⁴³ The vision of Generaloberst Hans von Seeckt, Helmuth Wilberg and especially General Walther Wever, had made it possible to have a comprehensive air doctrine by the outbreak of the war which addressed army and navy support by the Luftwaffe.

Education and Training

There was no level in the Luftwaffe, that were specifically trained in maritime warfare. All knowledge available to the air force was based on experience from supporting army units and from the personal knowledge of most of the Luftwaffe leaders who had a strong army background. In 1933, the army had transferred 200 officers to the Luftwaffe. Their experience provided them with a clear understanding of army matters.⁴⁴ Only a few officers were transferred from the navy to the air force, since the aim was to build up an own Naval Air Force. The Luftwaffe aircrews were thus entirely inexperienced in sea warfare and would have had to be trained especially for missions over sea.

The Luftwaffe published a directive which addressed the issue of training and education of air force officers and officers assigned to Luftwaffe units. After graduating from pilot school, officers were to serve in a flying unit in such a position. While performing his duties, the air force officer was supposed to intensify his knowledge of other areas, which were related to his unit's role. It was required that all officers were familiar with naval and army war fighting. Furthermore, it was expected that they

⁴³ William R. Muscha, "Strategic Airpower Elements in Interwar German Air Force Doctrine," (Master's thesis, Fort Leavenworth, Kansas, 2001), 65.

⁴⁴ Ibid, 56.

understood the “organization, leadership and operations of the air forces of the major military powers,” and their related services.⁴⁵

Knowledge of flying personnel was usually limited to their own service. Even though it was highly encouraged to learn the fundamentals of other branches as well as their own, the opportunities to do so were limited due to the demands of ongoing operations. At the outbreak of the war, the entire Air Force with the exception of its *Küstenfliegerstaffeln*, was untrained in navigation and combat over the sea. In order to provide some expertise in missions over sea, Luftwaffe units in charge of such operations were assigned observers from the naval officer corps. For the units assigned to conduct anti shipping operations, the best crews were selected and trained. The officers chosen had to develop and improve their tactics on their own, since there was no previous experience.⁴⁶

Officers participating in the general staff received training to a certain extent. In lectures at the then German Air Command and General Staff School (*Luftkriegsakademie*) in Gatow, the officers were instructed that the Luftwaffe was supposed to operate tactically in support of the army and the navy.⁴⁷ To facilitate their understanding of other services operations, all officers were to take part in command post exercises and war games of other services, of which many were conducted on a large

⁴⁵ James S Corum and Richard R. Muller, *The Luftwaffe's way of war, German Air Force Doctrine 1911-1945*. (Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1998), 174.

⁴⁶ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 97.

⁴⁷ *Ibid*, 42.

scale in 1937.⁴⁸ All officers were therefore supposed to have a minimum understanding of the necessity of conducting joint operations.

Provision had been made to assure that some cross-service training and understanding was available. However, most of the experience in the Luftwaffe was land based due to its leadership and Udet, Kesselring and Jeschonnek did not especially advocate the support of naval operations. The fact, that only few officers with naval background were transferred to the Luftwaffe did not promote this understanding. When observers from the naval officers corps were assigned to the Luftwaffe, this gap was partially closed, but only on the lowest tactical level. The influence on the operational level was limited to what was being done by liaison officers or by the Luftkriegsakademie.

In conclusion, all officers should have had a high state of awareness about a possible interaction between the Luftwaffe and the navy. Deficiencies, which were found at the onset of the war, were consciously countered by providing the Luftwaffe officers with naval expertise. No word is mentioned about the intensity in which the training was actually conducted; however, adherence to the directives should have provided a foundation for understanding of the other services.

Arrangement between the Luftwaffe and the navy

In a memorandum between CINC Luftwaffe and CINC Navy from 27 January 1939, the organization and responsibilities of both commands were clarified. The memorandum had become necessary because the navy and Luftwaffe could not agree on

⁴⁸ Brian T. Baxley, "April 1940 German Invasion of Norway – The Dawn of Decisive Airpower during Joint Military Operations," (Maxwell: Air University, Air Command and Staff Course, 1997), 10.

the organization and strength of the naval air force.⁴⁹ The Air force claimed the entire area of operations from which England could be influenced and all other areas considered impractical for the navy due to the navy's air radius of action. Agreements were made on who would execute which task and essentially, the only things left to the navy were the conduct of aerial reconnaissance and actions when fleets came into contact. The task of mine laying was to be executed in cooperation with the Luftwaffe having responsibility to deploy mines after close coordination with the navy.

A two-year development plan agreed that the potential assignment of Luftwaffe assets to the navy was listed to be 9 long-range reconnaissance Staffeln, 18 multi-purpose Staffeln, 12 carrier-borne Staffeln and 2 ship borne Staffeln. The Luftwaffe was only to provide aircraft that would fit the requirements of the navy. Furthermore, they agreed to restructure the Naval Air Force. Beginning on 1 February an air force officer was assigned to the navy and as late as 1 April the naval air arm would cease to exist in its present form. For wartime purposes, the air force officer was tactically subordinate to the CINC navy. This officer had the position of "Air Marshal on the Staff of C-in-C Navy", also known as "General der Luft beim Oberbefehlshaber der Marine"⁵⁰ A further air force officer, a member of the general staff, was appointed to the navy with his task being to promote close liaison between the two staffs.⁵¹

⁴⁹ Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 6.

⁵⁰ Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 7. The "general der Luft beim Oberbefehlshaber der Marine will be further on referred to as "General der Luft"

Ibid, 35-37.

Consequently, under the agreement, the Luftwaffe took over responsibility for conducting reconnaissance of British naval bases and the coastal areas surrounding the United Kingdom and as well for all air warfare against naval assets, which were located beyond the maritime range. By this point, the navy's possibility to influence the war against England was limited to the interdiction of vessels outside the British coastal area. Should there be any naval participation, it was dependant on the cooperation of the Luftwaffe. The arrangement gave the Luftwaffe sole responsibility for operations in this area.

By the outbreak of the war on 3 September 1939, all that was left to the navy as a naval air force were a total of 14 Staffeln coastal reconnaissance planes and 1 ship-borne Staffel. The Luftwaffe had taken over operational command of almost all flying units and the only assets under direct influence of the navy were the Küstenfliegerstaffeln. Even in these units, an air force officer executed the operational command, whereas the tactical subordination was to the navy. Reichsmarschall Göring was known as not having too much knowledge about aerial warfare; nevertheless, he insisted in his view of the Luftwaffe taking care of all matters in the air. His interest in controlling aerial operations over the sea can only be attributed to his arrogance, his megalomania and his need for recognition, but was in keeping with trends in other countries, with regards to independent air forces.⁵² One of the strengths of the aircraft carriers that they were being built by the Germans at that time would have been the ability to project power over areas which were out of reach for the air force, and project airpower from a safe distance out.

⁵² Richard Suchenwirth, *Historical turning points in the German Air Force War Effort*. USAF Historical Studies: No. 189, USAF Historical Division Research Studies Institute Air University, (New York: Arno Press, 1968), 6.

By restricting the areas of operations, Reichsmarschall Göring forced the navy into significant limitations which was something he never realized.

This agreement had an ancillary significant impact on the issue of aerial-laid mines. It transferred the responsibility of operations in the enemy coastal waters to the Luftwaffe. Mining an enemy harbor in the British waters would now be in the hands of the Luftwaffe, even though close cooperation from the navy was supposed to happen. The request for mining could still come from the navy, but the Luftwaffe was the deciding institution about carrying out the operation itself.

When the Luftwaffe participated in any naval operations at the request of the navy, the responsibility of required reconnaissance missions would be the task of the Luftwaffe. Consequently, procedures and technical language had to be standardized to assure that both services were able to interact. This issue was solved on the lowest tactical level by having squadrons coordinate between each other. The arrangement left naval reconnaissance work for the sole purpose of supporting naval operations to the naval air force itself, as well as aerial combat operations when fleets were in contact. This meant that the navy had to work through two different chains of command, depending on the tactical situation which required a higher coordination effort than usual.⁵³

This agreement, regardless of its initial aims and objectives, was the first step that Göring took to dismantle the naval air force and take over control over the war in the air. By forcing Admiral Raeder into accepting this agreement, the solution agreed upon earlier in 1935 was disregarded. As a further consequence, the equipment, which was

⁵³ Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 4.]

being developed under the main responsibility of the Luftwaffe, would in future be tailored to Luftwaffe needs. In consequence a heavy long-range bomber, which could have been used for long anti-shipping patrols as well as for deploying aerial mines, was not developed until the later stage of the war.⁵⁴ The agreement significantly strengthened the Luftwaffe position and the navy had to accept the development from this point on. The navy ended up in the difficult position of having to share its area of operations with another service. While the Luftwaffe controlled the use of the air with a few exceptions in instances where naval aircraft were involved, there was “dual control of air operations”.⁵⁵ In the progress of the war, the Luftwaffe continued to increase its influence in this area and soon, even the last task of conducting reconnaissance for the navy was allocated to Luftwaffe units.

General der Luft

The General der Luft was established as a position to reassure the navy after its influence in naval matters started vanishing. The person in charge of this position was Generalmajor Hans Ritter. The “Dienstanweisung”, who can be compared to terms of reference to the Air Marshal with the CINC Navy and Officer in charge of the Naval Air Force, with his responsibility defined as follows:

During times of peace, the General der Luft is subordinate to the Minister of Aviation and CINC Luftwaffe. He serves as an advisor (to the CINC Navy) in all matters concerning the air force. In times of war, he is (tactically) subordinate to the CINC navy; in all other matters, he remains responsible to the CINC Luftwaffe. The Naval Air Force is understood as

⁵⁴ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 48.

⁵⁵ Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 5.

comprising the Küstenfliegerverbände, the Bordflieger- and the Trägerverbände. Simultaneously he acts as the air force chief inspector for this force. Under his command are as well the Führer der Luft West and Führer der Luft Ost. These two commands were also tactically subordinate to the navy, in their special case the naval group west and east respectively. Tactical subordination was understood as subordination in all matters concerning operations, were as everything else stayed under Luftwaffe command and control. The General der Luft becomes responsible for the training of all units under his command. He prepares his units for missions in coordination with the general staff of the Luftwaffe and he supervises the preparation of mobilization. He supervises the readiness of his units and remains responsible for supply matters. In his function as advisor, he is also the liaison element between the CINC Luftwaffe and CINC navy. He keeps himself always up to date in respect to tactical and technical achievements of the navy and broadens his experience regarding the training of the Naval Air Force units. He develops recommendations for common exercises between navy and Luftwaffe, common training and supervises the lectures of Luftwaffe matters at the naval school institutions. He is entitled to participate in naval exercises and may participate in Luftwaffe exercises. In meetings of the navy, he represents the Luftwaffe point of view; in Luftwaffe meetings, he represents the position of a naval officer comparable in function and rank. The Luftwaffe general staff officer is subordinate to him and he represents the second judicial instance.⁵⁶

With this broad description of duties and the powers assigned to him, the General der Luft seemed to be well prepared for a strong liaison position. During time of war the functions were more closely specified in a “Kriegsdienstanzweisung”, the terms of reference for war dated 2 February 1940.⁵⁷ During time of war, the General der Luft also was required to transmit the results of aerial reconnaissance and the air picture in the area of the Führer der Luft West and Führer der Luft Ost to Marineoberkommando West and

⁵⁶ Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M./O.Qu. (administrative and supply matters) – Sep. 1939-Dec1941: PG 74948-975, rolls 3350-53. Wire from RdL and ObdL dated 08. XII 39. Handakte General der Luftwaffe beim Ob.d.M., Feb 1939-Oct1941:PG 32975, roll 3986. Date unknown, Copy nr. 54

⁵⁷ Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M./O.Qu. (administrative and supply matters) – Sep. 1939-Dec1941: PG 74948-975, rolls 3350-53. No file number.

Ost. Additionally he was to analyze the experiences gained in the operation area and all other areas under his responsibility and forward them to the respective institutions.

By having the agreement in January signed, Reichsmarschall Göring achieved his first step in pushing the navy out of the air war. To the navy, its signature meant to accept being in a supported role by another service. Not only was its influence reduced to purely maritime interdiction, with this agreement, it lost its grip over its Naval Air Force and assigned units. In respect to equipment, even if there would have been a credible opportunity to have developmental input, the Luftwaffe made specifications and the navy had to accept the results.

How did the General der Luft comply with his tasks and responsibilities? As the officer responsible for the operational readiness of his units, he had to survey the foundation and organization of the naval air force units. The quartermaster war diary gives a detailed look into the work done by him and his staff. The General der Luftwaffe was responsible for ordering and coordinating the creation of Küstenfliegergruppe 606.⁵⁸ By his orders, KFG 606 was to be established on 25 October 1939. The location was defined in his orders as to be Holtenau. At the same time, he dissolved one of the squadrons of KFG 506. Personnel that needed to be trained were sent to specialized training. Aircrafts assigned were Do 17 M to the KFG 606 and He 59 to the 2nd squadron KFG 506. He clearly formulated subordination of the units under commands and clarified supply matters.

⁵⁸ Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M., Sep 1939-Mar 1943, May 1943-Aug1944: PG 74896-74944, rolls 3349-50. B.Nr. 1660/39; Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M./O.Qu. (administrative and supply matters) – Sep. 1939-Dec1941: PG 74948-975, rolls 3350-53. No file number, dated October 13, copy 100

By his orders, dated 2 October 1939, Küstenflieger and Staffeln were reassigned and renumbered to incorporate changes and to support the creation of KFG 606 and a squadron for special purposes. In preparation for the invasion of Norway, the quartermaster prepared the disposition of 35 Junkers 52 general transport planes and ordered their distribution. On 1 April 1939, when airplanes of the type He 111 J were available, he ordered the distribution to the squadrons of KFG 806, as well as the replacement of 3 He 115 B of 3/506 by He 115 C.

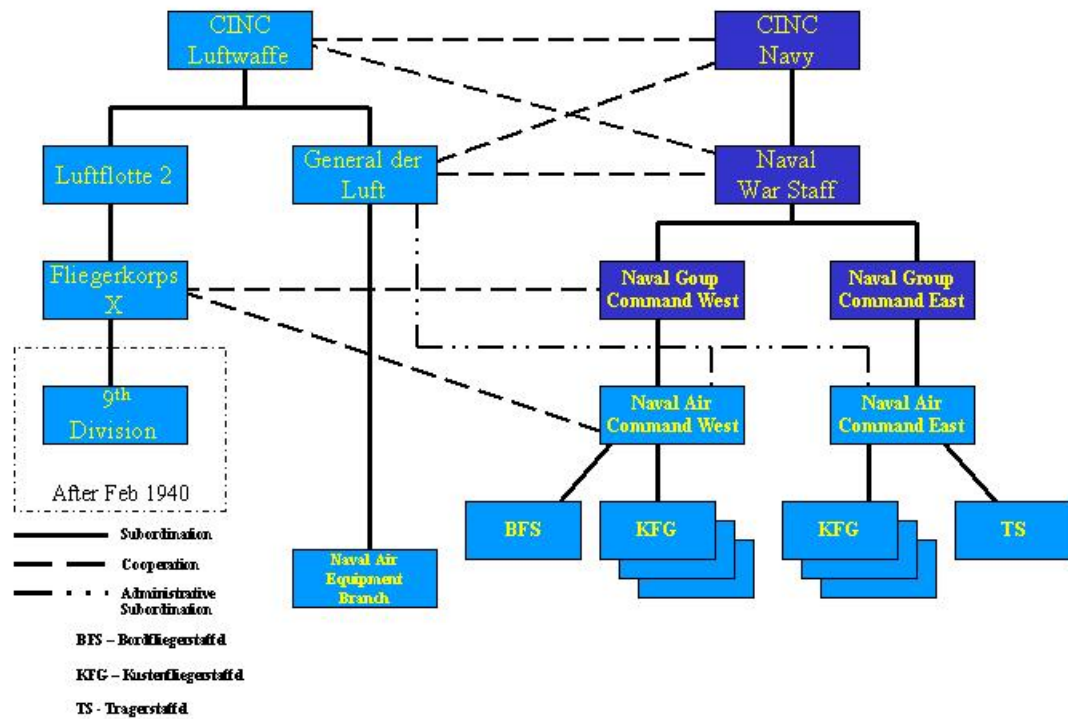
What looked like a position that fitted in the agreement between Raeder and Göring proved to come with some problems that were of interservice rivalry in nature. In any operational decisions, the General der Luft was not involved. For Operation “Weserübung”, the tasks of the Führer der Luft Ost were ordered by the Seekriegsleitung. When the navy requested additional airfields for their naval air force, instead of using him in his function as liaison, the Seekriegsleitung contacted the CINC Luftwaffe directly and just informed the General der Luft. In the same way, the answer was given without him being involved.

In an attempt to avoid being left out of the chain of command, in a meeting with the Chief of the Luftwaffe general staff, the General der Luft requested the right to control the combat-claim documents himself. This would give him some insight into what his units were achieving.⁵⁹

Even though he was being surpassed in the operational chain of command, in his position as commander, he was actively involved in the change of the organization to improve logistical issues for the naval air force. Every Luftgau had an assigned

⁵⁹ Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M., Sep 1939-Mar 1943, May 1943-Aug 1944: PG 74896-74944, rolls 3349-50. 16. Januar 1940

department, which was subordinate to the navy and was responsible for the operation of the seaplane harbors. In August 1940, the General der Luft requested the union of Naval Air Support Commands and Naval Air Support Points to create single commands to address problems, which came along with sea harbors. As a result, instead of having sea harbors under conflicting command and control of the Luftgaue, all these installations would be under his central command, allowing more flexibility when deploying forces. Additionally, this promised him a higher degree of influence on operations.⁶⁰



The establishment of the General der Luft was not according to his terms of reference, the navy itself guided the units involved in aerial reconnaissance, and operational units involved in anti shipping operations were under the command of the

⁶⁰ Ibid

respective Luftflotten. What was supposed to be a coordinating position based on a workable arrangement, turned into an administrative function due to the fact, that units had been reassigned to different commands and that the navy exercised direct influence over aerial reconnaissance units. The responsibility of the General der Luft was limited to reorganization and restructuring of units.

Operations of the naval air arm

In 1939, the naval air force consisted of a small number of planes and officers, whose background was mostly from the navy. The variety of aircraft in service with the navy was limited to five different types. Göring and Raeder had agreed to modernization and expansion of the fleet. However, what was available at the outbreak of the war was generally not “state of the Art” equipment.

Equipment and tasks

The total number of available aircraft was 228. For these assets, the navy had foreseen several tasks, which they should be executing. The He 59 (Heinkel 59) was supposed to be engaged in mine laying and torpedo operations against enemy shipping, a role that demanded technological equipment on a high standard and a fairly big payload capability to deliver mines, that the He 59 did not possess. The He 59 was a floatplane and not very maneuverable, which made it unsuitable for any other task but aerial reconnaissance. Even though the task of mine laying operations had been transferred to the Luftwaffe, the navy kept this limited capability with its unsuitable He 59.

The He 60 and Do 18 (Dornier 18) were both used for reconnaissance purpose. The latter was engaged in long-range reconnaissance over sea, whereas the He 60 was

used merely for short range or ship borne reconnaissance. Using the naval air force for scouting was the task with the highest priority in the eyes of the navy. Therefore, its crews had been trained to exercise this role and had little training in other areas of air warfare.

In expectation of the delivery of the aircraft carrier “Graf Zeppelin”, the navy had acquired a certain number of Ju 87 “Stuka” (Junkers 87 dive bombers) and Me 109 (Messerschmitt 109) fighter aircraft to conduct trials and prepare for their employment over the sea. Up to the carrier delivery, however, all that the naval air force could provide was reconnaissance over water. The required aircraft or the equipment to conduct anti-shipping operations was not available to the navy. The Ju 87 was a short to medium range bomber and therefore only suitable for operations close to the coastal areas.⁶¹

Operations conducted by the Naval Air Force were hampered by the lack of suitable equipment. The available assets were not on the desired high technological standard. Whereas the Luftwaffe was in control and developing planes, which suited its needs, the navy had to conduct its operations with floatplanes that were only useful for reconnaissance purposes and did not perform very well in aerial combat. The lack of an airplane which could have been used to perform long-range reconnaissance as well as long-range bombing, torpedo employment and aerial mine laying, had decisive impact on the operational capability of the naval air force.

The reconnaissance work of the naval air force had proved to be of high value to the navy. On several occasions, naval reconnaissance had provided the inferior German navy with positions and warnings about enemy shipping. It had also cooperated in several

occasions with the Luftwaffe and ensured that Luftwaffe bombers successfully acquired their targets.

Limitations

The naval air force was predominantly a floatplane service and the assets available had proven to be sufficient for the task the navy had assigned for them. During the first few months of the war, sea-air reconnaissance was initially the only area where cooperation between navy and Luftwaffe was required due to the limited range and area coverage of the planes. Technical disadvantages however, especially during the winter when the sea harbors froze over and made sea plane operations impossible, forced the navy to revert to the use of land planes which were in possession of the Luftwaffe and therefore completely under Luftwaffe control. Every request for support was fully dependent on the goodwill of the Luftwaffe leadership. Most of the reconnaissance results passed on to the navy were bi-products from the Luftwaffe's own reconnaissance work for its bombing attacks. Again, training of aircrews proved to be a hampering factor. Reports provided by Luftwaffe aircrews "did not possess the degree of accuracy as regards position, identification and types, sighting and contact reports..." since the Luftwaffe crews were not familiar with the naval environment.⁶² The navy did not achieve tactical control over Luftwaffe reconnaissance assets.⁶³ Hitler himself became involved in the struggle between the navy and the Luftwaffe in February 1941 and

⁶¹ Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 3.

⁶² Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 14-15.

⁶³ *Ibid*, 15.

decided that the Luftwaffe had the sole responsibility for reconnaissance for its own bomber operations, as well as for naval reconnaissance operations. Limited assets forced the division of the reconnaissance forces. This division forced prioritization of naval and Luftwaffe reconnaissance tasks and eventually led to the air force command putting the naval requests behind their own, as it better understood the importance of its own requirements than the naval demands.⁶⁴ The Luftwaffe leadership did not understand the difference between achieving direct success in attacking enemy shipping and the indirect pressure exercised on the enemy by simply possessing the capability to inflict damage on a fleet.⁶⁵

In the case of both forces, the Luftwaffe and naval air force, operating in the same area, had to operate side by side. The Luftwaffe was to assign units to the sea areas, even if the areas contained sea targets which belonged to the navy, and accept the risks that are involved when conducting multi-service operations in one area. In the case that navy sea operations should demand the participation of the Luftwaffe, command would remain in Luftwaffe hands. Operations of the naval air force were in most cases restricted to reconnaissance with the exception of mine laying. Even though this was generally to be a Luftwaffe responsibility, an agreement was in place that limited the Luftwaffe's freedom to coordinate measures with the navy.

The Luftwaffe had slowly taken over control of the war in the air and the navy had to adjust its aerial operations entirely to the Luftwaffe. Only by the exception was the Luftwaffe was involved in missions that the naval air force could plan on its own.

⁶⁴ Ibid

⁶⁵ Ibid, 16

Control and training of flying units involved in maritime operations were also under the responsibility of the Luftwaffe, except for the units which were specifically allocated to the navy. These units were the Küstenfliegerstaffeln under the operational command of the General der Luft, which again, tied them to the Luftwaffe. The air force had established itself as the service responsible for the conduct of aerial warfare over sea.

When naval air operations were almost completely stopped during the icing over of the seaplane harbors, the Luftwaffe had the chance to prove its versatility and effectiveness and took over missions that were usually flown by the Naval Air Force. Having the units subordinate to the General der Luft did not strengthen the navy's position and allowed the Luftwaffe to gain the upper hand, thus creating the impression that operations of the naval air force kept diminishing in importance towards the overall war effort. The Luftwaffe had proven to be more operationally effective and was therefore in the stronger position.

The anti shipping force

The Luftwaffe never rested on the outcome of the agreement from January between Reichsmarschall Göring and Admiral Raeder and continued to increase its influence in a steady manner. In Spring 1939, CINC Luftwaffe appointed Generalleutnant Hans Geisler with special duties at Luftflotte 2, which was at this time commanded by General der Flieger Hellmuth Felmy. "His instructions were to investigate all questions relative to the preparation for and conduct of naval air warfare..."⁶⁶ He was additionally supposed to investigate all matters concerning training. He was charged with organizing

⁶⁶ Walter Gaul, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 8.

the forces required to conduct anti-shipping operations by the Luftwaffe.⁶⁷ This task led to the formation of a specialized anti-shipping force by the Luftwaffe, which was initially Fliegerdivision X, later to be Fliegerkorps X.

The appointment of Generalleutnant Geisler, who had been in charge of Naval Air Command West, underlined Reichsmarschall Göring's determination to control the war in the air. Generalleutnant Geisler, even though he had no specific background, possessed the required knowledge to identify the requirements for an anti-shipping force. He demonstrated that the Luftwaffe can be very effective in the maritime role and he had the experience to realize the need of close cooperation between Fliegerkorps X and the navy.

Fliegerkorps X

The Fliegerkorps X was built-up as the dedicated maritime air formation within the Luftwaffe. Pilots and crews were given special training and equipment in maritime interdiction operations. Together with with long-range reconnaissance aircraft, Fliegerkorps X "...prepared to a certain extent for operations over sea."⁶⁸

⁶⁷ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 97.

⁶⁸ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, 9.

The Korps had the following assignments: extensive reconnaissance over sea; softening up of surface forces by the use of bombers; repulse counterattacks and landing operations; provide fighter escort; and anti submarine escort duties⁶⁹

The leaders of Fliegerkorps X realized the importance of their assigned role and assured that cooperation between Air force and navy started on a good footing. This cooperation was necessary between the following commands:

- Naval Group west, responsible for the North Sea area
- Naval Air Commander West, who was subordinate to the General der Luft, was responsible for actions of the air force units assigned to the navy over sea and
- Luftflotte 2, in particular Fliegerkorps X, under the command of Generalleutnant Geisler.

Joint control from higher echelons appeared to be weak; however, good communication and organizational collaboration made up for this lack of leadership. Commands exchanged and superimposed their different Grid systems in order to be able to understand each other's references. Communication means were improved and a Luftwaffe liaison officer was posted at Naval Group West to improve coordination between units and counter the weak control by the higher echelons.⁷⁰

When war broke out, efficiency of this cooperation was put to the first test. Naval Group Command West requested a report about shipping in the North Sea and disposition

⁶⁹ Walter Gaul, *The Part Played by the German Air Force and the Naval Air Force in the Invasion of Norway*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part I, 3-4.

⁷⁰ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, 12.

of the British fleet. Luftflotte 2 units and Naval Air Commander West units shared the requested task for reconnaissance. As an outcome of this operation, it was decided by the navy to start an intensive campaign against merchant shipping. This would require participation and coordination between air and naval surface assets. The air assets for this campaign were taken from units of Naval Air Commander West, due to their state of training as the Naval Air Commander always kept planes ready with torpedoes and bombs on high readiness. Additionally, they were the only units trained to work in conjunction with the navy, which were able to provide course instructions.⁷¹ This proved that the existing organizational and command structure had the potential to allow for effective command and control as well as the coordination of joint tasks between the Luftwaffe and the navy.

A second test of cooperation happened on 26 September 1939. The Naval Air Commander had performed extended reconnaissance and his airplanes had found parts of the British fleet, including the aircraft carrier “Ark Royal”. Planes from Fliegerkorps X attacked, guided by signals emitted from naval air assets, and were able to inflict considerable material damage on the fleet. The operation lasted until the next day and showed the possibilities when the Luftwaffe cooperated closely with the navy.

The OKL concluded from this action that they had sunk the aircraft carrier (which later proved not to be the case) and that “... even small forces ... are in a position to inflict considerable damage on heavy naval forces.”⁷² Conclusions drawn by the navy were similar. Impressed by the supposed operational success of the Luftwaffe, it

⁷¹ Ibid, Part II, 12, 27.

⁷² Ibid, Part II, 13-14.

commended cooperation between the reconnaissance units of the Naval Air Force and Fliegerkorps X. It was further concluded that the navy had underestimated the influence that the Luftwaffe can have on the enemy's, as well as on own courses of action.

The German naval war staff was of the opinion, despite only little material success, that once the Luftwaffe realized the complete supremacy or contested control over the sea, the enemy would have to adjust his operations over sea significantly. It hoped that due to the success that was obtained in cooperating with Fliegerkorps X, and by pointing out over and over the possibilities for aerial support of navy operations, that Fliegerkorps X would be on call and available in the future. Operations and cooperation carried on until the icing-up of the seaplane stations, which rendered the naval air force temporarily useless for a period of time. During this time, Fliegerkorps X assumed all aerial operations over sea and carried the responsibility to augment the naval reconnaissance picture. With its two specialized bomber wings, KG 26 and KG 30, became the leading force for the Luftwaffe in the Norwegian campaign.⁷³ During the progress of the campaign in Norway, Fliegerkorps X for a limited period of time increased its numerical strength and variation of forces, by being augmented with bomber and fighter units. The main task however, remained the attack of shipping. The Luftwaffe proved to be quite efficient in attacking the British fleet during the invasion of Norway. The success of German aerial and naval attacks led the Royal Navy to focus their attacks to northern Norway to remain clear of the area where the Germans dominated the air. In the time from April 14th to 26th, the Germans had destroyed or damaged a dozen ships

⁷³ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 100.

and on 8 June, German success in these attacks culminated with the sinking of the aircraft carrier *Glorious* by naval gunfire from cruisers.⁷⁴

The Naval Air Force was also involved in aerial anti-shipping operations. By the use of the air dropped torpedo, the seaplanes, even though they were not particularly well suited for this task, were engaged in attacks against surface vessels. It was even considered for a certain time in the pre-war period, to employ dive-bombers in anti-shipping missions.⁷⁵ These were to be the Ju 87, the “Stuka”, which was supposed to be assigned to the aircraft carrier that was built by that time. However the use of these assets proved to be little effective against targets over sea, largely due to limitations of range and vulnerability resulting from slow speed. The limited range demanded that the ships had to be close to the German coast. The “bulk of bombing attacks on enemy shipping was made by normal twin engine bombers in low-level or high level attacks.”⁷⁶ These were mostly the He 111, Do 217 and Ju 88, part of Fliegerkorps X.⁷⁷

The challenges that had to be overcome at the outbreak of the war when performing reconnaissance duties and when involved in the attack of the aircraft carrier “*Ark Royal*”, proved the potential of this unit. The later participation of Fliegerkorps X in the invasion in Norway again illustrated this. Unfortunately, the performance during this

⁷⁴ Brian T. Baxley, “April 1940 German Invasion of Norway – The Dawn of Decisive Airpower during Joint Military Operations,” (Maxwell: Air University, Air Command and Staff Course, 1997), 24.

⁷⁵ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 43.

⁷⁶ *Ibid*, 44.

⁷⁷ Werner Baumbach, *Broken Swastika, the Defeat of the Luftwaffe*. (London: Robert Hale Limited, 1960), 61.

campaign overshadowed the prior achievements of naval air force during the earlier stage of the war when involved in anti-shipping attacks.

Luftwaffe. Part of the Luftwaffe's pre war plans was the employment of torpedoes launched from aircraft. German torpedo development had started as early as 1926;

considerably slow with the Luftwaffe did not yet giving the issue its required attention.⁷⁰

The aerial torpedo F5 (Lufttorpedo F5, LTF 5) was a weapon known before the outbreak of the war. The first torpedo construc8 3273Mas(irc8 patm(e,warichs as pre)Tc -0.00011 Tw 12

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torpedo. To overcome this problem and regardless of its unreliability, the production of the faulty LTF 5 carried on and the stocks were increased, to reach a total of 152 in June 1939. A little more than a year later, the total number amounted to 362 torpedoes.⁸⁰

The first torpedo operation by the Naval Air Force was carried out on 7 November 1939. Activity in the western sea area had been high and Naval Air Commander West demanded to launch a "Kette" (3 a/c) of aircraft with torpedoes. This employment in a "Kette" was not uncommon, since the aircraft would widen to a parallel formation prior to the attack and the parallel tracks of the torpedoes would increase the probabilities of hitting the targets. Nevertheless, the attack was unsuccessful due to evasive maneuvering of the target.⁸¹

After the ice which blocked the seaplane harbors was gone, preparations for the invasion of Norway were already underway and flying had considerably slowed down. This interval gave the Naval Air Commander an opportunity to test the performance of the aerial torpedo with the He 115 s. The operations were carried out as armed reconnaissance in "Ketten" or "Rotten" shortly before dark. The operations, a total of five were carried out, led to the conclusion that the torpedo was in satisfactory working condition.

While the navy had two wings assigned to deliver the LTF 5, the Luftwaffe considered this weapon an expensive alternative to their conventional way in engaging in anti-shipping operations, with the dropping of bombs. For delivery, the aircraft types He

⁸⁰ Ibid, Part II, 11. The navy did not pursue the development with great interest and until 1941, when the Luftwaffe became involved little improvement was achieved, and Sönke Neitzel, *Der Einsatz der deutschen Luftwaffe über dem Atlantik und der Nordsee, 1939-1945* (Bonn, 1995).

⁸¹ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, Chap 15

59 and He 115 were employed, with a limited maneuverability. The torpedo would bring the aircraft to their maximal payload for take off and only a few missions were flown. Furthermore, delivery tactics were dangerous and exposed the attacker to enemy anti-aircraft fire which was becoming more effective. Due to the close release distance to the target, the attacker had to over fly the target afterwards.⁸² Additionally, the conversion from He 59 to He 115 and its use as a torpedo bomber created significant problems until the outer design of the torpedo was adjusted.⁸³ Therefore, the results by fall 1941, largely due to limitations of technique and equipment, were meager.⁸⁴

In 1941, when the Luftwaffe started showing interest in torpedoes, interservice rivalry hampered the progress of the development. The navy did not provide critical experience gained to the air force and the development of the torpedo came to a standstill until the end of that year, which forced the Luftwaffe to pursue dive bombing for anti-
shipping attacks.⁸⁵

The late introduction of a fully functioning torpedo after two years of war significantly decreased Germany's anti-
shipping capabilities. Luftwaffe interest in the torpedo weapon came at a late stage of the war and valuable development and training time was lost due to little attention and interservice rivalry. Until the beginning of 1942, the achievements with the torpedo's use were few.

⁸² Alfred Price, *Luftwaffe Handbook 1939-1945*. (New York: Charles Scribner's Sons, 1977), 47.

⁸³ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part I, 10.

⁸⁴ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 109.

⁸⁵ *Ibid*, 109-112.

After the unreliable LTF 5 torpedo was finally replaced with the better Italian F5B torpedo, this attack option actually became more effective and had to be taken into consideration by the allies as a significant threat. By July 1942, the Germans had an effective weapon against targets at sea, but indecisiveness of the Chief of staff General Hans Jeschonnek and rivalry between navy and Luftwaffe delayed the use of the torpedo in significant

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disintegration of the Fleet Air Arm ...⁸⁸ which led to a slow but consistent cut back of the numbers of naval air squadrons. By the end of 1941, only two weak squadrons were left in the naval air force.⁸⁹

When 9th Division was formed, it consisted of a total of four Gruppen. In charge of this division was Generalmajor Coeler, who now possessed responsibility for two commands. He was also in charge of Naval Air Command West and therefore in this position tactically subordinate to the navy. Simultaneously, his division was under the administrative command of Luftflotte 2 and was directly subordinate to CINC Luftwaffe. This arrangement led to strong protest from the navy. Having two conflicting tactical commands, the navy insisted in appointing a new leader to the Naval Air Command West. The situation was defused by assigning the command to Generalmajor Bruch, the former commander of Naval Air Command East, which kept the Luftwaffe in control and possessed the required level of expertise.⁹⁰

Highest priority was given to build up the ninth division to operational readiness and in order to achieve this state, the Naval Air Commander transferred personnel from the naval air squadrons to ninth Fliegerdivision. The situation as to who was to conduct mining operations remained unclear until 24 February at a meeting between the chief of the Luftwaffe general staff and chief of naval war staff, when the Luftwaffe argued that it

⁸⁸ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 100.

⁸⁹ Sönke Neitzel, *Der Einsatz der deutschen Luftwaffe über dem Atlantik und der Nordsee, 1939-1945* (Bonn, 1995).

⁹⁰ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part III, Chap 5.

would be best to entrust this operation to ninth Fliegerdivision. Additionally, required expertise was to be taken from mine laying group 106. From the naval perspective, an agreement of such a kind would mean giving up one of the main areas of influence that had been left to the navy and also one, which had proved to be quite successful.⁹¹ Aircraft at the navy's disposal had proved to be suitable to execute this task. However, operations conducted were more and more under great risk since the enemy's defense had improved and the aircraft were at their maximum payload when carrying mines, which made maneuvering very difficult.

All conditions pointed towards one unified command and the state of the aircraft fleet and the leader in charge of 9th Fliegerdivision underlined the fact that this unit should be carrying out the task. The navy, keeping the war and its objectives in mind, finally agreed to this solution. Transition was to be executed gradually and by order of CINC Luftwaffe, and all mine laying operations were stopped until the division had reached the strength to conduct large-scale operations.⁹² Protest from the navy to the Fuehrer against this decision only led to one exception; it allowed the 9th division to carry out a mining operation against the British naval anchorage at Scapa Flow. With this transfer of tasks, even though the navy had lost another important instrument of naval warfare to the Luftwaffe 9th Division, it led to a gain in overall capability and operational effectiveness.

Limitations

⁹¹ Ibid, Part III, 15.

⁹² Ibid, Part III, 17.

The aerial torpedo and the aerial mine had both been developed under the responsibility of the navy. Whereas the torpedo was not reliable and produced failure rates of close to 50%, the success with the development of the air mine was significantly better.⁹³ The Germans had developed a magnetic fuse, which was a technological advantage and had not yet been countered by the British Forces. Employment at the right time and in the right manner could have inflicted serious damage to British shipping.⁹⁴

The production of the air mines had only started in February 1939, and at the beginning, there were only two Staffeln of He 59 floatplanes available as carriers. The He 115 was not yet in service with the navy. For aerial mine laying operations, the Wehrmacht had two types of mines available. One was a light version, the LMA with a weight of 550 KG, and the other one was the LMB with a weight of 960 KG. Both mines were magnetic mines and the firing mechanism was triggered by the magnetic hull of the ships.

For both tasks, torpedo employment and mine laying, the necessary carrier system was never available. The Germans failed to bring a torpedo bomber on line and also did not specifically develop a useable mine laying aircraft. The He 111 was designed as a bomber aircraft and had to be modified for employment over sea and carrying torpedoes. The Ju 88 was well designed to deliver bombs in dive-bombing attacks but did not prove suitable for torpedo delivery; it was nevertheless used in this role. The only airplane designed for torpedo delivery was the Do 217, which proved unsuitable for combat and

⁹³James S. Corum, *The Luftwaffe, Creating the Operational Air War 1918-1940*. (Kansas: University Press of Kansas, 1997), 265.

⁹⁴Sönke Neitzel, *Der Einsatz der deutschen Luftwaffe über dem Atlantik und der Nordsee, 1939-1945* (Bonn, 1995).

was then used for mine laying operations and later on for the radio controlled bombs, and the He 115 like the He 59 were floatplanes and not very maneuverable.⁹⁵ A more ambitious development of the Focke Wulf 200 Condor (FW 200), which was initially designed as a commercial airliner, could have remedied this problem. The FW 200 possessed enough payload capability to be used in both roles, mine laying and torpedo employment and, due to his long range, would also have extended the reach of the Luftwaffe over the Atlantic.

Aerial mine laying was not pursued from the beginning of the war. Two reasons can be found for this. First, “the navy questioned the effectiveness of aerial mine laying when the task could be carried out more reliably by U-boats or surface vessels,” and second, the naval war staff had decided not to drop any aerial mines until stocks were big enough to conduct an operation of bigger scale.⁹⁶

While conducting mining operations against the coast of England, the navy had achieved considerable success by having this task executed by destroyers. This success led to the requirement of intensifying these operations by the use of air assets. The naval air force had some multi-purpose assets available to conduct aerial mine laying, but due to limited numbers were not able to achieve any impact. The Luftwaffe, who considered mine laying as one of its responsibilities, was initially not able to support the naval request and larger operations were delayed for a considerable time.

⁹⁵ Radio controlled bombs developed during the war were the Fritx X and the Henschel 293; for further details visit <http://www.warbirdsresourcegroup.org/LRG/missles.html>;

⁹⁶ E. R. Hooton, *Phoenix Triumphant The Rise and Rise of the Luftwaffe*. (London: Arms and Armour Press, 1994), 216; Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, Chap 18.

The Naval Air Command West conducted the first aerial mine laying operations in November 1939. These operations were not in accordance with the initial intentions of the naval war staff; however, they now had the opinion that this weapon should be used to the maximum extent possible.⁹⁷ The naval air force had achieved a certain level of readiness in conducting aerial mine laying operations. In November and December 1939, the naval air force flew five missions and deployed mines in British waters.⁹⁸ Already in the third mission, executed by 3(M)/906 and 3./106 squadron, an aerial mine was not delivered correctly and was recovered by the British. This incident led to a very early discovery of the mechanism of the mine and the development of countermeasures, such as the “de-gaussing” of the ships and effective mine sweeping.⁹⁹ Either type of mine available was able to inflict considerable damage on enemy shipping. However, due to the early discovery of the mine and the early already reduced. The Luftwaffe had not participated in this operation, and therefore the number of mines deployed was small. The effect of surprise, which was desired together with the employment of mines, could not be achieved. This proved to be a lost opportunity for the Germans to deliver a significant blow on British shipping.¹⁰⁰ The technological advantage that the Germans had initially

⁹⁷ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Of3Tc -028.3 4c31m(38(va)Tj10.02 0 0 1 0 10.02 162.48093 2237 Tm6(va)Tj10.02 0 0 10.02 153.52278 212.27992T/49 Tw

was therefore lost quite quickly and an operation that could have led to a successful disruption of British shipping never came to function.

Laying mines proved to be a challenging and dangerous task for the aircrews. Not only did they have to put up with an old and unsuitable navigation system in order to avoid discovery, they had to ingress at high altitude, descend onto the target, drop their mines and escape at low altitude. This maneuver avoided creating noise and other revealing signals and made detection by the enemy harder, but exposed them earlier to enemy fire if detected.¹⁰¹ About a total of seventy mines were dropped, which led to a temporary success.

During the process of taking over tasks of the naval air arm, the Luftwaffe had to prove its capability by achieving success in its missions. The Luftwaffe was in a position of having better equipment than the corresponding naval air force; however, the disadvantage of lack of proper aircrew training had to be overcome.

Again, unfortunate circumstances triggered a development, which in the long term ended up being unfavorable for the navy. In this specific circumstance, the impact on the naval air force was more severe than when losing the anti-shipping task to Fliegerkorps X. The complete transfer of 9th Division under the Luftwaffe command and control left the navy no other option than to rely on the Luftwaffe for mine laying. With the remainder of its few assets, no significant impact on the enemy could be achieved. Lack of proper assets for deployment and limited stocks at the beginning of the war, together with insufficient aircrew training, prevented extensive use of this otherwise very effective

¹⁰¹ Walter Gaul, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Part II, Chap 18.

weapon. However, the mines deployed initially proved to achieve great success until countermeasures were developed to neutralize this threat.

Achievements

Since Germany was prohibited an air force under the Treaty of Versailles, German air assets were down to nothing after the WW I and had to be completely rebuilt. Consequently, most of the available equipment was on a modern standard. At the outbreak of the war “German aircraft equipment at this time was superior to that of any possible European opponent...”¹⁰² The aircraft were mainly designed for operations over land and technical limitations for operations in the maritime environment. Achievements of units during operations depended to a large extent on the capabilities and proper use of assets.

When the campaign against Norway was launched, Luftwaffe units were reorganized. Fliegerkorps X, which essentially consisted of two bomber wings, was significantly augmented by incorporation of bombers, dive-bombers and fighter units, that were temporarily transferred from other Luftflotten. While supporting the campaign, units of Fliegerkorps X launched attacks against enemy shipping and 9th Division continued mining operations, initially in British coastal waters and later on shifting its focus to the Dutch and French coastline. After the campaign was finished, units were reassigned to their original Luftflotten in preparation for the campaign against France and the Netherlands, and Fliegerkorps X was reduced back to its original strength of two

¹⁰² Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 21.

bomber wings, KG 26 and KG 30.¹⁰³ During this whole time, attacks against shipping had been very successful and the additional commitments of Fliegerkorps X did not seem to distract from its original task. From early May until August 1940, according to Luftwaffe reports, a total of 143 ships were sunk and between 289 and 303 vessels were damaged. These figures showed the high degree of proficiency that the aircrews involved in these operations had achieved, how big the potential was when resources were made available, and the high flexibility the Luftwaffe possessed in reorganizing units and reassigning tasks.¹⁰⁴

This concept of augmentation was used again in the Battle of Britain. In preparation for this operation, the strength of 9th Division had been adjusted and increased by about 100 aircraft. From June to August 1940, most mines were dropped in front of the channel and the British harbor areas. A total of 50 missions were flown and several hundred mines deployed.¹⁰⁵ The mine laying operations had been increased and successes claimed were considerably high which proved the effectiveness of such operations.¹⁰⁶ A higher persistence in these operations could have significantly hampered shipping traffic to and from England and thus brought Germany closer to its goal to defeat the British.

¹⁰³ Ibid, 101.

¹⁰⁴ Walter Gaul, *German Air Force Successes in Operations Against Enemy Shipping in the Channel, off the East Coast of Britain and in the North Sea between April and December 1940*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), Appendices 3 – 6.

¹⁰⁵ Ibid, Appendices 3 – 6.

¹⁰⁶ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 101.

Once the Battle of Britain started, instead of keeping the units fulfilling their originally assigned task, the highly specialized Luftwaffe units were re-rolled into common bombing missions. Units of Fliegerkorps X and 9th Division were used in attacking industrial centers and other units took over the task of anti-shipping, using dive-bombers. This reassignment of units led to the neglecting of the important task of cutting England off from its outside supplies.

As long as Luftwaffe units were used in their primary role, in which they had become specialized, the impressive success achieved confirmed the value of those units. Re-assigning new tasks to the units and handing their original task over to unspecialized units led to a significant cut back in effectiveness, due to the lack of experience that those units had in the new assigned roles. Not all units were specialized in aerial warfare over the sea and those who had received adequate training were still limited in their knowledge about employment and attacks as well as in their experience.¹⁰⁷ As a result, from the time the Battle of Britain started until late October 1940, only 13 ships were claimed as sunk, and the Luftwaffe had damaged just 19 vessels. The units involved in the land battle, suffered heavy losses due to sophisticated British air defences and the limited maneuverability of their planes. The decision to reassign tasks to unspecialized units proved to have detrimental impact on the Luftwaffe. In the later stages of the conflict, as the focus of the war started to shift away from the western front, units from

¹⁰⁷ Sönke Neitzel, *Der Einsatz der deutschen Luftwaffe über dem Atlantik und der Nordsee, 1939-1945* (Bonn, 1995).

Fliegerkorps X were transferred to the Mediterranean front, thus weakening the striking power of the Luftwaffe against enemy shipping in the north even more.¹⁰⁸

As a consequence of the modernization of the Fleet agreed by Reichsmarschall Göring and Admiral Raeder, and the partial switch from floatplanes to wheel planes, naval air force units started to operate from land. In addition to their reconnaissance task, they were now also tasked with bombing, a role for which they lacked training and expertise for. As a result, the units took severe losses, leading to a steady decline in personnel experienced in warfare over sea. Losses were partially compensated by the naval flying schools, but the Luftwaffe had to fill up the positions which were left, leading to a steady grip of the Luftwaffe on these units. This development was welcomed by the Luftwaffe who had an interest in possessing their own effective force that could strike against enemy shipping. Many of the units, which were seconded to the Luftwaffe stayed under Luftwaffe command thereafter, and led to a declining influence of the naval air force.¹⁰⁹

The General der Luft realized the implications of losing units to the Luftwaffe quite early in the war. In a report given to the CINC Navy, he openly states that the rationale he had for his position had disappeared, due to a steady decline in units under his command. By that time, the strength of his forces had decreased to 7 Staffeln and he considered his position to be filled with a too high-ranking officer, especially if he compared himself to the Officer in Charge of the Command Atlantic. This command had a total of 15 Staffeln and was led by a Lieutenant Colonel. His recommendation was, to

¹⁰⁸ Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983), 104.

¹⁰⁹ *Ibid*, 101.

subordinate all remaining Küstenfliegerverbände to the Luftflotte 2 or the respective area command and dissolve his command. All that was supposed to be left was a small staff to advise the CINC Navy, a recommendation that was not welcome by the navy, since this would lead to a complete loss of direct influence in the air war over the sea.¹¹⁰

The German navy had to overcome its numerical inferiority against the British fleet by recruiting other means of conducting warfare against enemy shipping. The options were very limited, being either to use U-boats or aerial assets. Again, technical limitations of the Naval Air Force required the assistance of Luftwaffe units to intensify the effect of anti-shipping operations. Even though the Luftwaffe used conventional bombing methods, significant success was achieved by the units of Fliegerkorps X once they were employed against naval targets. However, not until later did the Germans recognize the impact that a complex anti-shipping operation could have on the British economy. Instead, efforts were concentrated on a land and air campaign until the chances of a quick decision against England began to vanish and the focus changed to the supply lines of Great Britain from the sea. From there on considerable effect was achieved in the anti-shipping efforts.¹¹¹

Combined operations between the Luftwaffe and navy were few up to 1942. With the exception of a few raids, in which assets of the naval air force effectively communicated their reconnaissance results with follow on bomber forces over the North

¹¹⁰ Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M., Sep 1939-Mar 1943, May 1943-Aug1944: PG 74896-74944, rolls 3349-50. 07.03.41.

¹¹¹ Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 11, and Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. (London: Arms and Armour Press, 1983, 104.

Sea and cooperated during the operation “Weserübung”, no significant combined operations had been conducted.¹¹²

The development of the German torpedo was accompanied by constant difficulties. The issue of having the navy develop a torpedo, which was to be employed later by units converted to the air force, did not improve navy-air force cooperation. In consequence, the achievements by the use of this weapon until 1942 were minimal, since the torpedo was still in its premature stage. The Luftwaffe had initially not recognized the value of this weapon and took too long to initiate its employment.¹¹³

Conclusion

After World War I, the emerging new organization of the Wehrmacht was very well suited for joint operations. The elimination of the link between the strategic and tactical level and the direct involvement of the Fuhrer himself in matters of the military hampered the effective work of this organization. After the assumption of CINC OKW by Hitler, the coordinating position between all three services was taken on by the Fuhrer himself.

The Luftwaffe organizational structure, with a clear delineation between operational and support establishments, the Luftflotten and the Luftgaue, was intended to enhance the operational effectiveness of the units and to provide maximum flexibility for quick deployment. The organizational structure of the naval air force at the outbreak of

¹¹² Walter Gaul, *The Part Played by the German Air Force and the Naval Air Force in the Invasion of Norway*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 5.

¹¹³ Eberhard Weichold, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, (Wilmington: Scholarly Resources Inc.), 10.

the war had been changed to reflect the desired influence of the Luftwaffe in aerial operations over sea. The lessons from World War I had been realized and the necessity of an air force involved in operations over the sea was not disputed by either the Luftwaffe nor the navy. The units of the naval air force were initially tasked with scouting, and the tasks of anti-shipping and anti submarine operations were added at a later stage of the war. Due to the limited tasks and the agreement signed between Admiral Raeder and Reichsmarschall Goring, the naval air force was left with only a few units and the Luftwaffe took over most of the aerial tasks. The establishment of the General der Luft was more an administrative position than a position with influence on command and control of units, even though it was designed as such. However; both organizational structures, the Luftwaffe and naval air force, were suitable for operations in support of the navy.

Limitations in equipment hampered effective employment of available assets and weapons. After the agreement between Raeder and Goring had been signed, equipment was tailored closer to the needs of the Luftwaffe than to the naval air force requirements, even though the available doctrine clearly addressed the requirement for support of naval operations. The result was that the equipment available to the naval air force for scouting and later for other tasks was not up to date and did not prove useful in achieving the tasks. Floatplanes were not useful for long-range reconnaissance patrols and were barely able to execute the task of mine laying. Restrictions due to operations in sea harbors led to the Luftwaffe taking over tasks from the naval air force and establishing itself as the service, in the best position to conduct aerial operation in support of the navy. Both,

Fliegerkorps X and 9th Division proved to be units with high flexibility performed well, which resulted in the naval air force losing its influence in the aerial war at the sea.

The delayed development of the torpedo and the underestimation of its effectiveness by the German staff ended in the loss of the opportunity of achieving a greater success in anti shipping operations. Even after an operational torpedo had been developed, the indecisiveness of the leadership in employing this weapon made the achievements small. The air dropped mines available to the Germans could have had a significant impact on British shipping. In particular, the magnetic mine was a technical innovation for which no countermeasures had been developed yet. One single mine that was dropped in the wrong location and had been recovered by the British annihilated the German advantage very quickly, as this event led to the development of countermeasures and rendered the mines of this type ineffective.

The augmentation of Luftwaffe units during the Norwegian campaign and their following high success rate proved the flexibility of these units. Reorganization of units and reassignment of tasks did not hamper the command and control of these units. Much more damaging to the success of the Luftwaffe was the wrong assignment of units to tasks, for which they had little or no training and minimal experience. The striking power of the Luftwaffe in the war at sea was significantly decreased, as the reduction in the number of successful ship attacks demonstrated. These units could have performed much better in their originally assigned roles.

The organizational structure provided the required basis to allow quick deployment, augmentation of units and command and control of the Luftwaffe as well as the naval air force. The fact, that the General der Luft was more in an administrative than

a commanding position was not in accordance with the terms of reference, but didn't significantly hamper the conduct of operations. The lack of modern equipment especially tailored to the needs of a naval air force and for the employment in the maritime air role, was not remedied until after two years into the war. By this time, valuable opportunities to gain an advantage over the British had been lost and the Germans were facing serious resistance when attacking England. Nevertheless, at the time when the Luftwaffe units were employed in their specialized role, the Luftwaffe did achieve great success and inflicted considerable damage on enemy shipping. This was proven during the campaign in Norway and in several attacks on enemy shipping. In the end, it was not so much a factor of organizational structure, but more the lack of adequate equipment, limitations in command and control and the misemployment by the German leadership of units in their primary role with the correct weapons, that significantly undermined effective support of naval operations by the Luftwaffe until 1942.

Bibliography

Primary Sources

Corum, James S. and Richard R. Muller, *The Luftwaffe's way of war, German Air Force Doctrine 1911-1945*. Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1998.

“Feldgrau.com – research on the German Armed Forces 1918-1945.” Available from <http://www.feldgrau.com>; Internet; accessed 19 March 2004.

Gaul, Walter, *German Air Force Successes in Operations Against Enemy Shipping in the Channel, off the East Coast of Britain and in the North Sea between April and December 1940*. Essays by German Officers and Officials on World War II, Wilmington: Scholarly Resources Inc.

Gaul, Walter, *Navy-Air Force Planning and Build-up of the Naval Air Forces; Their Disbandment, and the Transfer of Naval Air Commitments to the Operational Air Force*. Essays by German Officers and Officials on World War II, Wilmington: Scholarly Resources Inc.

Gaul, Walter, *The Development of the Naval Air Force Up to the Outbreak of the 1939-1945 War and its Activity during the First Seven Months of the War*. Essays by German Officers and Officials on World War II, Wilmington: Scholarly Resources Inc.

Gaul, Walter, *The Part Played by the German Air Force and the Naval Air Force in the Invasion of Norway*. Essays by German Officers and Officials on World War II, Wilmington: Scholarly Resources Inc.

Handakte General der Luftwaffe beim Ob.d.M., Feb 1939-Oct1941:PG 32975, roll 3986

Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M., Sep 1939-Mar 1943, May 1943-Aug1944: PG 74896-74944, rolls 3349-50

Kriegstagebuch des Generals der Luftwaffe beim Ob.d.M./O.Qu. (administrative and supply matters) – Sep. 1939-Dec1941: PG 74948-975, rolls 3350-53

“Luftwaffe Resource Center” Available from <http://www.warbirdsresourcegroup.org/LRG/missles.html>; Internet; accessed 19 March 2004.

Weichold, Eberhard, *A Survey from the Naval point of View of the Organization of the German Air Force for Operations over Sea, 1939-1945*. Essays by German Officers and Officials on World War II, Wilmington: Scholarly Resources Inc.

Secondary Sources

Baumbach, Werner, *Broken Swastika, the Defeat of the Luftwaffe*. London: Robert Hale Limited, 1960.

Baxley, Brian T. "April 1940 German Invasion of Norway – The Dawn of Decisive Airpower during Joint Military Operations," Maxwell: Air University, Air Command and Staff Course, 1997.

Claasen, Adam R. A., *Hitler's Northern War: The Luftwaffe's Ill-Fated Campaign, 1940-1945*. Kansas: University Press of Kansas, 2001.

Corum, James S., *The Luftwaffe, Creating the Operational Air War 1918-1940*. Kansas: University Press of Kansas, 1997.

Deichmann, Paul, *German Air Force Operations in Support of the Army, German Air Force Operations in Support of the Army*. USAF Historical Studies: No. 163, USAF Historical Division Research Studies Institute Air University, New York: Arno Press, 1962.

Great Britain. Air Ministry, *The Rise and Fall of the German Air Force 1933-1945*. London: Arms and Armour Press, 1983.

Hooton, E. R., *Phoenix Triumphant The Rise and Rise of the Luftwaffe*. London: Arms and Armour Press, 1994.

Hümmelchen, Gerhard, *Die deutschen Seeflieger 1935-1945*. München: J.F.Lehmanns Verlag, 1976.

Lee, Asher, *The German Air Force*. New York and London: Harper & Brothers Publishers, 1946.

Murray, Williamson, *German Military Effectiveness*. Baltimore, Maryland: The Nautical and Aviation Publishing Company of America, 1992.

Muscha, William R., "Strategic Airpower Elements in Interwar German Air Force Doctrine," Master's thesis, Fort Leavenworth, Kansas, 2001.

Neitzel, Sönke, *Der Einsatz der deutschen Luftwaffe über dem Atlantik und der Nordsee, 1939-1945*. Bonn, 1995.

Nielsen, Andreas, *The German Air Force General Staff*. USAF Historical Studies: No. 173, USAF Historical Division Research Studies Institute Air University, New York: Arno Press, 1959.

Price, Alfred, *Luftwaffe Handbook 1939-1945*. New York: Charles Scribner's Sons, 1977

Suchenwirth, Richard, *Historical turning points in the German Air Force War Effort*.
USAF Historical Studies: No. 189, USAF Historical Division Research Studies Institute
Air University, New York: Arno Press, 1968.

Annex

Explanation of terms and abbreviations¹¹⁴

Bordfliegerverband		Embarked Air Unit
Führer		The Leader Adolf Hitler
Generalmajor		Brigadier General
Generalleutnant		Major General
Generaloberst		General (4 Star)
Generalfeldmarschall		General (5 Star)
Geschwader		Wing
Gruppe		Group / Battalion
Kampfgeschwader	KG	Bomber Wing
Kette		Chain
Kriegsdienstanweisung		Terms of Reference for War
Küstenfliegergruppe	KFG	Coastal Air Group
Küstenfliegerstaffel		Coastal Air Squadron
Luftflotte		Air Fleet
Luftkriegsakademie		Air War Academy
Luftstreitkräfte		German Army Air Corps
Lufttorpedo	LT	Aerial Torpedo
Oberbefehlshaber		Commander in Chief
Oberkommando des Heeres	OKH	Army High Command
Oberkommando der Luftwaffe	OKL	Air Force High Command
Oberkommando der Marine	OKM	Naval High Command
Oberkommando der Wehrmacht	OKW	Armed Forces High Command

¹¹⁴ E. R. Hooton, *Phoenix Triumphant The Rise and Rise of the Luftwaffe*. (London: Arms and Armour Press, 1994), 307-312, and Alfred Price, *Luftwaffe Handbook 1939-1945*. (New York: Charles Scribner's Sons, 1977), 108.

Reichsluftfahrtministerium	RLM	National Air Ministry
Reichskanzler		Reichschancellor
Reichsmarschall		No Equivalent
Reichswehr		The National Forces
Seekriegsleitung		Naval War Staff
Staffel		Squadron
Trägerverband		Aircraft Carrier Unit
Wehrmacht		Armed Forces