

USAF HISTORICAL STUDIES: NO. 160

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The Development of the German Air Force, 1919-1939

by

Professor Richard Suchenwirth

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USAF HISTORICAL DIVISION
AEROSPACE STUDIES INSTITUTE
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THE DEVELOPMENT OF THE GERMAN AIR FORCE,
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Professor Richard Suchenwirth

Edited by Mr. Harry R. Fletcher
USAF Historical Division

*For some reason
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USAF HISTORICAL DIVISION
Aerospace Studies Institute
Air University
June 1968

1012406
 6-4968-1A

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Generaloberst Hans von Seeckt
in his Thoughts of a Soldier

FOREWORD

The Development of the German Air Force, 1919 to 1939, written by Professor Richard Suchenwirth, and revised and edited by Mr. Harry R. Fletcher, is one of a series of historical studies written for the United States Air Force Historical Division by men who had been key officers in or outstanding authorities on the German Air Force during World War II.

The overall purpose of the series is twofold: 1) To provide the United States Air Force with a comprehensive and, insofar as possible, authoritative history of a major air force which suffered defeat in World War II, a history prepared by many of the principal and responsible leaders of that air force; 2) to provide a firsthand account of that air force's unique combat in a major war, especially its fight against the forces of the Soviet Union. This series of studies therefore covers in large part virtually all phases of the Luftwaffe's operations and organization, from its camouflaged origin in the Reichswehr, during the period of secret rearmament following World War I, through its participation in the Spanish Civil War and its massive operations and final defeat in World War II, with particular attention to the air war on the Eastern Front.

The German Air Force Historical Project (referred to hereinafter by its shorter and current title, "The GAF Monograph Project") has generated this and other especially prepared volumes which comprise, in one form or another, a total of more than 40 separate studies. The project, which was conceived and developed by the USAF Historical Division, was, upon recommendation of Headquarters Air University late in 1952, approved and funded by Headquarters USAF in early 1953. General supervision was assigned to the USAF Historical Division by Headquarters USAF, which continued principal funding of the project through 30 June 1958. Within the Historical Division, Dr. Albert F. Simpson and Mr. Joseph W. Angell, Jr., respectively Chief and Assistant Chief of the Division, exercised overall supervision of the project. The first steps towards its initiation were taken in the fall of 1952 following a staff visit by Mr. Angell to the Historical Division, Headquarters United States Army, Europe, at Karlsruhe, Germany, where the Army was conducting a somewhat similar historical project covering matters and operations almost wholly of interest to that service. Whereas the

Army's project had produced or was producing a multiplicity of studies of varying length and significance (more than 2,000 have been prepared to date by the Army project), it was early decided that the Air Force should request a radically smaller number (around 40) which should be very carefully planned initially and rather closely integrated. Thirteen narrative histories of GAF combat operations, by theater areas, and 27 monographic studies dealing with areas of particular interest to the United States Air Force were recommended to, and approved by, Headquarters USAF in the initial project proposal of late 1952. (A list of histories and studies appears at the end of this volume.)

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These studies find their principal authority in the personal knowledge and experience of their authors. In preparing the studies, however, the authors have not depended upon their memories alone, for their personal knowledge has been augmented by a collection of Luftwaffe documents which has come to be known as the Karlsruhe Document Collection and which is now housed in the Archives Branch of the USAF Historical Division. This collection consists of directives, situation reports, war diaries, personal diaries, strength reports, minutes of meetings, aerial

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The complexity of the GAF Monograph Project and the variety of participation which it has required can easily be deduced from the acknowledgements which follow. On the German side: General Deichmann, who, as Chief Control Officer, became the moving force behind the entire project, and his assistant, General Plocher; General Josef Kamhuber, a contributor to, and strong supporter of, the project, who became the first chief of the new German Air Force; Generaloberst (Ret.) Franz Halder, Chief of the German Army General Staff from 1938 to 1942, whose sympathetic assistance to the project was of the greatest value; the late Generalfeldmarschall Albert Kesselring, who contributed to several of the studies and who also, because of his prestige and popularity in German military circles, was able to encourage many others to contribute to the project; and all of the German "topic leaders" and "home workers" who are too numerous to mention here, but whose names can be found in the prefaces and

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PREFACE

The Treaty of Versailles (signed by Germany on 28 June 1919) allowed the Reich to maintain an army defense force of 100,000 men, a small naval force of 15,000 men, and no air forces at all. The Army was to be a professional body in which enlisted men would be required to serve for 12 years and officers for 25 years. The Navy was outfitted with a few antiquated vessels, while the Army was equipped with arms of World War I vintage. The construction of both tanks and aircraft was proscribed by the terms of the settlement. The German Army (Reichsheer) thus became a sort of reinforced police force, intended mainly for use against incursions along the eastern border next to Poland.

Of the great powers, France was by far the most concerned with maintaining the status quo of Versailles, and immediately took steps to establish strong mutual-assistance ties with Poland, Czechoslovakia, Rumania, and Yugoslavia. As a result, Germany, reduced in size and prestige, recognized that the reconstruction of its armed forces would have to be accomplished (at least in great part) by means of subterfuge and deception.

Bitter internal political struggles hindered the recovery of German's economy and the reconstruction of its armed forces. The military clauses of Versailles also had an important bearing upon matters. Aviation activities on German soil were out of the question, since the meticulous scrutiny of the Inter-Allied Control Commission would have quickly ferreted out even the most insignificant effort to establish flying organizations, to produce military aircraft, or to convert civil aircraft to military uses. In such circumstances it was natural that the German aviation industry would fall far behind its foreign counterparts.

These handicaps forced Germany to seek a partner which would permit German aircraft firms to establish factories on its soil, and which would allow German airmen to train there as well, outside the limitations of Allied treaties. Of the nations which ranked among the great powers in Europe after 1919, only the Soviet Union was comparable to Germany in being universally disliked by the Allies, and in presenting a suspicious picture. Both had lost more in the war than they had gained and both saw little reason to expect benevolence from the Western Allies.

Generaloberst Hans von Seeckt, reflecting upon this situation, noted that "people become bound to each other against other nations more from common hatred than from common friendship for each other."

In 1922, the German Foreign Minister, Dr. Walther Rathenau, signed the German-Russian Commercial Treaty at Rapallo, an agreement which contained, as the Allies suspected, a secret military clause. This allowed the Reich to make use of the Soviet airfield at Lipetsk for research, development, and training, and to construct a substantial aircraft factory at Fili, near Moscow. At the same time, armored equipment and chemical warfare items were to be tried out at Kazan in the Volga area. This new arrangement permitted all sorts of experimentation without fear of Allied interference. German officers could thus take part in Soviet maneuvers, and could freely experiment with military air tactics. During the 1920's more than 180 Reichswehr officers (most of whom later became Luftwaffe officers) received practical schooling in aviation in the Soviet Union.

While the German government allotted 80,000,000 Reichsmarks for the construction of the Junkers plant near Moscow, the Defense Ministry began the first theoretical steps toward establishing personnel and logistical requirements for a future German air force. These preparations had to be made in the utmost secrecy, since every move was fraught with the danger of political, and even military, repercussions. This policy of tight secrecy continued in full effect until 1929, by which time growing international financial crises diminished the need for the most stringent security measures.

Actual planning for the establishment of a first class air force within the framework of the Army did not come about before 1928. Estimates of the German industrial potential of the time suggested that 7,000 aircraft could be constructed for the Army and another 1,700 for the Navy by the end of 1929. This idea was scarcely within the bounds of reality, for Germany was beset with shortages of all kinds of raw materials, fuel shortages, and deficiencies in the areas of engine and airframe design and construction, and air armaments and munitions. The Army Command was not overly concerned inasmuch as it reckoned almost solely with the possibility of an encounter with Poland.

Broadening the basis of the aviation buildup came about concurrently with the expansion of the Army. It may have been a natural result of the experiences in Russia that caused so many Army officers (and even some airmen) to view air power as an entity designed for the support of field armies. Some subsequent Luftwaffe officers found themselves torn between the concepts of Douhet and the argument of a "land strategy." The result was a peculiar mixture of "longing for a strategic air force" while acting almost entirely in the direction of "close support." Even in World War II German air leaders could not free themselves from the bonds of this divisive outlook. The Russians, as events were to show, never saw air power as anything but an army support force.

German air leaders from 1928 on had excessively optimistic estimates of the Reich's industrial capacity. This led to an almost pathological belief that German industry was capable of doing "the impossible." Only late in World War II was there an effort to put industry completely upon a war footing, but, by that time it was too late to offset years of poor direction.

When Hitler came to power in 1933 the air forces of Germany were hardly comparable to the two senior services. The entire Wehrmacht was faced with raw material shortages, and an overly-hasty buildup of the air armament industry caused considerable duplication of effort and waste of time and materials. The requirements for the entire armed forces, but especially the Luftwaffe, were for "too much, too soon," a factor which was responsible for producing a sizeable and rapidly expanding Army, and a growing Navy and Luftwaffe, but ones which in the final analysis stood on "shaky legs."

The Nazi rise to power brought in Hermann Goering as Reichs Minister of Aviation and Commander in Chief of the Luftwaffe. As number two man in Germany, Goering was in a position to advance his Luftwaffe, sometimes at the expense of the Army and Navy. In addition, the plethora of offices conferred upon him by Hitler gave additional prestige to the Luftwaffe, an important factor in the course of an arms race between service branches, especially in the contention for iron and steel allotments.

Goering's plan to make use of the airline Lufthansa as the foundation stone of a new and independent air force was soon dropped, since the aircraft flown by Lufthansa were too outmoded

for modern military purposes, and the conversion of commercial aircraft types to military models was a difficult and time-consuming proposition at best. The Luftwaffe, a unique and colorful branch of service, was under great pressures to prove that it deserved its independent status and that it was capable of being a decisive factor in winning a war. In 1933, Goering began to build his so-called "Risk Air Force" (Risiko-Luftwaffe), and, within two years, both he and Hitler felt confident enough to announce the existence of this new entity to the world.

Until 1938, the buildup of the Luftwaffe progressed remarkably well, a fact which was recognized by leading aviation authorities in several major nations. But, the buildup of this force was made at the expense of vital, long-range planning in the areas of training, logistics, and strategic air power. Could one have expected a different outcome, considering the fact that the Luftwaffe's builder was not a professional soldier, and surely no strategist? Goering was, in short, a "political soldier," a term which the Nazi Party loved to use. Was it not logical then, that the air forces, in his hands, would become as much of an instrument of politics as was the National Socialist Party? Too much attention was paid to this possibility to the neglect of underlying and more eternally vital aspects of aviation. It could not be denied, however, that the "Risk Air Force" played an important role in both the Austrian and Czech crises.

Until well into World War II, Goering sought to prove the decisive capability of the Luftwaffe as the single element capable of bringing a campaign to an end, but neither his leadership nor his understanding of the use of air power were commensurate to the tasks at hand. He remained confident that the Luftwaffe could annihilate an enemy's forces by a sudden, overwhelming attack before the enemy could strike. However, he neglected to note that Douhet envisioned the execution of such an attack with the assumption that every possible sort of personnel, materiel, and psychological resources would be readily available and would continue to be available throughout the course of the attack.

From the standpoint of logistics, training, the organization of the higher echelons of command, and industrial mobilization, the Wehrmacht's expansion, especially that of the Luftwaffe, left much to be desired. Mighty as German military power seemed to be in 1938 and 1939, it was capable only of accomplishing isolated European campaigns. Leaders of the High Command knew that the

Wehrmacht was not ready for successful offensive operations at that time, and their pessimistic views were to lead to direct conflicts with the Fuehrer. This Goering was able to avoid for at time. Perhaps the mistakes and omissions might have been largely rectified had the Luftwaffe been able to peacefully outlive its growing pains, to establish itself in depth, and to improve organizational and development problems in the fields of aircraft production and command and leadership. The caprices of Hitler did not allow the necessary modifications, and the results are now a part of history.

ABOUT THE AUTHOR

Professor Dr. Richard Suchenwirth, a well-known and somewhat controversial German and Austrian historian, author, teacher and lecturer, was born in Vienna on 8 October 1896. Until 1934 he pursued the career of teacher in his native Austria. He became a citizen of Germany in 1936, and, until 1944, was Director of the Teacher's College at Munich-Pasing. In the final year of World War II he was a Professor of History at the University of Munich. Europas letzte Stunde? (Europe's Last Hour?), the last of his many books, was published in 1951.

Professor Suchenwirth's interest in military history dates back to his childhood when he memorized accounts of Hannibal's battles and traced the great general's campaigns on his father's maps. A lieutenant in World War I, he served as an aide to an Austrian general and learned much at firsthand concerning the problems of leadership.

Probably no other historian has interviewed as many of the highest ranking officers of the German Wehrmacht as has Professor Suchenwirth. He has enjoyed a particularly close association with all of the contributors of the GAF Monograph Project and is thoroughly familiar both with their work for the USAF Historical Division and with the documents which have been brought together in the Karlsruhe Document Collection.

In his own words, Professor Suchenwirth's interest in military history ". . . lies not in any affection for militarism, but rather in the realization of the extent to which freedom and the greatness and fate of a people are dependent upon military decisions; of how many human lives, how many brave soldiers and people behind the front are affected by good or bad leadership in time of war."

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Chapter I

GERMAN MILITARY AVIATION FROM THE ARMISTICE
OF 1918 TO THE ESTABLISHMENT OF THE REICHS
AVIATION MINISTRY, 1 MAY 1933

The End of the Old Air Force and the
Beginning of a New Era

Part V of the Versailles Treaty, signed 28 June 1919 and put into effect on 10 January 1920, prohibited Germany from undertaking any activity whatsoever in the field of military aviation and in the manufacturing of military aircraft, including weapons and equipment. Article 198, Part V, stipulated:

Germany is forbidden to maintain either land or sea forces She will not be permitted to retain any dirigibles.¹

Article 202 of the Treaty specified that Germany had to surrender:

. . . all her land and water aircraft, including any which may be in the process of manufacture, development, or construction.²

This surrender order also covered:

. . . aircraft engines, ballonets, and wings, armaments, ammunition, airborne instruments, wireless equipment, photographic equipment (including movie cameras).³

These demands meant the end of the German Air Force.

During World War I, in the face of steadily increasing American, British, and French air superiority, the German Air Force had challenged the enemy to the very end in the airspace over the front, and the bomber squadrons of the Army High Command (Oberste Heeresleitung) had penetrated deep into enemy

territory. At the same time, the German Air Force had provided effective protection for the German homeland area. In the end, if the Armistice had not intervened on 11 November, the dissolution of three German armies during the occupation of the Meuse-Antwerp line would have provided Generalleutnant Ernst von Hoepfner,* Commanding General of the German Air Force, with the opportunity of "assigning more than adequate air forces to the divisions and groups."⁴

This air force had proven itself in a total of 7,425 aerial victories, at a cost of 3,021 officers and 3,809 non-commissioned officers and enlisted men. Even in 1918 (the summer of which cost the lives of so many German airmen) the German Air Force reported the destruction of 3,732 enemy aircraft, with a loss of 1,099 of its own aircraft in the period from January through September.⁵ The young American Air Force, in particular, whose pilots attacked with such death-defying courage, suffered heavy losses at its hands.

In his final order of 21 January 1919, on the occasion of the demobilization of the Imperial German Air Force, General von Hoepfner praised his force in the following words:

The air units, the antiaircraft artillery forces, and the zeppelin groups, supported by their reliable weather service, have established an outstanding record at the front, a record whose brilliance increased more and more as the war progressed. The home air defense units, often in tiresome routine patrols, have spared those parts of the homeland which were threatened by enemy air attack from heavy losses in human life and devastating destruction of property.

All this has been possible only because of your incomparable courage, your alertness, and your devotion to duty. You were often hard-pressed in the unequal fight against a numerically stronger enemy, and yet you have proven yourselves to be superior to him.

Undefeated, the German Air Force complies with the Armistice. You may be assured of the gratitude of the Army and the Fatherland.⁶

*Editor's Note: See biographical section at the end of this study.

Following the demobilization, a small number of pilots were transferred to the Reichswehr (National Army), which was established on 6 March 1919, and whose nucleus consisted of volunteer units. By virtue of their membership in the Reichswehr, Air Force personnel took part in the crushing of rebellions in northern and central Germany as well as in border patrol actions set up to meet the Polish threat and the Bolshevik assault in the Baltic.^{7*} But these last remaining pilots also fell under the Treaty of Versailles, which had in the meantime been ratified. Thus, on 8 May 1920, after only ten years of existence, "a brave young arm of service silently and proudly laid down its arms."^{8/} A number of other air units, which had transferred bodily to the Security Police (Sicherheitspolizei) prior to the demobilization order, suffered the same fate. Only the police units lasted until 1920, when they were permanently disbanded

*Editor's Note: Throughout 1919 and 1920 Germany was torn by a series of serious Communist uprisings, which in Munich, Bavaria resulted in the establishment of a Soviet Republic (4 April 1919). These were all put down by the German government. The disorders caused in the Ruhr area by Communists (March 1920) were crushed with severity by the government. France retaliated against the German government for pursuing radicals into "off limits" areas by occupying the Ruhr and Frankfurt-on-the-Main, 6 April-17 May 1920. In the Baltic, German forces cooperated with Latvian forces to drive out Russian Bolshevik units which had invaded Latvia, 3 March 1919. When the Latvian government asked the Germans to leave at the end of hostilities, fighting broke out between the Latvians and Germans, which continued until 1920 when General von der Goltz and his forces returned to Germany.

/Generaloberst Hans von Seeckt's edict of that date mentions the demise of the old air forces.

at the time of the Kapp Putsch.*

Early Stages in the Rebirth of German Aviation

The Army Command (Heeresleitung) in charge of the National Army, which had been brought into being by the law of 6 March 1919 and subsequently modified to comply with the peace terms, was, until 1926, guided by the keen intelligence and firm determination of Generaloberst Hans von Seeckt. // The Army Command was far from being a mere military adventure, as would have been the case under the prevailing circumstances if it had occupied itself with the reconquest of Germany's lost territories in the east or with an overt rearmament program. Instead, what was uppermost in the minds of von Seeckt and his staff was concern over a possible Polish invasion and annexation of East Prussia

*Editor's Note: A plot to overthrow the German government, instigated by General Walther von Luettwitz, Vizeadmiral Adolph von Trotha, and others, chief of whom was Dr. Wolfgang Kapp of Koenigsberg. The immediate cause was the government's order, pursuant to the Inter-Allied Control Commission directive, to disband two naval brigades stationed in Doerberitz under the commands of Lt. Commanders Werner Ehrhardt and Loewenfeld. These forces occupied Berlin 11 March 1920 and the government left the city. An appeal was made to the Reichswehr to oust these troops, but Generaloberst Hans von Seeckt, Reichswehr Chief, maintained a strict "hands off" attitude, declaring, "Truppe schießt nicht auf Truppe" ("Troops don't fire on the Troops.") The takeover lasted only five days after Berliners responded to Socialist calls for passive resistance.

//See General der Flieger a.D. Helmuth Felmy, "Luftfahrtausbildung der Reichswehr" (Aviation Training in the Reichswehr), Part I, "Vom Versailler Diktat bis Ende 1928" (From the Versailles Treaty [because of the fact that it was a dictated peace, Germans always called it the "Versailles Dictate"] to the end of 1928), and Generalleutnant a.D. Bruno Maass, "Organisation der Fliegerstellen im RWM 1920-1933" (Organization of Flying Positions in the Reichswehr Ministry 1920-1933), Karlsruhe Document Collection.

//See figure 1.



Figure 1

Generaloberst Hans von Seeckt, Chief of the Troop Office and later Chief of the Reichswehr. Founder of the 100,000 Man Army.



Figure 2

Colonel Hermann von der Lieth-Thomsen, Chief
of Field Flying Forces in World War I,
at his desk. A German aviation
pioneer.

or Silesia, in other words a problem which was purely defensive in character and thus fully in keeping with the task of the National Army, which was, after all, the defense force of the Reich.

Von Seeckt was keenly aware of the potential significance of the air forces which were denied Germany by the Versailles Treaty. Thus, "in defiance of the wishes of the 100,000 Man Army and of the serious objections voiced by the Army Personnel Office, von Seeckt ordered that 180 pilot officers, veterans of World War I, specifically selected by the commanders of Germany's former Air Force, be accepted into the National Army."¹⁰ Neither Colonel Hermann (Hans) von der Lieth-Thomsen,* organizer and actual commander of the German Air Force (who since 11 March 1915 had served as Chief of Field Flying Forces [Chef des Feldflugwesens]), after the Air Force had been officially separated from the Communications Forces, and since 8 October 1916 as chief of staff in the office of the newly created Commanding General, Air Force, nor Lieutenant Colonel Wilhelm Siegert, Air Force Inspector (Inspekteur der Fliegertruppen) since 31 July 1916, both extremely capable officers, joined the National Army.

Von Seeckt's alert intelligence and his farsighted evaluation of the potential significance of the air force -- he was so firmly convinced of its importance that he recommended that it be organized as a separate, independent branch of the armed forces -- rendered a great service to German military aviation.¹¹ Under the conditions laid down by the Versailles Treaty, to be sure, the National Army could do no more than to try to maintain interest in military aviation by establishing agencies which could at least keep up with developments in the field of aviation. These agencies soon became centers for aviation enthusiasts. Originally introduced as a stop-gap measure, they gradually developed into the nuclei and the cadres of a new German air force. In the words of General der Flieger Wilhelm Wimmer, "Seeckt used all of his influence and authority to protect his group of fliers against attacks all the way up to Cabinet level."¹²

*See figure 2.

On 1 March 1920, the following agencies were established:

a) An Air Organization and Training Office (TA L) within the Troop Office (Truppenamt)* of the Reichs Ministry of Defense. This office was directly subordinate to the Chief of the Troop Office, and remained so even after von Seeckt's retirement.¹³ In reality the central office for all questions pertaining to military aviation, this office bore the official designation "Air Defense Office", which was all the more appropriate after 1926, when the National Army was permitted an air defense branch (ground-to-air defenses only). It was under the command of Major Helmut Wilberg, who was assisted by a sergeant and a civilian administrator.

b) The "Foreign Air Office" (one officer), within the Foreign Armies Department (T-3) of the Troop Office. Its task was the compilation and evaluation of information concerning foreign air forces.

c) The "Air Technical Office," within the Office for Weapons and Equipment in the Army Ordnance Office (Heereswaffenamt). The officer in charge was Captain Kurt Student, and his mission was to follow aeronautical developments abroad in the field of technology. During the first few years of its existence, the Air Technical Office was purely a center for the compilation of information, restricted to preparing summaries of significant foreign publications and experiments for study by appropriate agencies of the National Army. Besides its primary mission, the Air Technical Office very early (1921) began to take an interest in the sport of gliding in the Rhoen¹⁴ and did a great deal to promote this activity.¹⁴

* Editor's Note: The Troop Office (Truppenamt) originally had a membership of about sixty persons. It was the secret continuation of the Great General Staff, and bore its traditions and spirit into the new Army. The Great General Staff had been outlawed by the Treaty of Versailles. See Walter Goerlitz, History of the German General Staff 1657-1945, New York: Frederick A. Praeger, 1962, pp. 218-219, 225-228, 241-243. See Chart No. 1.

¹⁴ Editor's Note: A low mountain range located northeast of Hanau in the vicinity of Fulda, an area with abundant thermal updrafts, making it ideal for gliding activity. It has continued to be the most popular gliding area in Germany.

d) The "Air Armament Economics Office" (Fliegerruestung-wirtschaftliches Referat) or WaWiL, whose task it was to compile and evaluate information pertaining to developments in the sector of armament economy abroad. This office was under the direction of Captain Wilhelm Vogt.¹⁵

e) A procurement office was also planned, but, understandably, never came into being.

With the title of Special Duty Consultants, Air Consultant Offices consisting of one officer and two assistants, one of them an aerial photography officer, equipped with an archive of aerial photographs, were assigned to the seven Military Area Headquarters (WehrkreisKommandes) and, after 1929, also to the staff headquarters of the three cavalry divisions, where they did their best during training exercises, war games, and maneuvers, to see that both officers and troops were made aware of the potential uses of flying forces and air defense units. In addition, the 3rd Company 2nd (Prussian) Motor Transport Battalion, was assigned to carry on the tradition of the Prussian air units, and the 1st Company, 7th (Bavarian) Motor Transport Battalion, that of the Bavarian air units. Both companies remained in close contact with civilian aviation associations.¹⁶ The German Navy also created agencies to deal with aviation matters.¹⁷

Still there was no way for the National Army to procure even reconnaissance or liaison aircraft. Only on one occasion, at the time of the French march into the Ruhr District in 1923, was a fairly large sum of money approved for this purpose, and then only after von Seeckt had personally requested it in an interview with Reichs President Friedrich Ebert. The money was spent on 100 Fokker D-XIII aircraft (with 450 horsepower Napier "Lion" engines), which were purchased from the Netherlands.¹⁸ But these aircraft were delivered very late. Fifty of them (the older model) were sold to Rumania, while the other fifty were sent to Lipetsk in Russia for future training purposes.¹⁹

Paragraph 201, Part V, of the Versailles Treaty specified that:

For a period of six months after the present

Treaty goes into effect, Germany is forbidden to manufacture or to import aircraft or aircraft parts.²⁰

The Paris Agreements, which were announced on 29 January 1921, forbade the government of Germany to authorize the manufacture and import of aircraft and aircraft equipment until three months after the date on which the Inter-Allied Aviation Commission should have confirmed Germany's full compliance with Article 202.²¹ At the same time the German government was cautioned to interpret exactly all of the definitions laid down by the Allies in Article 198, distinguishing between permissible civil aviation and forbidden military aviation. Aircraft manufactured in Germany were not permitted to have speed capabilities greater than 195.5 miles per hours or ceiling capabilities higher than 13,120 feet.²²

These "definitions" did much to hamper developments when on 5 May 1922 Germany was at last in a position to authorize the manufacture and import of aircraft, insofar as they did not violate the provisions of Article 202 of the Versailles Treaty.²³ At this point, however, Article 314 came to Germany's aid:

However, subject to any regulations which Germany may enact, regulations which must be equally binding upon German aircraft and the aircraft of the Allies and their associates, the aircraft of the Allies and their associates shall have the right to fly over German territory and German sovereign waters, without landing, enroute to any other country.²⁴

It was this article which was later to lead to a complete disregard of the Allied "definitions." In the meantime, however, the German aircraft industry had no choice but to adhere strictly to those limitations, the only exceptions made being those connected with the manufacture of fighter aircraft for performance contests.

In order to get around the manufacturing ban imposed by the Versailles Treaty, German aircraft firms had established branch offices abroad. Their sales were fairly modest, but they did provide sufficient funds to maintain their construction offices. Junkers had established a branch office of this sort

in Sweden and at Rohrback in Holland, and Claudius Dornier established one in Switzerland and Italy, respectively. In complete disregard of the ban, the naval air pilot Carl Caspar had built in Travenmuende* a few of the aircraft designed by Heinrich Heinkel for sale to the United States and Japan, and had provided the Swedish Navy with designs and parts for its aircraft. After the ban was lifted in 1922, the Ernst Heinkel Aircraft Works, which was established in 1922 in Warnemuende, and later transferred to Travemuende, continued this activity.²⁵

By 1919, stemming from beginnings made during the war years (establishment of the German Air Transport Agency [Deutsche Luftreederei] in 1917), a modest network of air transport had developed, whose activity was occasionally hampered by the ban on aircraft construction and flying. As soon as construction activity was permitted once more in Germany, the German Air Transport Agency reappeared on the scene, together with some thirty other, similar, companies. Most of these firms merged into the German Aerolloyd Company, while Professor Hugo Junkers, in Dessau, † set up his own company, which soon established a number of subsidiaries, especially in Latin America.²⁶

The activity of the Aviation Department (Abteilung Luftfahrt), Reichs Ministry of Traffic, proved to be of great benefit for Germany's newly established aircraft construction firms as well as for the work of the Reichs Defense Ministry. As early as December 1918, the "People's Council" (Rat der Volksbeauftragten) had organized a Reichs Air Office (Reichsluftamt); the Aviation Department, more modest in scope but incomparably more effective in activity, was its successor. As the official representative of German aviation as a whole, the Department was the source from which foreign air and naval attachés received their information.

In late 1924, "at von Seeckt's intervention,"²⁷ Captain Ernst Brandenburg (Ret.) was appointed chief of the Department, with the rank of Ministerial Director (Ministerialdirigent).

*Editor's Note: Warnemuende is due north of Rostock on the Bay of Mecklenburg, while Travenmuende is northeast of Luebeck on the Bay of Luebeck.

† Situated in Sachsen-Anhalt southeast of Magdeburg and Zerbst.

Captain Brandenburg had won an enviable reputation as a bomber wing commander during the war, was a disabled veteran, and held the coveted order Pour le Mérite, the highest Prussian war decoration.* In this man, the Reichs Defense Ministry gained a reliable, cautious, and skillful worker as well as an understanding promoter of civilian aviation and sport flying.²⁸

It was in keeping with Germany's wish to retain its self-respect and to continue in the world of flying that gliding, which was a sport and therefore not subject to the restrictions of the Versailles Treaty, should have been actively promoted during the period in which the manufacture of motor-driven planes was proscribed in the Reich. Captain Kurt Student did everything in his power to support the sport of gliding, and in the summer of 1921 some of Germany's former pilot officers organized the first glider courses on the Wasserkuppe, a place ideally suited for this activity. On 1 January 1924, when

*First issued in 1685 under Frederick I, Elector of Brandenburg, as Orden de la générosité, changed at the accession of Frederick II (1740) to Pour le Mérite. Awarded for the most outstanding military feats, it was later conferred as a civilian order for remarkable achievements in art and science. A royal "house order," the military order was not issued after 1918.

† Assistant Director and Privy Councillor Wilhelm Fisch, long-time consultant in the Reichs Ministry of Traffic and later Chief of the General Air Office (Allgemeines Luftamt) in the Reichs Ministry of Aviation, told the author on 20 December 1957, "Brandenburg was assigned to the Reichs Office for Aviation and Motor Transport, established in December 1918, which was under the direction of August Euler, first as Deputy State Secretary and then as State Secretary. When Euler left in 1922, Brandenburg was transferred as Assistant Director to the Reichs Ministry of Traffic. He was still on crutches at that time. Both as a person (an excellent comrade!) and as an organizer, Brandenburg was outstanding. Between 1925 and 1933 he covered himself with glory. . . ." See figure 3.

†† A high point in the Rhoen Mountains in Hessen, located north of Gersfeld, where gliding contests have traditionally been held. See figure 4.

inflation made all long-range planning pointless, the Sport Fliers Ltd. (Sportflug G.m.B.H.) was founded in Berlin by Director Fritz Siebel, with the help and backing of the Reichs Defense Ministry.

With sport aircraft, which complied in every way with the limitations laid down by the Allied "definitions," the association Sport Fliers Ltd. established flying schools in Koenigsberg, Stettin, Berlin-Staaken, Warnemuende, Osnabrueck (an aerial acrobatics school), and Schleissheim, schools which were distributed among the seven Military Areas (Wehrkreise). Former pilot officers, regardless of whether they belonged to the National Army or were employed in some civilian enterprise, were permitted to attend these schools in order to keep themselves in practice and up to date. The schools also trained flying enthusiasts of the younger generation, most of them coming from the "academic flying groups" established in the secondary schools.²⁹

In addition to these schools a number of private flying schools were established in Germany during 1924 and 1925, such as those at Fabeck and Co., Hanover, the Mark Aircraft Factory in Breslau, Dietrich and Gobiet in Kassel, the Aircraft Factory Kassel, private schools in Muenster and in Munich, and the Udet, Darmstadt, and Hanover Flying Schools (the latter two being the so-called academic or "AKaflieg" schools).^{30*}

Further Aviation Developments

Rapallo and Lipetsk

A new situation arose after the conclusion of the German-Russian Trade Agreement of 6 May 1921, when the Soviet negotiator Leonid Krassin began discussions with officers of the Reichs Defense Ministry regarding the build-up of the Russian armament industry with German aid. Seeckt himself received Karl Radek,

*In a study on flight and flying training by Werner Kreipe, Karl Gundelach, and Rudolf Koester (Karlsruhe Document Collection), the value of these schools is described as more "idealistic" than practical. The term "AKaflieg" is an abbreviation of AKademische Fliegergruppen an Technischen Hochschulen (Academic Flying Groups at Technical Colleges), later changed to Flugtechnische Fachgruppe (Flying Technical Specialist Groups).

the Russian representative, while still other negotiations were carried out by von Seeckt's co-workers, Maj. Oscar Ritter von Niedermayer, Col. (Ret.) Herman von der Lieth-Thomsen, Maj. Veit Fischer, and General Kurt von Schleicher (who held a number of meetings in his apartment), and most of all by Generalleutnant Johann Hasse.

Reichs Chancellor Joseph Wirth was kept informed of developments by von Seeckt. In 1922, during the Conference of Genoa, when the Allies tried to persuade Russia to demand reparation payments from Germany, the Chancellor was extremely eager for negotiations with the Soviet Union. This effort resulted on 16 April 1922 in the concluding of the Treaty of Rapallo between the Reich and Soviet Russia, an act which expressly freed Germany from any reparations payments to Russia and which introduced a series of trade agreements between the two countries.³¹ Soon after the conclusion of the Treaty, the West began to complain bitterly that Germany and the Soviet Union had also made a number of secret military agreements. Lloyd George, the leader of British foreign policy, appeared before the House of Commons to state that rumors of this kind were ridiculous, but at the same time he was honest enough to point out that these two great nations, both of which had been discriminated against, would probably form an alliance sooner or later.^{32*}

As a matter of fact, secret agreements were made, but not until the end of 1922, after lengthy negotiations between the Army Command and the Russians.³³⁷ And these agreements were to have an extremely favorable effect upon the development of the German Luftwaffe, since Russia declared herself willing to place airfields and labor at the disposal of Germany for the testing of German aircraft and aircraft equipment. In return, Germany was to make available to the Russians the technical advances and

* In this connection the reader's attention is invited to a letter from von Seeckt to Generalleutnant Hasse, dated 17 May 1922, which states, "No political-military agreements have been reached although everyone seems to believe that such agreements may be possible."

† Von Seeckt informed the new Reichs Chancellor, Dr. Wilhelm Cuno of this fact on 23 November 1922.

the experiences gained during the testing activity.

As early as February 1923 Germany sent a commission to Moscow under the direction of Generalleutnant Hasse, Chief of the Troop Office. One of its members was the Consultant for Aeronautical Technology, Office for Weapons and Equipment. The first step was the establishment of a liaison office in Moscow, known as the Moscow Center, which was subordinate to the Reichs Defense Ministry. The Center was headed by Col. (Ret.) Thomsen, using the pseudonym of von Litz, and later by Maj. (Ret.) Niedermayer. A number of German pilot officers and aircraft engine experts were placed at the disposal of the Red Air Force, which was then in its initial stage of development. During the course of further negotiations the Russian offer of an airfield was accepted with alacrity, and a flying school was established in 1924 at Lipetsk, situated near the Voronezh River about 310 miles southeast of Moscow.* Thanks to the farsighted planning of Generaloberst von Seeckt and to his insistence that appropriate agencies be established (including training and testing facilities) within the Reichs Defense Ministry, the foundation was laid for the new German Air Force.

As a further result of the Rapallo negotiations, the German government granted a generous subsidy to the Junkers Works in Dessau for the construction of a branch aircraft factory in Fili, several miles west-southwest of Moscow on the route to Mozhaysk. The branch factory existed from 1924 until 1927./

*According to Kreipe, Gundelach, and Koester, it was not until 1925 (after a year's hard work to put the field in order) that training courses for the instructor personnel were begun, and not until April of 1927 that the six months training course was established. The Lipetsk establishment was the first real training center for the German Air Force after World War I.

/General der Flieger (Ret.) Hellmuth Felmy states that the Reich contributed more than 100,000,000 Reichsmarks to the Junkers enterprises, most of which went to the branch factory in Fili. See also the strongly biased statements of a "Capt. Hermann" (pseudonym for a man who was supposedly a Junkers staff member prior to his emigration to the United States), in The Luftwaffe: Its Rise and Fall, New York: 1943. Inquiries and

It was obviously the Russians who profited most from this undertaking, which trained a large number of Soviet engineers, technicians, designers, and draftsmen.³⁴

The German Lufthansa (Deutsche Lufthansa)

On 6 January 1926 the German Defense Ministry established the German Lufthansa, arbitrarily merging all of the companies which had anything to do with civilian aviation. With the financial support of the government, the new company established a broad network of air routes, both at home and abroad, and soon developed into a firm to be reckoned with. The Lufthansa was clearly responsible for contributing a good deal of experience in both day and night flying, and it was this firm which deserved special credit for establishing blind-flying procedures, including those for take-offs and landings. Lufthansa crews continued to perfect these operations, and many foreign airlines learned a good deal from them.³⁵

The Paris Air Agreement and Sport Flying in Germany*

On the basis of Article 202, Part V, of the Versailles Treaty, the Reich had applied the Allied "definitions" to the aircraft of all the air powers which flew over Germany.† This particularly affected Great Britain, with its air routes to India, and the English were quite willing to come to some kind of an agreement. France, whose Franco-Roumaine airline continually disregarded German regulations and thought nothing of violating German air sovereignty which had been restored on 1 January 1923, was also ready to come to terms. The Franco-Roumaine airline had been unfortunate in that thirteen of its aircraft had been forced to make emergency landings on German

research by the author and by Field Marshal (Ret.) Erhard Milch, the latter of whom was personally and closely acquainted with the Junkers staff, have failed to reveal any possible Junkers staff man who emigrated to the United States during this period or immediately prior to World War II. See figures 5 and 6.

*This section is based upon written information provided to the author by Ministerial Director (Ret.) Willy Fisch, dated 7 September 1954.

†See p. 8.



Figure 3
Captain Ernst Brandenburg, World War I flyer
who assisted in the creation of the new
Luftwaffe.



Figure 4
Glider soaring over the Fliers' Memorial atop
the "Wasserkuppe" in the Rhoen area, 12 August 1926.



Figure 5

Interior of the Junkers Aircraft
Factory at Fili, near Moscow,
1926.



Figure 6

German personnel of the Junkers
Factory at Fili, U.S.S.R.,
February 1925.

territory, making them thereby liable to confiscation by the Reich. Thus negotiations began with an ambassador's conference in Paris, where Germany's air interests were represented by two Consultants from the Reichs Traffic Ministry, Drs. Alfred Wegerdt and Willy Fisch. After months of discussion, the Paris Air Agreement, which abolished the "definitions" was signed on 21 May 1926. As a result of this favorable agreement, all of the technological restrictions (including those pertaining to fighter aircraft) which had previously been applied to German aircraft were lifted, and even dirigibles could again be made. In return for these concessions, Germany had to promise that sport flying, as such, would not be supported by government or community funds. When, on 1 September 1926 the Aviation Guarantee Committee (Luftfahrt-Garantie-Komitee) also began its activity, Germany's air sovereignty was completely restored in the field of civil aviation.

Although the Paris Air Agreement did nothing to alter the Versailles Treaty ban on German military aviation, it did result in a certain measure of relief in that it permitted seventy-two National Army officers to take up sport flying, albeit at their own expense. The Agreement specified that half of this number might be composed of men who had had no previous flying training,^{36*} and the annual number of trainees was limited to twelve!

In compliance with the provisions of the Paris Air Agreement, which did away with government or community support of sport flying associations, the Sport Fliers Ltd. had to be disbanded.³⁷ Its assets were taken over in part by the German Commercial Flying School (Deutsche Verkehrsfliegerschule), established 1 April 1925, in part by Aviation, Ltd. (Luftfahrt G.m.b.H.), which was founded 1 April 1927, and in part by the Akaflieg groups, with their glider schools at Rositten and Darmstadt. The land and sea flying schools of the Commercial Flying School were intended primarily to provide an adequate supply of pilots, radiomen, and technical personnel for Germany's

*Ministerial Director Willy Fisch concludes his discussion of this meeting with the note, ". . . and we struggled six hard weeks to reach this trivial result."

commercial airlines, although the military had obvious interests in these developments. For a small fee, Aviation, Ltd. trained beginners in light sport aircraft for the private pilot's license, maintaining at the same time close contact with other sport flying associations and with the German secondary schools. The Commercial School training centers were at Berlin-Staaken, Schleissheim, Braunschweig, and Lipetsk. Along with this organization a body of airmen banded themselves together into a group known as the Society of German Fliers (Ring Deutscher Flieger). This was mainly a social group of both young and older pilots, an organization which also participated in a number of national and international air meets between the years 1925 and 1935. Some of its members were active officers in the National Army, and the Society kept a file on all pilots, observers, and gunners of World War I. Dr. Fritz Siebel was its last president.

So it was, that in the first six years after Versailles the Germans, by carefully and secretly circumventing some of the Treaty's restrictions on aviation, kept German military aviation alive and laid the groundwork for further quiet advances by the Luftwaffe from 1925 to 1933, when Hitler came to power and fully reestablished the German Air Force.

Air Offices in the Reichs Defense Ministry,
1925 - 1929*

The Reichs Defense Ministry

The Reichs Defense Ministry was organized along the following lines: Its political head was the Reichs Defense Minister, a civilian. Under him were the military chiefs, the Chief of the Army Command (Heeresleitung), and the Chief of the Naval Command (Marineleitung), all of whom were on an equal level. These in turn had various offices under them, each headed by an Office Chief (Amtschef), with the rank and authority of a divisional commander. There was also the Armed Forces Branch, which was directly subordinate to the Minister.³⁸

Each office was subdivided into a number of branches, each headed by a branch chief with the rank and authority of a

* See chart No. 2.

regimental commander. In very large offices, a number of branches might be consolidated into an office group, headed by an office group chief with the rank and authority of a brigade commander.

Every branch was composed of several groups, each of which was headed by a group leader, a person who had, however, no disciplinary authority. The group, in turn was made up of sections, each devoted to a particular field of activity. Each of these consisted of a consultant and, when necessary, of one or more auxiliary consultants. For reasons concerned with personnel distribution or work flow, there were also independent sections, groups, and branches which were subordinate to the next higher group leader or office chief. As a matter of fact, there were some groups which were directly subordinate to the Chief of the Army Command, the Chief of the Naval Command, the Chief of the Armed Forces Branch, or to the Defense Minister himself.

The Air Offices Maintained by the Army*

In 1925, thanks to the general relaxation of political tensions, it was possible to lighten the work load of the Air Organization and Training Office, which had heretofore been directly subordinate to the Chief of the Troop Office. At this time it was made subordinate to the Chief of the Army Command and given the new designation of Group T2 III (L). Henceforth, it was to devote itself primarily to matters of organization. The Chief of the Army Command ordered this group to act as the central agency for all matters pertaining to aviation.³⁹ Successive group leaders were Lt. Col. Wilhelm Wimmer, Maj. Hugo Sperrle, and Maj. Hellmuth Felmy.

As of 1926, the following agencies dealt with aviation questions for the Army:

- a) Group T2 III (L), which meanwhile had been expanded to

*See pp. 43-47 in connection with the matter of the air office maintained by the German Navy.

include the Foreign Air Office in the Foreign Armies Department (T-3);

b) Group V of the Office for Weapons and Equipment in the Army Ordnance Office (to handle questions about the manufacture of aircraft and equipment);

c) Groups Wa 1 and WaB 6 (in connection with air armament procurement).⁴⁰

This, of course, represented a rather extensive decentralization and distribution of the work load among the several offices and, in the case of Group V, various sub-branches inevitably turned out to be somewhat of a hindrance. The office in charge of the entire operation, the Air Organization and Training Office (T2III[L]) was authorized to submit requests, but no orders, to the agencies making up Group V. Group V itself had the authority to make independent decisions with respect to the granting of compliance to these requests. Heated differences of opinion were the inevitable result, especially since the Aviation Group (T2) could scarcely avoid intervening from time to time in the work of the Office for Weapons and Equipment in the interests of the cause as a whole.

On 1 February 1926, Group WaB 6 (Procurement) and Group Wa Pruf 6 (Technical Development and Testing) were combined to form a new group, Wa L, under the leadership of Captain Helmuth Volkmann.⁴¹ This did much to centralize the agencies working on air matters, at least inside the Office for Weapons and Equipment. The original organization, whereby the offices in charge of development, testing and procurement were all on the same level, was abandoned in favor of a more vertical structure.

At about the same time the Air Organization and Training Office was redesignated T2 V (L). In 1928, in his capacity as "simplification expert" (Vereinfachungskommissar), Major Albert Kesselring suggested the establishment of an "air inspectorate" (Flieger-Inspektion). In a letter dated 14 December 1928, the Chief of the Army Organization (T2) Office, Major Wilhelm Keitel, approved this suggestion in theory, but also pointed out that foreign policy considerations would necessarily prevent its realization for years to come. Keitel did indicate that the new

Group Wa L could be simplified, but this was not done until 1933, when the overall reorganization was carried out.*

Relaxation in the Need for Secrecy

T2 V (L) and its Missions

On 1 February 1929 Major Felmy was appointed Chief of the Air Operations and Training Office (T2 V [L]), a post fraught with difficulties because his requests for funds had to be made in competition with those of colonels and generals.

Generalmajor Werner von Blomberg, Chief of the Troop Office, believed Felmy's requests to be justified and promised him that they would be given favorable consideration, but von Blomberg's resignation from the Troop Office delayed matters until 1931, when the Air Operations and Training Office was finally raised to the status of a branch.

The Training Inspectorate (In 1) in the Reichs Defense Ministry then became the cover for German air activities. The former T2 V (L) Group was then called Inspectorate 1 (L), while the real Training Inspectorate units came under the office designated as Inspectorate 1 (W). The Chief of the Training Inspectorate, Generalmajor Hilmar Ritter von Mittelberger, in addition to his original duties, also took over the branch Inspectorate 1 (L), with Felmy as his Chief of Staff.†

With this step, military aviation was placed under the command of an officer of general's rank, who, as Inspector, was no longer subordinate to an office chief, but, rather, to the Chief of the Army Command. However, all important and basic planning continued to be handled under the direction of the Troop Office in its capacity as the Army General Staff.

*Editor's Note: Resistance to change was partly enhanced by the financial straits in which the Reichswehr found itself, and Keitel was usually most reluctant to suggest the alteration of any existing policies. See Walter Goerlitz, ed., The Memoirs of Field Marshal Keitel, Chief of the German High Command, 1938-1945, (Translated from the German by David Irving), New York: Stein and Day, 1966, pp. 15-17.

†See figure 7. See also Chart No. 3.

This new air branch exchanged opinions and experiences from time to time with the Aviation Group established by the Naval Command.⁴² To the detriment of overall development, inter-service planning was never a feature of this relationship. Yet, the Chief of the Army Command designated the In 1 (L) Branch as the top organ of authority for all matters pertaining to military aviation. The branch represented a service which, even though it did not as yet officially exist, had already begun to make extensive demands.

Within the Reichs Defense Ministry the views concerning the potential employment, effectiveness, and organization of the Luftwaffe were many and varied. For example, the Operations Branch (Fuehrungsabteilung or T1) of the Troop Office prepared a study on strategic air operations in which the authors reached the conclusion that air forces were of very little practical effect. At that time, of course, the stage of development attained in the field of airframe and engine construction was far from meeting the necessary requirements of strategic air operations. In addition, Germany then had no thought of waging an offensive war, which naturally would have required an application of the principles of Douhet.

During the period 1925-1933, the Inspectorate 1 (L) and its predecessor enjoyed an annual budget of approximately 10,000,000 Reichsmarks, approved by the Defense Office (Wehramt) of the Army Command Staff. This permitted the establishment of the four-year plan, in accordance with which the money was to be used for the development, testing, and procurement of aircraft, aircraft engines, air armaments, and special equipment for the training program and for the maintenance of facilities at Lipetsk, which alone cost 3,000,000 Reichsmarks per annum. These funds came from the so-called "Blue Budget," which was diverted from the overall public budget of the National Army and was administered by the Chief of the Army Command Staff (Defense Office), who was responsible to a special body. Expenditures from the "Blue Budget" were checked by a special branch of the Reichs Audit Office assigned to the Army Command Staff.

The Training Inspectorate 1 (L) was divided into sections (Referate) for the following fields of endeavor: Section I (Strategy and Tactics); Section II (Officer Personnel); Section

III (Air Technology); Section IV (Foreign Air Forces); Section VII (Air Defense); Section VIII (Flying Training); and Section IX (Meteorological Services); Financial planning was handled by Section IV.

The leaders of Sections I, V, and VII were General Staff officers and were either former pilots or newly trained ones. Their assistants were all former pilot officers from the old German Air Force, most of whom took care to keep in flying practice.

Almost all of the activity of the Inspectorate 1 (L) was carried out under top secret conditions. This required constant camouflaging and the tightest security measures, which made the work even more difficult. All the Lipetsk trainees, for example, as well as all of the officers assigned to the Center in Moscow, had to be discharged from the service (on paper) only to be reactivated later on. This was the only way to get around the Versailles ban on sending military missions to foreign countries. After all, there were no laws or regulations which forbade former officers to establish flying training schools abroad or to indulge in flying wherever they might choose. The connection between the National Army and this illicit activity had to be so camouflaged that it could never be proved.

The German Aircraft Industry, 1929 to 1933

Ever since 1925 there had been a close contact between German military leaders and the German aircraft industry, which had meanwhile reestablished itself. The Heinkel firm in Warnemuende was awarded contracts for the production of a training plane (HD-32), a close reconnaissance aircraft (HD-17), and a long-range reconnaissance aircraft (HD-33).⁴³

By the beginning of 1929 eight aircraft and four aircraft engine plants existed in Germany. The aircraft plants were the Albatros, Arado, Bavarian Aircraft Works (successor organization to the Udet and Messerschmitt plants), Dornier, Focke-Wulf,

Heinkel, Junkers,* and Rohrbach. The aircraft engine plants were the Argus, Bavarian Engine Works (Bayerische Motoren-Werke or BMW), Junkers, and Siemens.

The Heinkel, Junkers and Dornier firms were the most important in the field of fuselage construction, many details of which had clearly been adopted from foreign companies, while the Bavarian Engine Works (BMW) and Junkers were the leaders in aircraft engine construction, a field in which Germany was far behind other countries which had not suffered from any pause in their developmental work.⁴⁴ The Junkers firm had undertaken the development of a crude-oil engine for long distance flying. As far as the Bavarian Engine Works was concerned, an inspection visit in 1929 revealed that it was trying to develop too many different kinds of engines simultaneously, and, apart from the standard 500 horsepower BMW VI engine, there seemed to be no development program that pointed toward the future.

It was estimated that it would take five to seven years to increase the power of the BMW VI engine from 500 to 800 horsepower, and this achievement was absolutely necessary if Germany was to catch up with other countries and provide herself with a foundation for further development. Inspectorate I (L) succeeded in gaining approval of both civilian and military aviation agencies for a liquid-cooled engine, whose horsepower-weight ratio was to be kept as low as possible. Since the engine would have inverted cylinders, it would be possible to install a 20 mm.

* See references to Dornier and Junkers in Georg W. Feuchter's work, Geschichte des Luftkriegs (History of the Air War), Bonn: Athenaemum Verlag, 1954. See also Generalingenieur a.D. Gerbert Huebner, "Die Entwicklung der Flugzeuge von 1926-1933" (The Development of Aircraft from 1926 to 1933), C/IV/4, Karlsruhe Document Collection.

† Prior to 1933, Germany had to get along with foreign aircraft engines, such as the Napier "Lion," Bristol "Jupiter" and "Jaguar," and the Pratt and Whitney "Hornet." These were imported in small quantities and used in the development (under cover, of course) of her military aircraft. In this connection the reader's attention is invited to a study by Generalingenieur Gerbert Huebner (Ret.), "Der tatsaechliche Ablauf der Aufgabenstellung (Planung) und Auswahl der Flugzeuge fuer die deutsche Luftwaffe" (The Real Course of Planning and the Selection of Aircraft for the German Luftwaffe), 1956, Karlsruhe Document Collection.

machine-gun behind it. In the autumn of 1930, the Reichs Traffic Ministry, which had been given the responsibility for the development of this "standard engine," called for bids to develop it as a 30-liter engine. The Ministry assigned the job to the Bavarian Engine Works and, after some hesitation, also to the Daimler-Benz firm, which had not built any aircraft engines since the end of World War I. It was the latter assignment which assured the success of this complicated and costly undertaking, for the design prepared by the Bavarian Engine Works turned out to be a failure. In 1936 (after a time span of seven years), the first Daimler-Benz DB-600 engines were ready for use.

Shortly thereafter, the Junkers firm was asked to develop a 20-liter engine, which was later installed in the first Me-109's, manufactured by Professor Willi Messerschmitt.*

The economic slump of 1930 affected German aircraft industries. The Albatros Company, the Bavarian Engine Works, and the Rohrbach Company went out of business, and even the Junkers plant was in serious financial difficulties. On the other hand, the slump resulted in a healthy pruning of the facilities of production in the aircraft field. Unfortunately, there was difficulty in establishing as firm a basis of cooperation with the Junkers firm as with, for example, Heinkel and Dornier. Junkers had developed some extremely interesting aircraft models abroad, a twin-engine bomber and a two-seater fighter aircraft known as the K-47, and two models of each were purchased for experimental purposes.

*Editor's Note: The Me (Bf) 109 was designed in 1934 to replace the outmoded biplanes the Arado (Ar)68 and the Heinkel (He) 51. The original test model was outfitted with a 695 horsepower Rolls-Royce "Kestrel V" engine, and easily beat out its competitors in the trials at Travemuende in 1935. The first operational Me-109 B and C models saw service in Spain during the Civil War. 30,573 were manufactured during World War II, making it the most highly produced aircraft type during the war. See Karlheinz Kens and Heinz J. Nowarra, Die Deutschen Flugzeuge 1933-1945. (The German Airplanes 1933-1945), Munich: J. F. Lehmann Verlag, 1961, pp. 415-416. Cited hereafter as Kens and Nowarra, The German Airplanes.

Junkers was working on something entirely new with the crude-oil engine. But the considerably greater weight of this double-piston engine could be offset by a lower fuel consumption only after the first 1,230 miles and distances of this extent were out of the question as far as the National Army was concerned. It was clear that the Navy's aviation personnel were more interested than the Army in the engine in view of the greater range requirements necessary for naval operations.

Armament Contracts

In the beginning there had been a notable lack of healthy competition in the awarding of contracts by the National Army. Finally the Office for Weapons and Equipment and the Reichs Traffic Ministry agreed to award contracts to two separate firms simultaneously. It was necessary for the tacticians to inform the technicians of their requirements in the field of flight performance for the various aircraft models. On the basis of "tactical requirements" worked out by the T2 V (L) Branch, the Group Wa Prüf 8 in the Office for Weapons and Equipment set up the prerequisites and invited the companies involved to submit appropriate designs and cost estimates.* Strictest security regulations were necessary and the German aircraft industry really had no choice but to accept the severe security restrictions which were invoked. These precautions, however, did effectively put a stop to foreign espionage.

Bids for the armament program for 1929-1933 were delayed until the winter of 1929-1930. The designs were deliberately restricted to a few models, which included a long-range single-engine reconnaissance plane which could be used as a daytime bomber, a short-range, single-engine reconnaissance aircraft to be used for combat reconnaissance, and a single-seat, single-engine fighter aircraft to meet the needs of modern air warfare. A number of earlier models, which were admittedly a credit to the ingenuity of their designers but which failed to come up to expectations, were dropped from the development program; in most cases the engines were too weak or the aerodynamic characteristics were in some way unsatisfactory.

During the first years after the war, the term "emergency armament" (Notruistung) came into use. This meant that in the

* See Chart No. 4

event of mobilization Lufthansa aircraft would have to be requisitioned for employment as reconnaissance or bomber aircraft. In preparation for such a contingency, rather primitive supplementary equipment had been installed in them.*

And now these stop-gap measures were to be replaced by a systematic development program. A commercial aircraft, designed in accordance with entirely different principles and intended to meet entirely different needs, could never take the place of a bomber. Nevertheless, the Troop Office considered its "emergency armament" program adequate and refused to approve the development of a bomber. After the failure of all its efforts to change the Troop Office's decision, the T2 V (L) Branch decided to develop a twin-engine reconnaissance aircraft which could later be modified into a bomber.

Prior to 1929, the technical agencies of the Office for Weapons and Equipment were physically separated for reasons of security. Only the main offices in charge of development and testing and procurement and economic planning were located in the office itself. Outside agencies had been set up to deal with the development of airframes, engines, instruments and equipment, weapons, and bombs. In addition, there was the testing station at Rechlin and the Production Ltd. (Fertigung G.m.b.H.) Company. All of these agencies were staffed with well-trained civilian personnel who, as security regulations gradually relaxed, were managed by the Office for Weapons and Equipment as government employees. By means of a more rational organization, the Wa Prüf 8, which, at the end of 1928 had been assigned the three main missions of development, testing, and procurement managed to increase the performance of the individual groups.⁴⁵ Captain Paul Jeschonnek, who was to have been appointed

* A circular track for a flexible machine-gun had been installed in the upper part of the fuselage and a bomb-release mechanism had been fitted to the outside wall of the fuselage. Bombs had to be fed into the release mechanism by hand. The variety of models of bomb releases, most of which were badly obsolete, and the great difference in their performances made it absolutely ridiculous to think in terms of concentrated bomber operations with the equipment on hand.

Chief of Wa Pruf 8, was killed in an air crash in June of 1929. His death was a serious loss to the German Air Force.^{46*}

It was not until 1 October 1929 that Captain Wimmer, who had been in charge of the Technology Section in T2 V (L), succeeded Captain Volkmann as Chief of Wa Pruf 8 (Development, Testing, and Procurement). Wimmer was just the man to assure close cooperation between the two offices.

Organization of the Training Program

During the years 1925 and 1926 the secret roster of pilot officers contained about 180 names. This number was naturally insufficient for the establishment of an air force comprising 1,000 aircraft, as envisioned by the mobilization plant at that time. The biggest problem was the lack of a younger generation of fliers. After lengthy negotiations with the appropriate agencies of the Reichs Traffic Ministry, the Chief of the Army Command authorized the introduction of refresher flying training. Sixty men were to be selected each year for a training course lasting eighteen months, which consisted of one year of theoretical and practical training in Germany, followed by six months of practical training at Lipetsk in the Soviet Union. Of the 60 selectees, 30 were to be National Army officers (30 percent of whom might be without previous flying experience), while the other 30 officer candidates were to be ready to enter the armed forces. The former were known as Altmaerker, and the latter as Jungmaerker. The Jungmaerker were given one year's thorough flying and general technical training at the German Commercial Flying School at Schleissheim, where they earned their B-2 licenses.⁴⁷ Each year

* In an interview with the author on 16 February 1954, General der Flieger (Ret.) Hellmuth Felmy described Capt. Paul Jeschonnek as a much more gifted individual than his brother Hans, who later became Chief of Staff.

⁴⁷ In general, the material contained in this sub-section is based upon the work of General Felmy and General der Flieger (Ret.) Wilhelm Speidel.

⁴⁸ The B-2 license indicated that the individual had successfully passed the commercial pilot's test.



Figure 7

The Aviation Branch of the Reichswehr, 1930:
Front Row, L. to R.: Frl. v. Marwitz, Frl. v.
Mirbach, Robert Wichterich (40 Years' Service
Anniversary), v. Zaborowski, Lambert, Schlunke;
Second Row: Bruno Maass, Walter Schwabedissen,
Fritz Loeb, Ullrich Grauert, Generalmajor Hilmar
Ritter von Mittelberger, Branch Chief, Hellmut
Felmy, Gehrkens, Hermann; Third and Fourth Rows:
Pank, Stich, v. Buelow, Morell, Giesler, v.
Hollwede, Karl Drum, Werner Kreipe, Rudolf
Bogatsch, v. Ledebour, v. Karmainsky.



Figure 8

I-21 aircraft at the Lipetsk
Airfield in Russia, 1927.



Figure 9

K-30 aircraft at the Lipetsk
Airfield, U.S.S.R., winter
of 1926.

the ten candidates who demonstrated the greatest aptitude for fighter pilot training were sent to Lipetsk for six months. The four-week refresher courses which then followed at the schools of Aviation, Ltd., in Wuerzburg and Boeblingen -- Robert Ritter von Greim was the director of the latter school* -- were admittedly inadequate, although there was never a shortage of instructor personnel.

In Lipetsk, on the other hand, everything had to be built up from scratch. The field was already occupied by Russian air units when the Germans arrived, and German and Russian air activities had to be kept strictly separated. By the summer of 1925, after completion of a fairly extensive construction program, including the erection of hangars, repair depots, billets, administration and medical buildings, and even a spur-line to the nearby railroad station of Lipetsk, it was possible to start some minor equipment tests and training courses. All of the activity there had to be carried out on a "civilian" basis, with the permanent instructors being recruited from Lufthansa or from flying schools in Germany, placed under a firm contract, and paid in dollars. Preference was given to younger graduate engineers (Diplomingenieure)⁴⁷ who often had received their education at the expense of the Air Training Inspectorate (In 1 [L]).

Beginning in 1929, the carefully selected fighter pilot instructors were assigned to a fighter training squadron, where they had to accomplish the training program and work out the Fighter Manual.⁴⁷ The Manual contained not only the entire schedule of training, but also the air drill regulations, flying in groups of two or three aircraft, formation flying, acrobatics, high altitude flying, air-to-air and air-to-ground firing, bombing practice, aerial combat practice, etc. In aerial combat practice, in which two squadrons of nine planes each faced

* Editor's Note: According to Luftwaffe personnel records, von Greim headed the school at Wuerzburg.

⁴⁷ Editor's Note: German universities do not offer the Master's Degree, and seldom offer the equivalent of a Bachelor's Degree, except in certain special fields. In these, a diploma is awarded for the regular four-year course. In the case of engineering students, the four-year graduate is then called a diploma (Diplom) engineer.

one another, the use of camera guns proved to be very valuable. The Fighter Manual not only covered fighter tactics and operations, but also contained principles and guidelines applicable for commanding fighter units.

Most of the aircraft used in the fighter training program were Fokker D-XIII's, and because of its poor climbing performance the main emphasis was placed upon low-level attack drills. Air-to-air radio equipment was in the developmental stage at that time. The later introduction of ground-to-air equipment considerably facilitated training.

Newly constructed HD-17's and Albatros 76's were used in observation training, while commercial aircraft were utilized as "flying classrooms" for bombing and navigational training. In the secret courses held in Berlin, the observers could be given competent and valuable preliminary schooling, but in 1927 and 1928 this did not include observation exercises from aircraft.

At Lipetsk, German officials were fortunate in obtaining excellent skilled personnel for the exacting technical work and repair activity which was carried out there. Russian Air Force soldiers and civilians were employed as technical assistants, but the mechanic assigned to each German aircraft was always a German. However, Russian civilians soon proved to be very skillful workers. During the period from 1925 to 1933 about 120 highly trained fighter pilots graduated from Lipetsk, and from 1928 to 1930 approximately 100 observer officers were trained for the aerial reconnaissance units.^{48*}

At the same time, German officers also participated in Russian troop exercises and maneuvers, particularly in the Voronezh area, thereby gaining experience with respect to the employment of air forces in tactical military operations. As far as the Russians were concerned, the direct air support of ground operations represented the primary mission of air forces. The German aircraft used at Lipetsk and in the Voronezh area were either ferried to Lipetsk as "mail-planes," or transported by water from Stettin to Lipetsk via Leningrad.

* See figures 8 and 9.

German Aircraft Testing Stations

The Reichs Defense Ministry took over the testing station near Mueritz Lake at Rechlin, Mecklenburg for the technical testing of aircraft. The existence of this center was not generally known, especially since it had not been completed during World War I and since it was not accessible by any main traffic artery. After 1925 it was camouflaged under the name "Testing Station Rechlin of the Reichs Formation of the German Aviation Industry." As such, it remained virtually unknown to the outside world, even after 1933 when it was much more fully developed and utilized. The Rechlin base tested no weapons during the formative years of the Luftwaffe, and all trials requiring the use of arms or specific military-tactical operations were carried out in the Soviet Union.

Lipetsk became the principal German testing center in the late 1920's, and was devoted to all sorts of military testing programs as well as to the military flying training program. Air armaments and aircraft to be used at Lipetsk often flew in directly from East Prussia. The tremendously high cost of maintaining the Lipetsk base led to a demand in Germany for economy measures, forcing the Army to drop its plans for expanding the flying training program there.

The Fokker D-XIII's which were used at Lipetsk were obsolete and could only be used as training aircraft. The very thorough training program given there kept the number of crashes to a minimum, so that it was not necessary to continue sending the Napier "Lion" engines back to England for overhauling, nor was it necessary to spend time and money repairing worn-out airframes in the repair shops at Lipetsk. Instead, worn-out airframes were scrapped, and the testing and training activities went on with a steadily decreasing reserve of aircraft. For purposes of the training program, the observation aircraft manufactured in Germany were newer and better suited to operations at Lipetsk.

Cooperation with the ever-suspicious Russians was quite often extremely difficult. Misunderstandings arose to interfere with the German use of the troop maneuver area at Voronezh, especially during the summer of 1929. The Russians were determined to keep all visitors from seeing too much of their military installations, while they attempted to keep everyone else under careful surveillance. The customs officials in Leningrad and

Bigossovo caused countless delays in the delivery of supplies and equipment from Germany, and, since there was so much in the way of consumer goods and equipment that was not made nor available for purchase in the Soviet Union, practically everything necessary for the technical training and testing program, down to the last bolt, had to be brought from Germany. These difficulties were later surmounted when the Russians finally gave the Reich permission to set up its own customs office in Lipetsk.

The Germans were much more cooperative about keeping the Russians informed about their development projects, since, after all, the testing of all of their new aircraft, weapons, and bombs was being carried out at Lipetsk, in the Soviet Union. Moreover, Germany felt a certain sense of gratitude toward the Russians for taking an interest in its problems at a time when the rest of the Allies held rigidly to the concept of repressing all military developments in the Reich. Russians were usually about the Lipetsk area, and in May and September of each year, when the chief of the German air arm visited the base -- this was for the beginning and conclusion of the regular technical testing and training periods -- there were conferences with Red Air Force representatives in Moscow. Every year, usually late in the autumn, a high official of the Red Air Force -- generally Colonel S. A. Mezheninov, the Operations Officer -- came to Berlin for further negotiations. In February 1930, for instance, the Commander in Chief of the Red Air Force, General Yakov Ivanovich Alksnis, accompanied by Col. Mezheninov, took part in an air defense conference at Bayreuth, Bavaria. All of this created a certain degree of mutual confidence between the two nations, which did much to facilitate the work at Lipetsk.

The Russians, always eager to learn, were particularly interested in the technical testing program scheduled for the summer of 1931. Russian pilots were permitted to fly the German test models, and it was always clear that the Red Air Force selected its very best men for this assignment. As far as the new aircraft models were concerned, the Focke-Wulf close reconnaissance aircraft failed to come up to expectations. The parallel model, the Heinkel He-46, on the other hand, proved to be quite adequate for the established requirements. In addition to the He-46, a number of other models were tested, including the He-45, a medium-range daylight bomber, and the He-45 designed as a strategic reconnaissance aircraft, the Arado Ar-65, a single-seat fighter, the Junkers K-47, a two-seater fighter with a built-in machine gun with a greatly increased field of traverse,

and the twin-engine Dornier Do-11 (equipped with retractable landing gear which had to be operated by hand) designed to be used as a bomber and an aircraft weapons testing plane. This included the testing of radio and communications equipment.

The Russian flying demonstrations that took place soon afterward at the Khodinka airfield near Moscow revealed that the Soviet Union was still quite far behind in the field of aircraft development. However, they did not show or demonstrate their twin-engine bomber, the TB-3.* It was clear that the Russians profited a great deal more than the Germans from the testing and experimentation at Lipetsk, but the availability of the station was nevertheless of tremendous value to the Reich, since, even after the control of the Inter-Allied Aviation Guarantee Committee had been set up, Germany was not able to test weapons, aircraft, or bombs on its own territory. The Reich was thus eager to maintain the Lipetsk station, although on a more modest scale than had originally been the case, once some of the experimental activities had been transferred back to Germany. With a partial relaxation of foreign policy tensions and the strengthening of Germany's national status, German leaders could afford to be a bit more open in their activities with respect to the outlawed reestablishment of military power.

Many curtailments were made in the budget for testing and training and the maintenance of the facilities at Lipetsk for the fiscal year 1930-31. This was partly a result of an awareness that Germany had to make up for lost time in other fields of military activity, and partly because of the bids received for construction of new aircraft models. As the volume of equipment and supplies for Lipetsk gradually decreased, the Russians began to suspect that Germany would soon be withdrawing its units from the Soviet Union. These suspicions were intensified by the fact that the Reichswehr had not used the troop

* Editor's Note: Although the original TB-3 was a large twin-engine bomber, it was later redesigned as a four-engine bomber, carrying a crew of five or six, with a range of 456 miles carrying 3,307.5 lbs. of bombs at a cruising speed of about 99 miles per hour. This was a typically massive Soviet bomber of the early 1930's. See Wilhelm von Langsdorff, Handbuch der Luftfahrt Jahrgang 1939 (Handbook of Aviation, Year 1939), Munich: J. F. Lehmann Verlag, 1937, p. 344. Cited hereafter as Handbook of Aviation, 1939.

maneuver area at Voronezh since 1930. The Voronezh area had been utilized for firing practice and observation training, and, with the sudden departure of the Red air group for the Far East, the German guests had become undisputed masters of the entire installation. When Germany informed the Red Air Force in 1931 that no observer training was foreseen for Lipetsk for the summer of 1932, the Russians concluded that German intended to abandon all of its testing in the Soviet Union. Also, during the 1931 autumn maneuvers in Silesia, when Reichs Defense Minister, Generaloberst Wilhelm Groener, severely criticized the manner in which "enemy" aircraft had been simulated (using acoustical signals and a large number of small balloons drifting with the wind), the chief of the German air forces suggested to him that the fighter testing and training squadron in Lipetsk (which comprised the majority of German fighter instructors) should be disbanded and reorganized into three "show-piece" squadrons (Reklamestaffeln) of four planes each.* Russian suspicions that Germany was bringing its testing and training program in Russia to an end were confirmed in the autumn of 1932, when aircraft used for observation training and much of the testing equipment were sent back to the Reich.†

The base at Lipetsk had gradually become more and more a center of technical testing as time went on, and the Russians were disappointed not to see more tactical training exercises. In the course of a conference in Moscow in October 1932, the Russians demanded that the Lipetsk airfield be fully occupied and utilized by German air forces as it had been before, and that all military aircraft in Germany be transferred back to that station. Furthermore, the Red Air Force insisted upon

* The Fighter Manual (Jagdfliegervorschrift) was finished, and there was a sufficient number of fighter instructors available. The "show-piece" squadrons were to be stationed at Koenigsberg, Berlin-Staaken, and Fuerth (near Nuremberg), where suitable facilities were available. There, besides making stunt flights for various firms, they would be convenient for use by the National Army during field exercises. Only in this way could the air officers convincingly demonstrate the role of air power in a future encounter. The squadrons were ready by 1932 and subsequently were quite successful.

† After the Spring of 1932, observation training was carried out at Braunschweig (Brunswick), while Rechlin assumed ever greater importance for technical testing. See p. 29.

seeing a demonstration of German massed night bombing operations. The German representative pointed out that the Reich did not have any mass formations of bombers, and that, although test models designed for operations of this sort had been publicly exhibited to the Russians in September 1931, no procurement program had yet been initiated for their construction. He then suggested that the Russians, who had meanwhile made such strides in training and technology, might be better able to demonstrate such operations to the Germans. This terminated the discussion on this matter.

The reestablishment of activity at Lipetsk on its previous scale would have cost the Air Training Inspectorate (In 1 L) an additional 3,000,000 Reichsmarks annually. The Chief of the Army Command refused to approve the request for funds in that amount from the Army budget, and, when he failed to persuade the Foreign Office to bear the burden of continuing activities at Lipetsk, the matter was dropped. The appeal to the Foreign Office was probably more of a "trial balloon" in any case, than a serious proposal.

The flying training of National Army personnel and the testing of aircraft continued at Lipetsk until the early summer of 1933, when a series of experiments were brought to a close. Late in the summer the Army ordered the deactivation of the station. Although the conflicting attitudes between the Eastern mentality of the Russians and the Western outlook of the Germans had been sharpened by the advent of the National Socialist Regime in the Reich after 30 January 1933, and, although the Russians were most reluctant to see the German base close, they ultimately did nothing to interfere with the disbanding of the station.

German officials turned over all stationary equipment, everything that was not worth taking back to Germany, and all of the older Fokker D-XIII's (fifty of them) to the Soviet Union. In return, but only after the most stubborn negotiations, the Russians allowed the Germans to fly their experimental aircraft back to Germany.⁴⁹ The station complement, including the Jungmaerker,* returned home without mishap, and the equipment -- which was shipped in a number of freight trains -- arrived safely back on German soil. In disbanding the Lipetsk airfield, which

* See p. 26.

was particularly valuable for the winter testing of aircraft and for military flying, an important and interesting period of activity in the National Army came to a close, political de-liberations having won a victory over logical military consid-erations.⁵⁰

Preparations for Rearmament

The first large-scale preparations by industry to enable it to keep pace with the scope of the Luftwaffe build-up were undertaken about 1928 and 1929. The goal was the development of an air force commensurate with the National Army's estimated 21 divisions. There were a great many obstacles to be overcome: financial difficulties -- particularly in view of Germany's economic depression --, the danger of rapid obsolescence of stock-piled equipment, the ban on aircraft stockpiling, and the inadequate overall capacity of German industry for armament production.

Despite these problems, in an effort to prepare for rearmament in consonance with modern methods, Lt. Col. Wilhelm Keitel,* at that time Chief of T2 V (L), ordered his staff members to acquaint themselves with the latest technological developments and to find out whether the testing of appropriate foreign designs might not be faster and cheaper for Germany than the development of its own aircraft. German developmental activity was continued, however, in the hope that the Reich would eventually move out ahead of other nations. Keitel demanded "simple, easily workable designs," a "simplification of equipment in all sectors." He was not interested in development without restrictions!

In the field of air armament, where development was going ahead by leaps and bounds, Keitel's requirements could be applied only with qualifications. The Air Training Inspectorate could not afford to make any fundamental changes in the apportionment of its 10,000,000 Reichsmark budget (4,000,000 each for development and testing, 2,000,000 for procurement) without running the risk of being hopelessly inferior, not only numerically, but also technically and from a point of quality, to a potential enemy. If the planned project was to become a reality, it was imperative that considerable funds be earmarked for industrial

* See p. 19. Keitel was promoted to Lt. Col. 1 February 1929. See also Chart No. 2.

plants which were less financially stable than many of the larger concerns, but which were more willing to cooperate.

The planned production quota was 2,293 aircraft for the Army and 750 aircraft for the Navy. An estimate of German industrial capacity indicated that in 1929 it would be possible to produce 7,006 aircraft for the Army and 1,746 for the Navy. However, this was only an estimate. In reality, the build-up of the Luftwaffe was delayed partly by the fact that the German plants were no longer accustomed to producing large quantities of military aircraft, and partly by the impossibility of providing the necessary aircrews and ground organization personnel. In addition, insofar as existing equipment and projected additional equipment were concerned, there were tremendous difficulties to be overcome in the initial issue of aircraft engines, aircraft fuel, oil, airborne radio equipment, and bombs.

The Army, eager to motorize the majority of its units as soon as possible, turned out to be a stubborn rival for the Luftwaffe. Furthermore, the German engine industry as a whole was in the midst of a crisis. The attempt in 1928 by the Reichs Traffic Ministry to establish a reliable group of engine plants to cater to its needs had been a failure. There was some discussion of the possibility of importing aircraft engines from abroad. A Ministry memorandum of 13 April 1929 summarized the situation as follows: "It is by no means certain that the military-political constellation of a future war would necessarily result in an encirclement of Germany which would prevent us from importing foreign-made engines by way of neutral nations."⁵¹

The memorandum mentioned the existing supply of repaired engines and pointed out that during a war only one engine would be lost for every two airframes. Thus the gap between engine and airframe production was not, after all, particularly dangerous.

As far as aviation fuel was concerned, supplies were estimated at 150,000 tons, comprising 100,000 tons of gasoline and 50,000 tons of benzol. Germany's annual production amounted to about 135,000 tons (25,000 tons of gasoline, 10,000 tons of benzol, and 100,000 tons of synthetic gasoline). Thus the initial issue for the entire armed forces could be covered by the stocks already on hand, still leaving 105,000 tons available for the continuous requirements of the Wehrmacht (Armed Forces) and industry. The requirements of the first two months could

thus be met from the supplies on hand plus the monthly production of 11,250 tons. From the third month on, there would be only the monthly production total from which to draw, and the last little bit of the existing supply, 425 tons, was too small an amount to have a significant effect upon operations.

The oil situation was less favorable in 1928, since the Reich had no oil production facilities of its own. The initial issue to the Wehrmacht (5,000 tons) could be met from the existing supply of 50,000 tons. It was planned to divide the remainder as follows: 16,200 tons to the Army, 7,200 tons to the Navy, 900 tons to the air defense agencies, 9,000 tons to industry, 8,100 to the Army air units, and 3,600 tons to the Navy air units.

Airborne radio equipment would not be ready for issue for at least six months.

There was a small supply of 27.5 lb. bombs on hand. Bomb cases could be delivered after the first month. Procurement of the explosives needed for the filling was difficult. The same was true in the case of the 110 lb. (50 Kg.) and 661.5 lb. (300 Kg.) bombs. The industries simply did not have an adequate number of large presses available. When the transition was made to cast steel bombs, a decision which was not made until later, requirements could finally be met by bringing in a number of extra firms.

All of these calculations were based on the initial issue to the Wehrmacht branches. The Ministry memorandum gives ample evidence of the highly unsatisfactory equipment situation in the following statement:

If, in the course of time, a real armament mobilization program should come into being, resulting in the activation of a large number of air units, then it is clear that these units, from the very first day of activation, would need to be steadily supplied, and this is something for which no provisions have as yet been possible.⁵²

Yet, in spite of this, the memorandum rejected any thought of limiting the production of airframes. Instead, it recommended making every effort to overcome the existing difficulties.

Industry was reluctant to approach its new task. There was

little chance for profits, since in the beginning the orders were only placed for individual parts or for the rebuilding of older aircraft. Aircraft manufacturers were therefore hesitant to enlarge their plants and to invest more capital in their operations. The new aircraft, which would not be going into production until later, as well as the accessories and individual parts involved, were pre-constructed only as far as the blueprint stage and were subsequently altered and improved in accordance with the latest technological advances. Of course, all of this was very expensive. Partly out of negligence and partly for reasons of competition, the principle firms often failed to inform the secondary firms, which were scheduled to take over the manufacture of individual parts, of any changes made or of any experience gained in the meantime which might be applicable to the manufacturing processes. It sometimes developed that parts built in individual construction were useless when mass-produced by machine. Finally, however, the Reichs Defense Ministry, through painstaking work which was hampered considerably by the requirements of security and deception, succeeded in obtaining the machinery and production facilities which would be needed when it came time for the large production orders.

On 29 November 1930, the Reichs government was prevailed upon to lift the confining ban upon aircraft stockpiling.⁵³ An attempt could then finally be made to provide combat-worthy aircraft, weapons, and equipment for the still more or less provisional air units which were to be activated in accordance with the mobilization calendar.

Preparations for Mobilization

A mobilization calendar, similar to those of the Army and the Navy, was established for the Luftwaffe from the years 1925-26. Known as Calendar A (~~A-Referend~~), it was expanded each year to keep pace with personnel and materiel development. Until the armament production program -- which gradually got under way in 1928 and 1929 -- had begun to bear fruit, it would be impossible to activate more than eight reconnaissance squadrons, three fighter squadrons, and a provisional bomber unit composed of three squadrons. In the interests of improved quality and increased supply levels, no fundamental changes were made in these Calendar A quotas until 1932-33. In the event of mobilization, or in the event that the political situation should permit the reestablishment of a peacetime air force, it was planned to expand the activation program in keeping with the preparations

being made in the field of production.

It was estimated that each month of war would bring requests for the replacement of 25 percent of the reconnaissance aircraft and 50 percent of the fighters and bombers. In the meantime, testing had been completed on the Albatros L-75, L-76, and L-78, all of which were now available as reconnaissance aircraft.

Thus far only the Fokker D-XIII's in Lipetsk were available to equip the fighter squadrons, and it was extremely doubtful whether the Russians would permit them to be returned to Germany in the event of mobilization. The bomber units were to be temporarily equipped with commercial aircraft from Lufthansa. The military equipment which would have to be installed, as well as the airborne weapons and other auxiliary equipment needed for the other squadrons, was already available in the Army mobilization supplies.

Moreover, in the event of mobilization, the entire Lufthansa and the German Commercial Flying School, with all of their aircraft, personnel, spare part warehouses, repair shops and facilities, were to be requisitioned in accordance with the Reichs Service Law (Reichsleistungsgesetz) and turned over to the Luftwaffe. Calendars were also set up for the establishment of training schools for flying and technical personnel and for the elaboration of the wartime top-level command structure of the Luftwaffe. To carry out these arrangements a number of flying personnel were available: (1) about 200 officers on the secret pilot roster (most of them observers), including those who had had advanced military flying training at Lipetsk, (2) the Jungmaerker pilots, those from the Commercial Flying School in Schleissheim to serve as reconnaissance pilots, and those from Lipetsk as fighter pilots; (3) the Lufthansa pilots for assignment to the provisional bomber squadrons, if qualified; and (4) airborne radio personnel, also from Lufthansa.

As we see from the above, the majority of the fliers were to come from Lufthansa. As far as other personnel categories were concerned, there were small cadres, such as flying radio operators, which were available in the National Army, and these could be increased in number through the conscription of former soldiers with the necessary backgrounds. In addition, after 1930 there were the pilots and technical personnel belonging to the "showpiece" squadrons. There were seven of these to begin

with, and their number later was increased to ten.

Commercial airfields were to be used for the activation of the military flying units. In case of mobilization, available personnel and materiel were to be assigned to units and organizations -- this included schools, staff headquarters, etc. -- as specified in the Calendar. Assignment would take place in accordance with previously prepared tables of strength and equipment.

Initial supply and equipment issue to the Luftwaffe, including the monthly replacement, consisted partly of typical Luftwaffe equipment such as aircraft and aircraft engines, airborne armament, bombs, airborne radio equipment, and some Army-type equipment, such as ground radio equipment, machine guns, small arms, etc. These Calendar A supplies were stored separately for the Luftwaffe and the Army. Separate storage had been ordered on 1 November 1932 in view of the different procedures involved and the different activation schedules. A supplementary order came out on 14 November 1932 from the Reichs Defense Ministry to the effect that Calendar A stocks were to be stored as close as possible to the activation areas. The order specified:

In practice this means that supplies will be stored with the peacetime units or organization serving as the basis for activation of the new entity. The present system of large supply collection points for one or more Calendar A divisions must be abolished. All other considerations must be made subordinate to the effort to facilitate the activation of the twenty-one division field army (Feldheer) as planned. The process of activation must be worked out in such a way that, in the event of mobilization, the Army can be available within seven days, in other words in less time than it took in 1914.⁵⁴

These directions, while suitable for the Army, could be applied only with great difficulty by the Luftwaffe, since the air forces had no peacetime units at whose stations the Calendar A supplies could be stored. Therefore it had no choice but to continue to adhere to the central storage scheme for the time being, and an amendment to the above order took this into

account:

1. This system, eminently suitable to the Army, cannot be put into effect in the Luftwaffe until Luftwaffe units actually exist. Until that time, the following procedure will be followed:

(a) Storage of supplies will remain centralized until the activation of the squadrons is certain with respect to equipment and types of aircraft.

(b) As soon as the distribution of materiel is decided, presumably in 1934, the same procedure as used by the Army will be followed, i.e., Calendar A supplies will be transported to the activation area concerned, where they will be stored under the auspices of the supply agency of the local Military Area.

2. As soon as the air units have been activated, Calendar A supplies will be stored at the units stations of the eight activation squadrons (Aufstellungsstaffeln), whose number will be doubled in the event of mobilization.⁵⁵

All of these preparations were purely defensive in character. German military leaders feared invasions of Reich territory by the Poles and even by the Czechs, such as in East Prussia and Silesia, invasions which they could not possibly hope to meet effectively with the miniature National Army permitted by the Versailles Treaty, and without an air force.

Therefore, Germany's defensive power had to be so strengthened that its eastern borders could be presumed to be secure. In the event of sudden hostilities, it would hardly be possible, on short notice, to establish an air force corresponding to a 21-division army. But, if mobilization came at a point when air armament production and the air training program were well under way, then a few air units could be activated immediately, with the majority of squadrons and groups to follow more gradually. An attack on German territory would bring about a number of factors whose repercussions could not be predicted in advance, such as, for example, possible changes in the importation of war materiel. It can therefore be seen that much of the planning had to be very long-range in character.

As previously noted, the preparations for mobilization often had to include improvisations. Germany's preparations had no legal basis, were largely dependent upon the voluntary cooperation of civilian agencies, and, all in all, were somewhat problematical at best.

Steps Taken by the Navy Command to Provide
for a Naval Air Force*

Organizational Measures Taken by the Navy Command

The Versailles Treaty permitted the German Navy to keep a few naval aircraft until 1920 in order to aid in the work of clearing mines out of the North Sea and the Baltic. It was this temporary mission which enabled the Navy to maintain its few Naval Air Stations, such as those at Nordeney in the North Sea and at Holtenau near Kiel.†

In contrast to the new National Army, the Navy was also permitted to keep at least some of its antiaircraft artillery, thus permitting it to continue training activity in this field. The Paris Air Agreement specified that one German Navy officer might be given pilot training each year.

Ever since about 1923 the Navy Command had set up agencies entrusted with the tasks of keeping the aviation idea alive and of supervising air training. These agencies also occupied themselves with questions pertaining to the tactical employment of naval air forces and with preliminary preparations for the activation of such forces in the event of mobilization.

* The reader's attention is directed to the contribution to this theme by General der Flieger Hans Siburg (Ret.), "Vorbereitende Massnahmen der Marineleitung auf dem Gebiet des Seeflugwesens in den Jahren 1920-1933" (Preparatory Measures of the Navy Command in the Area of Naval Aviation in the Years 1920-1933), A. V, Karlsruhe Document Collection.

† Editor's Note: After World War II, about 27,000 men of the German Navy were ordered to carry out mine-sweeping duties. See Ernst Thienemann "Der deutsche Minenraumdienst," Marine Rundschau ("The German Mine-Sweeping Service," Navy Review), 58th Year, Vol. I, Feb. 1961, Frankfurt a/main: E. S. Mittler and Sohn, G.m.b.H., 1961.

The administrative section concerned with the latter was situated in the Navy Transport Office. It was also in charge of publishing an excellent monthly magazine, the *Marine-Flotten-Rundschau* (Navy Fleet Review), which printed the best foreign articles on naval air forces, accompanied by very fine photographs, sketches, and news articles, and which was published in an effort to keep Navy personnel up to date with respect to technological advances in the field of naval aviation and warfare. An Air Defense Consultant was assigned to each of the Navy Station Headquarters, one in Kiel and the other in Wilhelmshaven, and each Consultant had an archive of photographic material at his disposal. It was their duty to present lectures designed to keep station personnel aware of the potential commitment and effectiveness of naval air units and to insure that this operational aspect was not neglected during war games and maneuvers.

The Secret Build-Up

In 1924 the Navy Command provided funds for the establishment of a civilian company, the Severa, Ltd., which was to take charge of antiaircraft artillery training. The company took over the naval air stations on Norderney Island and at Kiel-Holtenua. Ostensibly Severa, Ltd. was a Berlin firm which carried out commercial flights and towed targets for anti-aircraft artillery practice, but in reality it utilized its aircraft more and more to provide short observer courses for Navy personnel. There were refresher courses for former Navy pilots and also courses for younger naval officers without flying experience. In addition, the aircraft were employed in aerial reconnaissance missions in combination with fleet operations. Aircraft used by the German Navy were He-S-1's, which were purchased through Sweden and which were of the same type as those used by the Swedish Navy. These were augmented by Junkers seaplanes, the F-13's and W-34's. The instructors were former German Navy pilots, and the scheduling of activity was the responsibility of the Air Defense Consultants at the Station Headquarters.

Beginning in 1924, this activity was supplemented by the training of young Navy officers in a small private seaplane school in Warnemuende.^{56*} This continued until the German

* With a branch school at Stettin-Alt Damm.

Commercial Flying School opened naval flying schools in Warnemuende -- training for observers began here on 1 October 1928 with the K Group (under Lt. Fritz Koehler (Ret.) -- and at List on the island of Sylt.* Courses lasted two years, and each class had 27 students. Both the instructor and the student personnel at these schools were a kind of reserve force for the Navy, and many of the graduates went on to the Severa, Ltd. Under the so-called Sea Eagle Branch (Abteilung Seeadler), both schools conducted special courses for naval pilots and observers.

Under the cover provided by the Commercial Flying School, the seaplane school in Warnemuende soon became an observer training center for the Navy, in which everything but bombardment and torpedo firing was taught.

Utilizing the Severa aircraft, the Navy Command set up a program of practice flights and beginning and advanced training courses designed to further the tactical training of Navy pilots and observers. The officers in charge of this training were given an opportunity to become acquainted with the status of aviation in other countries.

In order to take care of technical matters, a Development Section (Entwicklungsreferat) was set up in the Naval Transport Office and placed under the command of a naval pilot officer, with five civil engineers assigned to assist him. This section was responsible for awarding developmental contracts to industry on the basis of the tactical requirements established. Contracts concerning airframes and engines as well as specialized items (for example, Hydroalium)† were issued through the Reichs Traffic Ministry, which also provided the necessary funds.

In the opinion of the In 1 (L), there was too little cooperation between the Navy and Army agencies concerned with

* Editor's Note: Sylt is one of the North Frisian Islands, situated in the North Sea, due west of the German-Danish boundary line.

† Editor's Note: An aluminum alloy manufactured by the I. G. Farbenindustrie Aktiengesellschaft (I.G. Farben Industry, Inc.)

aviation matters.⁵⁷ The In 1 (L) felt that the Navy agencies were far too concerned with remaining independent, to the detriment of the cause as a whole.

Finished equipment was tested by the Testing Station of the Reichs Association of German Aviation Industries (Erprobungsstelle des Reichsverbandes der deutschen Luftfahrtindustrie), a cover name of course, directed by a former Navy officer. The work of the Testing Station, located in Travenmuede, was under the Development Section.

The installation and testing of airborne armaments which could not be concealed required a certain amount of ingenuity. In the case of single-seat fighter aircraft, for example, detachable landing gear was developed, one set for landing on water and one for landing on the ground. In the case of multi-purpose aircraft, the test model was built as a land aircraft so that it could be tested in Lipetsk.

The developmental work on an aerial torpedo had completely bogged down. According to General der Flieger Hans Siburg (Ret.), this was due to "the difficulties in camouflaging experimental launching from aircraft prior to 1933."^{58*}

During the period 1930 to 1933, a number of seaplane models were developed which were subsequently included in the initial issue of equipment to the Luftwaffe and which were then employed

* In his study, "Beschaffung in der deutschen Luftwaffe" (Procurement in the German Luftwaffe), Generalingenieur Walter Hertel indicates that the development and production of a workable aerial torpedo, which was, of course, something entirely new, was carried out by the Navy itself. According to Hertel, "because of the traditional organization of technical services in the Navy and its general procedures and facilities (in accordance with which the construction and designs were completed), this was a mission which in conformity with the experience of the Luftwaffe Technical Office (Technisches Amt), could have been carried out more effectively and rapidly by industry, and that, if the torpedo had been available when needed, the build-up of the Luftwaffe could have proceeded more rapidly." See p.207, where mention is made of the fact that the Luftwaffe had no aerial torpedoes at its disposal. Karlsruhe Document Collection.

very successfully in Spain. These were the single-seat fighter He-51, the naval reconnaissance aircraft He-60, and the multi-purpose aircraft He-59. He Do-H had also been developed as a result of the cooperation between the Navy Command and the Reichs Ministry of Traffic.

In 1933 the development of one of the telescopic catapults (the contracts for which was awarded to the Heinkel Works) was also brought to a successful conclusion.

Air Agencies in the Reichs Defense Ministry
1932 and 1933

In an effort to achieve a unified Luftwaffe on the one hand and to eliminate the intolerable dissipation of agencies entrusted with aviation matters within the Reichs Defense Ministry on the other hand,* the In 1 (L), acting upon a request from the Troop Office,⁵⁹ suggested the following top-level command structure:

1. One air group in the Troop Office (thus in the Army General Staff).
2. An air force branch (Abteilung fuer Fliegertruppen) in the Defense Office.
3. An inspectorate of air forces (Inspizient der Fliegertruppen) in the Defense Office.
4. A Wehrmacht air branch (Wehrmachtluftabteilung) in the Wehrmacht Armament Office (Wehrmacht-Ruestungsamt), to deal with both Army and Navy air units.

* The Army agencies included in In 1 (L), under the Training Inspectorate, but still strongly dependent upon the Troop Office in its work, the In 2 in the Defense Office (Wehramt) which was chiefly concerned with antiaircraft machine guns, the In 4 in the Defense Office, which was concerned with antiaircraft artillery and searchlight units of the Army, the In 7 of the Defense Office, which concentrated upon communications, and the technical agencies in the Army Ordnance Office. The Navy Command had already organized a single group (LS) to deal with all matters pertaining to air defense.

5. One air section (Fliegerreferat) in the T-1 Branch and one in the Wehrmacht Supply Office (Wehrmacht-Nachschubamt).

There is no doubt that aviation matters, as of 1932, were scattered among far too many agencies. It was not until 30 January 1933, when a Reichs Commission for Aviation (Reichskommissariat fuer die Luftfahrt) was established under Hermann Goering, that the job of reorganization really began. General Siburg describes this situation:

Both the Army and the Navy were well aware of the fact that Goering would not be content to restrict himself to civilian aviation. Neither branch of service, and this applied especially to the Navy, felt that it could afford to get along without an air force of its own. In order to be able to confront Goering's desire for power with a united front, the Army, whose most important aviation men were in the In 1 (L) and the majority of whom were in favor of establishing the Luftwaffe as an independent branch of the Wehrmacht, considered it advisable to concentrate at least the development of all air equipment in the Army Ordnance Office, thus complying with a long-cherished wish of that office. The Navy agreed to the proposal in an attempt to salvage whatever it could.* Thus, shortly after the National Socialists had come to power, the Development Section, including the testing section at Travemuende, was transferred from the Navy Command (BS) to the Wa Pruf 8 Branch of the Army Ordnance Office.⁶⁰

The handling of aviation matters was even more tightly organized when an Air Defense Office (Luftschutzamt) was established 1 April 1933. The office comprised the following bodies: (1) Army agencies, the In 1 (L), Wa Pruf 8 formerly in the Ordnance Office, the Wa NL, formerly in the Ordnance Office, and the air defense sections of the Defense Office, including Asta-3, and (2) Navy agencies under the LS Branch.⁶¹

* This indirectly substantiates Felmy's opinion. See p. 43-44, footnote 57, p. 44.
 † See Chart No. 5.

Colonel Eberhardt Bohnstedt was appointed Chief of the Air Defense Office, with Navy Commander Rudolf Wenninger as his chief of staff. The organization of the Air Defense Office provided for:

1. The Chief of the Air Defense Office was to be immediately subordinate to the Reichs Defense Minister.
2. The Air Defense Office was to represent both the Army and Navy Commands in dealing with all questions within its area of responsibility.
3. The authority of an Inspector of a service branch (Waffeninspekteur) was to be given to the Chief of the Air Defense Office to be used with all air units, air defense units, and air weather services attached to them.
4. The selection of the Chief of the Air Defense Office and his chief of staff were to be made, whenever possible, from different Wehrmacht branches.

The Air Defense Office's areas of responsibility included developments in aeronautical technology, organization and preparation for mobilization in accordance with the instructions issued by the Chiefs of the Army and Navy Commands, training activity, development of aircraft and equipment (which entailed also the development contracts to industry), the issuance of instructions pertaining to the development of other equipment and all types of munitions to all appropriate agencies of the Army and Navy,* air weather services, all questions of national defense insofar as these concerned aviation and air defense and were not otherwise assigned to Wehrmacht agencies, in conjunction with the Army and Navy Commands, and budgeting.

The Office was organized to deal with these missions. Branch 1 of the Air Defense Office (LA-I) was the forerunner of the later Luftwaffe General Staff, both from the standpoint of its missions and with respect to the personnel assigned to it. Each of the two subdivisions, LA-I (Army) and LA-I (Navy), was further divided into three groups: tactics (I), organization (II), and training (III).

* All tactical-technical requirements were to be first approved by the Army and Navy Commands.

With this, the organizational development which had been going on since 1919 was brought to a close, but the status quo was destined to last only a short while. The newly established (30 January 1933) Reichs Commission of Aviation and its successor organization, the Reichs Aviation Ministry (Reichsluftfahrtministerium), which came into being on 1 May 1933, were to reap the benefits of the long years of painstaking but rewarding work.*

* See Chart No. 6.

CHAPTER 2

THE GROWTH OF THE TOP LEVEL COMMAND APPARATUS

The Position of the German Luftwaffe
within the Wehrmacht

As we have seen in the preceding chapter, the Versailles Treaty forbade the newly formed German Army to maintain any kind of an air force.¹ However, Generaloberst von Seeckt's interest in this new arm, which had first begun to play a noticeable role during World War I, and his recognition of its potentialities were so strong that he found a way to circumvent the treaty and begin an air force by establishing Air Consultant Offices in the Reichswehr.^{2*} Von Seeckt even envisioned a separate air force and had he not been forced to resign in 1926, he would doubtless have emphasized the air arm even more strongly.³ After his departure, however, the idea of an independent Luftwaffe was relegated to the background.

Soon after Reichs President Field Marshal Paul von Hindenburg (Reichs President from 1925 until his death 2 August 1934) had appointed Hitler Reichs Chancellor on 30 January 1933, Hitler arranged the appointment of his ambitious, long-time colleague, Hermann Goering (the strongest personality among his followers), to the post of Reichs Commissioner of Aviation (Reichskommissar fuer die Luftfahrt). The Commission thereupon became independent, as did the Reichs Ministry of Aviation which was established under Goering a few weeks later. The appointment of Goering marks the beginning of the realization of the idea of an independent Luftwaffe, for there could be no doubt whatever that the former commander of the famous Fighter Wing Richthofen and holder of the Pour le Mérite award would not be content with the direction of purely civil aviation.

It is difficult to determine with certainty just how much understanding Hitler had of aviation. The negative judgements of Goering, Milch, and the former Quartermaster General of the Luftwaffe, General der Flieger Hans von Seidel (that "Hitler understood nothing about flying and cared less.") are balanced by the generally positive statements of the Fuehrer's Luftwaffe

* See pp. 5-7.

Adjutant, Colonel Nicolaus von Below, Generalleutnant Theo Osterkamp, Colonel Werner Baumbach, the aircraft designer Ernst Heinkel, and Generalrichter Dr. Alexander Kraell* who was appointed to investigate all key personnel of the Technical Office after Udet's suicide. On the whole, it seems certain that Hitler was not fond of aviation in any form and that he harbored grave reservations regarding its potential effectiveness in warfare.

That Hitler was interested in the development of German airpower and that on occasion he directly intervened in the interest of speeding up the development of the Luftwaffe, can, however, be inferred from the pace set by Goering and from Goering's eagerness to present the Fuehrer with record production figures. Unfortunately, during the period in which the Commander in Chief of the Luftwaffe enjoyed Hitler's full confidence -- this period lasted well into the war -- the conferences between the two men usually took place in private,⁴ so that there are no witnesses to these discussions. However, one instance of direct intervention on Hitler's part is well substantiated. This occurred late in the autumn of 1938 after the Munich Conference, when the Fuehrer, obviously concerned over Great Britain's rearmament announcement, ordered Goering to expand the Luftwaffe to five times its existing strength. Had this order been carried out, the cost would have amounted to sixty billion Reichsmarks.⁵ No doubt Hitler was still encouraged by the overwhelming power demonstrated by the Luftwaffe, then the world's strongest air force, during the peaceful and successful settlement of the Sudetenland crisis.

* According to von Below, Hitler was remarkably well informed. (Oral statement made to the author in Detmold, Germany 27 July 1954). In an interview with Professor Suchenwirth in Wiesbaden, Germany on 24 June 1955 Dr. Kraell declared, "In a lot of things Hitler possessed a certain instinct which the experts lacked. One of Hitler's adjutants once told me the following story. The question had arisen as to whether German fighter aircraft or those manufactured by the enemy were faster. Thereupon all of the known types were test flown. This included enemy aircraft. Hitler demanded to see the test report which indicated that the enemy fighters were not appreciably faster than the German aircraft. Hitler then asked, 'What kind of gas did you use in the enemy models? Fly them with enemy gas!'"

The rapid upswing of activity in the Reich after 30 January 1933, in which record performances were established in all sectors of industry, must be described as an instance of Hitler's direct influence upon policy, just as was the simultaneous rapid development of the Luftwaffe. Then too, the energetic and persevering Commander in Chief of the Luftwaffe was anxious to present his branch of service to the Fuehrer as the strongest and most effective arm of the Wehrmacht. In this effort he was solidly backed by his equally ambitious and industrious staff members.

Thus, besides those instances in which Hitler personally intervened, the general spirit of progress which prevailed in the Reich had to be viewed as an example of his indirect influence upon the growth of the Luftwaffe. Hitler's seizure of power assured the Luftwaffe of its development as an independent branch of service, and all of the objections advanced by the Army and Navy were of no avail. They had no choice but to grudgingly accept the new entity, which, of course, did not assure very cordial relationships between the other branches of service and the Luftwaffe.

The High Command of the Luftwaffe (which emerged into the open in 1935 after the need for secrecy was dropped) was subordinate to the Commander in Chief of the Wehrmacht, just as were the High Commands of the Army and Navy. The top Wehrmacht post was held until 1938 by Reichs Minister of War Field Marshal Werner von Blomberg.* Goering, however, as Reichs Minister of Aviation, was a cabinet member and directly subordinate to the Fuehrer/Reichs Chancellor, a dual subordination which he exploited to the utmost in order to achieve his objective of enlarging the Luftwaffe. This aim required funds in amounts which were hitherto unheard of in the Reich and which the other two Wehrmacht branches would never have dreamed of requesting even if they needed them.⁶ Indeed, Goering's own usurping nature, the plethora of influential offices which were conferred upon him, his position as the man next in line to Hitler, and his awareness that he could approach the Reichs Chancellor whenever he wished, all tended to make his position unique among those of the top Wehrmacht commanders.⁷ His prestige was not even damaged by the fact that during a weak moment in 1933 Reichs President von Hindenburg had been talked into promoting Goering directly from the rank of retired

* See figure 10.

Captain to General der Infanterie. At this juncture of affairs no one publicly objected to the fact that Goering had not climbed to the top in the traditional manner which is so indispensable for the preservation of every officer corps and military hierarchy. Instead, the promotion immensely increased Goering's power. As soon as the camouflage order was lifted he was given the new rank of General der Flieger* and shortly thereafter promoted to Generaloberst.

As long as Field Marshal von Blomberg remained in the War Ministry -- he was clearly Goering's superior by virtue of his supreme rank, and he could not be circumvented -- the special position of the Commander in Chief of the Luftwaffe over the other service chiefs was not so glaringly apparent. However, after Blomberg's dismissal on 4 February 1938 and the elimination of the "old guard" of German Army commanders, it was obvious to all that Goering was even superior to the chief of the newly established High Command of the Wehrmacht, General der Artillerie Wilhelm Keitel.⁸ This superiority was also given tangible form on 4 February 1938 when Goering, instead of an Army man, was promoted to Field Marshal. He was then the only active Field Marshal in the Wehrmacht, and at the outbreak of war the Army had no one of comparable rank. However, the Navy did in the person of its Commander in Chief, Erich Raeder, who was promoted to Grossadmiral on 1 April 1939.

* Editor's Note: This was on the same level as General der Infanterie, General der Artillerie, and so on, all being Lt. Generals.

† Editor's Note: The shameful dismissals of von Blomberg and Chief of the German Army General Staff Werner Freiherr von Fritsch provide an interesting insight into the beginning of the subordination of the professional officer corps to the Fuehrer. See Generaloberst Heinz Guderian, Erinnerungen eines Soldaten (Recollections of a Soldier), Heidelberg: Kurt Vowinckel Verlag, 1951, pp. 40-41. See also Generalleutnant Dietrich von Choltitz, Soldat unter Soldaten (Soldier among Soldiers), Zuerich: Europa Verlag, 1951, pp. 41-43. See also Generalfeldmarschall Albert Kesselring, Soldat bis zum Letzten Tag (Soldier to the Last Day), Bonn: Athenaemum Verlag, 1953, pp. 29-30.

†† Despite the fact that Goering's hope of becoming War Minister was not realized.

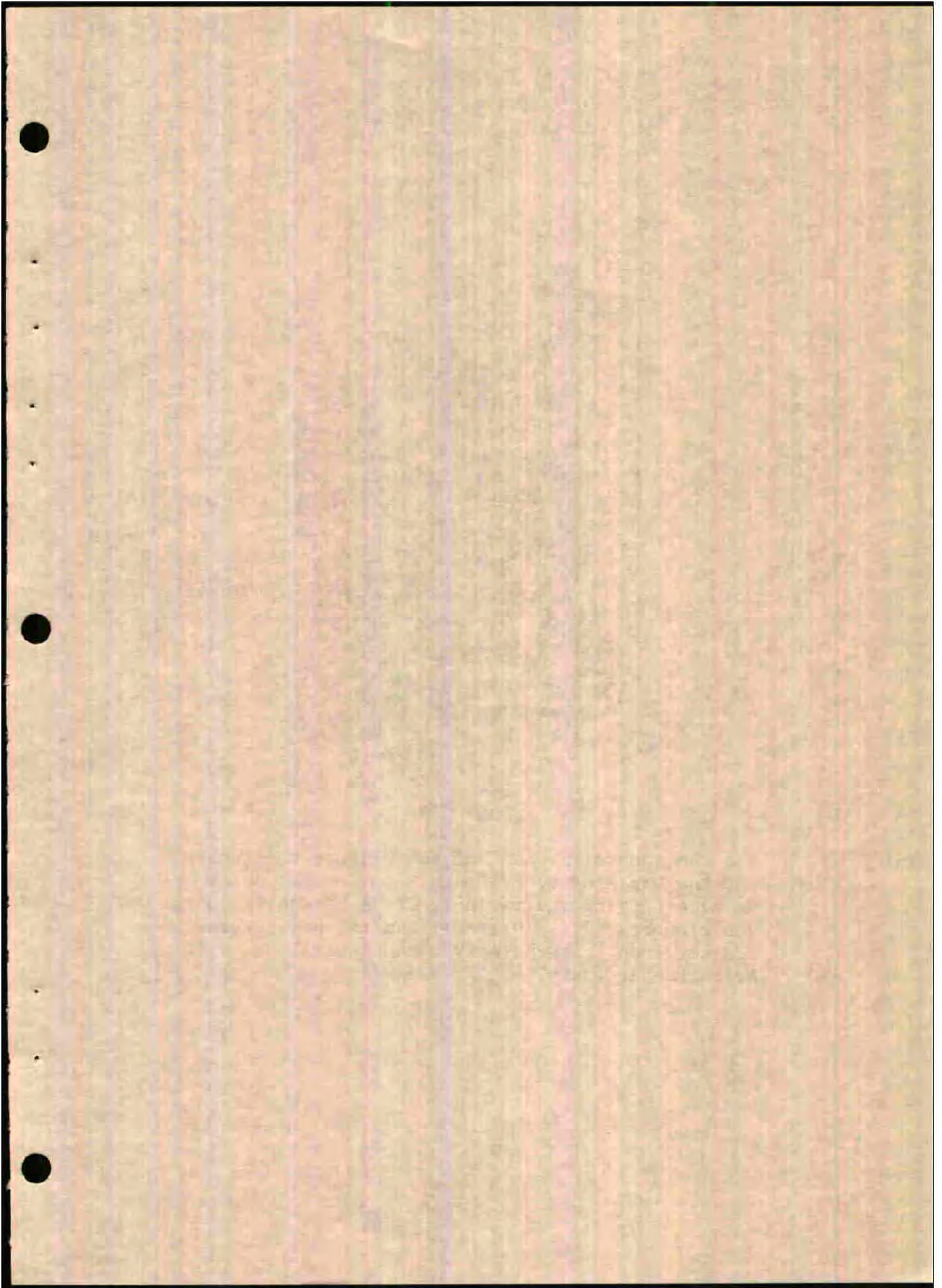




Figure 10.

The Commanders in Chief of the Wehrmacht Branches and the War Minister: L. to R.: Generaloberst Hermann Goering (Luftwaffe), Field Marshal Werner von Blomberg (War Minister), Generaloberst Werner Freiherr von Fritsch (Army), and Admiral Dr. h.c. Erich Raeder (Navy), 1937.

Goering's Personality as a Factor in the Luftwaffe's Build-Up.

Hermann Goering was born 12 January 1893. He served during World War I as an aerial observer (1914) and as a pilot (1915-11 November 1918). A competent fighter pilot, he received the highest Prussian military decoration, the order of Four to Merite, after shooting down twenty enemy aircraft. When the war came to an end he was a captain and Commander of the famous Fighter Wing Freiherr von Richthofen No. 1. In 1920 he was discharged from the Army, much embittered by the terms of the Treaty of Versailles.

From November 1922 he had been a member of Hitler's National Socialist Party, and in 1923 was made Commander of the Storm Troops (Sturmabteilungen or SA).^{*} In the latter year he was seriously wounded during Hitler's abortive Putsch in Munich. After an extended sojourn in Austria, Italy, and Sweden he returned to Germany in 1927 and joined the Nazi Party which Hitler had revived after being released from Landsberg prison. Goering served as Hitler's political representative in Berlin after 1930 and displayed a good deal of diplomatic skill. With the sweeping Nazi election victory of 31 July 1932 he became President of the German Reichstag (Parliament).

After the downfall of Gregor Strasser[†] in December 1932, Goering advanced to the number two position in the Nazi Party having Hitler's full confidence. On 30 January 1933 he was appointed Reichs Minister without portfolio and Reichs Commissioner of Aviation, on 11 April 1933 he became Prime Minister of Prussia, and on 1 May 1933 Reichs Minister of Aviation. On 30 August of that year, skipping all intervening ranks, he was promoted from Captain to General der Infanterie. Hitler placed him in charge

^{*} See figure 11.

[†] Editor's Note: Early Nazi Party leader who, unlike Hitler, sought to compromise with other political parties. Chancellor von Schleicher therefore saw him as the man to use to help weaken or split the Nazi Party. Hitler, angered by this and by Strasser's attitudes, included him among the large number of opponents who were shot on the night of 30 June 1934.

of the Four Year Plan, 16 October 1936, and gave him the further offices of Reichs Chief of Forestry (Reichsforstmeister) and Reichs Chief Game Warden (Reichsjaeagermeister).*

This energetic and ambitious man was intensely aware of his own worth. His determined eagerness to stop at nothing to get ahead and his keen intellect and common sense also helped him in his climb to the top. His nature was that of a usurper, but his undoubted tendencies toward brutality and ruthlessness were more than offset by such winning traits of character as human sympathy, generosity, interest in his staff members, and a sense of humor which enabled him to laugh at himself as well as others. Even his more serious human failings, in particular his vanity, his love of splendor (for the gratification of which he simply took what he wanted with Pasha-like indifference), his boastfulness, and his laziness detracted very little from his prestige or popularity. On the contrary, these characteristics seemed to endow him with more human qualities and made him even more popular with the masses.

Goering's capacity for work suffered from the fact that he tired very easily, possibly from a narcotics addiction which he was able to overcome only temporarily. Then too, he needed a great deal of time for his highly diversified life. In any case, he never had the talent or inclination for steady, routine-type work. Moreover, the multiplicity of top-level posts which were assigned to him required him to issue orders, intervening only when necessary, rather than to do any of the routine work himself. Goering devoted less and less time to the service branch he commanded and which, to a large extent, he originated. His fits of enthusiasm and fruitful intervention were followed by long periods of indifference and lethargy which had a disastrous effect upon the development of the new air force.

On the other hand it must be remembered that, apart from Hitler himself, Goering was the only man on the scene at that time who possessed the necessary energy and will to develop an entirely new service branch out of virtually nothing in defiance of formidable obstacles (including those dictated by statistical limitations). His personality often served as an inspiration to the Luftwaffe and urged it onward to greater achievements. In

* See figure 12.



Figure 11

Hermann Goering as Chief of the Storm Troops
(SA), 1923



Figure 12

Goering as Chief Game Warden of Germany (Reichs-
jaegermeister), 1937.

his thinking on the importance of aerial warfare he was an advocate of the principles formulated by Giulio Douhet, and was therefore eminently logical and often farsighted.⁹

In matters pertaining to the air forces it was extremely advantageous for the new Luftwaffe that its Commander in Chief could by-pass all possible obstacles in the Wehrmacht chain of command by discussing the issues privately with Hitler.¹⁰ Because of Goering's great personal authority and the Fuehrer's backing, the position of Commander in Chief of the Luftwaffe became unassailable and remained so as long as Goering enjoyed Hitler's confidence. Although Hitler usually liked to intervene directly in technical matters concerning the Wehrmacht, he early abandoned this practice with respect to the Luftwaffe since he believed it was going along as it should under Goering's leadership.¹¹

Yet, this practice of man-to-man talks between the first man and the second man in the Reich, to the virtual exclusion of other agencies, was dangerous in that Goering's statements to Hitler could, and very often did, remain both unchallenged and uncorrected. In such circumstances it was naturally imperative that Goering make his reports as factual and as accurate as possible, but did he really do this? Was this the case, for example, in his report on the discontinuation of developmental work on the four-engine bomber?* Was Hitler aware of the fact that this meant the end of the only German aircraft with sufficient range to traverse the Soviet Union? If Goering asked Hitler whether he expected a war with Britain and was then lulled by the Fuehrer's negative answer into hoping that the Luftwaffe

* The first Chief of the Luftwaffe General Staff, General Walter Wever, was persuaded by the Chief of the Luftwaffe Technical Office, Col. Wilhelm Wimmer, to begin development of a four-engine bomber, which Wever dubbed the "Ural Bomber" because of the range expected of it. This project was abandoned in the spring of 1937. See Richard Suchenwirth, Historical Turning Points in the German Air Force War Effort, USAF Historical Studies No. 189, Maxwell AFB, Alabama: USAF Historical Division, RSI, June 1959, pp. 40-44, cited hereafter as Suchenwirth, Historical Turning Points.

could get along with its twin-engine bomber, the Ju-88, then the question was, at best, improperly phrased.^{12*} Perhaps most important of all, did Goering inform Hitler that the German Luftwaffe was unprepared for war or, at least, that it would be incapable of surviving a long-term war against a coalition of enemies? What a salutary and restraining effect a truthful statement of this kind might have had upon Hitler's military policy! Furthermore, we are justified in asking whether it is not true that Goering's reports to Hitler were always a bit too rosy. Was Goering not responsible in great part for creating the intoxication with figures to which the thinking of the Supreme Commander of the Wehrmacht fell prey? The answer in both cases would seem to be "yes" when we consider the statement of Field Marshal Erhard Milch that Goering had once told him he could report two and one-half twin-engine bombers to Hitler for every four-engine one, and that the Fuehrer never asked him what kind of bombers he was building but merely how many.¹³ This, of course, would help to explain some of Hitler's later bitterness toward Goering -- these feelings were especially pronounced during his last days in the Reichs Chancellory -- for

* According to Prof. Dr. Ernst Heinkel, this matter was discussed by Generaloberst Ernst Udet, Chief of the Luftwaffe Special Supply and Procurement Office, who declared, "Nobody thinks there's going to be a war with England. Before he decided to concentrate all of our efforts on the twin-engine dive-bomber, the 'Iron Man' (Udet's name for Goering) had several detailed discussions with the Fuehrer. A war with England is completely out of the question. If anything at all, it will be a war against Poland or Czechoslovakia. The Fuehrer will never let us in for a conflict which goes beyond the boundaries of the European Continent. Therefore for the only possible conflict it suffices to have a medium-heavy bomber with limited range and low bombload capacity, and to make up for it with the highest possible dive-bombing accuracy. This is what we have in the new Ju-88, and we have the resources to build as many of them as the Fuehrer wants, so that we can impress both England and France so thoroughly that they will leave us in peace in any case." Stuermisches Leben (Stormy Life), Stuttgart: Mundus Verlag, 1953, p. 411.

he felt that Goering, his closest confidant and Party comrade, had betrayed him.^{14*}

Germany's Air Command during the Period of Secrecy,
30 January 1933 - 1 March 1935

The Luftwaffe as an independent branch of the Wehrmacht under its own commander in chief was an innovation compared with its status during World War I and during the time of the Reichswehr. The establishment of a Reichs Commission of Aviation was the first step along the new path, while the second and more obvious one was the creation on 1 May 1933 of the Reichs Ministry of Aviation as the successor of the Air Defense Office¹ which had been created just one month earlier within the Reichs Defense Ministry.¹⁵

The purely civilian duties of the new ministry (civil aviation, air weather services, etc.) provided the cover for the illicit military aviation activities of the organization.¹⁶ Active officers assigned to the Ministry had been discharged from the service on paper and normally wore civilian clothing. When uniforms were required, the uniform of the German Commercial

* Karl Koller, General der Flieger and last Chief of the Luftwaffe General Staff, noted in his diary the telephone conversation of 27 April 1945 in which Ritter von Greim informed him of his (v. Greim's) appointment as Field Marshal and Commander in Chief of the Luftwaffe: "The Fuehrer sat at my bedside [v. Greim had been wounded while flying to Berlin] for a long time and discussed everything with me. He has taken back his reproaches against the Luftwaffe. He knows very well how much our branch of service has accomplished, and his reproaches are directed solely at Goering." See General der Flieger Karl Koller, Der letzte Monat: Die Tagebucheinzeichnungen des letzten Generalstabes der deutschen Luftwaffe vom 14.4. - 27.5.1945 (The Last Month: The Diary Notations of the Last Chief of the General Staff of the German Luftwaffe from 14 April to 27 May 1945), Mannheim: Norbert Wohlgemuth Verlag, 1949, p. 61. Hitler's former valet, Linge, who was imprisoned in the U.S.S.R. until 1955, presents a similar report of his master's furious reaction upon receipt of Goering's telegram of 23 April 1945 offering to assume leadership of the Reich. According to Linge, Hitler shouted, "I wouldn't have believed that he could betray me this way!" See Revue, No. 49 of 3 December 1955.

/ See pp. 5-7.

Flying School was worn. All of the essential installations were also disguised as civilian enterprises.

Immediately subordinate to the Reichs Minister of Aviation as his permanent deputy was the State Secretary of Aviation (Staatssekretaer der Luftfahrt), Capt. Erhard Milch (Ret.), who was directly in charge of all of the offices of the Ministry.¹⁷ Milch, who later was Director of the German Lufthansa, came to the new Luftwaffe with Goering and remained with it almost to the end as State Secretary of Aviation.¹⁸ A man of indomitable health and energy, stubborn but alert in his work, tremendously ambitious, efficient, without the polish of a diplomat but pleasant and congenial as long as no one tried to usurp his position as deputy to Goering, he was obviously a great help to the officers who were recruited from the Army and were unfamiliar with the Luftwaffe.¹⁹ Milch played a definite and important role in the fate of the young air force.

Goering's Reichs Aviation Ministry was divided into the Central Branch, the Air Command Office (LA), the General Air Office (LB), the Technical Office (LC), the Luftwaffe Administrative Office (LD), and the Luftwaffe Personnel Office (LP).^{20*} The branches and offices were organized in the same way as those in the Reichs Defense Ministry.²¹

The Air Command Office, the most important office in the Air Ministry, was subdivided into the Operations Branch (LA-I), the Organization Branch (LA-II), the Training Branch (LA-III), the Flak Artillery Branch (LA-IV), the Supply Branch (LA-V), and the Signals Branch. A Medical Branch was being organized. The Air Command Office and its branches, groups, and important sections were staffed with General Staff officers. For all practical purposes the Air Command Office was the General Staff of the Luftwaffe.

* The Reichs Aviation Ministry was originally located in the Behrendstrasse in Berlin; it was later housed in a huge building on the corner of the Wilhelmstrasse and Leipzigerstrasse. See Chart No. 6.

† The General Air Office was the civilian office of the Ministry. The Technical Office entailed branches to deal with research, development, and testing.



Figure 13

The able and energetic General-leutnant Walther Wever, first Chief of the Luftwaffe General Staff, 1935.



Figure 14

Generalmajor Erhard Milch, State Secretary
of Aviation. To his Right: Captain
Fritz Morzik and Colonel Friedrich
Christiansen, 1934.

Since the original Inspectorate 1 (L) and the later Air Defense Office had relatively small staffs, and since the Chief of Inspectorate 1 (L), Lt. Col. (GSC) Hellmuth Felmy,* no longer belonged to the central organization, personnel had to be borrowed from the Army, which meant that the incoming officers, although already of higher rank, had to learn to fly. The first to arrive was Col. Hans-Juergen Stumpff, an excellent chief of personnel, who was followed by Col. Walther Wever, soon to become chief of the Air Command Office, and Colonels Albert Kesselring, Karl Kitzinger, and Wilhelm Wimmer.

During his brief association with the Luftwaffe (1933 until his tragic death on 3 June 1936) Wever gained the affection and respect of all who knew him. He stood high in Hitler's esteem, and was the only General Staff Chief who was able to get along well with both Goering and Milch. His colleagues who later achieved high rank in their own right agreed that Wever had the qualities of a genius.²² He guided the activity of the Air Command Office with a firm hand and with supreme self-confidence. No General Staff Chief was thereafter able to achieve such an atmosphere of smooth cooperation, not even Wever's immediate successor, Albert Kesselring, whose greatest contribution in the pre-war period was the organization of the Luftwaffe Administrative Office. The high points in Kesselring's career were to occur during the war as Commander of the Second Air Fleet and Commander of the Wehrmacht (South).

Stumpff, who followed Kesselring as Chief of the Air Command Office, was quite obviously appointed just as a caretaker officer to fill in the position prior to the appointment of Hans Jeschonnek, whom Wever himself had designated as his successor.²³ Jeschonnek was appointed Chief of the Luftwaffe General Staff on 1 February 1939.

* See figure 7.

† This was the unanimous opinion of a great number of general officers who were questioned on the subject. Among these were Field Marshal Erhard Milch, General der Flieger Paul Deichmann, General der Flieger Hellmuth Felmy, Generalleutnant Josef Kammhuber, and Generalleutnant Hermann Plocher. Wever's contemporary, General Felmy, and Field Marshal Milch compared Wever with Moltke the elder. These are but a few of the countless compliments paid to Wever's character and ability. See figure 13.

From the Official Beginning of the Luftwaffe
to World War II

Three factors were instrumental in the development of the top-level command structure of the Luftwaffe, a force whose existence was first announced to the world on 10 March 1935.²⁴ First and most decisive were the personalities of the two top men. Goering, the Reichs Minister of Aviation and, later, Commander in Chief of the Luftwaffe had long since outgrown the Spartan military life to which he had become accustomed as an Army captain. Moreover, his tendency to see things purely from his own personal viewpoint rendered him incapable of logical military thinking. Milch, the State Secretary, who had also been discharged as a captain shortly after the end of World War I, was also a foreign body from the standpoint of the traditional military hierarchy. It was soon apparent, however, that he possessed certain qualities which Goering lacked completely: industry, perseverance, steadiness, and energy.

The second factor of importance was the newness of the organization, since there was a conspicuous lack of an office chief who was familiar with the air force and thus experienced in knowing its requirements. The third factor was the lack of an adequately large, well-trained, and unified Luftwaffe General Staff. A General Staff for this arm of service could not be openly called into existence until 1 August 1936, and the organization which then emerged was devoid of the century old training and traditions which were typical of the Army General Staff. All of these factors hampered the top-level command of the Luftwaffe, and it remained fraught with problems until just before its final downfall.

After Germany had regained its military sovereignty on 16 March 1935 and, more especially, after General Wever's untimely death in June 1936, the fundamental question soon arose whether the State Secretary, as the permanent deputy of the frequently absent Goering, ought to be granted supervisory authority over all of the ministerial offices. Before long serious friction set in between Kesselring, Wever's successor as Chief of the Luftwaffe General Staff,* and State Secretary Milch.

* Editor's Note: Kesselring held the position from 5 June 1936 to 31 May 1937.

Goering was then in one of his occasional periods of enthusiasm for intervening in all sorts of things, and was throwing his weight solidly behind the Luftwaffe. He actually fostered the rivalry between his two subordinates and finally managed to destroy the somewhat unconventional, but nevertheless workable, harmony prevailing among top-level Luftwaffe leaders. Kesselring finally demanded that he be given full supervisory authority over all of the agencies and offices of the Reichs Ministry of Aviation. This, of course, would have meant depriving the State Secretary of all his power.²⁵

Goering resolved the conflict on 2 June 1937 by issuing orders that the Chief of the General Staff of the Luftwaffe was henceforth directly subordinate to him, which meant that Kesselring was no longer obliged to obtain the previous assent of the State Secretary for decisions, but could simply inform Milch of actions which had been taken by the Commander in Chief. The State Secretary was thus no longer the permanent deputy of the Commander in Chief of the Luftwaffe, but was summoned to represent him only in the event of his prolonged absence or sudden incapacitation.²⁶ However, shortly before Goering's decision Kesselring had asked to be relieved of his assignment and on 31 May 1937 was appointed Commanding General and Commander in Chief of Luftwaffe Service Area 3 (Luftkreis III) with headquarters in Berlin. His successor was Generalleutnant Hans-Juergen Stumpff, Chief of the Luftwaffe Personnel Office.

Goering's decision of 2 June 1937 served to confuse the organization of the Ministry offices with respect to their subordination and chain of command. Quite understandably the decision led to a conflict between the State Secretary (Milch) and the Chief of the General Staff (Stumpff) with respect to the reorganization of the entire top-level command. The State Secretary, whose position was threatened by the General Staff's ambition to take over the "lion's share" of leadership, advocated the establishment of two offices of equal rank with the General Staff, the Air Defense Office (Luftwehramt) as a kind of war ministry, and the Inspector General (Generalinspekteur), with inspection authority over the Chief of the General Staff, the Chief of the Air Defense Office, and the Chief of the Personnel Office, as the eyes and ears of the Commander in Chief. In reality, the position of Inspector General would be one of supreme authority. It is therefore likely that Milch intended to have himself appointed to the post.

The Chief of the General Staff, on the other hand, was anxious to see the State Secretary deprived of his authority in technical and administrative sectors as well as in the field of civil aviation. In a letter dated 6 December 1937, Stumpff described the deplorable conditions brought about by Goering's decision of 2 June: "Instead of one command agency we now have two. An absolute chaos of orders and directives has been the inevitable result."²⁷ Stumpff offered to subordinate himself to the State Secretary in the latter's role as permanent deputy to the Reichs Minister of Aviation and Commander in Chief of the Luftwaffe on the condition that the General Staff be clearly defined as the uniform and comprehensive agency of command in the Reichs Aviation Ministry and in the Office of the Commander in Chief of the Luftwaffe. He further insisted that the General Staff must have the right to issue orders and instructions pertaining to preparations for war during peacetime. This would, of course, be bound to affect the new planned positions, the office of the Chief of Air Defense, with its authority over armament activity,* and the office of Inspector General, the superior agency for all Luftwaffe Inspectorates as well as the Chief of the Personnel Office. With an organization of this kind the State Secretary would have lost much of his authority.† His independence would have ceased and he would have been forced to issue "all orders, instructions, directives, and decisions through the Luftwaffe General Staff."²⁸ In return he would have been secure in his post as permanent deputy of the Reichs Minister of Aviation and Commander in Chief of the Luftwaffe, but he would become less than a cipher if Goering should make this function unnecessary by taking a part in Ministry and Luftwaffe affairs himself.

Goering finally resolved the conflict on 18 January 1938 by making a compromise which substantially reduced the importance of the State Secretary's position.²⁹ The latter was no longer to be the permanent deputy of the Reichs Minister of Aviation and Luftwaffe Commander, but was to fulfill this function only

* Including the Technical Administrative and Personnel Offices. See p. 60 and Chart No. 6.

† Directly subordinate to him were the following Inspectorates: Inspectorate for Flak Artillery and Air Defense (after 1934), Inspectorate for Naval Air Forces, Inspectorate for Training Schools, and the Inspectorate for Air Traffic Control and Equipment.

upon the request of the Commander in Chief of the Luftwaffe. The State Secretary and his staff were to be a part of the Office of the Commander in Chief, Luftwaffe. The General Staff was actually redesignated as the planning staff of the Reichs Minister of Aviation and Commander in Chief of the Luftwaffe, and as the latter's principal advisor in "all questions pertaining to combat readiness, leadership, organization, and training."^{30*} Thus Stumpff, as Chief of the General Staff, like the Chief of the Ministry Office, the Chief of the Central Branch, the Chief of the Air Defense Branch,[†] the Chief of the Technical Office,³¹ the Chief of the Luftwaffe Personnel Office, and the Inspector General of the Luftwaffe,^{††} was personally subordinate to Goering, the Reichs Minister of Aviation and Commander in Chief of the Luftwaffe. Except for the Chief of the Ministry Office, all of the above-mentioned chiefs were responsible for keeping the State Secretary informed of any important questions which might be discussed in their conferences with Goering.

There is no doubt that this system brought the Chief of the Luftwaffe General Staff a good deal closer to his desired position of authority. However, the solution was really no more than a half-measure since the power of the State Secretary, though considerably diminished, was still a factor to be reckoned with, and the fact that this authority had been decreased naturally made him even more eager to arrogate to himself as much responsibility as possible in order to regain his former position of influence. Since Goering could never be persuaded to devote himself to ministerial work for any length of time or with any consistent amount of interest, the Reichs Aviation Ministry was

* The Chief of the General Staff had the right to be present at important conferences held by the Reichs Minister of Aviation and Commander in Chief, Luftwaffe, or, in the latter's absence, by the State Secretary. He was also to be kept continually and fully informed of all basic decisions, especially those pertaining to combat readiness and armament.

† Who was in charge of the General Air Office, the Administrative Office, and the Supply Office, but not the Technical Office because of Udet's position.

†† In charge of all Inspectors. The Inspectorates themselves were, at the same time, subordinate to the General Staff. Truly a decision worthy of Solomon! General Bernhard Kuehl, the later Chief of Training, became Inspector General.

without a leader, a situation which was surely less favorable than the one which prevailed prior to 1937 when Milch had actually borne the function of leadership.*

Thus organizational instability continued in the top-level command of the Luftwaffe. According to Generalleutnant Bruno Maass (Ret.), negotiations in this area were resumed in a direction which "was not especially pleasing to the Chief of the General Staff."³² On 1 February 1939, Generalleutnant Stumpff resigned as Chief of the General Staff and became Chief of the Air Defense Office. His successor was the 40 year old Col. (GSC) Hans Jeschonnek.†

At the same time another reorganization of the top-level command apparatus was undertaken in conformity to orders by the Ministry contained in Ministry Directive A.A.I. No. 50/39, dated 23 January 1939.³³ This materially strengthened the position of Milch, the State Secretary, who was then appointed Inspector General, with the right to inspect all Ministry agencies and all troops in the field. He was confirmed as Goering's deputy in the latter's capacity as Commander in Chief of the Luftwaffe. The Chief of the Air Defense Office, Stumpff, was appointed as Milch's deputy.

In all matters pertaining to leadership and command, including orders to the troops, the new Chief of the General Staff,†† Jeschonnek, remained subordinate to the Commander in Chief, Luftwaffe, with right of direct access to him. After any personal conference with Goering, the General Staff Chief had to inform the State Secretary of all that had transpired, provided that matters of command and leadership had been discussed. In all other areas the General Staff Chief was expected to initially inform the State Secretary of the problem, since he was the representative of the Commander in Chief, and, in case of a disagreement, was permitted to be present at the resulting conference

* The State Secretary's position was also threatened by General Ernst Udet's special status as a direct subordinate of the Commander in Chief, Luftwaffe, with whom Udet had a great deal of influence at this time. This meant that the State Secretary was virtually excluded from the technical field.

† See footnote * p. 26.

†† He was simultaneously designated Chief of the Operations Staff, and thus concerned exclusively with the function of command.

between the State Secretary and the Commander in Chief. The Quartermaster General was granted the right of direct access to Goering.³⁴

The Chief of the Luftwaffe Personnel Office was directly subordinate to the Commander in Chief in matters pertaining to officer appointment and promotions, but to the Chief of the Air Defense Office in matters concerning personnel recruitment. The Supply Office, formerly under the Chief of the Air Defense Office, was assigned to the newly created Office of the Chief of Procurement and Supply (Generalluftzeugmeister or GL).^{35*} The office of Inspector General was redesignated as Office of the Chief of Training (Chef des Ausbildungswesens).³⁶ The fourteen Inspectorates under the new office bore the responsibility for training in all fields.³⁷ The newly created office of President of the Luftwaffe Commission remained in existence only until the following autumn. In addition to the Inspectorate 5 (Air Traffic Control and Equipment), a new office was created, that of Chief of Air Traffic Control (Chef der Flugsicherheit).

This was the organizational structure of the Luftwaffe at the outbreak of war. It was an organization full of compromises and thinly-veiled rivalries. Entirely in keeping with this problematical structure, the leaders in the several top-level groups (including Udet and Milch, who had once been good friends) were extremely cool to each other. In the case of State Secretary Milch and General Staff Chief Jeschomek the relationship could be described as one of downright hostility.³⁸ Udet seemed to be the only one who managed to remain on a friendly footing with the Commander in Chief, while Goering regarded the overweening ambitions of Milch/ with deepest suspicions.

In any case the situation existing between the various agencies of the Luftwaffe could hardly be described as harmonious,

* This position, newly created for General Udet, covered the entire field of armaments, and consisted of six staff branches, the Technical Office, the Supply Office, the newly established Luftwaffe Economics Office (which concerned itself with export, import, price research and evaluation, and determination of possible areas for economic penetration), and the Department of Flak Artillery Development.

/ See figure 14.

nor could one speak of a respected, firmly-anchored, top-level hierarchy which was capable of giving direction and unity to the Luftwaffe command apparatus.*

Organization and Mission of the Top-Level Command Apparatus

Inspectorate 1 (L) (as an air agency in a war ministry which was forbidden to maintain an air force) had had no significant field agencies to speak of. As soon as the Reichs Commission of Aviation was established (2 February 1933), intermediate command agencies began to spring up between the top-level command apparatus then being established and the Luftwaffe units which were being organized in secret.

On 1 April 1934 (still within the period of secrecy) six senior air offices were established.† Five retired generals and one admiral, guaranteeing the continuation of traditional German military ethics, were appointed as chiefs of these offices (Gehobene Luftaemter). In the beginning these offices were disguised as civilian enterprises and were distributed in such a way that they were not geographically associated with the Military Areas, but as soon as there was no further need for concealment they were organized into Air Service Commands (Luftkreise), and on 1 April 1937 a seventh Air Service Command was added. Headquarters of Air Service Command I was in Koenigsberg, that of II in Berlin, III in Dresden, IV in Muenster, V in Munich, VI (Sea) in Kiel, and VII in Braunschweig.³⁹ These were located in the precise centers which had been occupied by the senior air offices.⁴⁰

Each of the Air Service Commands had a commanding general at its head and was directly under the Luftwaffe High Command. They were the highest command authority within their respective

* For later changes in the organization of the top-level command of the Reichs Aviation Ministry in 1937, 1938, and 1939, see folios on Leadership, A/1 and A/1/aa, Karlsruhe Document Collection.

† In addition to these senior offices, there were also sixteen intermediate air offices (officially agencies for civil aviation administration) whose chiefs were subordinate to the President of the senior air offices in operations and discipline.

areas and acted simultaneously as territorial command agencies.⁴¹

Subordinate to the Air Service Commands were: (1) the Senior Air Commander (Hoeherer Fliegerkommandeur), who was in charge of all air units in the area,* and, (2) after 1 October 1935, a Senior Flak Artillery Commander (Hoeherer Flakkommandeur), who commanded all of the antiaircraft artillery units, (3) two or three Air Administrative Area Commands (Luftgaukommandos), the so-called "original" ones, (4) a Signal Communications Commander (Nachrichtenfuehrer) with his Air Service Area Signal Communications Battalion, (5) a Procurement and Supply Group (Luftzeuggruppe) with its subordinate supply agencies, supply offices, ammunition depots, fuel dumps, etc., (6) an Air Service Area Medical Battalion, (7) after 1 April 1935, a Personnel Replacement Battalion, and, (8) after 1936, a Personnel Replacement Regiment (Fliegerersatzregiment) and a Pilot Training School class A/B, and (9) all the agencies, troops, schools, which were purely local in character, replacement units, etc., within the Air Service Command area.

The Air Service Area Commander had the authority of military-legal jurisdiction, supervision of all civilian airfields, and the right to issue orders pertaining to civil air defense in the area. The fundamental purpose behind the establishment of Air Service Commands was to organize all of the agencies

* With the exception of those assigned to Air Service Command I, since the air units there were directly subordinate to the Command. In Air Service Command VI, the Senior Air Commander was called the Air Commander (Fuehrer der Luft) and was tactically subordinate to the Commander in Chief of the German Navy. The Senior Flak Artillery Commander was the Flak Artillery Commander, Kiel. After the period of secrecy, except for Air Service Commands I and VI and an Office of the Commander, Army Air Units (Kommandeur der Heeresflieger) and an Office of the Commander, Naval Air Units (Kommandeur der Marineflieger), there was also a 1st Air Division. It existed from 1 April 1934 until 31 March 1935, was stationed at Berlin, and was subordinate to the Reichs Aviation Minister and the Commander in Chief, Luftwaffe. It was comprised of all of the air units in existence at that time except for the Army aerial reconnaissance organizations. This division was disbanded 1 April 1935 when the air units were made subordinate to the Air Service Commands.

created within the new service branch on a regional basis.⁴² The units were still too few in number and too undiversified in type to permit their integration into higher-level troop entities on a wartime basis. General Maass has noted that this system, "because of its strongly territorial basis, was not really suited to the conduct of offensive and highly mobile air operations."⁴³

The Air Service Commands represented a transitional solution, an improvised organizational measure designed to bridge the gap until the Luftwaffe should have achieved a tangible form and should have a sufficient number of commanders and officers at its disposal. The Commands might be described as cupboards into which all of the Luftwaffe installations in their respective areas were stuffed. In many respects they functioned more like a governing board than a command. As Maass points out, "The Air Service Commands were really like miniature ministries in the horizontal organization of a great variety of missions and areas of activity. In the event of war, the command function under the Air Service Area Commander and his chief of staff would have had to have been separated as a kind of 'field command' from the 'home or territorial command' which would be responsible for taking over all of the other functions."⁴⁴

As a matter of fact, Luftwaffe leaders did not have to wait for a war to make them aware of the disadvantages of this system, since even the peaceful annexation of Austria (13 March 1938) brought them strikingly to light. The Commander in Chief of the Luftwaffe soon ordered a major reorganization of the Luftwaffe and on 1 April 1938 Air Service Commands II, III, IV, V, and VII were reorganized into Luftwaffe Group Commands: (1) included Air Service Commands II and III (Berlin), (2) included Air Service Commands IV and VII (Braunschweig), and (3) included Air Service Command V (Munich). Air Service Command I was redesignated Luftwaffe Command East Prussia, with headquarters in Koenigsberg, and the VIth became the 4th Luftwaffe Command Sea, with headquarters in Kiel; Luftwaffe Command Austria was established with headquarters in Vienna. These were mobile command posts, capable of functioning under wartime conditions.⁴⁵

Subordinate to them in all respects were the operational air units, now organized into Air Divisions (Fliegerdivisionen). In conformity to an order issued in March 1939, the 1st and 2nd Air Divisions were assigned to the First Air Fleet, the 3rd and 4th to the Second Air Fleet, and the 5th and 6th to the Third

Air Fleet. In addition to the operational air units, the target reconnaissance units (long-range reconnaissance units) and the office of the Senior Signal Communications Commander were subordinate to the Luftwaffe Group Commands or Luftwaffe Commands. The office of Senior Air Commander had become superfluous and was eliminated on 1 August 1938.

The ten Air Administrative Area Commands -- these had been organized 1 July 1938 on a basis of much larger geographical areas of responsibility than the older ones had had -- were also subordinate to the Luftwaffe Group Commands or Luftwaffe Commands. The IIIrd (Berlin) IVth (Dresden), and VIIIth (Breslau) Air Administrative Areas were assigned to the 1st Luftwaffe Group Command; the VIth (Muenster) and XIth (Hannover, transferred 1 April 1939 to Hamburg), were assigned to the 2nd Luftwaffe Group Command; the VIIth (Munich), the XIIth (Wiesbaden), and XIIIth (Nuremberg) were assigned to the 3rd Luftwaffe Group Command; the XVIIth (Vienna) was assigned to Luftwaffe Command Austria; and Luftwaffe Administrative Area I (Koenigsberg) was assigned to the Luftwaffe Command East Prussia.

This reorganization facilitated the uniform exercise of command from the Luftwaffe High Command down to the troop level. At the same time, it separated "earth-bound" agencies from the mobile air units,⁴⁶ thereby achieving an effective separation from the point of view of command between the conduct of offensive air operations and the home defense operations.⁴⁷

On 1 April 1939 the 1st, 2nd, and 3rd Luftwaffe Group Commands were redesignated as the First, Second, and Third Air Fleet Commands, and Luftwaffe Command Austria then became the Fourth Air Fleet Command. Organization and chain of command within the Air Fleet areas remained substantially the same as it was in 1938. The former Luftwaffe Command (Sea) was abolished after the establishment of the office of Luftwaffe General with the Commander in Chief of the Navy and Commander of Naval Air Units.* The Luftwaffe Command East Prussia was made subordinate to the First Air Fleet Command, and the VIIIth Air Administrative Area transferred to the Fourth Air Fleet Command.⁴⁸

The Air Administrative Area Commands

* General der Luftwaffe beim Oberbefehlshaber der Marine und Befehlshaber der Marinefliegerverbände.

The "original" Air Administrative Area Commands had charge of all the antiaircraft artillery forces located in their respective areas and all of the Airfield Commands (Fliegerhorst-kommandanturen), which were connected only with the establishment and improvement of the ground organization installations. In the event of mobilization, the Airfield Commands were to become subordinate in every respect.

In accordance with the directives and orders issued by their respective Air Service Commands the new Air Administrative Area Commands were in charge of preparing for and conducting air defense operations -- the flak artillery units and fighter groups were assigned to them for this purpose -- and of supplying the operational air units with aircraft, weapons, motor vehicles, equipment, spare parts, ammunition, fuel, etc.⁴⁹ They were called "original" Air Administrative Area Commands to distinguish them from the later Air Administrative Area Commands, which had substantially different powers and responsibilities.

Subordinate to them in all respects were (1) The Airfield Area Commands (Kommandos des Flughafenbereiches) with their subordinate Airfield Commands and Emergency Airfield Commands and Emergency Airfield Commands (E-Hafenkommandos), in other words the permanent commands rather than the group staffs of the operational air units, (2) a Procurement and Supply Group with its entire supply system of offices, ammunition depots, gasoline dumps, etc., (3) all of the signal communications and aircraft reporting units in the area, and (4) the Commander of the Air Administrative Area Medical Battalion (Luftgau-Sanitaetsabteilung) with all of its subordinate offices and services.

In addition, the Air Administrative Area Commanders had local authority over all Luftwaffe agencies, units, schools, replacement units, etc. They were the administrators of air sovereignty at the civilian airfields and had the right to issue orders to the agencies concerned with civil air defense. The commanders also had military-law authority over all institutions and units under their jurisdiction.

Air Commanders (Fliegerfuehrer) and Air Divisions

Effective 1 August 1938 German air units were reorganized into five Air Divisions, and the Senior Air Commander posts were abolished.⁵⁰ This organizational move created the fundamental units of the operational Luftwaffe. There was no uniformity,

however, in the number of units assigned to the several Air Divisions. Each Division had at least one fighter wing and two or three bomber wings, but some also had a dive-bomber wing. Eventually every Division had a long-range (strategic) reconnaissance squadron and a Luftwaffe signal communications battalion. The assignment of units was naturally dependent upon such factors as the number of new units available, billeting facilities for the new wings, and the location, size, and accessibility of the airfields. Each Luftwaffe Group Command had two divisions under its command.

Two more divisions were established to carry out special missions at the direction of the Commander in Chief of the Luftwaffe. These were the Training Division (Lehrdivision) and the 7th Airborne Division. The Training Division,* which had grown out of the 2nd Group, 152nd Bomber Wing, in Greifswald (1936) into the office of Senior Commander, Training Troops (Heeherer Kommandeur der Lehrtruppen), established 1 October 1937, and, on 1 August 1938, into the Luftwaffe Training Division, was assigned the same mission that had been entrusted to its two predecessors, namely the testing of new aircraft models at troop level. Headquarters of the division staff was in Greifswald, and worked very closely with the Luftwaffe testing stations, with manufacturing firms, and with the Technical Office, as well as with the General Staff and certain of the Inspectorates. Units within the division were capable of testing all of the equipment slated for introduction into the Luftwaffe, including flak artillery and searchlight equipment. When the war began, it was relieved of its testing mission and its valuable activity in this field came to an end.

The 7th Airborne Division was established 1 June 1938. The idea of creating a unit of this kind came from General der Flieger Kurt Student† and was brought to fruition by Major Gerhard Bassenge, Commander of the Paratroop School at Stendal,††and by the work of

* On 1 June 1939 the Training Division was comprised of two Training Wings (Lehrgeschwader), with headquarters in Greifswald and Garz, respectively, one Flak Artillery Training Regiment, with headquarters in Stralsund, and one Luftwaffe Signal Communications Training Battalion, with headquarters in Greifswald.

† See p. 11.

†† This School had grown up during the spring of 1937 from an experimental section assigned to the Stendal airfield.

the Luftwaffe General Staff. Student managed to imbue his division with an unusually strong fighting spirit, which afterward became known as the "paratroop spirit." Besides the 1st Paratroop Regiment, with its headquarters in Stendal, the division also had an airborne force (Infantry Regiment No. 16) provided by the Army. In the 1st and 2nd Special Duty Bomber Groups the division possessed the only air transport groups in the entire Luftwaffe.* Despite the highly favorable experience acquired in the beginning of the Spanish Civil War,† this branch of the Luftwaffe had been largely neglected. In January 1939, in addition to his post as Commander of the 7th Airborne Division, Student was appointed Inspector of the Paratroop and Airborne Forces (Inspekteur der Fallschirm- und Luftlandetruppen).

It was not until shortly before the outbreak of the war that a special duty bomber group was set up under Generalmajor Wolfram Freiherr von Richthofen for employment in close support operations with the Army.

The creation of an independent air force required close coordination between it and the other two branches of the service in order to preserve the Wehrmacht's spirit of which Luftwaffe leaders were constantly aware and which they emphasized in writing the Luftwaffe Service Manual 16 (Luftwaffendienstvorschrift). The Luftwaffe had to assign both air and antiaircraft artillery units to the two other Wehrmacht branches. In such cases, provisions were made for the maintenance of a Luftwaffe chain of command for the units placed at the disposal of other arms of service. As far as the Army was concerned, these

* These groups were equipped with tri-motored Ju-52's. It was planned to eventually equip them with four-engine Ju-90's, which would have been capable of carrying heavy weapons, vehicles, and the like for air landing operations. This plan was never realized.

† After the outbreak of the Civil War in Spain (19 July 1936), General Francisco Franco's request for Ju-52's of the German LUFTHANSA was granted. These planes transported over 40,000 Moroccan and Spanish Foreign Legion troops from Tetuan, Spanish Morocco to the Spanish mainland to bolster the Nationalist forces.

provisions consisted of:

(1) The appointment of a Luftwaffe General, Office of the Commander in Chief, Army, known after 1 March 1939 as the Commander of the Army Air Units and Luftwaffe General, Office of the Commander in Chief, Army (Befehlshaber der Heeresflieger-
verbaende und General der Luftwaffe beim Oberbefehlshaber des
Heeres). He had command of three reconnaissance wings with a total of ten reconnaissance groups, a force which was then still in the process of activation.*

(2) In the event of war, a Luftwaffe Commander (Kommandeur der Luftwaffe or Koluft) was to be assigned to each Army Group and to each Army Command. These positions were to be filled from the staffs of the reconnaissance wings and groups.†

As far as the Navy was concerned, the Luftwaffe Command, Sea, was deactivated 1 March 1939 and the Air Commander was made subordinate to the Luftwaffe General, Office of the Commander in Chief of the Navy and the Commander of the Naval Air Units.⁵¹

* The reconnaissance wings were not organized until 1 August 1939. Prior to that time there was no intermediate assignment of reconnaissance unit commanders.

† Since at the same time the Koluft was Inspector of the Aerial Reconnaissance Forces, and the long range (strategic) reconnaissance units subordinate to the Commander in Chief of the Luftwaffe were also under his command. See p. 72.

CHAPTER 3

THE BUILD-UP OF THE LUFTWAFFE

Repercussions of Political Events upon the
Luftwaffe

There is always a certain amount of interaction between the political policies of the State and its military forces. This was bound to be especially true in Germany after Hitler came to power in 1933, for after 1919 German politicians, almost without exception, considered it their sacred duty to try to free their country from the intolerable fetters of the Treaty of Versailles. The governments in power in the Reich following World War I were keenly aware of Germany's central position in Europe, and had felt the disadvantages of having no strong armed force which could provide backing in foreign policy.

France, with her large and well-equipped forces, had no cause to fear the disarmed Germany to her East, although Germany faced on her own Eastern boundary a covetous Polish neighbor, closely allied with both France and Czechoslovakia. The steps taken in 1928 and 1929 to increase the German Reichswehr to twenty-one divisions were far too ineffective to assist in maintaining Germany's position in foreign policy. The German Army's undoubted high quality was not enough to compensate for its great numerical inferiority.

In keeping with the generally discriminatory attitude toward Germany and its military impotence, it was not surprising that German foreign policy was crowned at best with the most modest successes. In addition, the Reich lacked the requisite internal peace and stability necessary to support successful and purposeful political negotiations. A constant stream of emergencies in one sector or another of Germany's public life dictated her political activity. The advent and rapid growth of the National Socialist German Workers Party (Nationalsozialistische deutscher Arbeiterpartei, N.S.D.A.P. or Nazi) was more than a unique entity. It was an outward sign of the scope and urgency of Germany's internal problems. The Nazi Party leaders, intent upon moving quickly to the fore, disdained to waste their growing strength in the achievement of small local victories, and set their goals upon seizing national power.

Hitler thought in terms of the complete transformation of the German people and their government. His plan, which nearly became a reality, is described in his book Mein Kampf (My Battle).¹ From the beginning he was determined to achieve the following foreign policy goals:

- 1) Elimination of the humiliating restrictions of Versailles and a return to the Reich of territories taken from it in 1919-1920.
- 2) Unification of all of the German peoples into a single nation.
- 3) Acquisition of additional territory in the East.
- 4) Safeguarding of Germany against the threat of Communism.

Even during his struggle to power Hitler was well aware of the importance of a strong military force for his ambitious plans. He was firmly convinced that military power was indispensable for the exercise of government and for the achievement of foreign policy goals. The psychological aspects of his experiences as a soldier in World War I had given him a familiarity with the military and a feeling of identification with the service. Thus, in contrast to the notorious Capt. Ernst Roehm, who envisioned the establishment of a Party Militia (the SA) as the nation's arms bearer, Hitler always looked toward the creation or the rebirth of the Army. Of course, for obvious reasons he was grateful for the help of the Storm Troops in his rise to power, but in his preoccupation with the idea of raising an army he was in agreement with Goering, the enemy of Roehm.*

It is astonishing that the Versailles powers, in defiance of prudent and far-sighted statesmanship, repeatedly allowed themselves to be persuaded by France not to allow any concessions to the Weimar Republic in the area of national security. This

* ~~Editor's Note:~~ Roehm was shot along with Gustav von Kahr, General Kurt von Schleicher and his wife, Gregor Strasser, and others who were considered hostile by Hitler, on the night of 30 June 1934.

was true even during the Bruening government, which was the last pre-totalitarian one before the Nazis came to power. The victorious great powers also refused to grant Reichs Chancellor Franz von Papen the support he needed to maintain his office. Even without assistance he adroitly managed to hold his position for a time against the concentrated attacks of Hitler, but this was a short-lived struggle. It is true that Britain, France, and Italy finally made certain concessions to General Kurt von Schleicher, Hitler's predecessor as Reichs Chancellor, who was so bitterly opposed to the National Socialist programs. But even these, made at the eleventh hour on 11 December 1932, amounted to no more than a theoretical recognition of equality of rights for Germany. The realization of international unilateral disarmament or the permission for Germany to rearm to a level commensurate with that of other nations still lay in the uncertain realm of future negotiations.

In these circumstances it is indeed strange that the German governments, which adhered to a constitution that was presumably acceptable to the great powers, were almost uniformly unable to achieve any significant redress of grievances or alterations of their unfavorable situation through negotiations, while the Nazi government, acting overtly in its own interests, was permitted to proceed in almost every sector of its internal life unhampered by the Allies, and was allowed to carry out its rearmament plans without any substantial objections by the guardians of the Versailles Treaty.*

* Editor's Note: The German Foreign Office pursued a policy of fulfillment with respect to the Versailles Treaty from 1923 to 1929, while it consistently, but vainly, sought to secure amelioration of the discriminatory clauses affecting Germany. Acting on France's lead, the Allies (except the United States and the Soviet Union) stoutly defended the status quo of Versailles until the advent of Hitler in 1933. Hitler withdrew Germany from the League of Nations, breached the French alliance system by the German-Polish Treaty (26 January 1934), drove a deeper wedge into this system by the Anglo-German Naval Agreement (18 June 1935), restored universal military service (16 March 1935), reoccupied the Rhineland (7 March 1936), established the Rome-Berlin Axis (27 October 1936) to which Japan was joined (17 November), officially annexed Austria (10 April 1938) and the Sudetenland through the Munich Agreement (29 September 1938). The Allied protests, mostly from France and Czechoslovakia, were

Hitler, who became Reichs Chancellor on 30 January 1933, was obviously determined from the beginning to build a strong air force as a separate branch of the Wehrmacht. For reasons of security he needed a strong air arm as soon as possible in order to inspire respect for Germany abroad. In Goering he found an understanding and enthusiastic helper for the accomplishment of this objective. The assignment appealed to Goering's desire for power, and was otherwise appropriate from the point of view of his previous military experience. Goering, a strong advocate of the idea of a separate, independent Luftwaffe,* was familiar with the ideas on aerial warfare advanced by the Italian, Giulio Douhet, and by the Frenchman, Camille Rougeron, and permitted these concepts to intoxicate his imagination. From the outset he knew exactly what he wanted and required no prompting. Furthermore, he was determined to create the largest and best air force in the world, to enjoy the satisfaction of being its creator and commander, and to place it at the Fuehrer's disposal as

often half-hearted and uniformly ineffective. No positive steps to check Hitler's plans were taken until Germany had absorbed the rump Czech State (10-16 March 1939). It is one of the ironies of history that Hitler, using the weapons of audacious threats and bluffs, was able to achieve in five years revisions of the Versailles Treaty, while the Weimar Republic (which supposedly had the blessings of the Allies) found itself constantly rebuffed and badgered when it attempted to soften the Treaty terms through negotiations. It has even been suggested that the adamant attitude of France and her closest collaborators provided additional grist for National Socialism, and helped to cut the feet from under the democratic forces in Germany. See Otto Gessler, Reichswehrpolitik in der Weimarer Zeit (National Army Policy in the Weimar Period), Stuttgart: Deutsche Verlags-Anstalt, 1958. See also Gordon A. Craig and Felix Gilbert (eds), The Diplomats, 1919-1939, Princeton: Princeton University Press, 1953; Harvey L. Dyck, Weimar Germany & Soviet Russia 1926-1933, A Study in Diplomatic Instability, New York: Columbia University Press, 1966; M. Margaret Ball, Post-War German-Austrian Relations: The Anschluss Movement, 1918-1936, Stanford: Stanford University Press, 1937.

* According to statements by Ministerial Director (Ret.) Wilhelm Fisch there was friction between Goering and Ministerial Director (in the Reichswehr Ministry) Capt. Ernst Brandenburg even prior to 1933 because the latter opposed an independent Reichs Aviation Ministry. See also p. 14.

a valuable instrument of foreign policy.

The Luftwaffe had early acquired a political aspect, even before the political background against which it was to function had been clearly defined. Much of this was due to Goering's special relationship with the head of state which allowed him to bring his requests in behalf of the Luftwaffe to the personal attention of Hitler and immediately gain assurance of their approval. Money was therefore no real obstacle for Goering, nor was his Luftwaffe to be found wanting in the allocation of raw materials.

Until the proclamation of German air sovereignty on 16 March 1933, the goal had been to build up the air force as strongly and quickly as possible, under the veil of secrecy, in order to provide an adequate military background for Hitler's political ventures. At that time, of course, there was a limit to what could be accomplished by even the most skillful and devoted work. An organizational framework had been established, but there was very little within the framework which would have been useful in case of war. Nevertheless, quite apart from the standpoint of quality, the 4,029 aircraft produced by the first Luftwaffe Aircraft Procurement Program (the so-called "Rhineland Program"), which was launched on 1 January 1934, were intended to impress because of their number. Besides their primary use in the training program the planes were to serve as a deterrent in case any of Germany's well-armed neighbors wished to interfere. In this respect, the beginning of the Rhineland Program may be considered the birthdate of the so-called "risk Luftwaffe" (Risikoluftwaffe), a name which was selected in order to allay trouble from any quarter, since the secret build-up could not be hidden from the world indefinitely. As its name indicated, the existence of the "risk Luftwaffe" in Germany was designed to convince other countries that any adventures against it would entail a risk.

In keeping with the purpose of the "risk" force, the number of bombers considerably exceeded the number of fighters (in 1935 by 822 to 251). Plans for the development of a four-engine bomber were also born of the "risk Luftwaffe" idea.* To be sure, the

* See p. 50.

direct political connection here is no longer clear.* The name "Ural bomber," which was applied to the four-engine aircraft in the Reichs Aviation Ministry, does seem to point to Soviet Russia as the potential enemy.

The general political unrest which ensued with Hitler's appointment as Reichs Chancellor, his obvious determination to modify the terms of the Versailles Treaty in spite of Allied objections, the revolutionary tempo in foreign policy developments, and the constant pressure of time all combined to create a certain degree of instability in the build-up of the Luftwaffe. Increases in the scope of the Luftwaffe armament program -- this was usually approved in the spring under the pressure of growing foreign policy tensions -- were often cancelled again in the autumn when it became apparent that tensions were relaxing. Likewise, political events such as the occupation of the Rhineland by German troops, the annexation of Austria, and the acquisition of the Sudetenland were sources of great anxiety and uncertainty both at home and abroad.

The year 1942 had been set for the completion of Luftwaffe armament activity, and no leader of the Luftwaffe really believed in the possibility of war, certainly not a large-scale war, before that date. In 1937 developmental work was discontinued on the four-engine bomber, an aircraft which was so indispensable in a large-scale war.† It was common knowledge that Hitler was

* Unless the inclusion of Russia in the Deployment and Battle Orders (Aufmarsch-und-Kampfanweisungen) for 1936, which were drawn up at Goering's order, may be regarded as a clue. This was the opinion of General der Flieger (Ret.) Paul Deichmann.

† Editor's Note: Field Marshal Erhard Milch believed, as did General Paul Deichmann, that the Ju-19 and Do-19 models were adequate for further development. Milch claimed that General Albert Kesselring was responsible for getting Goering to stop development on the ground that raw materials were in too short a supply. Kesselring, however, states that the problem in development was that too many aircraft were being hastened into series production without being properly tested. He admits that he thought in terms of a possible European war, but not a world-wide conflict. See the statements of Field Marshals Milch and Kesselring, C/IV/4, Karlsruhe Document Collection.

eager to avoid a conflict with Great Britain and that he was trying to bring about an alliance between the two countries. Many German military leaders allowed their fears to be placated by this knowledge. Thus it came as a surprise on 18 February 1938 when Luftwaffe leaders were ordered for the first time to concern themselves with command problems which might be involved in a possible air war against England. On 16 May 1939 the Chief of the General Staff, Second Air Fleet, detailed a special staff under Generalleutnant Hans Geissler to study "the questions pertaining to air defense and to the execution of air attacks over the ocean as well as along the coast."² But even at this time no one really believed in a war against England, not even Goering who had allowed himself to be persuaded of this by Hitler during the spring.³ It is now clear that Hitler had no intention of starting a general war, especially one against Britain, but Goering failed to consider the possibility that circumstances might cause Britain to declare war upon Germany, just as it had in 1914. This possibility should have been included in the basic planning of the top-level staffs of the Luftwaffe.

Goering's oversight was to make itself painfully felt in the case of the naval air units. These pilots somehow never attracted much attention to themselves.* They gained immeasurably in experience as they carried out their training missions, but somehow their activity never seemed to be spectacular enough to convince the Commander in Chief of the Luftwaffe that a strong sea air arm ought to be developed which could coordinate its operations closely with those of the Navy. Despite their reserve toward the Navy, both Hitler and Goering were well aware that in the event of war with England a strong Navy and a strong

* Editor's Note: The German Navy adhered to the principles of the old Imperial Navy to which it looked for its model. Not only were its activities more removed from the sight of most observers, but it also was less involved with the Party and political developments.

air force capable of employment against sea targets would be needed.* But, largely because of Hitler's vacillation with respect to the question of England, † when the war began in 1939 the available naval air units were far too few in number for combat operations and were technologically grossly inferior. Further, the units trained for and slated for employment in naval air operations by the Commander in Chief of the Luftwaffe were by no means closely coordinated with the naval forces. In this connection one must not overlook the efforts made by Goering to work closely with the High Command of the Navy and the Navy Group Commands, to utilize former naval officers in the command of Luftwaffe units at all echelons, including the field of aerial mine development, and to promote a program for the development and introduction of aerial torpedoes. †† However, one must admit that it was primarily Hitler's attitude and his desire to

*Editor's Note: Here the author overlooks Goering's covetous attitudes with respect to airpower. It was the Commander in Chief of the Luftwaffe who replied when pressed for the development of a naval air arm, "Everything that flies belongs to me." Admiral Friedrich Ruge comments, "The Commander in Chief of the Luftwaffe was a stranger to the sea. He also made no sort of effort to know or to understand it. It is therefore no wonder that the Luftwaffe went its own way to the detriment of the total war leadership. The many instances of good cooperation at the middle and lower levels could not compensate for this, even less so since the Luftwaffe, in the short period of its existence, had developed no clear idea of sea warfare or of sea power as a opponent." Der Seekrieg 1939-1945 (The Sea War 1939-1945), Stuttgart: Kurt Vowinckel Verlag, 1954, p. 38.

† Editor's Note: It is customary for Germans to use the word "England" when discussing Great Britain. In this case Great Britain is clearly meant.

†† Editor's Note: The torpedo arm in the Luftwaffe was virtually unknown at the outbreak of war in 1939, although planning had begun as early as 1933. According to Generalingenieur (Ret.) Ernst A. Marquard, the "Aerial torpedo was not operational until 1941," and a worsening of the situation at sea obliged the Luftwaffe to improve its torpedoes. See Letter by General Marquard dated 27 May 1955, C/VI/3, Karlsruhe Document Collection. In 1943 the Luftwaffe took over the making of torpedoes, but it continued to have problems with them until the war's end.

avoid a war with England which were responsible for the inadequate development of naval air units, including aircraft carriers.* Hitler's evaluation of British policy was perhaps understandable, but it was objectively wrong and was responsible for guiding the organizational and technical development of the Luftwaffe in the wrong direction. Of course, it must be borne in mind that it was principally the lack of a long-range, four-engine bomber force that stood in the way of effective air operations against targets outside of continental Europe.

Even as late as the spring of 1939, when the political skies of Europe clearly reflected the storms to come, German military leaders still did not consider it necessary to work out a mobilization plan for the air armament industry, so that Germany's available capacity could be fully exploited and workers and machinery could be utilized which were bound to be released from other branches of industry in the event of a war.

Hitler, and he alone, was responsible for Germany's political policies, and he had a habit of arriving at these positions intuitively according to the given situation.⁴⁷ His policies became bolder with each victory he achieved, but they were established without taking into account the potentialities and limitations of the individual branches of the Wehrmacht, which could not possibly be expected to adjust their plans as rapidly as the capricious ventures of the chief of state were made, ventures which often came dangerously close to war. Hitler announced in his Four-Year Plan of 16 October 1936 his intention to make Germany economically invulnerable to the effects of war. This plan was just getting under way when, in 1937, the Reichs Minister of Aviation was forced to accept far-reaching curtailments in the allocation of aluminum and steel, which, in turn resulted in a decrease in aircraft production.

* Editor's Note: Germany did not have a single aircraft carrier in operation during World War II. The only carrier, the Graf Zeppelin, was never completed and commissioned. Special Messerschmitt BF 109-T's were designed for it, but, since the ship was never finished, these were converted to Me-109-E's.

† State Secretary (Ret) Ernst von Weizsaecker, in his Erinnerungen (Memoirs or Recollections), Erlangen-Leipzig: 1950, p. 132, mentions Hitler's marked "tendency towards improvisation."

The fact that military leaders counted upon a long-range program which was scheduled to run until 1942, and had thus authorized very large amounts of steel for the construction projects of the Luftwaffe and for the expansion of aircraft industry facilities, now made itself painfully felt.⁵ The Luftwaffe could well have subsisted with material-saving provisional construction and have put much more into the development of air armament production facilities if Luftwaffe leaders had recognized much earlier Hitler's willingness to let things come to a head. Not even Goering was aware of this, and it is very likely that Hitler himself was simply allowing the dictates of the moment and the victories already achieved to guide his intuitive decisions along a path which he irrationally hoped would make it possible for him to achieve his objectives without war or with no more than a limited blitzkrieg. His decisions were surely influenced very little by the cool deliberations of logic and reason. But, since organizational measures, especially the organization of a large-scale armament effort, require a certain length of time in which to become effective, capricious decisions and the demands resulting from them were bound to create confusion.*

One example of this was the Fuehrer's demand late in the autumn of 1938 that the Luftwaffe be enlarged fivefold when Britain began to rearm after the Munich Conference. Hitler's order, announced by Goering to his office chiefs on 5 December of that year, presupposed such astronomically high expenditures and such generous allocations of raw materials that it was patently impossible to carry out the order. Despite the objections of the Chief of the Organization Staff, Luftwaffe leaders accepted this order with the intention of complying with it to the full. Yet, during the remaining eight months before the outbreak

* From 1 April 1938 to 31 March 1939 a total of 14,600 tons per month (15,600 tons for seven months of the period) of steel was allocated to the Luftwaffe, as compared with 29,700 tons for construction activity, industrial expansion, machine tools, maintenance and repair costs, and civilian aviation, for which 2,500 tons per month were allotted. See OKL, "Zusammenstellung der Eisen-und Stahlkontingente der Luftwaffe einschliesslich Zivile Luftfahrt" (High Command of the Luftwaffe, "Compilation of the Iron and Steel Contingent of the Luftwaffe including Civil Aviation." A Summary.), C/II/1a, Karlsruhe Document Collection.

of war the expansion of the Luftwaffe proceeded barely faster than had been planned prior to Hitler's order. It is not known whether Hitler was ever informed of the impossibility of accomplishing his decree.

Luftwaffe leaders had dropped the four-engine bomber in 1937 in keeping with their conviction that the Reich might become involved, at worst, in a war with her weak eastern neighbors, probably only one, and with complete confidence in Hitler's ability to avoid a large-scale war.* In 1938 the Luftwaffe introduced the Ju-88, a fast, twin-engine bomber with good dive-bombing ability. After all, a large-scale war could be more easily avoided if a small country agitating for war could be quickly and completely subdued. Luftwaffe leaders accepted this thinking and concentrated all of their efforts upon preparing for a blitzkrieg. They even opted to commit the reserve squadrons at the beginning of the war on the assumption that the Luftwaffe could get along without reserves. In other words, Jeschonnek's horizontal order of battle was to be given preference over the traditional vertical order.⁶

But, political developments and the military requirements which they created had long since begun to deviate from the anticipated path and were moving forward at far too fast a pace for organizational expansion and armament production to keep up with them. The tragic result from the Luftwaffe's point of view was that the German air arm entered the World War of 1939-1945 (which very literally became a war of survival for Germany) unprepared for a long-term struggle.

The Build-Up of Air Units

The Wehrmacht and, in particular, the leaders of the Luftwaffe, were faced in 1933 with the unique task of creating an air force of world significance from almost nothing. (As far

* In view of the discontinuation of work on the four-engine bomber, it seems rather inexplicable that the Luftwaffe General Staff later requested another long-range bomber, probably shortly after Lt. Col. Paul Deichmann left Branch I (Operations) of the General Staff. See p. 79 of this study. The explanation may be that Hitler suddenly faced up to the fact that his long-cherished plans for a British-German alliance were doomed.

as antiaircraft artillery forces were concerned the starting point was more like that of the Army, development being largely a matter of expansion.)

Before the activation of combat units could be undertaken, Luftwaffe leaders had to answer two basic questions: (1) What was the most effective way to deceive the world in general, and Germany's hostile neighbors in particular, concerning the build-up of a German air force? and (2) How many and what kind of units were needed to meet the crises which were obviously in the offing?

Clearly the goal could not be achieved solely by a well-organized training program which relied upon the aid of a foreign power (the Soviet Union) and the generous assistance of the commercial airline Lufthansa. Yet, these two factors provided the first opportunity for concrete action in terms of a military air arm, and every effort had to be made to exploit fully the advantages offered from abroad, from Lufthansa, and from the field of technology. Organizationally, new methods had to be selected. German air leaders, their eyes firmly fixed upon the goal of creating a powerful air force, had to avoid at all costs letting the world know what was transpiring. This meant that the entire build-up job had to be entrusted to organizations which were already in existence and which could be expanded to insure meeting the needs of the future but without attracting public attention. It was therefore quite natural that in the Reichs Aviation Ministry the General Staff devoted itself primarily to the theoretical task of planning for the future, while the practical work was being done in the field. Even then the Luftwaffe build-up consisted generally of expansion and improvement of training facilities and an increase in the number of these sites. Prerequisites for the smooth accomplishment of this task were:

(1) to see that all personnel with flying training and experience were registered and assigned to the Reichs Aviation Ministry or to the agencies associated with it.

(2) to see that the Army and the Navy gave active support to the location of suitable officer personnel for the Reichs Aviation Ministry, for the Luftwaffe command agencies, and for subsequent assignment to the Luftwaffe itself, and to insure that those volunteering for Luftwaffe duty were released to the Ministry.

(3) to carry out large-scale planning of training programs in all fields of aviation and air defense. This includes enlarging

and increasing the number of training installations, especially airfields and artillery ranges in remote areas with little traffic, where outsiders would have little chance of knowing what was going on. German Sport Fliers, Ltd., was included in the Luftwaffe build-up by encouraging it to provide technical and flight training for young people interested in volunteering for future assignments in the Luftwaffe.

These training measures were assured by accelerating the production of aircraft, flak artillery pieces, and other equipment, by increasing the number and capacity of air armament centers, and by assuring the availability of engineer and skilled personnel in training centers maintained by industrial firms and improving the training offered there. These steps were effective in guaranteeing the availability of a nucleus of skilled workers for later requirements. This force grew from about 4,000 men in January of 1933 to 20,000 by February of the following year, and to almost 72,000 by June 1935.

(4) to intensify research activity through the enlargement of existing research centers and the establishment of new ones.

(5) to plan and develop an administrative agency to supervise all supply and procurement activities.

(6) to develop a chain of command to meet the requirements of the moment and, at the same time, take into account the existing organization which had been established on the basis of territorial commands.

The more smoothly and broadly these six organizational and training measures could be executed, the more favorable would be the conditions created for the activation of a field air force. In the final analysis it was easy to set up a desired program and to devote all of one's efforts to its realization, but it was unreasonable to expect that the goal would be achieved in the first round of activity. Members of the Reichs Aviation Ministry were all too familiar with the inadequacies inherent in both planning and realization, yet the Ministry had the courage to persevere in spite of this and to "commandeer" the efforts of all those persons connected with the field of aviation in an attempt to achieve the desired result. The number of units to be activated depended exclusively upon the production of the aircraft factories and the release of trained crews from the schools.

The Luftwaffe in 1935 organized the Air Group Doeberitz, the Fighter Wing "Richthofen" (equipped with Ar-65's and He-51's,* the Air Group (S) at Schleissheim (equipped with Ar-64's and 65's and He-51's), and the Fighter Squadron Kiel (equipped with He-51's).† The results of this organization were satisfactory. Even during the period of secrecy it was possible to activate tactical units (albeit initially in name only) as training units. Despite many imperfections, these units early developed their personnel in a soldierly and comradely spirit which made possible the theoretical and practical exercises in tactics. Encouraged by the inactivity and outmoded thinking of their former enemies, German air leaders took the further step of actually setting up independent air units. These were few in number, of course, and restricted to localities where there was little danger of discovery. Consequently, it was possible, at least on paper, to speak of the existence of a risk air force as early as 1934 and 1935.†† Previously, as mentioned earlier, bomber units were given priority since German air leaders considered offensive action against enemy bases as the best defense. By the same token, they felt justified in neglecting home air defenses inasmuch as the nations surrounding Germany either had no offensive air forces whatever, or at best, very weak ones.

Measures Implemented by the Luftwaffe Command **

By January of 1933 all of the agencies concerned with aviation had formed a loose association or organization, but one which was incapable of rapid, well organized, or effective work.

* See figure 15.

† Prior to Germany's announcement of military sovereignty in 1935, all air units were assigned cover designations such as "High-Altitude Test Center," "Air Group S", etc.

†† In 1935 the Luftwaffe had 372 bombers at its disposal (Do-XI's, Do-XXIII's, and Ju-86's), as well as 450 Ju-52's, more than 51 He-50 dive-bombers (which were assigned to fighter units), more than 251 fighter aircraft (Ar-64's, 65's, and He-51's), 590 reconnaissance aircraft in the Army air units (270 He-46 tactical reconnaissance aircraft, and 320 He-45's, long range, strategic, reconnaissance planes), and 119 naval aircraft.

** This section is based primarily upon the studies of Generalleutnant (Ret.) Bruno Maass and General der Flieger (Ret.) Hellmuth Felmy. See also pp. 59-60.

The top echelon, then being organized into the Reichs Aviation Ministry, promised to make some quick and practical changes, especially in the all-important field of training. Because of the need for secrecy the organization of the training program had to be kept as simple as possible.

In the Spring of 1933, the Flying School Command (W) was established within the Reichs Aviation Ministry and was subordinate to the State Secretary. The Command received its instructions from the Air Command Office, and had the mission of making preparations for the establishment of military flying training schools, as well as supervising the military aviation courses given in the Commercial Flying Schools.

On 1 April 1934 the Flying School Command (W) was transformed into the Inspectorate for Flying Schools (Inspektion der Fliegerschulen), which, like the older agency, was subordinate to the State Secretary and received orders from the Air Command Office. The Inspector of Flying Schools was assigned the task of supervising the work of the Flying Schools, while his chief of staff was also Commander of the Air Armament Training Schools.

In accordance with instructions issued by the Inspector of Flying Schools, the training of reserve fliers was under the direction of the Inspector of Reserve Fliers (Inspekteur der Fliegerreserve), a man who was also President of Sport Fliers, Ltd., and who was directly under the command of the State Secretary.*

Certain training facilities were at the disposal of civilian aviation. These were the training schools operated by Aviation, Ltd. in Berlin-Staaken, Wuerzburg, and Boeblingen, the installations of the German Commercial Flying School in Braunschweig, Schleissheim, Warnemuende (sea-plane training), and List on the island of Sylt,† as well as the installations

* See Chart No. 7. The Organization of Schools and Training Centers Subordinate to the Inspectorate of Flying Schools, 1 April 1934.

† Even prior to 1935, Aviation Ltd., and the German Commercial Flying School had been used in the flying training program of the Army.

maintained by Sport Fliers, Ltd., and the ~~Akeflie~~ groups, all of which had been transferred early in 1933 to the German Sport Fliers, Ltd.*

Besides these, there were training courses for a total of 1,000 persons in about twenty aircraft and aircraft engine factories and in the three main repair depots of Lufthansa. The aircraft training program drew upon instructional personnel from the civilian training installations for pilot training, from former fighter pilots, and, in part at least, from National Army personnel trained in fighters at Lipetsk and Army instructors engaged in observer training under National Army programs.

Trainees were selected from among the candidates suggested by the Army, Navy, and State Police Headquarters, and were to have completed their basic military training. Well disguised induction centers were set up by the government to administer the appropriate psychological and technical examinations to officer candidates for the Luftwaffe and to make the necessary selections from the applicants. Those who were chosen were assigned, as before, first to the Army or Navy, at whose schools they took their preliminary training. Officer aspirants who had served in the air forces in World War I were assigned to special courses designed to test their aptitudes and actual abilities and were then given refresher training to bring them up to date.

The task of training pilots and keeping them in practice was increasingly assumed by Aviation, Ltd., by the Commercial Flying School (which also provided instrument flight training), and by Sport Fliers, Ltd. Fighter, observer, and technical training were handled in military courses held at the Commercial Flying Schools, the fighter pilots training at Schleissheim, and later at Werneuchen. Observer training (land) was given at Braunschweig (Group W), and sea observation training was carried out at Warnemuende (Group W), while the training of technical personnel was accomplished not only by the Commercial Flying Schools, but also by the aircraft industry, and Lufthansa establishments.

* In the summer of 1934, 2 reconnaissance schools, 1 fighter school, 4 bomber schools, 1 air armament school, 12 A/B schools and practical training centers, 6 C schools, 2 pilot training schools (sea), 2 instrument flying schools, and 2 railway lines were available for Luftwaffe use.

The fighter training center which was established 1 September 1937 at Werneuchen and that at Schleissheim were designated on 1 March 1939 as Fighter Schools 1 and 2.

The First Air-Units

For security reasons the first air units were incorporated into the schools. This shortened the training period and obviated the necessity of completing the training within the units themselves. On 1 July 1934 so-called "transition personnel," comprising fifty percent of the authorized full strength of each unit, began to form the cadres required for phase two of the mobilization plan, a plan which would draw heavily upon the schools. In the particular circumstances of the time, this was a daring step and had to be accepted as a political necessity.

The official announcement of the existence of the German Luftwaffe (10 March 1935) and the announcement of compulsory military service which came just six days later marked a turning point in the development of the German Air Force. During the period of secrecy Germany's military leaders had learned a good deal, and now that there was no further need for deception operations were simplified in all sectors. Security regulations were abolished with an abandon which seemed foolhardy and risky to the older generation of military men. Equipment which had been kept secret was now exhibited openly in public demonstrations. Nevertheless, the effects achieved justified this method of announcing Germany's military prowess to the world. It was imperative, however, to uphold Goering's promise, repeated on 1 March 1939, that "We shall continue to maintain our lead."

It was characteristic of this stage of development that although the training program was still accorded top priority, the task of activating more units and equipping them more completely gradually began to increase in importance. With the abolition of secrecy, a certain decentralization of command became feasible, and, in the specialized inspectorates, experts in the appropriate fields were openly assigned to top positions. The Reichs Aviation Ministry, thus relieved of some of its responsibility, could concentrate upon more creative activities and could take its place as a central clearing house for manuals and directives.

The fact that a politically important figure such as Goering was in charge of the new Luftwaffe was instrumental in assuring



Figure 15

Fighter of the newly reestablished Fighter
Wing "Richthofen" flying over the Rhine
River in 1936.



Figure 16

The Dornier Do-17 Bomber, an aircraft of limited value for strategic purposes. Early models of this aircraft could carry only one 550 pound bomb.

its future as an independent and separate branch of the Wehrmacht, with no fears that it would become a part of either the Army or the Navy.* This meant that the Luftwaffe, in its infancy, had almost effortlessly achieved an independent status, for which the air forces of other great nations (such as the United States) had to fight for years to attain.

The Commander in Chief of the Navy pleaded in vain for a naval air force (which would be familiar with the principles of naval warfare and with naval air tactics) made up of coastal reconnaissance, bomber, and fighter units with ship-based units and aircraft carriers. He wanted his own personnel recruited from and trained by the Navy in naval air tactics. In making these demands, Navy leaders argued that air power was not merely a supplemental aid to sea power, but was an integral element in the conduct of modern naval warfare, and that those responsible for waging such warfare must be in a position to employ it whenever necessary as required for coordinated underwater and surface operations. Although Goering refused to accept the basic premise of this reasoning, he did cooperate with the Navy to the extent of providing appropriate training, joint maneuvers, and a comprehensive signal communications network. This did not satisfy German Navy leaders, who found it difficult to reconcile themselves to a situation so far from the goal they had hoped to attain.

That the Army finally accepted the decision to create an independent Luftwaffe was probably due in large part to the presence and personality of Wever, who had been an Army officer before his appointment as Chief of the Luftwaffe General Staff. It was natural, of course, that the Army, which had always played the dominant role in German military affairs, often found it difficult to adjust to the fact that it did not have all of the instruments of warfare united under its command.

Since Germany's limited raw material resources, production facilities, and financial means were insufficient to establish strong army and navy air units as well as a strong strategic air

* The entire flak artillery force was integrated into this new Luftwaffe.

force.* Goering, the adamant fighter for a unified air force, became the authority responsible for allocating air and flak units to other branches of the Wehrmacht. In so doing, he was careful to maintain the integrity of the Luftwaffe's officer corps.

In the early 1930's the concept of thinking of the Wehrmacht as a whole rather than in terms of each of its components had not yet become an automatic response, especially since the top-level command organization of the Wehrmacht seemed to be uncertain.† Yet, the lessons taught by World War I made it clear that the Luftwaffe would have to expand its original mission to include not only aerial reconnaissance and protective air cover for the ground forces and ground force installations, but also close air support for Army operations and air transport operations. This idea was subsequently confirmed during Germany's involvement in the Spanish Civil War (1936-1939). The High Command of the Luftwaffe bore the responsibility for broadening the scope of air activity without dissipating the Luftwaffe's striking power.

Although the Wehrmacht had a commander in chief of its own until 4 February 1938, when Hitler arrogated this post to himself, Goering's unique status as the Fuehrer's closest associate enabled him to circumvent many of the top-level decisions or, at times, to present problems directly to Hitler by side-stepping the Reichs Minister of War (von Blomberg).

* Editor's Note: The author frequently refers to Goering's acceptance of Douhet's principles, and occasionally mentions a "strategic air force." It is doubtful whether Goering envisioned a strategic air force in the fullest sense of that term, although he seems to have appreciated this idea in a more limited way, such as might be necessary to achieve a victory in a European war.

† Editor's Note: It is certain that Goering never reached the point where such a response was "automatic." His comments that "Everything that flies belongs to me," and "The Luftwaffe will never relinquish any of its troops to the Army" are indicative of his unwillingness, even late in the day, to think in Wehrmacht-wide terms. See various documents relating to Goering, D/I/2, Karlsruhe Document Collection. See also p.81.

The Commander in Chief of the Luftwaffe was to be guided by Paragraph 70 of Luftwaffe Service Manual 16 of March 1940 with respect to coordination with the Army and the Navy. This stated that "the Commander in Chief of the Luftwaffe will integrate offensive and defensive operations in constant coordination with the Army, Navy, and civil authorities in such a way that the overall conduct of aerial operations will be most effective."⁷

Bomber Units

Bomber units, including dive-bomber units, and the strategic reconnaissance units under the Commander in Chief of the Luftwaffe were to constitute the strategic air force.* Activation and development of these units had top priority since the key officers on Goering's staff were firm champions of the concepts of Douhet, and thus tended to dwell upon the idea of attack. Motivated by Goering's directive, which was presumably based upon Hitler's suggestion, the Luftwaffe General Staff began in 1935 and 1936 to concern itself with the possibility of a war with Soviet Russia.⁸ The development of a long-range bomber, dubbed the "Ural bomber" by the first Chief of the Luftwaffe General Staff, Wever, was recommended in order to place the Luftwaffe in a position to activate a number of long-range bomber units. However, in 1937, because of circumstances which are not clear even today, but may possibly have arisen from political complications, the project was dropped.†

Shortly thereafter the General Staff again requested developmental work on a long-range bomber. But, when the war began, Germany still had no aircraft of this type at her disposal. The most important bomber aircraft of the Luftwaffe were the multi-purpose, twin-engine bombers, especially after the partial replacement in 1937 of the unsuitable Do-XI's and Do-XIII's, the Ju-86's, and the provisional, but robust, Ju-52's and their

* See footnote p. 92.

† See p. 79. See also Richard Suchenwirth, Historical Turning Points in the German Air Force War Effort, USAF Historical Studies No. 189, Maxwell AFB, Alabama: USAF Historical Division, June 1959, pp. 40-44, 76-90.

complete replacement in 1938 by the modern Do-17's and the He-111's. The super-speed bomber, the Ju-88, was soon to appear on the scene.* Because of its speed (about 280 m.p.h.) and its supposedly tremendous operational range, Luftwaffe leaders held great hopes for it and planned to produce it in large numbers. By this time German aviation specialists had become exponents of dive-bombing, so that the Ju-88 was modified, especially in the wings, to make it capable of diving performances.

The activation of bomber units progressed smoothly until the outbreak of the war. In 1936 there were five twin-engine bomber wings, consisting of sixteen groups,† and by the end of 1937 there were ten wings. Besides these, the needs of Legion Condor in Spain had also been satisfied.†† Between December of 1937 and the beginning of World War II the number of available twin-engine bomber wings was increased from ten to thirteen by forming additional wing headquarters and bringing together a number of formerly independent groups. Thus there was no actual increase during this period in the number of groups or in the overall fighting power of the entire German bomber force, the total number of groups remaining what it had been on 1 November 1938, thirty.

When one recalls that the activation schedule of the Luftwaffe envisioned the organization of eighteen full-strength twin-engine bomber wings with a total of fifty four groups by 1942, instead of the actual total of only twenty four groups in 1939, it is easy to see that the Luftwaffe was bound to be unprepared for a conflict as widespread as World War II.

* Editor's Note: See figures 16, 17, and 18.

† The 152nd, 153rd, 154th, 155th, and 253rd Bomber Wings. The peacetime strength of a German bomber squadron was 18 aircraft. The mobilization and wartime strength was 9 aircraft on the line and three in reserve for each squadron. Wings consisted of three groups at this time, while groups had three squadrons. See folio A/II/2a, Karlsruhe Document Collection.

†† Aircraft assigned to operations in Spain were turned over to the Spanish government when Legion Condor returned to Germany in May of 1939.

Dive-Bomber Units

Concern over the possibility of a war on two or more fronts led Luftwaffe leaders to seek new ways and means to achieve the greatest possible effect with the fewest possible aircraft. Prior to the war Germany had no really adequate bombsight at her disposal, and the optical sights available were in use only in a few experimental aircraft. Moreover, even the most experienced bombardiers could score only mediocre results with the best German bombsights. Because of the need to make "every plane count," the Luftwaffe High Command was anxious to produce aircraft which could achieve much higher scores in bombing accuracy.

In 1933 Ernst Udet made a visit to the United States, where he was profoundly impressed by the dive-bombing demonstrations carried out by Curtiss "Hawk" aircraft.* Udet, an old World War I fighter pilot, soon became the most ardent supporter of the dive-bombing concept, and persuaded Goering to allow him to purchase two Curtiss "Hawks" for experimental use in Germany. The tests made at Tempelhof, and later at Rechlin, greatly impressed many of the Luftwaffe and Army observers who were present. To them it appeared that the dive-bomber was especially suited to Germany's concept of Continental warfare.† Furthermore, the test aircraft achieved more than 40 percent hits during the trials, something no regular bomber had been able to do with the bombsights then available. The dive-bomber was thus given a top priority in German aircraft development. By 1934 and 1935 the Commander in Chief of the Luftwaffe and his staff believed that:

Germany was so limited with respect to raw materials and gasoline that her production capacity and, in turn, her war potential, simply did not permit the construction of sufficient numbers of heavy bomber fleets. She had no choice but to limit herself to medium and light bombers with the highest possible degree of striking accuracy.⁹

* See figure 19.

† Editor's Note: Wolfram Freiherr von Richthofen was one of those who was initially opposed to the dive-bombing idea, but by the end of the war in Spain he had become one of its staunchest adherents.

The first Ju-87 "Stuka" made its appearance in 1935, and the development of this aircraft was given special impetus after 10 June 1936 when Udet became Chief of the Luftwaffe Technical Office. In 1937 the Ju-87 went into series production, and that year eight dive-bomber groups were activated (nine and one-third if one counts the dive-bomber groups of the Training Wing). However, to begin with, only a fraction of these could be equipped with the Ju-87, the Luftwaffe's most successful dive-bomber, and by the outbreak of World War II no new dive-bomber groups had been activated. It should be mentioned that, despite the high standards of training for dive-bomber crews, the aircraft themselves were quite vulnerable and their defenses were so inadequate that attacks were made in groups or when enemy opposition was relatively weak.

Fighter Units*

In order to assure the offensive Luftwaffe an opportunity to carry out its mission with full effectiveness it was clear that the home area, the civil populace, and the Wehrmacht, had to be adequately defended against enemy air attacks. In order to achieve this, fighter units were established.† The fighters available in the early thirties had extremely limited flight duration and consequently could be used only to protect limited areas. Locally confined as they were, the fighters were to be used within the framework of the overall air defense program to guard specific and militarily important objectives.

The first three single-engine fighter groups (then still equipped with the inadequate He-51 aircraft) were set up in 1935. By 1 April 1936 four more fighter groups and two wing staffs had been added, although not all of these were up to full strength. All of these units were outfitted with He-51's and Arado Ar-68's.†† A year later the fighter force comprised three

* Based on work done by Generalleutnant (Ret.) Bruno Maass.

† Before 1935, the idea of utilizing fighters to establish air supremacy and to provide bomber escorts still seemed to be a remote concept, as is reflected in the fact that fighter units were made subordinate to Air District Commands.

†† See figure 20.

wings, with a total of fifteen groups, all equipped as before.

On 1 November 1938 the Luftwaffe had four fighter wing staffs and seventeen and one-third groups at its disposal, plus the fighter group of the 2nd Training Wing and the group belonging to the Legion Condor. There were then only two groups still using Ar-68's, the rest having been equipped with the new Messerschmitt Bf-109 B. These groups were organized for employment in small units. In the course of transition training from the He-51's and Ar-68's to the Me (Bf)-109's -- this was carried out at the airfield Jueterbog-Damm -- there were extraordinarily high losses of airmen.

By the beginning of World War II the Luftwaffe had five single-engine fighter wing staffs and eighteen and one-third single-engine fighter groups, besides three extra squadrons, one of which was trained for night fighter operations.

Luftwaffe leaders planned to use long-range fighters as escorts for the bomber wings, but it was not until 1937 that the first Me (Bf)-110's, the aircraft which seemed eminently suited for this mission, were ready to be introduced.* In that year the first twin-engine fighters designed for long-range employment were organized into units at the Fighter School at Werneuchen. The 2nd Training Wing included one group of this type. On 1 December 1938 existing single-engine fighter units there were equipped with Me-110's as "destroyer" units, a title used because of their presumably greater striking power than conventional single-engine fighters and because of their mission of protecting the home area against enemy bomber attacks. This transition to Me-110's continued until the spring of 1940. Those units which for one reason or another could not yet be equipped with Me-110's were assigned Me-109-D's as a provisional solution.†

The day World War II began the German Luftwaffe had ten twin engine fighter groups, slightly more than half the number (eighteen) planned for the year 1942.

These aircraft (Me-110's) were not restricted to the specific target being defended, but were to engage attacking enemy

* This idea did not take form until about 1935. See p. 98 and figure 21.

† Only five groups had been so equipped by 1 September 1939.



Figure 17

The Heinkel He-111 bomber, which became a mainstay of Luftwaffe bomber units.



Figure 18

The "Super-Speed Bomber" of the Luftwaffe, the Junkers Ju-88.

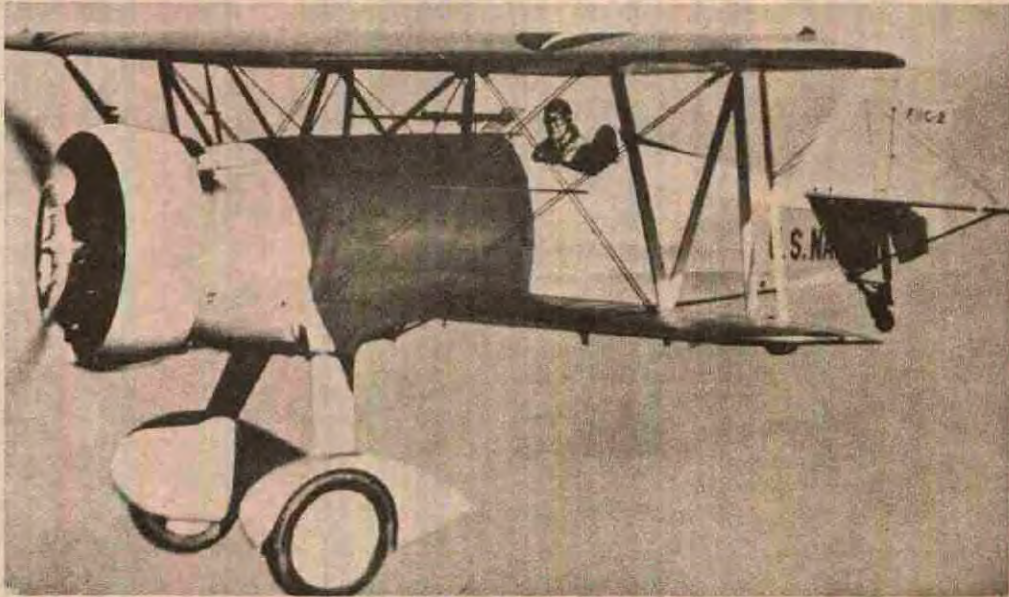


Figure 19

A 1933 model Curtiss "Hawk" fighter and dive-bomber, similar to the aircraft purchased by Udet, which won him over to the idea of dive - bombing.

aircraft and to pursue them as far as range permitted. In this type of action they were to be supported by single-engine fighter units which were assigned to the immediate combat area or by other twin-engine fighters temporarily assigned to the scene.* Both twin-engine and single-engine fighter units were to be distributed all over Germany in a checkerboard pattern, their peacetime stations to become their first assignment areas in the event of war. The first line of this air defense system lay just behind the Rhine River. No attempt was made to station fighter units west of the Rhine during peacetime, since it was believed that the aircraft warning system would provide sufficient time in which to alert all units east of the river. At the outbreak of war the German Air Force had very little radar equipment at its disposal which would have served as an extension of the air defense system or line toward the West, and the few available sets were deployed along the North Sea coast, to the west of Berlin, and in the western home defense area.

Germany had no fighter control system such as was in use in Britain, but, in the event of war, fighter units from less endangered areas were to reinforce the combat front. Maj. Hans-Wilhelm von Doering, an experienced World War I fighter pilot, suggested that the Luftwaffe concentrate all of its available fighters at the combat front right away, in order to utilize them in offensive operations over enemy territory and to serve as escorts for bombers. The Luftwaffe High Command rejected this proposal on the ground that strong enemy air forces, once they had broken through the initial defensive line, would encounter only flak artillery in the interior of Germany. There was even a danger that enemy attackers might get through the initial line without opposition if the skies were cloudy, since German fighter pilots were then untrained in instrument flying.

Fighters for the Defense of Army and Navy Units

Originally the Luftwaffe had planned to place a certain number of fighter units and aircraft warning units under the Army in the event of hostilities. In previous wars the Army had traditionally exercised absolute command in its operational area.

* For additional information concerning their role as long-range fighters see F/V/1b, Karlsruhe Document Collection.

However, war games had made it plain that a large number of airfields and other military installations in whose defense the Army could not be expected to take a great deal of interest, often happened to be located within the Army's operational area. It was therefore unfeasible to divide the struggle for air supremacy between the Army's fighters and the Luftwaffe's bombers. Because of the desire for a unified air command, Luftwaffe deployment and battle orders no longer provided for the assignment of fighter units to the Army. The same reasoning applied to the Navy, which resulted in the Luftwaffe assuming responsibility for protecting the coast.

Long-Range Reconnaissance Units

Long-range reconnaissance units had to be set up for the Commander in Chief of the Luftwaffe, the Air Fleets, the senior Air Commanders in charge of the conduct of operations, and for the Army. The Luftwaffe High Command gave a good deal of thought to the question of whether the Army really needed strategic reconnaissance units of its own or whether such reconnaissance missions could not well be taken over by the Luftwaffe. In recognition of the different types of activity involved, the Army and Luftwaffe strategic reconnaissance units were kept separate. Army units were expected to fly line reconnaissance missions over long distances in order to reconnoiter the traffic along highways and railways, while the Luftwaffe units had the task of flying zig-zag courses to discover enemy airfields over the countryside.

The Luftwaffe established five long-range (strategic) reconnaissance squadrons in 1935,* all of which were under the command of the Luftwaffe until 1937, and were responsible for aerial reconnaissance in support of Army operations in case of war. By the time World War II began, the Luftwaffe had a total of twenty-five long-range reconnaissance squadrons, ten of which were placed at the disposal of the Army High Command, while the other fifteen remained with the German Air Force (three of the latter

* Each squadron was to have nine He-45's. One squadron was to be assigned to search the Air Service Area. In 1936 the total was to be increased to five group staffs (strategic) with twelve squadrons, and in 1937 (when conversion to the new Do-17 was begun) to six group staffs and sixteen squadrons.

remaining under the direct command of the Commander in Chief of the Luftwaffe). Some of the units were still equipped with the He-45 aircraft, while the rest had the new Do-17's.*

Reconnaissance units specifically assigned to the Commander in Chief of the Luftwaffe had the mission -- their operations were subject to the tactical direction of the Intelligence Section of the Wehrmacht High Command - of carrying out peacetime high-altitude reconnaissance over the countries bordering on Germany. These units were under the command of Capt. Theodor Rowehl, and on 1 January 1939 operated out of the headquarters in Oranienburg as the "Experimental Station for High-Altitude Flight" (Versuchsstelle fuer Hoehenfluege). At the outbreak of the war, the Aerial Reconnaissance Group, Office of the Commander in Chief of the Luftwaffe, was organized from personnel and aircraft of this organization.†

Tactical Reconnaissance Units

The tactical reconnaissance units were designed for combat, tactical, and artillery reconnaissance, all missions which were closely connected with Army operations. The degree of specialization required by these tasks necessitated the organization of very small units, each (Army) tactical reconnaissance squadron requiring a large additional staff of non-flying personnel.

The first two squadrons of this type were formed in 1934, and a year later five additional squadrons were organized from the graduates of the Reconnaissance Schools at Braunschweig and Hildesheim. By 1936 the Luftwaffe had activated a total of fourteen (Army) reconnaissance squadrons, which were assigned to the six newly-formed (Army) reconnaissance group staffs. In the Spring of 1937 four additional squadrons were organized, so that by 1 July of that year each of the six reconnaissance groups had its full complement of three squadrons. The Luftwaffe officially transferred the Army air units to the control of the Army on

* This information was furnished by Generalleutnant (Ret.) Bruno Maass in an interview held on 17 April 1958.

† Editor's Note: See Generalleutnant (Ret.) Hermann Plocher, The German Air Force versus Russia, 1941, USAF Historical Studies No. 153, Maxwell AFB, Alabama: USAF Historical Division, ASI, July 1965, pp. 16-17.

1 July 1938, and the Army activated few reconnaissance units prior to the opening of World War II. On 1 August 1939 the strength of Army reconnaissance units stood at thirty squadrons, a force which was to be expanded to thirty-six in the event of mobilization.

In the beginning the strategic reconnaissance units were equipped with He-46 and later with the He-45, both well-constructed and very robust aircraft. After 1937 the faster Hs-126's replaced these models.*

Luftwaffe Signal Forces†

The Army Signal Communications Forces were responsible for training signal communications personnel for the Luftwaffe. Their Inspectors, Generalmajor Guenther von Kluge and Col. Erich Fellgiebel, provided exemplary backing for the work of Lt. Col. Wolfgang Martini, the man appointed 12 July 1933 to take charge of signal communications matters in the new air forces.†† Martini, an officer with great initiative, creativeness, and an intuitive sense that enabled him to grasp the tactical and technical demands which might be made upon an air force signals organization, spared no effort in developing his group into a model unit. The work accomplished within the Luftwaffe during the preparatory period (1933-1935) also helped him by establishing a useful foundation upon which to build.

The first unit to be activated (1 April 1934) was the Air Signal Communications Company of the Reichs Aviation Ministry and was set up in Potsdam-Eiche. Others followed on 1 October of that year.** Luftwaffe leaders had already considered the

* The Army also had mixed squadrons of strategic and tactical reconnaissance flights. See figure 22.

† This section is based upon an interview of General der Luftnachrichtentruppe (Ret.) Wolfgang Martini by the author.

†† On 15 May 1933 all German military and civilian aviation agencies were united under the Reichs Aviation Ministry headed by Hermann Goering.

** The Flying School Command (W) had carried out the training of air and ground radio personnel in the Reichswehr. However, the German Navy provided all of the radio personnel for naval air units until 1941, detaching them permanently to the Luftwaffe.

possibility of having a signal communications branch of their own, a need which became especially apparent during the several day-long war games conducted by General Wever in November 1934. Wever and his staff recognized the necessity of assuring a constant availability of communication channels for the transmission of Luftwaffe orders and instructions.

Lt. Col. Martini, a former Army officer who had transferred on 1 May 1934 to the Luftwaffe, had assumed the position of Chief of the Air Signal Communications Branch of the Reichs Aviation Ministry and, with his thinking oriented to the entire Wehrmacht, was tremendously influential. He managed to uphold a feeling of unity between the signals units of the Reichs Aviation Ministry and those of the Army and Navy, and provided the necessary coordination with the Reichs Postal Service.¹⁰ Cooperation between this new Air Signal Communications Branch and the Air Command Office* was outstanding in every respect. Liaison officers from both the Army and the Navy were assigned to insure that matters affecting the entire Wehrmacht were properly coordinated.

It was unfortunate when the Air Signal Communications Branch was established that the Commander in Chief of the Army (who had previously been so generous in providing personnel) released only fourteen officers to the Reichs Aviation Ministry. The Navy, however, released no naval communications officers at all to the Luftwaffe. This situation was partially offset by the fact that the Army Ordnance Office, the Reichs Postal Service, and German industry released enough experienced electrical engineers to permit the early establishment of an air signal communications engineer corps.

Still, it was imperative that a fully-qualified officer corps for the air signal communications forces be formed as soon as possible. Candidates from a number of categories were available, including inactive air force personnel from World War I, reserve officers from the Army Signal Communications Branch, Navy officers with radio training, and officers from police organizations. In 1934 these candidates were trained in two courses held by the Army Signals School, and were then sent on to elimination courses at the Army Signals School at Jueterbog and the Army Sport School at Wunsdorf.

* This office later became the Luftwaffe General Staff.
See Charts No. 8, 9, 10.