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# GERMAN AIR FORCE AIRLIFT OPERATIONS

*by*

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## FOREWORD

German Air Force Airlift Operations, by Generalmajor a. D. Fritz Morzik, is one of a series of historical studies written by, or based on information supplied by, former key officers of the German Air Force for the United States Air Force Historical Division.

The overall purpose of the series is threefold: 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; 2) to provide a history of that air force as prepared by many of its principal and responsible leaders; 3) to provide a firsthand account of that air force's unique combat in a major war with 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 German rearmament following World War I, through its participation in the Spanish Civil War and its massive operations and final defeat in World War II.

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 nearly fifty separate studies, some of them in multi-volume form. The project, patterned, in part, after an Army program already in existence, 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 USAF Historical Division Dr. Albert F. Simpson and Mr. Joseph W. Angell, Jr., respectively, Chief and Assistant Chief of the Division, exercised over-all 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. There, the Army, as has been mentioned, was conducting a somewhat similar historical project covering matters and operations largely of primary 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 by the Army project thus far), it was early

decided that the Air Force should request a radically smaller number (less than fifty) 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 the histories and studies appears at the end of this volume.)

By early 1953 the actual work of preparing the studies was begun. Colonel Wendell A. Hammer was assigned as Project Officer, with duty station at the USAREUR Historical Division in Karlsruhe. General der Flieger a. D. Paul Deichmann was appointed and served continuously as Control Officer for the German phase of the project; he also had duty station at the USAREUR Historical Division. Generalleutnant a. D. Hermann Plocher served as Assistant Control Officer until his recall to duty with the new German Air Force in the spring of 1957. These two widely experienced and high-ranking officers of the former Luftwaffe secured as principal authors, or "topic leaders," former officers of the Luftwaffe, each of whom, by virtue of his experience in World War II, was especially qualified to write on one of the thirty-nine topics approved for study. These "topic leaders" were, in turn, assisted by "home workers"--for the most part former general and field-grade officers with either specialized operational or technical experience. The contributions of these "home workers," then, form the basic material of most of the studies. In writing his narrative, the "topic leader" has put these contributions into their proper perspective.

These studies find their principal authority in their authors' personal knowledge and experience. Thus, these studies are neither unbiased nor are they "histories" in the ordinary sense of that word. Instead, they constitute a vital part of the story without which the final history of Germany's role in World War II cannot be written.

In preparing these studies, however, the authors have not depended on their memories alone. Instead, they have supplemented their knowledge with 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

photographs, and various other materials derived, chiefly, from three sources: the Captured German Documents Section of The Adjutant General in Alexandria, Virginia; the Air Ministry in London; and private German collections donated to the project by its participating authors and contributors. In addition, the collection includes the contributions of the "home workers." Thus, the interested researcher can test the conclusions of the "topic leaders" against the basic documents or secure additional information on most of the subjects mentioned in the studies.

The authors have also made use of such materials as the records of the Nuremberg Trials, the manuscripts prepared by the Foreign Military Studies Branch of the USAREUR Historical Division, the official military histories of the United States and the United Kingdom, and the wealth of literature concerning World War II, both in German and English, which has appeared in book form or in military journals since 1945.

The complexity of the GAF Monograph Project and the variety of participation which it has required can easily be deduced from the acknowledgments which follow. On the German side: General der Flieger a. D. Paul Deichmann, who, as Chief Control Officer, became the moving force behind the entire project; General Josef Kammhuber, who heads the new German Air Force, and who has consistently supported the project; Generaloberst a. D. Franz Halder, Chief of the German Army General Staff from 1938 to 1942, whose sympathetic assistance to the Project Officer, the Project Editor, and the German Control Group is greatly appreciated; 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 footnotes to the individual studies.

In Germany, Col. Wendell A. Hammer, USAF, served as Project Officer from early in 1953 until June 1957. Colonel Hammer's considerable diplomatic and administrative skills helped greatly towards assuring the project's success. Col. William S. Nye, USA, was Chief of the USAREUR Historical Division at the project's inception. His strong support provided an enviable example of interservice cooperation and set the pattern which his several successors followed.

In England, Mr. L. A. Jackets, Head of Air Historical Branch, British Air Ministry, gave invaluable assistance with captured Luftwaffe documents.

At the Air University, Maxwell Air Force Base, Alabama, a number of people, both military and civilian, have given strong and expert support to the project. Lt. Gen. Idwal H. Edwards, a former Commander of the Air University, initiated correspondence with Maj. Gen. Orlando Ward, USA, which resulted in a Department of the Army letter outlining the respective USAF-Army responsibilities for the project's execution. General Edward's interest in the project and its goals was matched by the assistance given by his successors: General Laurence S. Kuter, Lt. Gen. Dean C. Strother and Lt. Gen. Walter E. Todd.

Other personnel at Headquarters Air University who have given freely of their time and experience include: Col. Garth C. Cobb, formerly Director of the Research Studies Institute; Dr. James C. Shelburne, Educational Advisor to the Commander; Mr. J. S. Vann, Chief of Special Projects Branch, DCS/Operations; and Mr. Arthur F. Irwin, Chief, Budget Division, DCS/Comptroller.

The project is grateful to Lt. Col. Leonard C. Hoffmann, the former Assistant Air Attache to Germany, who gave indispensable aid during the project's last year in Germany. Also in Germany, Mr. Joseph P. Tustin, former Chief Historian of Headquarters, United States Air Forces in Europe, has ably assisted the project by solving a variety of logistical and administrative problems.

This study was translated by Mrs. Patricia Klamerth, who deserves special thanks for her skillful contribution.

The Project Editor wishes to acknowledge the patient understanding assistance he received in the preparation of this and earlier studies from Dr. Robert F. Futrell, whose encyclopaedic knowledge helped to clarify many obscure points concerning Air Force doctrine, strategy and technology.

Miss Sara E. Venable, who in the process of typing the final draft discovered a number of errors and ambiguities, deserves special thanks for her capable and expert assistance.

Above all, the project is indebted to all of the members of the USAREUR Historical Division, the Office of the Chief of Military History, and the USAF Historical Division who, through direct assistance and advice, helped the project to achieve its goals.

Dr. Albert F. Simpson, Chief, USAF Historical Division, collaborated in the final editing of this study and offered a number of valuable suggestions. Mr. Edwin P. Kennedy, Jr., the Project Editor, who advised the author during the preparation of the German manuscript of this study and subsequently edited the translation, assumes responsibility for any remaining discrepancies and errors in the text. Mr. Kennedy compared the entire text with the original German manuscript. The stylistic peculiarities of the author, when they did not lend themselves to idiomatic English, were left in literal translation.

## PREFACE

Germany's imaginative employment of transport aircraft in World War II produced as many innovations as Germany's use of tanks. Indeed, like the tank, the transport aircraft was closely associated with the Blitzkrieg concept. This relationship was advantageous at the outset of the war, but it became dangerous as the war dragged on and German armies outran their surface supply lines in North Africa and Russia. Then ground commanders began to think of air transport as the means of supply. The history of this trend is one of the main themes of this study. Some of the questions embodied in this theme--How much air transport is enough? Under what conditions is an air-supply operation feasible? What are the prerequisites for a successful airlift to encircled ground forces? What are the advantages and limitations of the glider?--are as vital and controversial today as they were during World War II. To understand Germany's air transport operations during the last war, however, it is necessary to consider the early development of Germany's air transport capabilities, which began long before World War II.

In building its air transport force, Germany had good resources on which to draw. The post World War I German airlines--Junkers-Luftverkehr-A.G., Aero-Lloyd, and Deutsche Lufthansa--constituted the first of these. From these airlines came a cadre of experienced pilots to man the first units and train subsequent personnel.

The all-metal aircraft designed and manufactured by Hugo Junkers constituted a second source. Professor Junkers produced the world's first successful all-metal aircraft in 1915 and followed it, after World War I, with a series of all-metal commercial aircraft. One of these, the trimotored Ju-52, was to become the work horse of the German Air Transport Forces.

A third source was Germany's early insight into the transport aircraft's military potential, in terms of ferrying missions as well as airlanding and paratroop operations. This insight was first demonstrated during the Spanish Civil War when Germany executed what is generally considered to have been the first large-scale air transport of troops--the airlift of General Franco's Spanish Moroccan forces from Tetuan to Spain. In later operations, during the first years of World War II, Germany provided several brilliant demonstrations of the role of

transport aircraft in the context of combat operations. The Norwegian campaign, the capture of the Belgian fortress, Eben Emael, and the invasion of Crete offered particularly striking examples to the rest of the world.

Given such excellent resources and so much early experience in the use of air transport as a military tool, why did German leadership abuse its air transport during the second half of World War II? And what were Germany's doctrinal, operational and technical mistakes in this field? In the chapters which follow General Morzik answers these and other questions and thereby offers valuable insights into the proper organization and employment of military air transport. Not only does he describe the critical role played by air transport in almost every German theater and campaign, but also he analyzes Germany's failures in this field and recommends a framework of operational doctrine for the future.

Although this edited translation represents a minor abridgement of General Morzik's original manuscript, the editor has made every effort to preserve both what General Morzik has to say and his way of saying it.

## ABOUT THE AUTHOR

Generalmajor a. D. Fritz Morzik, who began his military career as a noncommissioned officer in the German Air Service in World War I and ended it as Armed Forces Chief of Air Transport in World War II, is especially well qualified to write the present study. His long career, spanning two world wars, and his experience with both civilian and military transport aircraft testify to the breadth of his practical knowledge.

Born in 1891 in the town of Passenheim, East Prussia, Fritz Morzik began his military career at the age of fifteen in a preparatory school for noncommissioned officers at Treptow. His air force career started in May of 1914 when he transferred to Flieger Bataillon 2 of the Flying Corps.

During World War I his assignments included service with the 300th Fliegerabteilung (Pascha) in Turkey, Jastas 26 and 6 (pursuit squadrons), and Kampfeinsitzerstaffeln 5 and 8 (singleseater bomber squadrons).

Between the two wars he had a varied career, first with an air police squadron in Breslau, then as a commercial pilot with Deutsche Luft-Lloyd followed by several years of flying for the famed Junkers Flugzeug-Werke Dessau, during which period his work took him to Russia, Persia, and Portugal. In 1927 and 1928 he trained pilots in Spain and from July 1928 through May 1934 he was an instructor in the German Aviation School. It was during this period that he won the 'Round Europe light aircraft competition.

In May 1934 he joined the new German Air Force with the rank of captain and by May 1938 he had been promoted to lieutenant colonel and given the command of the 1st Special Duty Bomb Group. From this point on his career was intimately linked to most of the German Air Force airlift and air transport operations, first as a unit commander, then as air transport officer on various echelons of command, and finally as Armed Forces Chief of Air Transport, when that post was created in 1945.

Since the end of World War II General Morzik has been on retired status from the German Air Force.

## AUTHOR'S INTRODUCTION

The original purpose of the present study was to furnish an account of the more important airlift undertakings carried out by the Luftwaffe during World War II. This account, to take the form of a fairly complete summary of those operations which involved the employment of a relatively large air transport force, was intended to supplement what little documentary material we still have and thus, to a small degree, make up for some of the missing historical sources, such as war diaries, combat reports, and the like. Thus, in addition to his painstaking collation of countless notes, reports of participants in events, records of missions flown, personal diaries, incomplete drafts of official orders, and carbon copies of official reports, the author solicited the help of contributors. The sections dealing with individual stages in the growth of the air transport forces, as well as those devoted to the description of particular air transport operations, are based on material written from memory by these contributors, unit commanders who could still be reached. Their contributions, prepared eight years after the end of the war, inevitably include certain factual inaccuracies, points of view colored by subjective prejudice, and errors in time sequences and statistics, some of which have doubtless been carried over into this study.

By presenting a short survey of the historical development of air transport, a brief treatment of technological and organizational questions, and an evaluation of the lessons taught by experience, development of the fundamental theme was to be limited to the minimum scope necessary for adequate comprehension of the operations described. Many of the prerequisites for and the consequences of the individual actions, however, proved to be uniformly applicable to a number of different operations of varying type. Thus they could be grouped together, obviating the necessity of repeating them in the separate reports of individual actions. And out of this an organizational framework for the entire study gradually evolved. Although the individual reports of the transport actions retained their status as the nucleus of the study, it soon became apparent that a considerably more detailed treatment was required than had been anticipated. If the reader was to accept the conclusions drawn as entirely objective and therefore of military-historical value, they would have to be expressed in terms of the concepts with which he was familiar; this, in turn, presupposed that he possessed certain general information about the subject of air transport. And this turned out to be a

fallacy. It was painfully clear that, outside the limited circle of individuals intimately connected with air transport, the prevailing views were confused, and sometimes downright false. Although hundreds of thousands of persons came into contact with air transport during the war, a clear concept of its potentialities and its limitations has yet to find its way into their thinking. Invariably, they either exaggerate or underrate the role properly ascribable to an air transport force.

The German air transport operations carried out during the war, successful or otherwise, failed to develop at responsible headquarters a uniform point of view upon which a set of general principles could be based. And there is even less chance of its happening now, especially if the military-historical treatment of air transport is limited to journalistic reports of individual actions, without any attempt being made to point out and evaluate over-all trends. Inevitably, such treatments create a completely erroneous picture and the impressions made are just as misleading as those in need of correction. The air-supply operations at Demyansk and Stalingrad are the best examples of this. Viewed out of the context of over-all military operations, one would naturally be considered a success and the other a failure for the air transport forces. In both cases, however, this judgment would fall far short of objective truth. Success and failure in these two instances must be measured against two entirely different sets of criteria. And this is just as true for a number of other air transport actions as it is for the missions at Demyansk and Stalingrad. There is a very real danger that, even in the future, "success" may be arbitrarily equated with the delivery of a large volume of supplies, while any transport unit delivering a relatively low number of tons will be automatically accused of "failure." As far as the operations of World War II are concerned, nothing could be further from the wishes of the air transport units and the men in charge of their employment at that time than to claim credit retroactively for actions which may, at the time, have been considered somewhat less than successful. On the other hand, they are understandably reluctant to accept the blame for missions which failed for reasons which lay outside their responsibility and beyond their control.

In the interest of clearer comprehension, then, the reader will surely understand the desire on the part of the author and contributors to this study to point out and clarify at least the basic concepts. To this end, the factual reports and the survey of the development of air transport have been augmented by a discussion of the most

significant conclusions to be drawn from the body of experience at our disposal. These conclusions have been grouped together in one section in the form of principles and guidelines for the employment of air transport forces. It is obvious that these principles cannot pretend to possess absolute validity or to be completely inviolate, for they are based only on the activity of the German air transport forces, and there has been no opportunity to compare them with the principles developed in other nations. They set up certain requirements whose fulfillment--within the experience available to us--is known to prevent the mistakes and deficiencies concerned. It is by no means certain, however, that compliance with these principles in the future will prevent additional mistakes being made or guarantee success. The information presented should, nevertheless, enable the outsider to form a considered opinion of air transport and the problems connected with it, so that the over-all field may be brought into the proper perspective for fair and accurate evaluation.

It need not be emphasized that the author and contributors have striven to maintain a high degree of objectivity in preparing this study. Even so, the sifting and reworking of the available material often led to compromises or to acceptance with reservations. The accessible documents, regardless of their source or the subjects they dealt with, were full of personal opinions, highly subjective descriptions, deliberately misleading statements, and extremely prejudiced views from which--in the absence of any other documents with which to compare them--the actual course of events could be extricated only with difficulty and without any real guarantee of authenticity. The contributors, whose combined training and experience covered all phases of air transport activity from 1937 through 1945, had the task of evaluating, adapting, reworking, and supplementing this material. In completing this task, of course, they often had to rely upon their own intuition, sharpened by years of experience in air transport activity. Their assistance was invaluable, not only in connection with the individual operations reports, but also in the preparation of the other sections of this study. They contributed a great deal to the logical and convincing development of the central theme. A shift of the emphasis from the factual reports of individual undertakings to a broader treatment of air transport activity as a whole resulted in the present study, Air Transport Operations of the German Air Force.

It is hoped that this study will succeed not only in preserving a part of the past, but also in pointing the way to possible developments for the future.

Chapter 1

# THE ORGANIZATION, MISSIONS, PERSONNEL, AND AIRCRAFT OF THE AIR TRANSPORT FORCES

## Section I: A Chronological, Organizational Summary of the Air Transport Forces

### A. Original Employment of Air Transport Aircraft

The Ju-52, which was to become the standard Luftwaffe transport aircraft, was employed on bombardment missions as late as 1936 in the Spanish Civil War. This use of the Ju-52 was rendered obsolete by the development of modern bomber aircraft and by the subsequent equipping of bombardment units with the new types (the He-111 and the Ju-86). Gradually, as they were withdrawn from the bombardment units, the Ju-52's were turned over to staff units, courier squadrons, and special staffs, or--as was chiefly the case--to pilot schools and instrument flight schools, in order to increase training capacities to a degree commensurate with the growth of the rest of the Luftwaffe.

The idea of retaining a number of the Ju-52 units for use as transports may have been born of plans for the organization of a German parachute force, or it may go back to an operation carried out at the beginning of the Spanish Civil War. On that occasion large Moroccan troop units were flown in Ju-52's from Tetuan to Spain for commitment in a decisive operation.* The suitability of the Ju-52 for operations of this sort was obvious. In retrospect, the mission just described may be regarded as the first air transport operation.

### B. The First Air Transport Unit

At first the IV Group of the Bombardment Wing Hindenburg, stationed at Fuerstenwalde, was the only one of the bombardment units excepted from the general conversion to new aircraft types. It

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* For an account of this see Die deutsche Luftwaffe in spanischen Buergerkrieg (Legion Condor) by General der Flieger a. D. Karl Drum, a translation of which will later be published under the title: The German Air Force in the Spanish Civil War (USAF Study No. 150).

was withdrawn from its wing and placed under the direct command of General Ulrich Grauert,* Senior Air Commander II, in Berlin. It was planned to utilize this group with the parachute battalion then being formed, and to use it as a nucleus for the new activations which would become necessary with a further expansion of the parachute force. In October 1937, in view of its future mission, the IV Group of the Bombardment Wing Hindenburg was redesignated the 1st Bombardment Group for Special Employment; its subordination to Senior Air Commander II, which in the meantime had been redesignated the 1st Air Division, remained, for the time being, unchanged.

The designation "bombardment group for special employment" / was apparently selected to keep the personnel assigned to such units from feeling that their mission was one of only secondary importance, for at that time, of course, the air transport forces were not yet in a position to point to a tradition of heroic service, nor were they a recognized branch within the Luftwaffe.

This psychological prop, however, was not needed, for during the first few years of the war the air transport forces, frequently operating in extremely bad weather and under the worst conceivable tactical and technical conditions, won from their comrades respect and admiration for their untiring willingness to serve, for their valor and determination, and for their courage and selflessness.

Also in October 1937 jurisdiction over the commitment and the training of the air transport forces was given to Luftwaffe Inspectorate 11 (Air Transport) of the German Air Ministry. In 1939 this inspectorate became the staff of the 7th Air Division (the command staff of the parachute forces). Later, with the expansion of this staff to include administrative duties, the flying units were also assigned to the 7th Air Division in the full sense of the word, and were administered by a branch of its command staff (later the Operations Branch, Operations Section).

C. Additional Prewar Activations of Air Transport Units

On 1 August 1938 the existing unit was divided and, with the addition of new personnel and equipment, two groups, the 1st and

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* Editor's Note: On 19 July 1940 Grauert was promoted to Generaloberst. He was most probably a colonel at the time he was Senior Air Commander II, Berlin.

/ Also called "Special Duty Bomber Group."



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2d Bombardment Groups for Special Employment, were formed. The first group remained at Fuerstenwalde in the beginning and was later transferred to Burg, near Magdeburg; the second, immediately after its activation, was assigned to Brandenburg-Briest. The division of the original group was accompanied by fundamental changes in organizational structure and in the assignment of functions. Corresponding to the four companies and staff of a parachute battalion, the authorized strength of a bombardment group for special employment was set at four squadrons, with twelve aircraft each, and a staff element of five aircraft, while the reserve aircraft formerly provided for in the organization of bombardment units were withdrawn. In excess of its authorization the group also retained a number of light training and liaison aircraft which, in case of mobilization, were to be turned over to the flying schools without delay. The squadron technical personnel were combined in an airfield maintenance company, as was customary at the time in all branches of the Luftwaffe. Thus the only maintenance personnel directly attached to the squadrons consisted of one ground mechanic per airplane, who worked under the direction of the technical officer and a shop foreman.

In the summer of 1939, two more groups were organized, and with them a bombardment wing, to which all four groups were then subordinated. At this point, the strength* of the special employment units had reached that of the parachute units, which in the meantime had been built up to regiment size. However, when preparations were begun for the establishment of a second parachute regiment, it was decided not to organize additional flying units concurrently. In case of mobilization, it would always be possible to fall back upon the large reserves of Ju-52's which had been turned over to the pilot schools, and appropriate arrangements for such a step were made with the Chief of Training.

### D. Early Wartime Organizational Changes

At the beginning of the campaign in Poland (1 Sept 1939), the 1st Bombardment Wing for Special Employment was the only officially authorized, active, air transport unit in existence./ However, at the end of August 1939, as a preventive measure ordered by the Quartermaster General, the Chief of Training established two new

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* See Chart 1.

/ See Chart 2.

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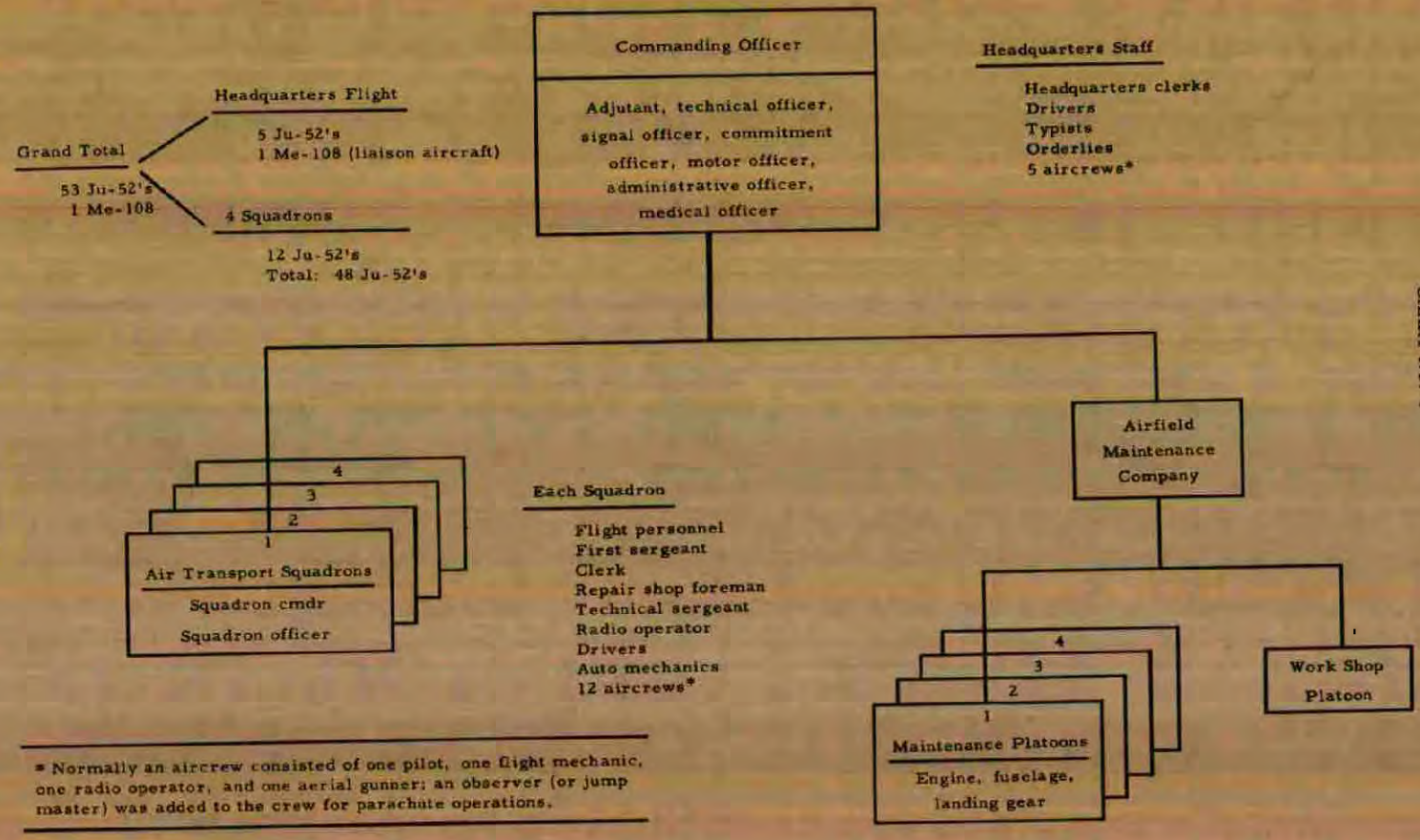
## ORGANIZATIONAL STRUCTURE OF AN AIR TRANSPORT GROUP




* Normally an aircrew consisted of one pilot, one flight mechanic, one radio operator, and one aerial gunner; an observer (or jump master) was added to the crew for parachute operations.

CHART NO. 1

CHART NO. 2

## ORGANIZATIONAL STRUCTURE OF AN AIR TRANSPORT WING




**Wing Headquarters**

1 Ju-52
1 Me-108 (liaison aircraft)

**4 (sometimes 3) groups**

53 Ju-52's each
Total: 212 (sometimes 159) Ju-52's

**Grand Total**

213 (sometimes 160) Ju-52's
1 Me-108

units,* the staff of the 2d Bombardment Wing for Special Employment and the 9th Bombardment Group for Special Employment (for the transport by air of heavy weapons). Both these units were composed of personnel drawn from the C-schools, which were schools giving advanced flight training in twin-engine aircraft. At the same time the Air Liaison Staff in Berlin established the I and II Groups, 172d Bombardment Wing for Special Employment.

After the campaign in Poland, the Chief of Training was given back these newly formed units for assignment to flight-training installations with the understanding that the group staffs and the squadron headquarters sections be kept together at the same school, so that the original units could be reassembled quickly if the need should arise.

The I and II Groups, 172d Bombardment Wing for Special Employment, made up of personnel from the Berlin Air Liaison Staff and the Deutsche Lufthansa (the latter was the German commercial airline organization), were placed in charge of blind-flight training at the instrument-flight schools at Radom (Czarnkow) and Wesendorf.

In early March 1940, in preparation for the Norwegian campaign and operations in the Netherlands,† the Chief of Training, again drawing on the C-schools and the instrument flight schools, established the following units: the staff of the Chief of Air Transport (Land Aircraft) and the 101st-108th Bombardment Groups for Special Employment.

The newly created staff and units were all placed under the command of the Chief of Air Transport (Land Aircraft) and were employed in the campaign in Norway. The 1st and 2d Bombardment Wings for Special Employment remained under the administrative command of the 7th Air Division, but were tactically assigned to the X Air Corps. After the campaign in Norway, the two wings, as well

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* Editor's Note: The Chief of Training had only nominal responsibilities in the establishment of new air transport units. Personnel and equipment for the new units were withdrawn from units under his command. Selection of key personnel for these units, however, was a responsibility of the Personnel Division of the Luftwaffe High Command and determination of types and quantities of equipment was made by the Chief of Supply and Administration of the Luftwaffe High Command.

† See below, pp. 105-108.

as the new units which had been earmarked by the Chief of Training for employment in operations in the Netherlands, were returned to the full command of the 7th Air Division.

In April 1940 the 103d Bombardment Group for Special Employment was deactivated and the 102d reassigned to flight training activity. At the end of June 1940, the 107th turned over fifty percent of its personnel and equipment to the 108th, and the remainder of the group was reassigned to the Chief of Training. The units comprising the remainder of the 107th were returned to flight training activity at the schools with the understanding that they might be withdrawn at forty-eight hours' notice and with instructions to be ready for action at all times.

Approximately at the end of May 1940, the Chief of Air Transport (Land Aircraft) was redesignated Air Transport Officer on the Staff of the Quartermaster General; this was done at the order of the Quartermaster General.

After the capture of the Netherlands, the First and Third Air Fleets and their air corps were given tactical command over a number of the special employment groups, which were to be utilized in supply operations. Administratively, these groups remained under the command of the 7th Air Division.

With the redesignation of the Chief of Air Transport (Land Aircraft) an attempt was made to place all the special employment units, which had clearly demonstrated their suitability for air-supply operations during the course of the campaigns in Norway and the West, under a single, unified command. Unfortunately, however, no unequivocal clarification or direct order was ever issued by the Chief of the General Staff in support of this attempt, and the competition between the 7th Air Division, the Air Transport Officer, Branch 4 of the General Staff, the air fleets, and their air corps continued.

In preparation for Operation "Sea Lion" (the planned invasion of England)* all the special employment formations still under the

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* Editor's Note: An account of German Air Force preparations for Operation "Sea Lion" is to be found in Der geplante Einsatz der deutschen Luftwaffe im Zusammenhang mit dem Unternehmen (cont'd)



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Chief of Training were combined at the end of August 1940, and, together with the 1st and 2d Bombardment Wings for Special Employment, transferred to France. When Operation "Sea Lion" was called off, the units were returned to the Chief of Training for further assignment, and the two wings were transferred back to Germany for employment in other missions.

As a part of the preparations underway for operations in the Balkans, three new units, the 40th, 50th, and 60th Bombardment Groups for Special Employment, were established in January 1941 by the Chief of Training. In early February 1941 the 101st, 104th, and 105th Bombardment Groups for Special Employment were concentrated under the command of the Chief of Training. Then, all six of these groups, together with all the units which had been returned to the Chief of Training and were engaged in flight training activity, were placed under the command of the newly created Air Commander, XI Air Corps.

The operations in which these air transport forces took part consisted in the transporting of bomber and single-engine fighter units into the southeastern area. At the beginning of April 1941 the I and II Groups of the 1st, and parts of the 2d Bombardment Wings for Special Employment, temporarily based in the Vienna and Wiener Neustadt areas, were utilized to transport the 22d Airborne Division into the oil region of Rumania,* and the 104th Bombardment Group for Special Employment was assigned to the X Air Corps and transferred to Tatoi, near Athens.

In preparation for operations in Crete, three separate groups were concentrated at airfields in Greece during late April 1941. The groups were formed as follows:

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"Seeloewe" a manuscript by Captain Karl Klee which is in the Karlsruhe Document Collection. An edited translation of this manuscript will be published at a later date under the title Operation Sea Lion. See also, Das Unternehmen "Seeloewe" by Karl Klee, Musterschmidt-Verlag, (Goettingen, 1958) and Dokumente zum Unternehmen "Seeloewe" by Karl Klee, Musterschmidt-Verlag, (Goettingen, 1959). In English, the best published account is Operation Sea Lion, German Plans for the Invasion of England 1939-1942, (Oxford, 1958) by Ronald Wheatley.

* See below, pp. 73-75.

1) the 1st Bombardment Wing for Special Employment, with the 105th, 106th, and 40th Bombardment Groups for Special Employment;

2) the 2d Bombardment Wing for Special Employment, with the I Group, 1st Airlanding Wing; the I Group, 1st Bombardment Wing for Special Employment; and the 60th, 102d, and 101st Bombardment Groups for Special Employment; and

3) as a reserve force, the I and half of the II Groups, 172d Bombardment Wing for Special Employment; one freight-glider tow group, consisting of four squadrons of DFS-230's and fifty Ju-52's as towing aircraft; and, as a command headquarters, the staff of the 1st Airlanding Wing.

In May 1941, special Operation JUNK (Iraq) was launched with Ju-90's and ten Ju-52's, but was called off soon afterwards. *

At the beginning of June 1941, all the special employment units except the I Group, 1st Airlanding Wing, which was serving as the tow group for the DFS-230's, were withdrawn from operations in Crete; the 40th and the 60th Bombardment Groups for Special Employment were disbanded.

In the same month, the Air Liaison Group was established and placed at the disposal of the Armed Forces High Command for courier flights and for the air transport of Armed Forces High Command personnel.

Inasmuch as the Air Transport Officer was at the same time the commanding officer of the instrument flight schools, his position was one of dual subordination. As Air Transport Officer he belonged to the staff of the Quartermaster General, and as commanding officer of the instrument flight schools to that of the Chief of Training. Inevitably a certain amount of friction resulted, which also made its effects felt among the flying units and in the schools. Requests and

* Editor's Note: An account of this operation is included in Die deutsche Luftwaffe auf dem Mittelmeer Kriegsschauplatz by General der Flieger a. D. Helmuth Felmy, Karlsruhe Document Collection. An edited translation of this will be published at a later date as USAF Study No. 161, The German Air Force versus the Allies in the Mediterranean.

pleas for a clarification of the situation were without avail, and a tug-of-war within the command headquarters ensued. The functions of the air transport officer and those of the commanding officer of the instrument flight schools were united in one man who had two operational command staffs under him, one for each of his functions. This unfortunate solution to the problem of the command of two important activities was bound to result in the unintentional neglect of one of them.

Another instance of overlapping authority occurred between the Air Transport Officer and the Air Commander, XI Air Corps. Early in 1941 the latter had been given command of a number of air transport units earmarked for operations in the Balkans. After the eastern campaign had started, orders were given to reach a determination as to the limitation of the functions of the Air Transport Officer and the Air Commander, XI Air Corps; however, in practice a firm definition of limitations was only partially achieved. It was not until the autumn of 1941 that final clarification of the situation was obtained in the form of the withdrawal--due to the urgent need for air transport space at the front--of all the special employment units from the jurisdiction of the XI Air Corps.

On 1 October 1941 Colonel Freiherr Karl-August von Gablenz, the Air Transport Officer, became chief of the Technical Office of the German Air Ministry, and Colonel Fritz Morzik, the author of this study, was assigned to the position of Air Transport Officer.

When the eastern campaign began, the First, Second, and Fourth Air Fleets were assigned special employment groups for use in air-supply operations. Each air corps had at its disposal one air transport group in addition to the air transport squadron which was a permanent part of the corps.

The Air Transport Officer on the staff of the Quartermaster General was responsible for meeting the current requirements in personnel and aircraft of all the special employment formations.

The freight glider tow squadrons, equipped with DFS-230's, assigned to the XI Air Corps were also utilized in air-supply operations in the east. In such areas as Kholm, Velikiye Luki, and Ternopol--unsuited either to landing aircraft or to dropping supplies from the air--, supplies were delivered by means of landing the

gliders, which could be guided to the appropriate point.

In June 1941 a large-capacity freight glider group with four squadrons was formed* and equipped with the Me-321 Gigant (large-capacity freight gliders) which had been developed and built at the end of 1940 in Leipheim in preparation for Operation "Sea Lion." During the summer of 1941 individual glider trains, drawn from the squadrons comprising the new group, were employed in supply operations in the east.

In late July 1941 the BV-222 flying boat, after thorough testing, was introduced for the first time in operations to supply the forces in Africa. Two such flying boats were committed in initial operations, and by May 1942 there were seven of them operating. They were continuously employed in the African campaign until the beginning of 1943, at which time they were turned over to the Air Commander Atlantic for use in long-range reconnaissance operations.

Toward the end of 1941 and the beginning of 1942, newly established tow squadrons, equipped with Go-242 freight gliders, were assigned to the Luftwaffe administrative commands for employment in the transporting of unwieldy equipment within the rear area. A number of Go-242's were fitted as technical workshops and, as flying maintenance platoons, were towed to tactical airfields for employment; other Go-242's, equipped as operating rooms, were utilized at field dressing stations.

During this same period, some Go-242's were fitted experimentally with two engines.† The unsuitability of these engine-driven planes, called Go-244's, with their inferior flight characteristics, was clearly revealed in rear area operations. Nevertheless, for no apparent reason, the conversion of two Ju-52 units to the Go-244 was ordered. Soon afterwards, however, these units had to be reconverted because the heavy personnel losses occasioned by crashes of Go-244 aircraft made their further employment impractical.

By the end of 1941 the majority of air transport units were being employed at the Russian front. The need for a separate operations staff for air transport activity was clear, and the concurrent

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* See Chart 3.

† See below, p. 45.

CHART NO. 3

## ORGANIZATIONAL STRUCTURE OF A LARGE-CAPACITY AIR TRANSPORT GROUP (ME-321, GIGANT)




**Freight-glider Crews:**

2 pilots
3 aerial gunners (also serving as loading personnel)
1 radio operator

**Tow-plane Crews:**

1 pilot
1 radio operator (also serving as flight leader)

Personnel assigned in accordance with special table of organization emphasizing technical personnel (incl. technical officer, 2d lieutenant, in charge of loading). Aircraft equipment issued in accordance with special table of equipment authorizing also special ground equipment.

Special Equipment:
1. Hydrogen peroxide take-off rockets (1, 100, 1, 650 and 2, 215 pounds thrust; combustion period one minute; 3-6 rockets per wing)
2. Special trucks and ground equipment
3. Tank wagons with siphoning apparatus
4. Loading ramps
5. Aircraft anchoring cables and stakes

command by the Air Transport Officer of both air transport activity and the instrument flight schools became increasingly impractical. Frequently the Air Transport Officer was called away from his office, for lengthy periods at a time, by duties attending the activation of new units or by special assignments.

In November 1941, when the British offensive started in Africa, the Chief of Training established the 300th Bombardment Group for Special Employment. During the period from 6 through 10 December 1941, two further groups, the 400th and the 500th, were activated and assigned to the Commander in Chief South. Personnel for these two groups were recruited from the instrument flight schools and from the 1st Airlanding Wing.

In mid-December 1941 orders were issued for the establishment of five new special employment formations for use on the central sector of the Russian front and for their transfer from East Prussia to the front. The Air Transport Officer, with the help of his special staff, assumed responsibility for the transport of the necessary supplies and, subsequently, for the air transport operations involved in supplying Demyansk, in the combat area of the First Air Fleet.

These new groups, the 600th, 700th, 800th, 900th, and 999th, were made up of personnel recruited from the C-schools and the instrument flight schools.*

In early January 1942 the reinforced II Army Corps, Army Group North, was cut off from the rear communications system, with approximately 100,000 men, in the Demyansk area northeast of Lake Ilmen, and the Chief of Training was forced to establish five more bombardment groups for special employment, the 4th, 5th, 6th, 7th, and 8th. Of these, the 5th was equipped with He-111's, the 6th and 7th with Ju-52's and Ju-86's, and the others with Ju-52's.

During the operations mentioned above, the Air Transport Officer was assigned to the VIII Air Corps, or rather to its superior air fleet, and had full command over the special employment units. Although it was suggested that a permanent special staff be incorporated into the official table of organization to take over the direct

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* During their transfer to the central sector of the Russian front, these units also transported newly formed replacement battalions.



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command of the special employment units, the suggestion was not favorably received. Thus the Air Transport Officer was away from his own staff for over six months, which necessitated his straightening out accumulated difficulties and misunderstandings upon his return.

### E. Organizational Changes in 1942

In April 1942 a commanding officer was finally appointed for the instrument flight schools and the Air Transport Officer was relieved of this additional responsibility. He retained command of the air transport forces, however, and continued to take over direct command of the special employment units in large-scale air-supply undertakings. Since he had not been provided with a permanent staff, he had to organize a new operations staff for each undertaking. These staffs, made up of officers from the special employment units themselves, were set up in the combat area concerned and had to contend each time with the difficulty and delay inherent in attaining functional efficiency, a delay which in some cases had a detrimental effect on the course of operations.

The Air Transport Officer was also responsible for all the special employment units which had been withdrawn from the front for rest and re-equipping and were stationed within the home defense area while awaiting their recall to active duty. As a result, his staff had to cope with extremely varied duties, many of which had to be performed without delay. Later, the Air Transport Officer and his staff were relieved of some of these duties by the establishment of a replacement wing and its designation as collection point and home station for all the air transport units.

At the end of March 1942 a mail squadron was organized to transport mail to and from the three army groups stationed on the Russian front.

In late April 1942 two bombardment groups for special employment, the 8th and the 999th, were deactivated.

The IV Group, 1st Bombardment Wing for Special Employment, which had been redesignated Bombardment Group Posen* for operations

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* Editor's Note: Posen is the German name for Poznan, the capital of Poznan province, West Poland.

at Demyansk, took back its former designation, as did the 500th Bombardment Group for Special Employment, which had been given the title Bombardment Group Oels. At the end of June 1942 the 300th Bombardment Group for Special Employment was incorporated into the table of organization of the Air Transport Officer as a replacement group for special employment and was later expanded to a replacement wing.

During the summer of 1942 two He-111 groups, the 5th and the 30th, were equipped with Go-242's and assigned as glider tow groups to the Fourth Air Fleet.

In October 1942 two Ju-52 groups were converted to Me-321's--which had been fitted with six engines and renamed Me-323 Gigant's--and designated the I and II Groups, 323d Bombardment Wing for Special Employment (later the 5th Air Transport Wing).

In the autumn of 1942 the Commander in Chief South utilized the Ju-52 aircraft assigned to him by the Chief of Training to equip three newly-formed units, the S-7th, S-11th, and S-13th, which were then combined into the S (Sicily) Bombardment Wing for Special Employment. These units were disbanded again in February 1943 and their personnel and equipment were assigned to other groups.

At the end of November 1942 the Chief of Training set up four new units for employment in air-supply operations at Stalingrad.* Two of these, the 20th and 23d Bombardment Groups for Special Employment, were equipped with He-111 aircraft, and the other two, the 21st and 22d Bombardment Groups for Special Employment, with Ju-86 aircraft. By order of the Chief of Supply and Administration, three squadrons equipped with Ju-90's, Ju-290's, and FW-200's, and one squadron equipped with He-177's were established.

F. Organizational Changes in 1943

In the spring of 1943 the 700th Bombardment Group for Special Employment was transferred to Le Bourget, where it was converted to the Leo-451, a French model aircraft. The conversion was not entirely completed, however, and the unit was deactivated in the summer of 1944.

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* See below, p. 179 ff.



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In March 1943 the 30th Air Transport Group (operating with He-111's) was withdrawn from the air transport forces and redesignated the I Group of the 55th Bombardment Wing.

The air transport units, owing to constant changes in their operational and administrative subordination, were unable to reach a stage of stability. Administrative services, such as the promotion of enlisted personnel and the conferring of decorations, suffered particularly. Several requests for a change in the situation were submitted, but to no avail. It was not until 15 May 1943 that the Quartermaster General complied with this long-standing wish for a uniform organization of the air transport forces by the creation of the XIV Air Corps. *

In April 1943, shortly before the establishment of the XIV Air Corps, the Quartermaster General ordered a redesignation of the 1st Bombardment Wing for Special Employment and of the independent special employment groups, and they were given the new title of air transport wings. The units resulting from this change were the 1st, 2d, 3d, and 4th Air Transport Wings, each composed of three or four groups equipped with Ju-52 aircraft, and the 5th Air Transport Wing, composed of two groups equipped with Me-323's.

The organizational structure of an air transport wing was the same as that of a bombardment wing for special employment. / The He-111 units were designated as independent groups and placed directly under the XIV Air Corps.

On 15 May 1943 the XIV Air Corps assumed the duties of the Air Transport Officer on the staff of the Luftwaffe Quartermaster General. His staff was disbanded and transferred in part to the XIV Air Corps; the remainder then became the staff of the Air Transport Officer I East. The staff of the XIV Air Corps was stationed at the airfield at Tutow.

Whereas the XIV Air Corps was responsible for the administration of the air transport forces, their commitment--chiefly on the Russian front and in the Mediterranean--continued to be directed by the Luftwaffe Quartermaster General, Generalleutnant Otto Langemeyer,

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* See Chart 4.

/ See Chart 2.

USAF HISTORICAL STUDIES: NO. 167

# GERMAN AIR FORCE AIRLIFT OPERATIONS

by

Generalmajor a. D. Fritz Morzik

USAF HISTORICAL DIVISION
RESEARCH STUDIES INSTITUTE
AIR UNIVERSITY
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Troops loading on a Ju-52 for North Africa

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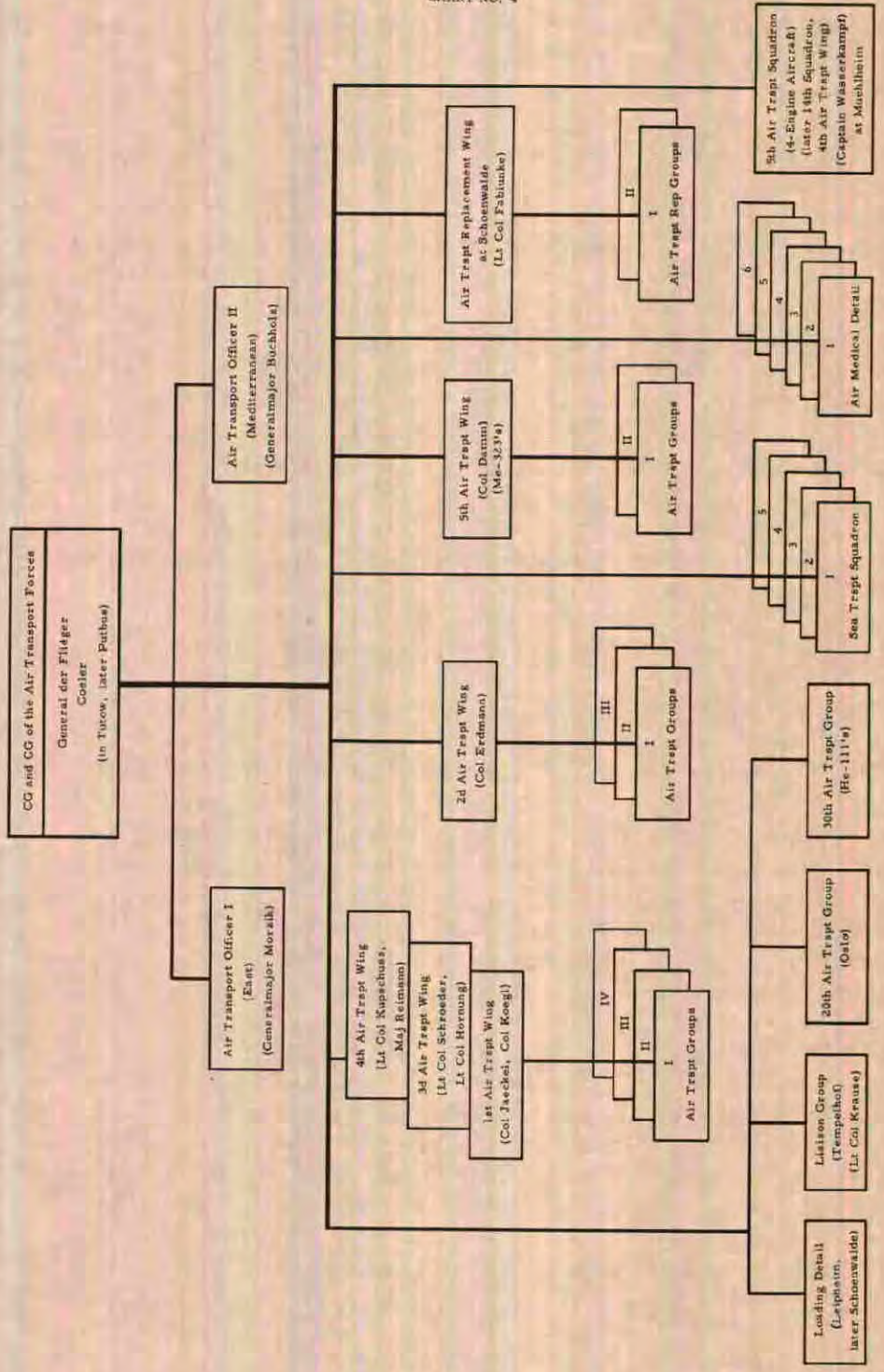
CHART NO. 4

ORGANIZATIONAL STRUCTURE OF THE XIV AIR CORPS



through the command staffs of the air fleets. Thus the air transport wings were actually under the command of the two air transport officers, Generalmajor Morzik, Air Transport Officer I East, and Generalmajor Buchholz, Air Transport Officer II Mediterranean.

Since the air transport command staff was now on corps level, more insistence could be employed in representing the interests of the transport forces with the air fleets and with other air corps. When assigned to air-supply operations with an air fleet or an air corps, the air transport units were under the command of the fleet, or corps, supply officer, and the commander of the transport unit was responsible for seeing that the assigned mission was accomplished. The unit commander, on the basis of instructions issued by the supply officer, carried out missions both for the Army and for the Luftwaffe, taking into consideration the transport space requirements involved, the tactical situation, and the degree of priority.

During large-scale airlifts requiring the combined forces of several air transport units (ten to fifteen groups--600 or more aircraft), one of the air transport officers assumed command of the units participating. In smaller undertakings the command staff of the wing concerned was sufficient to fulfill the command function.

Occasional orders for special missions to be carried out by air transport units resting in the home defense area were given by the Luftwaffe Quartermaster General directly to the XIV Air Corps.

Parallel to the creation of command staffs for the other Luftwaffe branches (Commanding General of the Fighter Forces, Commanding General of the Night Fighter Forces, Commanding General of the Reconnaissance Forces, Commanding General of the Bombardment Forces, etc.), in October 1943 the commanding general of the XIV Air Corps was appointed Commanding General of the Air Transport Forces.

The former organizational structure and organization of functions within the air transport units, having proved to be satisfactory, were left unchanged except for occasional temporary modifications required by the nature of operations. Retaining its similarity to a parachute battalion, the air transport group included a headquarters flight of five Ju-52's and four squadrons of twelve Ju-52's each--thus a total of fifty-three Ju-52 aircraft.

By the end of 1943, the fuel situation became increasingly critical. This factor, coupled with the inadequate number of replacement aircraft available led to the deactivation of a number of air transport units. Valuable personnel, both pilots and technical people, became surplus to the needs of the remaining air transport units and had to be assigned to the SS or to the parachute forces.

## G. Final Organizational Changes (1944-1945)

Due to the increasing number of enemy air attacks on German airfields, in February 1944 the staff headquarters of the XIV Air Corps was transferred from Tutow to Putbus Castle on the island of Ruegen in the Baltic Sea.

As of 1 May 1944, the air transport forces were made up of the following units: 2 air transport staffs, 6 wing staffs, 24 air transport groups, as follows: 14 groups equipped with Ju-52's; 4 groups with SM-82's; 1 group with SM-81's; 2 groups with Me-323's; 1 group with He-111's; 1 group with Leo-451's; 1 mixed replacement group equipped with SM-79's, SM-81's, SM-82's, Me-323's, Ar-232's, and Fiat G-12's. Five independent squadrons, 3 squadrons of which were equipped with Ju-52's, 1 with Fiat G-12's,and 1 large-capacity transport squadron, also were a part of the air transport forces.

In the summer of 1944 a lack of available personnel led to the deactivation of a number of air transport units. In addition, the acute fuel shortage no longer permitted the full employment of all the transport units. Therefore, on 1 October 1944, the XIV Air Corps, the air transport officer staffs, and all the wing staffs were abolished. From this point on, the remaining air transport units were under the direct and full command of the air fleet or air corps to which they were assigned.

The position of Commanding General of the Air Transport Forces remained in effect for a short time as chief of a Luftwaffe service branch. The duties still inherent in the position included the furnishing of personnel and materiel replacement, inspection activity, and the issuance of tactical and technical directives.

On 15 January 1945, three months after the deactivation of the XIV Air Corps, the position of Commanding General of the Air Transport Forces was abolished. The reasons for its abolishment

were probably the following: by that time, all but about seven groups of the air transport forces had been deactivated; the fuel situation had become extremely critical; the enemy air power no longer permitted effective employment of air transport forces; and both the operational and the administrative command of the remaining air transport forces had been decentralized.

By the beginning of 1945 the only air transport units left in existence were the following: 7 groups equipped with Ju-52's, part of 1 group equipped with Ju-352's, 2 groups equipped with He-111's, and approximately 5 squadrons of freight gliders. In addition, the 4th, 54th, and 55th Bombardment Wings were being employed almost exclusively in air transport missions.

As a result of the extremely heavy losses of personnel and equipment suffered during the difficult air-supply operations in the last three months of the war (for example, at Breslau,* where total aircraft losses amounted to 165 Ju-52's and He-111's), the air transport forces had dwindled to the point where, by the end of the war, one could no longer speak of transport units.

The Commanding General of the Air Transport Forces was replaced by an Armed Forces Chief of Air Transport on the staff of the Commander in Chief of the Luftwaffe. He and his staff, partly made up of members of the staff of the former Commanding General of the Air Transport Forces, were accommodated in the building housing the Luftwaffe High Command in Wildpark-Werder (near Potsdam). The newly created position was filled by the author, who was thereupon transferred to the Luftwaffe High Command.

The Armed Forces Chief of Air Transport was, for purposes of supply and administration, under the direct command of the Quartermaster General, and for operational purposes under the Chief of the General Staff, Luftwaffe High Command. He received his operational orders, however, exclusively from the Operations Branch, Luftwaffe High Command. One Ju-52 group was placed under his direct command, while all the rest--although nominally under him--were under the tactical command of the air fleets to which they were assigned, and the actual direction of transport operations rested with the air fleets. The focal point of air-supply operations was the Fourth Air Fleet.

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* See below, p. 269 ff.

The Armed Forces Chief of Air Transport, then, was given orders by the Operations Branch concerning missions which were to be carried out. These missions, however, could be accomplsiehd successfully by the air fleets only if there were sufficient gasoline supplies available. There were constant difficulties because the transport missions ordered by the operations branch were not carried out; on the other hand, the air fleets were unable to comply with orders because they had no gasoline available. Finally the Armed Forces Chief of Air Transport was given a one-time allotment of 1,000 cubic meters of gasoline from the Fuehrer reserve stocks,* so that, for a time at least, he was in a position to pass on the orders he received from the Operations Branch, Luftwaffe High Command, with some degree of certainty that they could actually be carried out.

The creation of the post of the Armed Forces Chief of Air Transport was a most unfortunate step, for it meant that the members of his staff were kept busy running back and forth between the Operations Branch, the Quartermaster General, and the air fleets. At the end of March 1945, as soon as it became obvious from the military situation that the Allies were attempting to push forward from east and west and, meeting at the Elbe River, to divide the forces still fighting in Germany, the staff of the Armed Forces Chief of Air Transport was also divided. In the north a small operations staff was organized under Lt. Colonel Walter Hornung to take over the command of air transport forces stationed in that area, while Generalmajor Morzik, with the remainder of his air transport staff, moved to Berchtesgaden to assume command over the air transport units operating in the south.

## Section II: The Original Plans for Employment and the Expansion of Missions During Wartime

### A. Peacetime Employment

The preliminary planning for an air transport force envisaged its employment, both in peacetime and in wartime, exclusively within the framework of operations by paratroop and airlanding forces. Thus the primary task was to see that all the aircrews involved, in addition to their standard flight training, were also instructed in the peculiarities

* Fuehrer reserve stocks were supply stores which were held in reserve and could be allotted only by a direct order of the Fuehrer.

of such operations and were kept in constant practice.

In the training program special emphasis was placed on the techniques of the low-level approach flight--taking advantage of the terrain as much as possible--, of the rapid recognition of the proper deplaning point, of the sudden climb to the deplaning altitude of 394 feet (120 meters), and of the return flight at low altitude. Training was also given in the techniques of close formation flying, which is of vital importance in airlanding operations in order to prevent paratroop forces from being spread over too wide an area. To bring home to the trainees the importance of what they were learning, flights, and sometimes even squadrons, were constantly being detailed to duty with the parachute school and with the units of the 1st Parachute Regiment at Stendal. These combined practice operations also had another purpose, namely the creation among the participating units of an esprit de corps which would be strong enough to weld them into a single combat entity. Close association, both on and off duty, was encouraged between commanders, squadron captains, company C. O. 's, flight and platoon leaders, and even among the aircrews and the paratroopers of the units assigned to work together. This close association resulted in a mutual understanding for the completely different procedures required of the two types of units during preparations for and accomplishment of practice maneuvers and, later on, of actual military operations.

Technical personnel, including flight mechanics, were instructed in the loading and unloading of arms containers and were kept up to date on the constant innovations being made in this equipment. Although this duty was properly the responsibility of the loading crews from the paratroop units, exact knowledge and sure handling of equipment on the part of the air and ground crews of the transport units proved to be a tremendous advantage later on, since certain supply missions could be satisfactorily accomplished only by means of air drop.

Training in straightforward air transport missions was relegated completely to the background in favor of combat training. Even during this prewar period, of course, it was realized that the Ju-52 was an ideal type of aircraft for employment in air transport operations and that its use in such missions lay entirely within the realm of possibility. Originally, however, this type of commitment, which was to acquire major importance during the later part of the war,

was not envisaged in the planning for an air transport force, nor was it included in the proposed training program. During the German advance into Austria, temporary Ju-52 units were improvised and employed for missions in which certain characterisitcs typical of later airlifts were clearly recognizable. Even so, this undertaking had no immediately apparent effect on the organization of the air transport forces.

In preparation for the advance into Austria, the Chief of Training established a number of special formations. These were assembled at various airfields in southern Germany and, on the morning of 13 March 1938, flew over Austria in group formation, dropping propaganda leaflets over the larger towns and cities. The purpose of their flight was more propagandistic than anything else, and it was intended to heighten the effect created by the mass employment of the Luftwaffe. In addition, the 1st Bombardment Group for Special Employment--at that time the only active air transport unit--transported a paratroop battalion to Graz (Styria) in an airlanding operation. These undertakings could have been a valuable rehearsal of the organizational procedures required in an airlift operation, but at the time there was no central headquarters which might have been expected to be interested, and thus the experience gained during the course of the operation was never evaluated.

A second operation was carried out a week later--unfortunately only in its preparatory stages--but it, too, was without lasting influence, though all the prerequisites which could have made it so were present. On the occasion in question, an air transport group was transferred with surprising suddenness to Garz Airfield (Usedom Island in the Baltic) with orders to transport the entire ground organization of a single-engine fighter group into an unnamed operational area (probably East Prussia--in preparation for the occupation of the Memel territory).* Here, again, an evaluation of the experience gained would have been very useful for future undertakings of this sort. Unfortunately, only one of the recently organized Ju-52 groups participated in the preparations for the undertaking, and this group was disbanded completely soon after it had been returned to the

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* Editor's Note: The old Hanseatic port of Memel, on the Baltic, was administered by the League of Nations following World War I. Ceded to Lithuania in 1924, Memel was returned to Germany on 22 March 1939, in response to a German ultimatum.

instrument flight school at Wesendorf.

In the meantime, by the summer of 1938, the paratroop forces had been built up to a point where they could function as a powerful and immediately available combat force in the planning of top-level command. Their new position also required significant changes in the missions, training, and organization of the air transport forces. Thus, preparations being made by the General Staff for a possible conflict with Czechoslovakia provided for a combination paratroop and airlanding operation by the 7th Air Division, the airborne troops to be landed behind the Czech bunker line in the vicinity of Freudenthal (Bruntal). According to the plan, an area behind the fortifications would be occupied by paratroopers, who would eliminate any enemy resistance and secure the area as a base from which enemy positions could be attacked concurrent with the frontal offensive of the army. A second wave, consisting of specially selected and equipped army units, would then be landed in the occupied area at a point where the terrain--according to maps, aerial photographs, and the reports of agents--was suitable for the landing of Ju-52 aircraft, or could be made so with a minimum of delay. The capacity of these natural airfields would have to be increased during the first few hours by special airfield details so that necessary reinforcements and supplies for the forces engaged in combat could be flown in without delay. Beginning with the transport of the first attack wave, the air transport forces would have to develop a systematic airlift operation which would continue until communications routes could be established and supplies transported over land.

The demands which the paratroop forces would necessarily make upon the air transport units in the operations described above determined the activity of the latter during the summer of 1938. Their standard training was augmented by special instruction in the landing of fully-laden Ju-52's on auxiliary airfields or in open terrain under purposely difficult conditions. The pilot was taught first to land by himself, then as a member of a flight, and finally as a member of a squadron, and was made to practice landing in areas where space limitations required that the approaching formation straighten out into single file, land, circle back down the field next to the landing strip, unload, taxi around to the runway, and take off again in the shortest possible time in order to make room for the next unit. To assure perfect mastery of the steps of this operation, the practice flights were supplemented by map exercises and illustrated lectures

at the sand table, for the success of the whole undertaking would depend upon the smooth and undisturbed functioning of this part of it, especially at the beginning, before technological aids became available.

The pilots who, later during the war, were still with the air transport forces when airlifts and operations to supply encircled troops were carried out were unanimous in their agreement that this training had been very thorough and extremely valuable. Unfortunately, the only units which enjoyed such training were those which during peacetime had been under the direct command of the 7th Air Division. The Ju-52 units which were established later for large-scale airlanding operations or for straightforward air transport missions had not been given this type of preparation and thus were at a disadvantage.

Because the occupation of Sudentenland* was accomplished peaceably, Operation "Freudenthal" was carried out as a practice maneuver only by several units which had been established for the purpose; during the course of the operation, some serious deficiencies in training were revealed. Lack of firm leadership and poor exploitation of the air transport space available were characteristic of these operations, and in hardly any instance could the supply needs of the ground forces have been met by air transport. The experience gained by participating units was only theoretically valuable, since shortly afterwards they were detached from the command under which the operation had been carried out. Parts of the two active groups were employed in the carrying out of supply and transport missions for the Luftwaffe administrative command, but the manner in which they were utilized did not constitute an expansion of their peacetime missions.

At no time during the peacetime planning of the functions of an air transport force had it been taken into consideration that the service which would be most in need of air transport facilities was the Army. Thus no guides, either for peacetime employment or for mobilization, directing coordination between appropriate army headquarters and the air transport forces had been issued, or even discussed. If this thought had been given serious consideration, and if

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* Editor's Note: The German occupation of the Sudetenland, which took place immediately following the Munich Conference (29-30 Sept 1938), marked the beginning of the incorporation of Czechoslovakia into the Third Reich.

the functional organization of the air transport forces had been systematically expanded to include such coordination, the military operations in Austria and the Sudetenland, and the subsequent occupation of Bohemia and Moravia* could have provided excellent opportunities for carrying out large-scale practice airlifts with all those units which were later to become so dependent upon them. The challenge and the methods employed to meet it certainly would have provided much worthwhile information. As it was, this information was not gathered until later during the war, when the probability, and even the possibility, of combination parachute and airlanding operations were eclipsed by the growing need for simple air-supply operations; and by that time the information had to be paid for dearly in terms of personnel and materiel. Moreover, effective exploitation of this information would have required extensive changes in the organization of the training units and the schools, inasmuch as these were the sources of the replacement units for the air transport forces engaged in operations.

B. Wartime Employment

1. The Polish Campaign. At first, the outbreak of war brought no fundamental changes in mission as far as the air transport forces were concerned. Their organization, chain of command, tactical training, and flight instruction all remained oriented towards operations with paratroop and airlanding forces. Their serviceability requirements were still based on the planning done for Operation "Freudenthal" in 1938.

On 1 September 1939, the beginning of the Polish campaign, the groups making up the 1st Bombardment Wing for Special Employment were transferred to operational and front-line airfields in Silesia. The paratroop units, traveling by cross-country march, had already reached their assembly points there several days before. During the first few days of the campaign, alert orders, in preparation for a possible surprise operation in the area east of Posen (Poznan), were issued to all units of the 7th Air Division. Directly after the outbreak of hostilities negotiations were begun between

* Editor's Note: The establishment of the German Protectorate of Bohemia-Moravia (March 1939) marked the final step in the German dismemberment of Czechoslovakia.

Germany and Poland, and the possibility had to be reckoned with that, in case negotiations should be successful and a truce agreed upon, all troops would be ordered to remain in the positions they had reached by that time. Thus the dropping of parachute troops along the German-Polish border of 1914, immediately prior to the conclusion of such a truce agreement, would have created a status quo which might have had considerable influence in deciding Germany's claims in case of a peace conference. Since the negotiations between Germany and Poland were unsuccessful, this entire plan was dropped. Although it represents only one small phase of the war as a whole, the plan has been mentioned here because it exemplifies an interesting and practical method of employing parachute troops and, with them, air transport forces.

2. Employment of Gliders. The first fundamental innovation in the employment of airborne forces, an innovation whose further development and constant expansion were bound to result in additional missions for the air transport forces, came during the winter of 1939-40. A special detail was formed from the transport groups which had been returned to their home stations in Germany, and was assigned to Cologne-Wahn. Here, under strict observance of security regulations and in complete isolation from other units, it was trained for operations with a special detail of the parachute forces. On the morning of 10 May 1940, in a coup de main which came as a complete surprise to the enemy, Fort Eben Emael was taken by an assault force which had been landed within the fortification walls by freight gliders.* With this success an entirely new field of activity for both air transport and airlanding forces came into being, and from that time on it was steadily and systematically expanded.

The further development of this new type of operation was left to the 7th Air Division (later, as the command headquarters of the parachute forces, to become the XI Air Corps), which had first exploited it and was to remain its chief employer. The division assumed

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* Editor's Note: A comprehensive account of this operation and the airlanding operations against "Fortress Holland" is to be found in Der Einsatz der Luftlandetruppen im Westen 1940, a manuscript by Major a. D. Werner Pissin, Karlsruhe Document Collection. An edited translation of this will be published at a later date as a part of USAF Study No. 152, The German Air Force in France and the Low Countries.

full responsibility for representing, furthering, and coordinating the interests of the ground forces, the glider units and the air transport or towing formations involved. This extensive area of responsibility included the development of glider aircraft--beginning with the DFS-230 and progressing to the Go-242, the Me-231, and finally to a projected new combat glider--; the technical development of suitable towing aircraft, using those types already available as a basis; the carrying out of experiments in the most economical methods of loading the gliders, and the resultant modification and development of weapons and equipment; the expansion and reorganization of the existing air transport forces to include towing aircraft and freight glider formations; and the incorporation of the expanded missions of the air transport forces into their existing functional organization.

At this time, as we have seen, the employment of air transport was thought of almost exclusively in terms of the air transport of parachute troops, and for this reason it was still uncertain just how--or even whether--the use of freight gliders to transport supplies by air might ever come into the picture. And it is true that their only large-scale employment in the latter capacity was carried out during the operations in Crete. On all other occasions--for example, the liberation of Mussolini from the Gran Sasso in September 1943--their employment was on a scale hardly exceeding that of their initial appearance at Eben Emael. During the later course of the war, since the parachute troops were never again employed in accordance with the original intentions, the contemplated use of freight gliders within the framework of air transport operations also receded further and further into the background. Later on there were countless situations in which freight gliders could have been employed with great advantage in airlifts and in the supplying of forces encircled by the enemy, since they would have been a means of measurably increasing available transport space and thus the effectiveness of supply operations. However, by the time the urgency of the situation indicated recourse to them, neither the personnel nor the equipment of the freight glider forces were any longer really prepared for commitment, and their employment had no decisive effect. The further development and the maintenance of the air transport forces had been guided exclusively by the needs of the parachute forces. Despite the test results of the large-capacity freight glider in the summer of 1941, which indicated a considerably increased scope for pure air transport operations, and the resultant urging of top-level air transport personnel, no further developments had been made in the field of air-supply activity.

The use of freight gliders during the occupation of the island of Ezel,* and in the transport of gasoline to the armored units of an advancing combat force on the northern and central sectors of the Russian front proved that their employment was well within the realm of possibility, as did the commitment of Go-242's in operations to supply the Combat Group Scheerer at Kholm. But all of these missions were tentative attempts and did not lead to further development. It is obvious, of course, that the employment of freight gliders was much more expensive than that of standard transport aircraft;† even so, a ground organization adequate to support the commitment of gliders did exist until increasingly large components of it were withdrawn for utilization elsewhere. The later, large-scale employment of gliders by the Allies furnished conclusive evidence that the German air transport forces had been on the right track in 1940 and that proper development of this new means of air transport would have meant a significant broadening of the scope of their activity.

3. Employment in Norway. There is no single operation which illustrates so clearly the missions of the German air transport forces and the extent of their possible employment as permitted by their degree of serviceability at the time, as the campaign in Norway (9 April-9 June 1940). There, for the first time in actual operations, everything that had been learned during years of training, everything that could be developed during extensive long-range planning, and all the fundamental principles which had proved their validity were applied in practice. All subsequent transport operations, including those carried out during the final crises in Africa and Russia, were basically only repetitions of one phase or another of the operations involved in the Norwegian campaign. They were modified to some extent, of course, by the time, the place, the military situation, and the immediate purpose to be fulfilled, but the underlying mission was always the same. In the interest of justice, it is unfortunate that the 7th Air Division, the very command headquarters which had been for years the guiding impetus behind German air transport activity, was prevented by preparations for the western campaign from taking any but

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* Editor's Note: Ezel or Saare (Saarema) is an island located in the Baltic about 15 miles off the Estonian coast.

† Editor's Note: In actual operations it was difficult, and often impossible, to recover gliders once they had been used.

a small part in the campaign in Norway; its only contribution to operations there was the assignment of a single parachute battalion.

A detailed account of Airlift "Norway" will be given in a later chapter of this study;* only the most significant characteristics of it will be mentioned here, as they serve to illustrate the missions assigned to the air transport forces.

Full and complete justification for the employment of air transport forces in Norway is found in the fact that,without them, the planned operations in Norway could not have been accomplished. Since the available air transport space was insufficient, it was necessary, and natural, that requirements be filled by recourse to the reserves under the command of the Chief of Training, who, by special command, established a number of supplementary units.

The first phase of operations in Norway consisted in the transport of parachute troops which were dropped at enemy airfields to eliminate resistance and take possession of them. This made way for the second phase, the transport of a large force of airlanding troops. During the third phase, mixed units were flown in, made up partly of reinforcements for the fighting troops and partly of Luftwaffe personnel and equipment for a ground organization. In this way the airfields captured from the enemy could be made ready for occupancy as soon as possible, so that tactical and operational units of the Luftwaffe, already on the way, could be accommodated and cared for immediately. At this point the initial combat operation turned into an airlift operation, during which all participating transport units were uninterruptedly engaged in flying troop reinforcements, materiel, equipment, and vital supplies into the newly occupied territory. The large-scale employment of air transport forces in the tasks recounted above was a temporary operation, rendered all the more important by concurrent similar operations of the German Navy. As in the first phase of the air operations, the Navy forced its way into Norwegian harbors, occupied them, and kept them open for the supply units already on their way. As soon as a normal water channel had been established for the transport of supplies to the areas theretofore served from the air, the scope of the airlift was gradually reduced and surplus air transport units were withdrawn from operations. Other special missions carried out by the air transport forces during the campaign

* See below, p. 87 ff.

in Norway were simply variations of the main mission and involved no basic change in their employment.

4. Employment in Holland. The capture of "Fortress Holland"* (10-15 May 1940), at the beginning of the western campaign, was the first large-scale test for the parachute and airlanding forces;/ for the air transport units, whose assignments were substantially the same as in Norway, it was a repetition of a past performance, but on a much larger scale. The dropping of parachute troops was carried out by all groups of the 1st Bombardment Wing for Special Employment on the morning of 10 May 1940, and was accomplished according to plan and without casualties. The 2d Bombardment Wing for Special Employment, organized shortly before for the transport of airlanding forces into Holland, did not fare so well, for the landing areas selected had been heavily mined and were exposed to constant enemy fire. Forced landings and unscheduled landings on highways or in open terrain resulted in heavy losses. Luckily this loss in aircraft could have no detrimental effect on subsequent operations, since the undertaking as a whole did not develop into an airlift, as had been the case in Norway, but was limited to a few supply flights, carried out on 10 and 11 May 1940 by units of the 1st Bombardment Wing for Special Employment. Advancing army units soon established contact, making it unnecessary to continue supplying the forces fighting there by air.

5. Employment During the Western Campaign. Their combat mission in Holland and at Eben Emael completed, the air transport units were again withdrawn from the 7th Air Division and placed at the disposal of the air fleets and the Luftwaffe administrative commands for employment in air-supply operations. Since these were wartime assignments, they brought with them missions which were in part new for the air transport forces, though in the long run they failed to affect basically the employment of aircraft in the transport of supplies. The change in subordination, however, did make itself felt disadvantageously as far as the tropps were concerned, for frequently the headquarters to which the transport groups were assigned felt little

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* Editor's Note: The western part of Holland (including Rotterdam, The Hague, and Amsterdam) which the Dutch could seal off by various canals and flooding devices.

/ See Editor's Note, p. 23. The smaller-scale operation against Eben Emael also began on 10 May 1940.

or no responsibility for providing for their welfare. Thus it was left exclusively up to the individual commander to find a way of providing troop services for his men as best he could. There were, of course, certain advantages--for example, a considerable saving of time--inherent in this type of subordination, but by and large its effects were disadvantageous and a hindrance to the further development of the German Air Transport Forces.

A glance at the air transport missions carried out at this time reveals a confused picture of purposeful and senseless operations, of effective and principally false employment, of periods of idleness and periods during which facilities were overloaded--in short, a picture which reflected both the necessity for air transport operations and the futility of continuing them in their present form. Each requested mission should have been critically examined in order to determine whether or not air transport was the only method by which the necessary or desired goal could be reached. Approval should never have been granted for missions which were flown merely because the air transport space happened to be available. In the west, particularly, during the first few years of the war permission for air transport operations was given very freely, especially since no definite guide for the commitment of air transport units in air-supply operations had ever been issued for the information of using units.

The fact that missions were assigned at random, at a time when the air transport forces did not yet have a firm organization of their own to fall back on for support, threatened the entire concept of air transport and had a lasting negative effect on its development. Instances in which large quantities of gasoline and many unnecessary flying hours were squandered in transporting personnel, equipment, and even trivial supplies from airfield to airfield in a country with an excellent surface transportation network were not at all unusual; nor was it rare for any attempt at discouraging this practice to result in unpleasant friction.

Of course, there were also instances--unfortunately in the minority--which illustrate the proper and effective use of air transport services. One such example was the employment of transport aircraft to carry bombs to a dive-bomber unit stationed at an advanced airfield in France. Here the bombs were unloaded immediately from the Ju-52 transports, loaded into the bomb-racks of the waiting Ju-87's, and dropped at a point five kilometers away from the airfield to

support attacking forces. Missions of this type, as well as those designed to speed the delivery of special ammunition, replacement weapons, engines, airplane parts, and other equipment, will always properly belong to the sphere of air transport activity as long as the time saved really serves to increase the combat efficiency of the using units, and the necessary additional expenditure of personnel and materiel is justified by the prospects of success. It is, of course, impossible to set up special principles of commitment for these individual missions, for they will always differ from one another depending upon the circumstances under which they are carried out.

During the western campaign, the evacuation of wounded was added for the first time to the duties of the air transport forces. This was not the result of systematic planning for such employment but rather an attempt to exploit fully all available transport space. It was hardly ever absolutely necessary that wounded personnel be transported back to rear-area hospitals for more adequate care, and this was done only on occasions when conditions made it opportune. It was, however, an unexpected piece of luck for the individuals concerned.

6. Employment in the Balkans and in the Opening Phase of the Russian Campaign. Later operations carried out by the air transport forces on a smaller or larger scale are described in detail in later chapters of this study; thus they need not be examined fully here. They differ from the operations already mentioned in respect to the way in which they were staged, in the kind and extent of preparations preceding them, in their scope, and in minor modifications dictated by the military situation, the time, and the place. Nevertheless, they brought no changes to the already established methods of employment. The transport of Army and Luftwaffe units from the Vienna area into Rumania was a straightforward air transport mission, carried out under peacetime conditions. The establishment of air transport networks between Italy and Albania, between Germany and Rumania and Bulgaria, and, later, between Italy and the theater of operations in North Africa was also undertaken originally under almost peacetime conditions. The planned commitments in Iraq were, by contrast, a special undertaking. On the other hand, operations in Crete, as well as the occupation of the Isthmus of Corinth in Greece, which were the last large-scale commitments of parachute and airlanding forces, gave the air transport forces a chance to execute--in smooth coordination--all phases of their mission: the dropping of paratroopers and the

employment of freight gliders, the landing of Army and Luftwaffe units, and the development of an airlift. *

The geographical extent of the war was alone sufficient to lend the missions of the air transport forces a special character. At this time (April-May 1940) hardly any one of their operations required the substitution of an air-supply line for land or sea channels or the provision of an airlift over enemy-occupied territory. Even so, it is appropriate to speak of this extensive air transport network as an airlift operation in the wider sense. The shortening--in point of time--of the supply channels and the resultant speedier delivery of troop reinforcements, gasoline, materiel, and equipment in the order of their momentary priority were the determining factors. Thus the air transport forces were no longer functioning as a combat force, but rather as a highly specialized supply organization. Their task was made easier for them by Germany's absolute air supremacy in the area of operations, by the well established ground organization at both take-off and target airfields, and by the success of the German offensive on the ground. Bottlenecks were very seldom the case and if any developed, they were remedied immediately. Germany clearly had the initiative and could time her moves to suit herself; thus, despite the many and varied missions carried out by the air transport forces, there was never any need for making impossible demands upon them or for dangerously overloading their facilities. Then, in the summer of 1941, when the war with Russia started, the vast distances involved and the extreme inadequacy of available road systems fully justified the requests made for air transport space. But even under these circumstances it was possible to apportion the available space among the various fronts in such a way that each one was relatively well served.

7. The Growing Dependency on Air Transport in the Later Phases of the War. It was not until grave setbacks occurred during

* Editor's Note: An account of this operation is included in Die Eroberung der Insel Kreta durch deutsche Fallschirmjaeger und Luftlandetruppen im Jahre 1941, a German manuscript by Major a. D. Werner Pissin, Karlsruhe Document Collection. An edited translation will be published at a later date as USAF Study No. 162, The Battle of Crete. For an account of German Army operations in Crete, see Department of the Army Pamphlet No. 20-260, The German Campaigns in the Balkans (Spring 1941), Department of the Army, (Washington, 1953).

the later course of the fighting that a new and--for the air transport forces--dangerous trend became noticeable. This trend soon crystallized into a disregard for the limitations of the air transport forces and the principles of their employment, which ultimately resulted in disaster. North Africa and the Russian front during the winter of 1941-42 were the sources of this trend; in all fairness, however, it must be admitted that in the beginning it was impossible to recognize clearly the potential danger.

It is unnecessary to describe here in detail the operations carried out by the air transport forces in Russia and in the southern theater of war, except to state that they were divided into two types according to their mission; these types can best be described by the terms "airlift operations" and "air supply of encircled forces." Although the airlift operations continued to be carried out in the same manner as before, they were no longer undertaken as one phase of a larger operation but had assumed the character of a desperately urgent measure dictated by the enemy's offensive. The planning, preparation, and scope of these missions were no longer dependent upon Germany's long-range intentions, but were determined by the need to exploit, as fully as possible, all the available air transport space. For all practical purposes there was no longer any limit to the need for space, and every single airplane which could be got hold of was pressed into service. This led to constant improvisation, with all its attendant disadvantages. For example, German operations north and south of Moscow (Dec. 41 - Jan. 42) had created an extremely critical situation for the entire central sector of the Russian front, and it was urgently necessary that reinforcements from the rear area and even from the home defense area be brought into the endangered sector in the shortest possible time. Since transport by railway and cross-country march would have been slow and difficult and might even have resulted in the reinforcements' arriving too late for effective employment, it was clearly consistent with operational principles to utilize air transport units for the move, especially as the necessary measures were already being taken to restore a favorable military situation on the central sector. Under the circumstances an airlift obviously would be of limited duration, and therefore even the overtaxing commitment of existing units and the almost unlimited use of the reserves under the command of the Chief of Training could be justified. The situation was similar as far as the employment of air transport units between Italy and Africa was concerned; that is, it could be considered an airlift operation only as long as it

remained a necessary single phase of a larger undertaking.

Successful airlift operations, carried out with the commitment of all available forces and the exploitation of all available possibilities, gave rise to the fallacious view that air transport was the ideal substitute for lost surface supply channels. This, in turn, was the origin of the dangerous concept of air supply as the method of emergency supply and of the tendency to consider it no longer a means to an end but rather an end in itself. In reality, this concept should have been interpreted to mean only that a force could count on supply from the air for a short time as an emergency measure, if its situation was really critical. Even in cases where the air transport of supplies was thought to be justified, the beleaguered force was expected to begin immediately any action which might help to restore the normal military situation. Apart from a very few exceptions, such as the supplying of the First Panzer Army by air during its breakthrough to its own lines (26 March-10 April 1944), the missions carried out by the air transport forces throughout the balance of the war were not characterized by the above prerequisites. Almost all of these missions fell under the heading of supplying an encircled force and thus far exceeded the limitations of an airlift.

The first of these operations was carried out at Demyansk. Here, by means of strenuous effort on the part of the air transport forces, an encircled army corps was kept alive for months in its winter position, without its having undertaken any successful action to restore the former situation or to recapture lost territory. The last operations of this type were the supply missions flown to the fortifications along the Atlantic coast; these were still being carried out when the first enemy forces had already crossed the border into German territory. Between these two examples lay the tragedy of Stalingrad, which is all too easily charged to an alleged "failure" of air transport. Each of these operations proves in its own way that the air transport units, under the conditions obtaining at that time, were not in a position to become the sole means of transporting supplies, and that, in complete disregard of their proper functions, they had been assigned missions which they were not capable of fulfilling.

## Section III: The Personnel of the Air Transport Forces

### A. The Sources of Air Transport Personnel

Until the beginning of World War II, the 1st Bombardment Wing for Special Employment was the only air transport unit authorized in the Luftwaffe Table of Organization. The personnel making up the four groups of this wing were without exception active, and they were all assigned to authorized positions. For two and one half years (since the initial establishment of the force in 1937) they had been carefully trained for the mission they were intended to perform, namely the dropping of parachute troops, and it can be taken for granted that by the time the war began the training level of this wing was high. Its flying personnel, chiefly recruited from bombardment units, was well qualified, and a very high percentage of it was capable of instrument flying.

When the war started, it was impossible to foresee the future size of the paratroop forces and therefore the special employment units required to transport them were not established in the number which later turned out to be necessary. Instead, it was planned that, in case of mobilization, the personnel and equipment then assigned to the Chief of Training would be released immediately for assembly into special employment units to handle the transporting of parachute forces. The flight training of these crews would doubtless be of an equally high standard, inasmuch as they had been serving as instruction crews at the schools giving advanced flight training in twin-engine aircraft (the C-schools) and at instrument flight schools. It was only in the field of formation flying that their performance could not be expected to measure up to that of members of the 1st Bombardment Wing for Special Employment.

Until the outbreak of war, then, the employment planned for the air transport units was quite different from their actual utilization later on, as dictated by the course of events at the various fronts. As a result, neither the assignment of personnel nor the training of aircrews and technical people had been carried out with a view to the kind of missions in which they were later to be employed.

When it became apparent, during the first two years of warfare, that the air transport units would have to be increased in strength, the necessary personnel had to be drawn from the

graduating groups of the C-schools and instrument flight schools and from the reserve forces. The bombardment units were also expanding at this time, and could not be expected to release personnel to the special employment units. The air reconnaissance forces were the only ones in a position to do so, and they did release a small percentage of experienced aircrews to the transport forces. The reserve personnel called up did not have--and could not be expected to have--the same high level of flight training as the active units, since their opportunities to remain in practice were few. The personnel recruited from the schools had had very good flight training (in fact, they already had the Instrument Flight Permit II-Kr. *), but as yet had had no experience in formation flying. It is clear that the units established during wartime could not be compared with the 1st Bombardment Wing for Special Employment or the actual bombardment units as far as a mastery of flight techniques was concerned.

Among the units ordered to release personnel to the air transport forces there was doubtless a tendency to disregard the difficulty of the transport pilot's task. It was assumed that all he had to do was fly a Ju-52, an airplane which any pilot, even a poor one, was capable of managing, and therefore that the less qualified personnel were quite good enough for the air transport forces. Then, too, a commander could hardly be expected to release his best personnel to other units. This reasoning was thoughtless and irresponsible. The transfer of poorly qualified aircrews into the air transport forces was unfair to the personnel concerned, because the flying of a loaded--or overloaded--Ju-52 over mountains and across stretches of water in all kinds of weather requires more ability and experience than is generally assumed. The higher headquarters responsible for the recruitment of personnel for the air transport forces must be blamed for not having paid sufficient attention to this trend or to the repeated warnings from the commanders of transport units, for the recruitment policy followed had a detrimental effect on operations at the front.

The urgent need for additional personnel, created by

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* Instrument Flight Permit II-Kr.: the advanced instrument flight permit. After attendance at instrument flight schools, personnel were awarded Permit I or Permit II, depending upon whether they had completed elementary or advanced training in this field. The abbreviation Kr. stands for Krieg (wartime), and indicates that training was completed during wartime.

developments on the various fronts, could easily have justified the establishment of a service school, to be attended by all personnel who were later to be assigned to the air transport forces. The purpose of such a school would have been to train reserve personnel who were out of practice and inexperienced personnel recruited from the flight schools and thus to prepare them for their future duties with the air transport forces. If such a school had existed, a great many crashes which resulted in a loss of crew members and aircraft could have been avoided. For the units could hardly be expected to take into account the varying levels of training of their personnel in making assignments; as soon as an airplane was reported free for employment, it was sent up in the next operation. There were no surplus aircrews in the air transport units.*

Even before the establishment of the XIV Air Corps, the Air Transport Officer had released a number of reserve crews to the 300th Bombardment Group for Special Employment at Berlin-Schoenwalde. In this way a long-standing wish was realized to create an assembly point not only for reserve forces but also for personnel separated from their own crews, incapacitated and battle-weary personnel, and temporarily surplus crews. All these categories of personnel were first combined into a special duty squadron and then made a part of the 300th Group.

After the formation of the XIV Air Corps, this reserve group was developed into a replacement wing, whose function was to gather together in one organization all air transport personnel temporarily unassigned to a unit. While with the wing these personnel were given continued flight training and practice in the economical loading of air cargo; their duties also included the testing of aircraft and the recommendation of modifications as indicated by test results. Later on, all aircraft released from the repair shops were routed to the replacement wing where they were checked, tested for combat serviceability, and issued to operational units.

The organization of the replacement wing filled, although only partially and very tardily (in the summer of 1943), the need for an air transport service school. By the summer of 1943 it was too late

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* For a discussion of the problems created by the discrepancy of training levels among personnel of the air transport forces, see below, Chap. 6.

for it to develop to the point where it could fulfill its vital function of furnishing highly qualified replacement personnel for assignment to active units; for although it was assigned sufficient aircraft for its needs, it could not be allotted the necessary fuel with which to operate them.

In this connection it should be mentioned that a large percentage of these reserve crews had been taken over from the Flight Testing Station at Lueben* in 1941 and 1942. It was common knowledge among the air transport units that these particular crews were on the bottom rung of the ladder as far as flying ability was concerned.

B. Training of Air Transport Personnel

1. Flying Personnel.

a) Pilots. Pilot trainees were given six months' basic instruction with a reserve flight section and were then enrolled in A- and B-schools.† After successful completion of the B-school, they were awarded the Luftwaffe Pilot's License and, provided they had shown aptitude for further training, were sent on to a C-school. The period of training at the C-schools was also six months. During this time students were instructed in the handling of multi-engine aircraft (usually Ju-52's), in the techniques of night and instrument flying, in the theory of navigation and radio communication, and in the types and capacities of aircraft engines and instruments. At the end of this training, students were awarded the advanced pilot's license. After graduation from a C-school, pilots were either assigned to an instrument flight school for further training leading to the Instrument Flight Permit II-Kr. or sent directly to an active unit which might, on its own initiative, order some of them to an instrument flight school for training in this field. Even so, there were some air transport pilots who were incapable of flying by instruments alone--a deficiency which proved to be a great disadvantage later on when the military situation demanded that most of the supply missions

* Editor's Note: Lueben, formerly in Lower Silesia, now Lubin in Wroclaw province, Southwest Poland.

† A- and B-schools: schools giving elementary and intermediate flight training, respectively, in single-engine aircraft.

be flown only at night or during bad weather, for it meant that only a part of the transport units were available for employment.

The instrument flight course usually lasted three months, during which time students were given instruction and practice in various methods of instrument landing, including the QGZ, QGH, QGA, Roland, and--after 1944--Wuerzburg methods. *

Complete mastery of the techniques of blind flying by every single air transport pilot should have been attempted.

b) Observers. As a general rule, observers (who had the additional function of jumpmaster) were needed by the air transport forces only in operations involving parachute troops. In other operations, the observer could be dispensed with and an aerial gunner added to the crew in his place. Thus only those air transport units which had been established during peacetime had observers who had completed full peacetime training, and as the war progressed even these observers were withdrawn and reassigned elsewhere. When an observer, or jumpmaster, was needed--that is, when freight glider or parachute operations were in the offing--one was requested from the jumpmaster school in Freiburg/Breisgau which had been set up by the XI Air Corps. The establishment of a school of this sort proved to be a very satisfactory solution to the problem, and the jumpmasters temporarily assigned to air transport units gave evidence of a good standard of training. They had been well instructed in the unloading of paratroopers and the towing of freight gliders and were thus in a position to direct and support the activities of their crews. The jumpmaster, and the jumpmaster alone, was responsible for determining the proper moment for dropping the parachute troops and for calculating wind velocity and direction, flight altitude, and flight course, and was authorized to give orders to the pilot in order to assure maximum exploitation of these factors.

The need for observers, as permanent members of the crew, increased with the need for employing transport aircraft at night and during bad weather, for it was necessary to have someone who was capable of taking over the navigation in order to free the pilot for his difficult task of handling the plane. Whenever difficult supply missions

* These are all methods of landing aircraft by instrument with the help of radio beams or radar.

were assigned, the cry was raised for qualified and experienced observers.

Although the personnel detailed from the school in Freiburg did their best to meet the demands made upon them, they simply did not possess the practical experience in flying and navigation which would have enabled them to fill this need with complete success.

c) Flight Mechanics. The majority of flight mechanics were recruited from personnel belonging to the Luftwaffe ground organization, most of whom had had a certain amount of training and experience in their field while in civilian life. Particularly capable mechanics who were not adversely affected by flying were detailed by their units to aerial gunnery schools and to special courses in the maintenance and repair of aircraft engines and fuselage parts. After completing aerial gunnery school they were awarded the Flight Mechanic's Certificate and returned to their units.

d) Flight Radio Operators. After a basic training period of six months with a Luftwaffe signal regiment, the radio operators were assigned to radio-operations stations. From here, if it was found that they could fly without any ill effects, they were sent on to a flight radio school where they were given further training as radio operators and navigators. After thorough instruction and practice in all the possible methods of landing aircraft by instrument they were given a final examination and, if they passed, assigned to an instrument flight school. When they had completed their training here they were assigned to their units. In determining assignments an attempt was made to place both the radio operator and the pilot, with whom he had trained in the instrument flight school, in the same unit.

e) Aerial Gunners. Aerial gunners received their basic training with a reserve flight section. A number of them were also recruited by the units themselves from their maintenance and repair personnel and were sent to aerial gunnery schools for instruction. Here they were taught the techniques of firing from the air and were made familiar with the types of aircraft armament in use in the units.

2. Ground Maintenance Personnel. The majority of the air transport units had only a small number of maintenance personnel at their disposal. Special units, such as the large-capacity transport squadron and those groups equipped with Me-323's, which

operated independently of the others, were the only exceptions. The Ju-52 units, however, had very few technical personnel of their own* and were dependent upon the airfield workshops and repair companies for the maintenance of their aircraft.

Technical maintenance personnel received their preliminary training at aircraft maintenance schools and then were assigned to the crew of an airfield maintenance company workshop for more specialized instruction. The majority of this category of personnel had also had some related experience in civilian life.

Personnel who had successfully completed courses qualifying them to serve as equipment inspectors, aircraft armorers, or parachute riggers were assigned to operational units in those capacities.

The airfield maintenance companies were actually independent, but were assigned to air transport units. Corresponding to the organizational structure of an air transport group, each maintenance company was made up of four maintenance platoons and one workshop platoon. Each transport squadron was assigned one of the maintenance platoons, while the more time-consuming tasks, such as engine overhauls and large-scale fuselage repairs, were carried out by the workshop platoon, provided its facilities were adequate. The personnel comprising the airfield maintenance companies were, in general, well qualified for their jobs and during the years spent with the transport units their work had acquired the smoothness of routine. Almost all of them had been manual workers in civilian life and had completed specialized courses fitting them for their work in the service.

### C. The Replacement System

After the inclusion of a replacement wing in the table of organization in May 1943, all the reserve personnel who had been turned over to the XIV Air Corps for further assignment were gathered into this wing. In addition, all air transport personnel who had formerly been accommodated at the assembly center for air combat forces at Quedlinburg were reassigned to the replacement wing. It was the function of the wing to select well qualified people for assignment to specific jobs in response to personnel requests from active units. Because personnel were given continued training as long as they were

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* See Chart 1.

with the wing, the requesting units could safely assume that the people whom they received from the wing were well qualified by training and experience for the specific jobs for which they were needed. The wing released personnel to active units only when it was convinced that the individual concerned was really fit for active duty. In addition to flight training, the wing also held courses in general military subjects and courses for noncommissioned officers, and--above all--both officers and enlisted men were kept up to date on technical innovations and their very important influence on the methods of distributing air cargo most economically.

Section IV: The Aircraft of the Air Transport Forces

A. Transport Aircraft

1. The Ju-52. At the outbreak of World War II the Luftwaffe had only one airplane which was ideally suited for employment as a transport craft, the Ju-52. The heavy losses suffered in this type of aircraft could not be compensated for rapidly enough by current production and as a result there occurred an acute shortage in air transport space as the war progressed. Even the employment of other types of aircraft, provisionally equipped for air transport missions, was insufficient to relieve this shortage. The Ju-52 remained the standard German transport aircraft during the war.

While in use by the Deutsche Lufthansa* the Ju-52 had proved to be an extremely reliable passenger airplane and was therefore adopted by the Luftwaffe as a standard aircraft model. The production of Ju-52's continued until approximately the summer of 1944, and when the war came to an end there were still 100-200 of them available. Air cargo was loaded into a loading hatch by means of a ramp, and supply containers were dropped by parachute through the bomb-bay doors. Half-track motorcycles and supply packs for the use of landed parachute troops were secured under the fuselage at the bay exits and were dropped with four parachutes. The parachute troops themselves were unloaded through the entrance door. A tow coupling was built into the tail-skid for use in towing freight gliders.

2. The Arado 232 with Two or Four Engines (Developed During Wartime). Experience during World War II showed that the

* Deutsche Lufthansa: the prewar German commercial airlines.

A Ju-52 in flight

An Ar-232

Ju-290


Drawing of an Ar-232. Note landing gear.

Ju-52, due to its relatively small load capacity and its need for an unobstructed landing strip at least 1,640 feet long, was only suitable for the transport of certain supply items and for employment in certain limited operations. Thus, a strong requirement existed for an airplane with complete cross-country mobility and with at least twice the loading capacity of the Ju-52. In response to this need the Arado 232 was developed. The Arado 232 is worthy of special attention because of the unusual arrangement of its landing gear, an arrangement which permitted it to roll unhindered over small obstacles or ditches which were not more than five feet in width. It could have become the new standard transport airplane, but it was not developed any further due to the events of the war. Only ten or twelve of these aircraft were produced in all.

3. The Ju-290. A long-range transport airplane, the Ju-290, was developed via various experimental types from the Ju-90, an airliner which the Junkers firm had built before the war. The Ju-290 had a cruising speed of 280 miles per hour at an altitude of 12,000 feet and possessed a radius of action of 4,000 miles. A ramp built into the bottom of the fuselage facilitated the loading of vehicles and other air cargo. Using the Ju-290 as a basis, a special transport airplane, the Ju-390, was developed with a radius of action of 7,450 to 8,000 miles. Only five aircraft of the Ju-290 type were issued to the air transport units.

4. The Ju-252. During the war the Junkers firm also developed the Ju-252, an all-metal, three-engine transport aircraft covered with stressed metal skin. It, too, had a loading aperture underneath the fuselage, and was further equipped with a cable winch for lifting heavy loads into the freight compartment. The Ju-252 was less suited for employment at the front, however, since it required an unobstructed take-off distance of 2,300 feet, and runways of this length were rarely available at the front.

5. The BV-222 (A Sea Transport Airplane). During the African campaign the BV-222, a sea transport airplane developed by Blohm and Voss, was employed in operations in the Mediterranean. Originally the BV-222 had been intended as a passenger flying boat. Its radius of action was 4,350 miles and its loading capacity approximately ten tons. When used in troop movements it could transport eighty men with all their equipment. A landing was possible during surface

Ju-390

Me-323

Piaggio 108T

Loading an Me-323



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turbulence up to and including Seegang 4.*

6. The Me-323. As the war went on, the lack of transport aircraft capable of carrying particularly heavy and cumbersome loads became increasingly apparent. In order to meet the urgent need for such aircraft it was decided to make use of available Me-321 glider fuselages as a basis and to equip them with six engines. The performance records and technical data of the new transport airplane, the Me-323, indicate that it was able to carry a service load of twelve tons, an achievement which was unsurpassed by any other aircraft at that time. Due to its type of construction the Me-323 was particularly well suited to the transporting of cumbersome items. It did not, however, come up to expectations. It was not very maneuverable and was therefore especially vulnerable to enemy attack. It could not be flown by instrument alone, and it required a great deal of flying experience and skill on the part of the pilot even to take off and land.

7. The Piaggio 108-T (Italian Model). During the war the Piaggio works in Italy developed an all-metal four-engine transport airplane, the 108-T. This model, of which three airplanes were actually produced, was never used in operations by the Italians, and was later taken over by a heavy-transport squadron of the German air transport forces. Production was later resumed and a total of twelve aircraft were delivered for active employment. Because of the instability of its lateral axis it was not very well suited to instrument flight. As a troop transport aircraft it was capable of holding 100 men.

### B. Other Models Provisionally Employed as Transport Aircraft

1. The Ju-90. At the time the war began, the Deutsche Lufthansa had approximately twelve Ju-90's, which it employed for flights within Europe. These aircraft were fitted with various types

* Seegang 4: The degree of surface turbulence is measured according to a scale running from 0 through 10. 0 signifies a perfectly calm sea; 3, light waves; 5, moderate waves; 7, heavy waves; and 9, very heavy waves, as during a hurricane. Thus Seegang 4 would indicate a fairly light sea.

Ju-90

He-111



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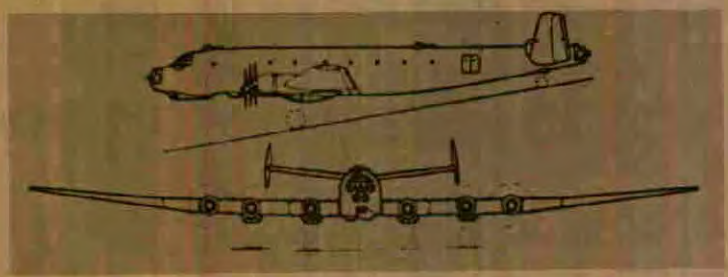

Ju-390

FW-200

of engines (for example the BMW 132-H and the Jumo-211), and therefore their performance was different. They were taken over by the 290th Air Transport Squadron for use as emergency transport aircraft. Since the Ju-90 had neither loading hatch nor bomb bays, and since none were built in later, it was used chiefly for the transport of troops to points where landing strips were large enough to accommodate it. It was also employed satisfactorily in the evacuation of wounded.

2. The He-111. Due to the lack of sufficient air transport space it was frequently necessary to utilize the He-111 in special missions, particularly those involving the dropping of supply containers, and by the end of the war the He-111's were finding their chief employment in transport missions of this type. Originally the He-111 was a bomber and, depending upon the type, was capable of carrying from five to nine containers, each holding 550 pounds. The latest model, the He-111 H-20, was equipped with a slide in the belly blister and could thus be employed very effectively in parachute operations.* It was also used to tow freight gliders. The excellent flight characteristics of the He-111 permitted its employment in almost any sort of weather. Its use as an equipment transport was not feasible.

3. The FW-200 "Condor." The FW-200 was employed primarily as a reconnaissance aircraft but was also available for limited employment in transport operations. Its loading capacity, however, was only two and one half tons. It had a radius of action of 2, 300 miles.

4. The Ju-390. The Ju-390 was developed during 1942 and was intended from the beginning for employment as a transport airplane. Its production was discontinued in 1943. It was rumored that two Ju-390's established an unofficial long-distance record in

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* Editor's Note: The speed of the He-111 was greater than that of the Ju-52. Thus, if parachutists had jumped from a side opening in the He-111 their chutes would have become fouled in the tail assembly. The solution to this problem was the conversion of the belly blister. A slide was installed which led from the interior of the fuselage to an opening in the belly blister. Utilizing this slide the parachutists, instead of jumping, slid safely out under the bottom of the aircraft.

He-177


G-38

1944 by flying nonstop from northern France to New York and back. The Ju-390 was employed in courier flights to Japan, flying nonstop from Europe to Tokyo. *

5. The He-177. A combination transport and long-range bomber, the He-177 was developed over a period of four years. Towards the end of the war it was employed for the first time in air transport operations. Despite the time devoted to its development the He-177 was still imperfect. /

6. The G-38. The G-38 transport airplane was built in the years 1928 and 1929 and since then had been employed very satisfactorily in commercial air traffic. It can be considered the forerunner of the flying wing; its engines were sunk into the wings and could be serviced during flight. A few G-38's were employed as transport aircraft during the campaign in the Balkans. Its cruising speed was from 100 to 111 miles per hour.

7. The He-111Z (Towing Aircraft). In point of origin the He-111Z is the most interesting of the towing aircraft employed by the air transport forces. As the diagram indicates, it was the result of combining two He-111's and installing a fifth engine at the middle joining. In the beginning the Me-321 glider was towed by a Ju-90 and later, in a troika tow, // by three Me-110's. Neither of these

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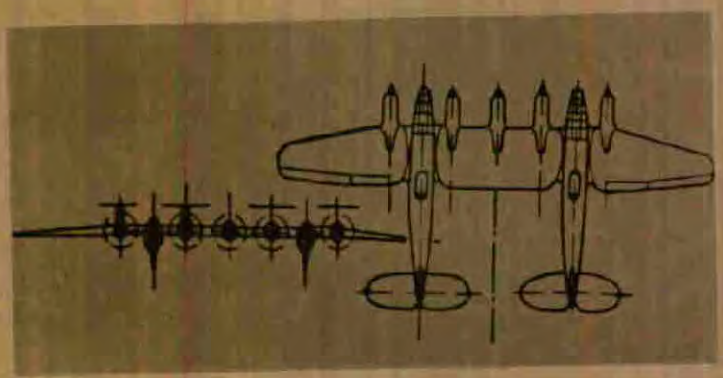
* Editor's Note: Official Luftwaffe statistics indicate a range of up to 8,073 miles for the Ju-390. This would be sufficient for either of the flights mentioned above. Jane's All the World's Aircraft, 1945-1946, (New York, 1946), p. 135c mentions a range of only 4,040 miles, but indicates that versions capable of longer ranges were in existence. To date, the editor has been unable to uncover any additional information concerning the Ju-390's flights to New York and Tokyo.

/ Editor's Note: For a discussion of the failure of the He-177, considered by some to be one of the turning points in the war, see USAF Historical Study No. 189, Historical Turning Points in the German Air Force War Effort, by Richard Suchenwirth, Maxwell Air Force Base (Research Studies Institute, 1959), pp. 36-44.

// This towing method takes its name from the Russian troika, a sleigh drawn by three horses abreast. The troika tow had two possible variations: either one freight glider was towed by three aircraft, as is here the case, or three smaller gliders by a single airplane.



He-111Z

He-111Z

methods was entirely satisfactory and it was not until the introduction of the He-111Z that the ideal tow-plane for the Me-321 was found. The He-111Z was operated from the pilot's cockpit in the left fuselage, and was capable of towing an Me-321 with a flying weight of forty tons.

C. Freight Gliders

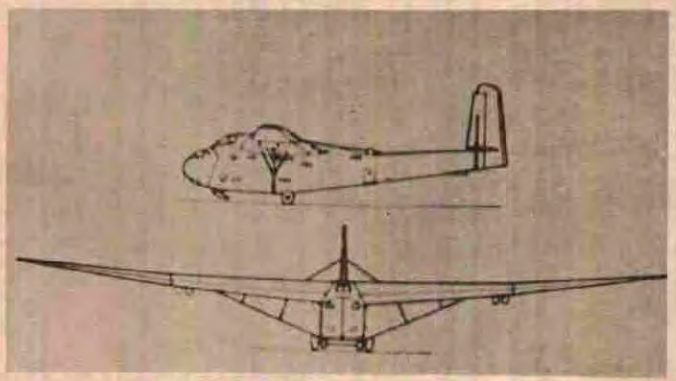
Freight gliders may be regarded as air transport craft for special employment. Depending upon the operations in which they were to be utilized they could be classified either as transport gliders or as assault freight gliders. The type of equipment with which they were fitted was determined by their intended employment.

1. The DFS-230. In addition to the pilot, the DFS-230 glider had room for nine men who sat close together on a narrow bench located in the middle of the fuselage. Equipped with a parachute brake the glider was able to approach its target in a dive at an angle of eighty degrees. It carried a freight cargo of one ton, and was used chiefly in supplying encircled forces. It played significant roles in the operations at Fort Eben Emael and in Crete.

By means of a cable running along the tow rope the pilots of the tow-plane and of the freight glider were able to communicate with each other, which made blind flying possible, when necessary. The towing speed of the DFS-230 was approximately 112 miles per hour. It dropped its landing gear as soon as it was safely in the air, and landed by means of a landing skid.

2. The Go-242. The Go-242, originally intended for the transport of troops (capacity: twenty-one men) and of cumbersome items such as motor vehicles, was developed by the Gotha works as a possible successor to the DFS-230. On an experimental basis a number of Go-242's were fitted with twin engines and issued to an air transport group which was to try them out. This plane, called Go-244, did not prove successful, however, and losses were so heavy that plans to continue its development were cancelled. Because of the high casualty rate the transport of troops was forbidden and the Go-242 was employed only as an equipment transport.

3. The Me-321. The Me-321 glider was developed and built for employment in the planned invasion of England in response to a request for a glider which could carry a load of twenty tons. The



Me-321, side and front view

DFS-230 landing with parachute brake

Me-321 did fulfill this capacity requirement, but the search for an appropriate tow-plane needed a great deal of experimentation. The troika tow demanded such a high degree of proficiency on the part of the tow-plane pilots that it could never be used on a very large scale. It required a concrete take-off runway at least 3,950 feet long, and even then the help of take-off rockets was needed. The preliminary preparations for a take-off were so complicated that it was utterly impossible to think of sending up several gliders at the same time. Only a few glider trains were ever employed in operations on the Russian front. It was not until the He-111Z was developed that the problem of a tow-plane for the Me-321 was solved with any degree of satisfaction. Even after the He-111Z became available, however, the Me-321's were never employed on a large scale.

4. The Ka-430. Towards the end of the war another glider, the Ka-430, was developed, and about eight aircraft of this type were actually manufactured. The Ka-430, however, never progressed beyond the testing stage and was never tried out in actual operations.

Chapter 2

# A SURVEY OF THE TYPES OF MISSIONS IN WHICH AIR TRANSPORT WAS EMPLOYED[1]

## Section I: General

The purpose of this survey is to help the reader understand the variety of undertakings in which air transport units were profitably utilized. In addition to the airlift missions actually carried out, which will be described in detail, mention will be made of all missions of this type which reached the planning stage, irrespective of whether or not they were actually performed.

The Ju-52, the transport aircraft of the German Luftwaffe, took off and landed at airfields from Narvik to Tobruk, from Stalingrad to Biarritz, and carried out its missions over this far-flung territory. Its routes served to connect the most remote theaters of war. During both offensive and defensive operations the transport aircraft was often the only link with territory occupied or endangered by the enemy, territory in which enemy action had eliminated all possibility of ground communication. Inevitably, air transport units tended to be concentrated in and near areas of this sort, and frequently--either in accordance with deliberate planning or as a result of the exigencies of the situation--they were utilized in large-scale operations which can accurately be termed airlift undertakings.

Later chapters in this study deal with several such undertakings, which are described separately and in as great detail as the available sources permit. The author has endeavored to select those actions which best illustrate the numerous and various methods of employment of air transport forces and which are sufficiently well-documented to permit close examination of their planning and execution.

The over-all mission of air transport forces can be broken down into three main subtypes which, in turn, serve as possible subdivisions of the air transport force as a whole: employment in combat, air supply, and air transport. Each of these, however, is capable of describing only the main character of a given action, for one type of employment often grows out of another and develops into

still another, so that all three are sometimes closely intertwined within one and the same undertaking. In retrospect, one can recognize certain basic differences among the three kinds of employment, and these differences can be of great use for purposes of ultimate evaluation. Later chapters will show, however, that the same type of employment often results in completely different airlift actions, depending upon differences in the purpose of the mission, the priority accorded its various component parts, and the scope or method of its accomplishment. As indicated before, these considerations are based not only on actual airlift undertakings but also on those missions which were planned but never carried out, insofar as accurate information is available concerning them.

## Section II: Employment in Combat

Employment in combat, in the sense intended above, is always connected with the commitment of parachute and airlanding forces. It is quite irrelevant whether it is a matter of a combat mission within the framework of a general offensive or an action taking place during defensive operations. For the parachute and airlanding forces concerned, as well as for the air transport units, it will always have the character of an offensive action--otherwise there would be no need for their particular services. One factor was of basic importance--whether the choice of target was based on the intentions and plans of one's own side or whether it represented a counter-operation made necessary by the military situation and was thus based on the operations of the enemy.

The strength of a well-planned mission of this sort lay in the possibility of evaluating the probable course of events in advance and in the consequent ability to guide these events to a certain extent. The many known factors (for instance, the objective, the available forces, comparative freedom in choosing the time) served to establish a framework in which the necessary conditions either were already present or had to be created. Intermediate goals could be established carefully in order to avoid an overburdening of the available force at any stage of the action; a possible expansion in enemy action during the course of the operation could usually be foreseen and the necessary precautionary measures taken. As far as the air transport forces were concerned the following conditions had to be provided: a suitable and adequately equipped take-off base or bases, a fairly lengthy period of preparation in order to assure the unconditional readiness

of each participating unit, and careful and detailed joint planning with the parachute and airlanding forces. If the operation ran according to plan, the climax for the air transport force was at the very beginning and was followed by a steady decrease in the demands made upon it. If the combat mission developed into an air-supply or air transport mission, which was by no means always the case, then such development was viewed as a further stage of the over-all mission, occurring prior to the final withdrawal of the air transport forces from their assigned mission.

### A. Norway

The first example of employment in combat--and a particularly characteristic one--was the role played by the air transport forces in the invasion of Norway on 9 April 1940 and during the days immediately following. Examined in detail* their mission reveals all those characteristics, each clearly distinguished from the other, which we have come to consider typical. It provides a perfect illustration of the thinking of that time in regard to the possible methods of employment of air transport forces and the conditions necessary to permit such employment. For example, the participating units were fully prepared for action; the take-off bases were equipped according to the best peacetime standards; the parachute forces were dropped over the enemy; an airlanding was made in the midst of the enemy; another airlanding was carried out in an area cleared of the enemy by the parachute forces and the first wave of airborne troops; there were air-supply operations in one combat area; there was air transport service to a rear front area; and there were unplanned, emergency parachute landings (Dombaas, Narvik), the necessity for which had become apparent during the course of the operation. The air transport forces came to view the action in Norway as a model for all the other missions subsequently assigned to them during the course of World War II although the later missions were more or less altered in scope or in the integration of their various component parts. In any case, Norway is an excellent example of the perfect coordination of land, air, and sea forces within the framework of a single undertaking.

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* See below, p. 87 ff.



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B. Holland

A detailed description of the parachute landing resulting in the capture of Fortress Holland (10-15 May 1940) at the beginning of the offensive in the West[2] is unnecessary. The employment of the air transport forces in Holland can be covered briefly for it was comparatively unaffected by the decisive phases of the ground fighting. *

The parachute battalions and the airlanding units bore the brunt of the action. The demands made upon the air transport forces were pretty much the same demands which might have been made upon them during peacetime, unlike the action in Norway where their role took on a predominantly military character. There was no need for them to participate in air-supply or air transport missions to Holland; the airlanded forces were well supplied, and the rapid advance of the invading troops made them independent of supply by air. Moreover, the plans did not call for an expansion in the area originally occupied from the air. Thus there was no need for the air transport of reinforcements to the area of operations, a mission which would, of course, have been assigned to the participating air transport units.

C. Operation "Sea Lion"

If Operation "Sea Lion" had come to fruition, the mission of the parachute and airlanding troops--and consequently of the air transport units--would have been a very difficult one. The plan called for the establishment, by airlanded troops, of a bridgehead at Dungeness. The bridgehead was then to be expanded with the help of Army reinforcements arriving by sea and by air and was to be kept supplied from the air. After the campaign in the West, the air transport units were brought up to their pre-Holland strength and were assembled at airfields in the Lyon, Lille, and Arras areas in August 1940. Although staff agencies had completed detailed planning for the operation, there was little or no actual preparation at troop level. No detailed information regarding the contemplated accomplishment of this operation is available. Presumably the mission of the air transport forces would have been similar to the one they carried out in Norway and Holland, with the additional factor of increased utilization of freight gliders. Training activity, in any case, had already begun. General

* Editor's Note: See below, pp. 105-109.

Paul Deichmann has the following to say regarding the chances for success of an airlanding operation of this scope:[3]

> What chance could it have had when we consider that even bomber units, whose aircraft travelled at least 93.2 miles per hour faster than a transport aircraft and had adequate armaments and armor-protected fuel tanks and cockpits, could not be given sufficient protection? And this was the case despite the fact that an attacking bomber wave could always count on having all available fighter aircraft at its disposal for escort duty. In the case of an airlanding action, the fighter aircraft would have had so many other missions that only a minimum number would have been available to protect the air transport waves. If the surprise factor were fully exploited it is conceivable, of course, that the first wave of paratroopers might have been able to land more or less without mishap. However, the landing of the second wave would most certainly have resulted in a tremendous loss in transport aircraft.
>
> In view of the technical possibilities available at the time of this contemplated action, it would seem that two of the most important prerequisites for a successful airlanding operation were lacking: air superiority at the scene of action, and the necessary sea superiority to assure the prompt arrival of seaborne reinforcements.

The action in Norway provided a complete and accurate picture of the types of employment which might have been possible within the framework of Operation "Sea Lion." In the latter operation, too, it would have been logical to utilize the combined efforts of land, air, and sea forces in a single joint action.

Once the operation in Holland had been carried to a successful conclusion, the air transport units were given no further combat missions until the campaign in the Balkans. Based on previous combat experience, however, it was decided to increase the 7th Air Division to a full parachute corps by the activation of a number of new units; this plan was carried out smoothly and without difficulty. No further changes were made within the air transport forces during this period, inasmuch as there had been no modifications in the methods of employment contemplated for the future. The expansion made necessary by the increasing use of freight gliders has already

been discussed.*

D. The Isthmus of Corinth

The next instance of employment in combat took place on 26 April 1941, when air transport aircraft dropped a reinforced paratrooper battalion over the Isthmus of Corinth.† This was not a true airlift undertaking in the sense which we have discussed above; in this study we shall deal with it as a short-term combat mission growing out of the exigencies of the military situation. The majority of the conditions obtaining in connection with this action fail to meet the criteria we have established to determine the proper prerequisites of an airlanding action; rather, it was an improvisation on short notice, the necessity for which had become apparent after the over-all operation had gotten under way. It did, however, go to show that both types of forces (i.e. air transport and paratrooper)--if they are available in the theater of operations during a campaign--are able to carry out their missions at any time during that campaign.

E. Crete

Less than one month later, on 20 May 1941, all available parachute troops, airlanding forces, and air transport units assembled for their next combat mission, Crete.[4] In its scope, the action in Crete†† far exceeded all previous missions of this nature. It was, in fact, the last large-scale, parachute-airlanding operation to be carried out by the Luftwaffe during the war. A detailed description of the various phases of the undertaking could be obtained only from individual reports, primarily those by the paratroopers. It is clear,

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* See above, pp. 3-11.

† See below, pp. 113-121.

†† Editor's Note: See the German manuscript, Die Eroberung der Insel Kreta durch deutsche Fallschirmjaeger und Luftlandetruppen im Jahre 1941 by Major a. D. Werner Pissin, Karlsruhe Document Collection. An edited translation of this will be published at a later date as USAF Historical Study No. 162, The Battle of Crete. For an interesting New Zealand account, see Crete by D. M. Davin, War History Branch, Dept. of Internal Affairs, Wellington, New Zealand, Oxford University Press (London, 1953).

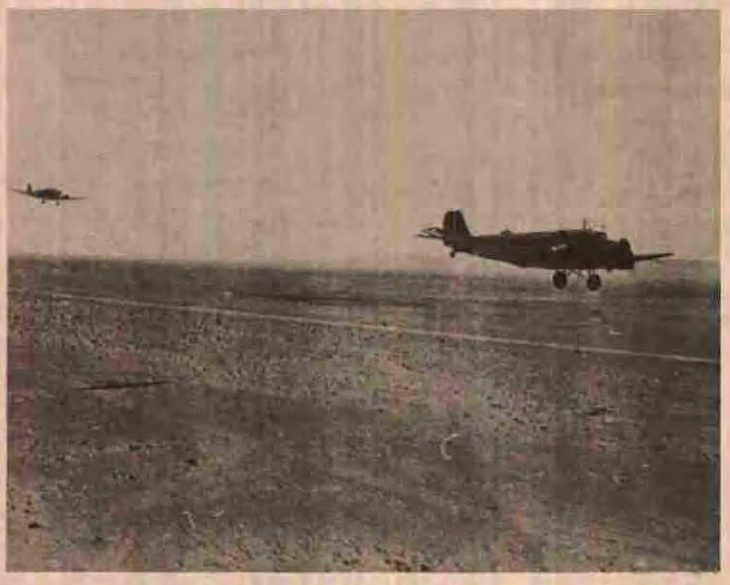
however, that the role played by the air transport units--in respect to the demands made upon them, the violence of the fighting, and the difficulties occasioned by local conditions--was a far more difficult one than in either Norway or Holland. In the first wave paratroopers were either dropped from transport aircraft or landed by freight glider in enemy territory. By dint of heavy fighting against strong enemy resistance, they were able to secure and extend the landing area.

The second wave, bringing badly needed reinforcements for the ground fighting, was forced to land in the face of heavy enemy defensive fire. The only suitable airfield in the vicinity, Maleme, was captured and held after a bitter fight. A serious crisis seemed imminent during the first few days, and it was averted only by the timely arrival of the airlanded 5th Mountain Infantry Division (under the command of General Julius Ringel), which saved the day and assured the ultimate success of the entire undertaking. During the first few days the primary mission of the transport units was to bring up reinforcements as rapidly as possible; shortly thereafter they began their first supply runs. The need for supplies of all kinds increased rapidly as the area of operations was extended more and more and as the original supply stores dwindled.

Even after the enemy had abandoned the island (in early June) it was not yet possible to bring supplies by water, and until 30 June 1941 the transport aircraft continued to make from 200 to 240 supply runs daily in order to keep the troops on the island supplied with all they needed. Wounded personnel, as well as troops which were no longer required on the island, were brought back to the mainland on the return runs. [5] The airfields were staffed and equipped and made ready for use as take-off bases. When supply ships began arriving in early July, the air transport units were withdrawn from Crete and some of them assigned to supply operations in Africa.

It is hard to determine the degree of accuracy contained in the expression "self-sacrifice of the German parachute and airlanding troops" (an expression which came into common usage after Crete among members of the 11th Air Corps); it is undeniable, however, that it took a long time to build up the surviving paratrooper units to their new strength as a parachute army. In any event, the over-all situation was no longer conducive to the employment of parachute troops in the type of mission for which they were especially suited, and from this time on--with the exception of two minor undertakings--

A Ju-52 in flames after a direct hit
Maleme, Crete, 21 May 1941



Ju-52's over the desert, summer 1942



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the parachute divisions were employed exclusively in ground operations. For the air transport units this meant a shift in emphasis from combat employment to air-supply and air transport missions and they soon had more than enough to do with these.

The following period was far from devoid of plans for further operations requiring the joint employment of air transport and airborne infantry forces. Let us mention these operations briefly here, so that our list of airlift undertakings may also contain those actions which were accomplished only partially or even not at all, but which, theoretically, would have offered opportunity for the large-scale employment of air transport units in combat missions. Details are given only in the case of those operations which deviate conspicuously from the standard principles of employment.

F. Malta

Operation "Malta,"* similar to the action in Crete, called for the occupation of the island by a strong parachute and airlanding force. Its ultimate purpose was to secure a supply route, from Italy and Greece to North Africa, which could be effectively protected from harassment by British sea and air forces. The lack of such a route was a serious threat to the freedom of action of the Africa Corps and, in fact, at times even jeopardized the very existence of these troops. According to the plan, the first wave of paratroopers, aided by the combined efforts of bomber, fighter, dive-bomber and naval units, would take possession of the coast and of the airfield. Once the airfield had been secured, airlanding forces would arrive to reinforce the paratroopers and together these troops would extend the occupied area as far as they could before reinforcements started coming by sea. By 1942, after months of uninterrupted air raids on the military bases located on the island, the resistance of the troops stationed there had been reduced to a minimum. Nearly all their aircraft had been destroyed; antiaircraft artillery fire was light and sporadic. The island's limestone cliffs, of course, would offer a

* Editor's Note: For a discussion of the planned invasion of Malta, see USAF Historical Study No. 189, Historical Turning Points in the German Air Force War Effort, by Richard Suchenwirth, Research Studies Institute, (Maxwell Air Force Base, 1959), pp. 90-99.

certain amount of cover for the defenders. In comparison with Crete, however, it was clear that conditions on Malta were far less favorable for the defenders. The capacity of the air transport units would also have been far greater, for the shorter distance between take-off base and target would have permitted four or five sorties daily.

It is not within the purview of this study to investigate the factors which motivated the headquarter staffs concerned to decide against carrying out the contemplated action on Malta; in retrospect, however, it was clearly a sin of omission. Carried out as an airlift undertaking, the action would have been a rewarding one for the air-landing forces as well as for the air transport units. Its scope would have been much the same as that of previous actions of the same type, with the transport units serving as the main link between the mainland and the island during the first few days of actual fighting and during the days immediately following. There would seem to be no doubt but that the transport units would have been fully capable of meeting the demands placed upon them by an undertaking of this kind.

G. Toulon

In January 1941, German military leaders discussed the possibility of utilizing paratroopers and airlanding forces to prevent the departure of the French fleet, anchored in the harbor of Toulon. The preliminary planning envisioned the occupation of the hills surrounding the harbor by a strong parachute force. The parachutists were to be followed by freight gliders, carrying assault troops, which would land on the docks and even on the decks of the larger battleships. Naval artillery elements would also be landed to take possession of the coastal batteries covering the entrance to the harbor.

Every prerequisite necessary to the success of such an undertaking, which would have required no more than the limited use of the air transport units, was present. There was no danger of an unforeseen increase in scope, since the establishment of contact with the airlanded troops would present no problem. The greatest advantage, of course, was the factor of surprise, which would leave the French no time to issue emergency orders to sink the ships (as was actually done on another occasion). If it really was the intention of the German high command to man the French ships and take them over undamaged, then a surprise attack from the air would have been

the only possible way of accomplishing this.

H. Gibraltar

A possible occupation of Gibraltar by parachute and airlanding forces was considered periodically, though never more than superficially. It was first discussed during the autumn of 1940 but was soon dropped as unfeasible; after the Allied landing in Africa in 1942 it came up for consideration once more.

The first point to be considered was whether or not it might be possible to capture Gibraltar from the air alone--under utilization of all available forces and without violating Spanish neutrality; this was decided in the negative. The limited flight range of the German bombers and transport aircraft would necessitate the use of take-off bases in Spain itself. Moreover, a strong fighter aircraft force would be indispensable. A study prepared by the staff of the Airlanding Corps pointed out that not even the earliest stages of the fighting could be entrusted to airlanding troops with any hope of success, inasmuch as the fortifications were impervious to all but the heaviest artillery; accordingly, a strong ground force, equipped with the necessary artillery, would be required. The airlanding forces would be limited to a supporting role; after thorough artillery bombardment, parachutists and airlanded infantry could make their appearance within the fort at the same time as the ground attack began from without, thus confusing the enemy and distracting his attention temporarily from the assault outside. Unlike the normal pattern of an airlanding action, in which the paratroopers act as an advance task force and bear the main brunt of the early fighting, in the case of Gibraltar it would have been a matter of combining an air transport combat mission with a strong ground assault. Under the circumstances, there was little point in planning for a possible utilization of the transport units in air-supply operations, since the latter type of mission could never have developed from the existing premises.

The entire undertaking was doomed from the beginning because Spain's demands for weapons, raw materials, and foodstuffs--her price for entry into the war on the side of the Axis Powers--were so exorbitant that they could not be met. *

* Editor's Note: For a discussion of Operation "Felix," as the planned invasion of Gibraltar was called, see Helmuth Greiner, Die oberste Wehrmachtfuhrung, 1939-1943 (The Supreme Command of the Armed Forces, 1939-1943), Limes Verlag, (Wiesbaden, 1951), pp. 152-171.

## I. Iraq

Operation "Iraq" began on 10 May 1941 in Athens. A group of twin-engine fighters, together with several transport aircraft, flew via Athens - Rhodes - Aleppo - Damascus - Mossul to Baghdad. The purpose of their flight was largely political--to bring help to certain anti-British factions in Iraq, in the hope that this would result in the withdrawal of some of the British forces in North Africa.* Within the framework of this ultimate goal there was a clear possibility of a large-scale airlanding operation which could be developed into a profitable, long-term airlift action. The necessary prerequisites, however, were lacking--particularly in respect to the situation in Baghdad and in Iraq itself; the operation was brought to a stop and the air transport units were forced to leave the country.

## J. Tunisia

The airlanding action at Tunisia, carefully planned but only partially carried out, is characterized by a completely different and very interesting use of transport aircraft in a combat mission. The primary goal of the action was political: an attempt to persuade the French troops in North Africa to keep the Allies from advancing any further and to establish the necessary conditions for a successful defense of Tunisia against Allied landings. From the very beginning, nowever, it was doubtful that the French troops could be prevailed upon to resist the Allied advance alone. For this reason it was imperative that the scene be prepared for the landing of German troops who could take over. Another important factor was the need to provide rear area cover for the Africa Corps, which was retreating farther and farther towards the west but could not withdraw by ship.

It was impossible to assemble sufficient parachute forces, which were to be dropped over the landing area in a surprise attack, in time for the operation. Thus, everything depended upon the feasibility of bringing in German units by air and landing them in Tunisia in a perfectly normal fashion, without incurring French objections.

On 9 November 1942, a German liaison officer officially informed the French headquarter staff in Tunis of the impending arrival

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* See Editor's Note, above, p. 7.

of a fighter group which was to be utilized in defensive operations against Allied landing attempts. As soon as the officer was certain that, although the French were somewhat unenthusiastic at the move, they would not take recourse to armed force to prevent it, he passed along his information and a fighter group in Sicily, previously alerted for transfer, began the move to the airfield at Tunis-El Aouina. Quite naturally, the group required the services of a rather large number of transport aircraft for the movement of personnel and equipment. In addition to the usual technical personnel a special company from the headquarters of the Commander in Chief, South--together with its antitank weapons, submachine guns, and mines--was distributed among the transport aircraft. One might say that the transport aircraft assumed the role of the Trojan Horse. As soon as the fighter aircraft had landed they were surrounded immediately by French armored reconnaissance cars of obviously hostile intent. The French paid no attention whatsoever to the transport aircraft which had landed in the meantime; they expected no resistance from that quarter. Their astonishment was great when they suddenly found themselves surrounded on all sides by antitank weapons and submachine guns, and their armored cars neatly encircled by mines. This operation, which was a complete success, gave evidence of careful planning and a particularly imaginative use of air transport aircraft.

The instability of both the political and the military situations kept the French from taking any overt countermeasures, although there were some 20,000 troops available in Tunis and Bizerte. Instead, they abandoned the airfield, which became a station for the air transport of additional troops from Italy to North Africa.

This action, which can best be termed a commando operation, created the necessary conditions for air transport activity from Italy to Tunis.*

K. Gabes

Operation "Gabes," which featured a similar utilization of air transport units in a combat mission of the commando type, was carried out in early December 1942. Its objective was to capture the terminal station of the approximately 185-mile-long narrow-gauge

* See below, pp. 131-133.

railway leading from Tunis to Gabes and to operate it in order to supply the retreating Africa Corps. Supply by sea had become virtually impossible, for, so far, the French garrison at Gabes (a reinforced regiment of the "Bare" Division) had succeeded in intercepting every German supply shipment.

The plan called for a surprise landing of 150 Ju-52's, carrying German troops, at the only airfield in southern Tunisia, which happened to be located right near the barracks at Gabes. Resistance by the French garrison was anticipated. Unfortunately there were no paratroopers available for this operation; they would, of course, have been ideally suited for such an action. The forces which had recently landed in Tunis were also unavailable, since they had been immediately pressed into service elsewhere. Thus Field Marshal Kesselring, Commander in Chief, South, selected one of his special duty companies for the task. Although the French had only armored cars at their disposal, it was anticipated that Allied tanks might come to their assistance. A force of 160 to 180 bomber aircraft was also freed to participate in the operation. Fighter aircraft could not be utilized because the distance involved exceeded their flight range.

Since the operation was to be accomplished without parachute troops, the fully loaded Ju-52's would have to land on the airfield. The numerical strength of the airborne force was far inferior to the strength of the French garrison, and the landing operation was risky. The fate of the German-Italian tank army, however, depended upon the success of the Gabes undertaking. And it could succeed under only two conditions: surprise and bluff.

The operation began during the night and was so timed that the landings at Gabes would take place shortly before dawn. Two transport aircraft which arrived on the scene too early ran into anti-aircraft artillery fire but were able to return safely to Tunis. Almost immediately after the attack began, the French, overwhelmed at the apparently unending stream of transport aircraft coming in for landing, and deceived by the presence of the bombers into thinking that they were being subjected to a full-scale airlanding operation, stopped firing and beat a retreat to the west. The operation was a complete success, and two days later the first supply trains for the Africa Corps got under way without fear of harassment. At Gabes the supplies were loaded into trucks and transported to Libya.

The operation did not develop into an air-supply mission, nor

was there any reason for it to do so, especially in view of the fact that its primary purpose was the establishment of a normal supply route.

All of the North African airlanding operations which we have described so far have one characteristic in common: their dependence upon a military situation created by the enemy. If the chances for success within the framework of the given situation seemed to be fairly good, the airlanding action was planned and carried out at short notice. There was no time to accomplish farsighted deployments of forces; one had no alternative but to make do with the forces actually available, without being able to take time to regroup them or increase their number in accordance with their probable role in the operation. Consequently, the scope of an action was no longer dependent upon its objective, as had been the case in Norway, Holland, and Crete, but rather upon how great a scope could fairly be demanded of the available force--if, indeed, this force could be deemed sufficient in number to even warrant attempting the action in question. In any event, the calculated risk was bound to be greater under these conditions.

L. Operation "Blue Point"

In the spring of 1943, another interesting mission was planned for the air transport units in coordination with the parachute forces. Despite the fact that this plan was never realized it is worthy of mention because, in planning and in preliminary preparation, it differs in several important respects from all the other missions, accomplished and unaccomplished, which we have discussed so far.

This was Operation "Blue Point." After Axis resistance in Tunisia collapsed in May 1943 it seemed reasonable to expect an Allied attack on Fortress Europe in the not too distant future. At this stage, of course, it was impossible to predict just where such an invasion might take place. It was a matter of conjecture whether to expect a direct invasion across the English Channel, or whether to assume that the Allies would try a joint landing at some point on the Mediterranean coast. In any event, the islands of Sicily, Sardinia, and Corsica, and the Rhone River delta were the danger points. Enemy occupation of the islands would not only provide a base of operations for further action against the mainland but would also be a constant threat to the entire coast. And if the enemy should succeed

in taking the Rhone delta area there would be no way to keep him from advancing further into southern France, which was defended by only a token force.

There were two methods of meeting the invasion threat: one could either make it impossible for the enemy to land at any point on the coast, or--once the enemy had landed--one could harass him so thoroughly that he would be unable to proceed according to plan, thus gaining time to bring up sufficient reinforcements to turn back his attack. An ideal instrument for a harassing mission of this sort was the parachute force, which would have to be concentrated in an area from which it would be able to go into action at comparatively short notice. Appropriate deployment of the Parachute Army, which was still in process of activation, was still possible, and the only question remaining to be answered was exactly where it should be deployed and trained for its coming mission. A matter of even greater importance was the selection and preparation of a take-off airfield for the air transport units, for the location and equipment of this base would determine how soon after the initial alarm the harassing force could begin operations, regardless of just where they might take place. There were very few known factors available for reference in making the preliminary preparations; we could not be certain of our own specific intentions, we had no firmly conceived objective, and it was impossible to assess the probable scope of the operation in advance. The only thing which we could determine definitely ahead of time was the way in which the operation would be carried out.

As soon as the initial report of an invasion had been received, the parachute and airlanding troops were to make their way as rapidly as possible, by air or surface transport, to their appointed take-off bases. After brief orientation, the first wave of paratroopers was to be dropped directly over the enemy bridgehead in order to form pockets of resistance. Their next task was to provide some sort of place, depending upon the terrain, suitable for the landing of aircraft so that reinforcements could be brought up. This area would then be used as a base of operations from which to launch attacks against the enemy's landing point in an attempt to cut him off from the coast. As soon as the various individual resistance groups had established contact with one another, a concerted attempt would be made to break through the enemy bridgehead. Naturally, this could succeed only if harassing activity could be carried on relentlessly during the first few hours of action, for even the strongest

enemy is apt to experience a few weak moments in the early stages of an operation. Simultaneous attacks from the air on the enemy's naval craft would do much to increase the chances of success. The missions of the air transport forces, as usual, would consist in dropping parachute troops, landing airborne forces in enemy territory (which might mean forcing a landing in the face of enemy resistance), and transporting a steady stream of reinforcements to the scene of action.

Only a part of the available air transport forces would be able to participate in the missions detailed above; once an enemy invasion had begun, and with it the harassing activity of the defenders against the enemy bridgehead, it would be imperative that all available troops not actually engaged in the fighting on other sectors of the front be brought to airfields near the invasion front as rapidly as possible, in other words by air transport. They would be needed immediately to join the assault on the enemy bridgehead and to help in establishing contact with the resistance nests of the paratroopers and airlanding forces.

Since it was impossible to tell at what point an invasion might occur, there was no way in which plans could be made in advance for the transfer of reserve troops by surface transport. Thus the air transport units would have to assume responsibility for bringing up reserves, at least for the first few days. For the same reason, in order to avoid difficulties and delays the air transport units would also have to assume the task of moving necessary supplies, for it is clear that established supply channels would not be sufficient to meet the increased demand. Even so, there was no reason to expect that the demands made upon the air transport units would be impossible to meet, for the success of an undertaking of this type is decided one way or the other within a relatively short time, and once the outcome has been decided there is no further need for air transport. On the whole it may be stated that the air transport units would have been perfectly capable of accomplishing their part of the contemplated operation.

In the spring of 1943 the Headquarters, 11th Air Corps, together with most of the paratrooper units, was stationed in Brittany, where it would be immediately available in case of need. A number of paratrooper training centers had also been transferred into the area and training activity was in full swing. Accordingly, an enemy invasion of northern France could have been met without delay--

either by ground forces or by paratroopers--in the way described above. There still remained the problem of establishing an assembly area from which similar operations could be carried out against the other possible invasion points--the Mediterranean, for example. The supply officer of the 11th Air Corps, with a small staff of assistants, was assigned responsibility for this project, which was carried out under the code designation "Blue Point." Its goal was the establishment of an extensive base of operations, organized in depth, in the area Orange - Aix en Provence - Istres. The airfields selected were to be so equipped, from the standpoint of ground organization facilities and services, that they could accommodate large air transport and paratrooper units and keep them adequately supplied during combat operations. With this end in view, all the airfields (both commercial and military) located within the area were to be inspected; for those found to be suitable, any needed construction work was to be completed, and certain minimum supply stores were to be established at each one. For example, it was imperative that the necessary facilities be available to convert Ju-52's withdrawn from supply transport duty to paratrooper transport duty. Supplies of weapons containers and static lines, for instance, had to be established; billeting, technological equipment, fuel pumps, aircraft parks and other facilities had to be made available, if possible by the expansion of existing accommodations. In addition, certain specified airfields were to be equipped as intermediate landing fields for the glider units. It seemed reasonable to suppose that the glider units would get into action before the Ju-52 groups, since freight gliders and towing aircraft were permanently assigned to the Parachute Corps. In case of an enemy invasion in Sicily, for example, glider units on their way to the scene of action would require an intermediate landing field near the coast. For this reason, it was necessary to see that airfields in the Hyeres and Saint-Raphael area were equipped with the technical facilities required in the complicated launching procedure for freight gliders.

By June of 1943, most of these preparations had been completed. By that time most of the paratrooper units had been transferred to stations in southern France, and a number of freight glider groups were already installed at their appointed airfields. In this way the threat of invasion could be countered in the north, as well as in the south, by utilization of intermediate landing fields in central France. An enemy landing at the Rhone River delta, close to the prepared assembly area, could also be met effectively, although in this case the main focus of operations would be the airfields at Salon, Avignon,

and Orange, lying further inland. The fields at Aix en Provence, Istres, and Marignan would probably become the landing points for airborne reinforcements being brought to the invasion front.

Operation "Blue Point" was never carried out in the way it was originally planned, since the Allies made their first landing in Sicily. The airfields, however, were used as take-off points for the air transport of the 1st and 2d Parachute Divisions from southern France to Italy. The airlift operation was carried out by an air transport group under the command of the Headquarters, Commander in Chief, South. After touching down at Rome and Naples, the 1st Division continued on to southern Italy, while the 2d Division remained near Rome, where it took part in the fighting occasioned by Italy's defection. Both in southern Italy and in the action around Rome there were opportunities for another paratrooper operation, carried out by an air transport group which had been organized on short notice.

M. Sicily

In southern Italy members of the 1st Parachute Division were dropped over Lentini, between Syracuse and Catania, on the island of Sicily. Their mission was to slow down the enemy's advance along the eastern coast of the island long enough to permit German troops withdrawing from the northwest to cross the Straits of Messina. A complete success, this was a mission which could have been accomplished in no other way but by rapid intervention from the air.

N. Monte Rotondo

The employment of a reinforced battalion of the 2d Parachute Division on the day Italy capitulated had no more than local significance and can only be viewed as a commando operation. The battalion was dropped over Monte Rotondo, its mission to occupy Marshal Badoglio's headquarters there. Marshal Badoglio himself had already fled, but his command headquarters was captured and prevented from taking any further action.

O. Gran Sasso

The rescue of Mussolini from the Gran Sasso was another commando operation carried out by the parachute forces. In this operation, freight gliders were used as the simplest means to the

desired end.

Both the 1st and 2d Parachute Divisions found employment in ground operations in the Italian theater of war. As far as the air transport units were concerned, after the exploits recounted above they had no further opportunity to participate in a combat mission in Italy. In any event, they were overburdened by uninterrupted service in air-supply and air transport missions.

P. Hohe Venn*

This section on the employment of air transport units in combat-type missions cannot be concluded without mentioning the last German parachute landing of World War II, which took place on 17 December 1944 as a part of the Ardennes offensive. It is particularly worthy of mention in that the way in which it was carried out is quite different from all previous parachute or airlanding actions; it represented a completely new kind of mission for the participating air transport units. The factors which motivated military leaders to attempt a new method were less the result of a further development or increased potentialities within the force itself, than they were rooted in the incontrovertible fact of the enemy's absolute superiority on the ground and in the air, a superiority which would never have permitted an airlift operation of the standard type. It should not be overlooked, however, that there were certain aspects of this rigid situation which could effectively be used as a basis for a new kind of employment of the airlanding forces, and with them of the air transport forces. The parachute troopers made their drop by night, an innovation which created certain problems for both the ground troops and the air transport units. These problems, and the solutions found for them, represent a body of specialized experience which may be useful in the planning and accomplishment of future missions of the same type. /

Briefly stated, the plan was to drop a force of 870// paratroopers

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* Editors's Note: Hohe Venn or Plateau des Hautes Fanges, sometimes called Hohes Venn, is the highest part of the Ardennes (to 2,283 feet). It lies just over the German border in Belgium.

/ For a full account, see below, pp. 281-292.

// Only 450 paratroopers actually took part, and only a small percentage of these reached the target.

in the woods north of Malmedy. These men, under Lt. Colonel Friedrich August Freiherr von der Heydte, were to take the crossroads at Baraque Michel and thus provide cover for the right flank of the German armored force advancing into Belgium from the Eifel plateau.

It was the mission of the air transport forces--two units with a total of 67 Ju-52's--to bring the paratroopers to the target area in the middle of the night. In this they were handicapped by poor weather, difficult navigational problems and inexperienced crews. No air supply would be required because the paratroopers were to be relieved by the advancing ground forces 10 hours after the drop.

Almost everything went wrong during the actual mission. Only a few of the Ju-52's managed to find the target, many of the paratroopers were injured in the jump and the ground forces were unable to offer any relief. In spite of this, Lt. Colonel von der Heydte and a handful of his men managed to hold out for three days. Thus, the operation, although costly, did achieve its objective.

Section III: Air Supply

The general category "air supply" is interpreted to include all those operations in which the transport aircraft are used primarily not as the bearers of a fighting force but rather as instruments intended to assure maximum utilization of the available transport routes; it is characteristic of these operations that they occur in situations in which aircraft are the only possible means of dealing adequately with the problem of supply transport. While the ultimate objective of combat employment lay within enemy territory, the purpose of the air-supply mission was to create an air bridge between the landing area and an operational area separated from it by intervening enemy territory. These basic characteristics were essentially the same for all air-supply missions. Individual differences in the method of accomplishment were the result of the specific circumstances under which the missions were carried out.

The concept of supplying a large body of troops by air preceded the concept of utilizing transport aircraft in the combat missions which we have discussed above. Originally, the air transport forces were created exclusively for the execution of air-supply operations. Although the actions in Norway and Crete, for example, began with

combat employment for the air transport units, the later phases of these missions--examined separately--clearly fell within the category of air-supply operations. These phases, however, should not be examined separately, since they represent organically developing parts of an over-all mission. On this premise, as we explained in the preceding chapter, the air-supply phase must be considered not as a mission in itself but as an integral and logically developing part of the over-all action.

The other operational sequence, of course, was the development of an air transport mission into an air-supply mission, which was the case more and more frequently as the war progressed and parachute and airlanding actions became less common. Nearly all the supply airlifts carried out in the various theaters of war developed out of simple air transport missions. None of them was specifically planned ahead of time; without exception the need for them arose as a result of successful operations on the part of the enemy. In the beginning, the transport aircraft was accepted as a welcome supplement to the already existing supply organization, particularly if the area of operations was an extensive one, surface transport facilities poor, the supply routes unusually long, or if there were other difficulties in the organization of adequate supply services.

In the beginning the chief mission of the transport aircraft was the delivery of urgently needed weapons. This soon expanded to include the transport of replacement and relief troops to the front, for in contrast to the often slow movement of troops by surface means, air transport was by far the fastest and most direct method. As the situation became critical and the existing supply transport facilities were unable to fulfill their mission satisfactorily, the role of the transport aircraft became increasingly important until it was no longer a supplemental instrument but the chief instrument of the supply service. As supply stores in the advance operations area dwindled, the need for air transport capacity grew steadily and the original secondary supply mission became a primary mission of the air transport units, a mission which clearly required a command organization of its own.

The most significant air-supply undertakings carried out by the German air transport units were those at Demyansk, Stalingrad, the Crimea, and for the 1st Panzer Army. In addition, the troops fighting at Cherkassy, Korsun-Shevchenkovskiy, Budapest, and on the

Atlantic fortifications line were also supplied by air.* The first three developed out of exactly the same situation, i. e. the original air transport missions flown sporadically within the operations sector gradually developed into a constant and increasing demand for more and more air transport capacity, partly as a result of the military situation and partly because of weather conditions. In the beginning, this demand was met by the more intensive employment of the available transport units. Very soon, however, requirements had increased to a point where they could no longer be adequately met.

Attainment of this point, of course, should have served as a warning signal that it was time to shift the emphasis in supply operations from air to ground; but in all three cases this warning was ignored. This was a serious error in judgment, for it was clear that the operational capacity of the transport forces was bound to decrease daily as a result of the unremitting wear and tear on the machines themselves and the constant overburdening of their crews. The failure to achieve a shift in emphasis may be attributed in part to a shortage in personnel; on the other hand, there were instances in which no attempt whatsoever was made to relieve the transport forces, and still others in which the attempt was made much too late. There can be no doubt but that the basic reason in all these cases was the erroneous attitude prevailing at that time. Most military leaders were of the opinion that air-supply operations could be increased at will by the employment of more and more air transport units, and that there was no reason why these units could not assume the entire burden of supply operations. The commanders of the air transport units opposed this view, and whenever they agreed to take on an air-supply mission they were careful to point out that its success depended upon a number of indispensable prerequisites. First of all, the mission had to serve a definite purpose, and second, the conditions under which it was to be carried out had to offer at least a chance of success.

Once it had been determined that the contemplated operation could meet the conditions established, and could continue to meet them throughout its presumable duration, the scope of the action could be increased to include the entire available transport capacity, and this scope maintained successfully throughout the duration of the undertaking. The two most important prerequisites

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* All of these undertakings are described in detail in later chapters.

were: a take-off base protected against enemy harassment and fully equipped with technological facilities and ground organization services, and an adequately organized target area with the necessary facilities for receiving and storing supplies.

The purpose to be fulfilled by an undertaking of this sort must always remain the chief factor in determining whether the concentrated employment of the required personnel and materiel is justified in the face of the disadvantages incurred. In the case of Germany, for example, air-supply operations necessitated such a serious disruption of the pilot training program that the effects were long felt throughout the entire structure of the Luftwaffe. In order to establish a criterion for the evaluation of such purpose, we might state that a worth-while air-supply undertaking should always have a positive goal; the opposite extreme, i. e. a negative goal, would be an air-supply undertaking to supply a troop element hopelessly encircled by the enemy.

As in combat employment, the missions of the air transport forces in an air-supply undertaking take place within the framework of simultaneous operations towards the same general end by other troop elements. Thus they represent an integral part of an over-all operation and their ultimate purpose is the same as that of the larger operation. The way in which they are carried out, their scope, and their duration are all directly dependent upon the course of the over-all action. It is entirely irrelevant whether the need for air-supply operations has arisen as a result of offensive or defensive action; the ultimate goal of the over-all operation must be the same--to put as rapid an end as possible to that need.

By contrast, the maintenance of an encircled position--unless there are definite plans for its recovery and unless relief operations are begun immediately--implies the passive acceptance of a situation forced upon one by the enemy, a situation which will either bring operations to a complete standstill or develop into an even more unfavorable situation. Since the encircled troops are cut off from all source of supply, technically they should be given up for lost. Supply by air is the only possible means of keeping them alive, yet in an operation such as this the common goal (that is, the removal of the need for air supply) is lacking. Either the inevitable conclusion is postponed, at the cost of high losses in personnel and materiel, or a belated attempt is made--after a considerable loss of time and usually under considerably more difficult conditions--to take those steps

which ought to have been taken right after the encirclement. In either case the entire air-supply operation carried through in the meantime turns out to have been pointless. The long-term utilization of air transport units to keep an encircled position supplied is justified only when it is absolutely certain that maintenance of the position is vital to the success of later operations and that its abandonment would be a serious loss, entailing the later sacrifice of valuable forces to make up for it. Although all the supply transport missions flown by the Luft waffe to encircled areas during World War II were undertaken on the premise described above, based usually on an overly optimistic evaluation of the over-all situation, careful examination of the conditions under which they were carried out reveals that not a single one of them was actually justified under strict application of the criteria.

From January 1945 until the date of Germany's final capitulation, a number of air-supply missions were flown within the Reich.* The need during that period was practically unlimited and the requests for air-supply assistance coming from all sectors of the front were many and varied. The ground transportation network was nearing complete collapse, supply centers located near the front had fallen into enemy hands, large troop elements were being encircled by the enemy, reserve troops for the reinforcement of the defense front were practically nonexistent, encircled positions had to be abandoned to their fate, and over every theater of war the enemy's strong air forces were free to observe, harass, and interdict any and every attempt at action, both on the ground and in the air. In spite of all this, the surviving air transport units, with hardly more than 250 aircraft at their disposal, did their best to accomplish the air-supply missions requested of them up to the very end, often in the face of tremendous difficulties and the complete lack of the prerequisites normally considered indispensable.

In conclusion, let us mention one incident which goes to show that the will to serve of the transport units remained undiminished to the end. Shortly before the capitulation, a group commander called for volunteers from his unit to fly a mission to Courland/ in order to

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* These are listed and described separately in later chapters.

/ Editor's Note: Courland is the historic name for the southwestern portion of Latvia. German Army Group Courland held a bridgehead with an area of about 900 square miles in the western part of Courland until the end of the war.

pick up troops there (some of them wounded) and bring them back to Germany. Of the thirty crews left to man the thirty Ju-52's still available, every single man volunteered.

## Section IV: Air Transport

### A. General

Air transport missions, in contrast to combat employment and air-supply operations, are interpreted to include all those missions involving the utilization of air transport units for the movement of personnel and materiel within areas occupied by German troops. Although missions in this category, many in number and extremely diversified in purpose and method of accomplishment, make up the majority of the total number of missions flown by the air transport units during World War II, the present study devotes relatively little space to them.

The air transport missions lack two of the most important characteristics ordinarily attributed to airlift undertakings. In the first place, the aircraft is never the only means by which the ultimate goal can be reached, for the operation always takes place over one's own territory, which means that other methods of transportation can also be pressed into service. In the second place, inasmuch as there are no enemy-occupied or enemy-endangered areas to be bridged, it can never be a matter of the enemy's having ruled out any other method of transport or having made it impossible for the other methods to be employed at full scope within the area concerned. Nevertheless, there are reasons which make the use of aircraft for transport missions desirable and sometimes imperative; and these reasons are to be sought in the defects and weaknesses of the other available methods of transport. Air transport can be used to obviate the difficulty, the slowness, and the inevitable delays occasioned by the overburdening of the existing surface transportation network. The considerable saving in time, the relative freedom and flexibility in timing sorties, and the complete freedom from dependence on established railroad and highway networks are obvious advantages. In an air transport mission, the aircraft was utilized not as an instrument of combat within the framework of military operations but rather as an up-to-date means of transportation--a utilization far more in keeping with the inherent function of an airplane. From this point of view, of course, every mission carried out by even a single transport aircraft and every

courier or liaison flight carried out for reasons important to the course of military operations should accurately be termed an air transport mission.

A complete list of all these missions could be made only after careful study of the war diaries of all regulation and special duty units. There are gaps in most of these diaries, however, occasioned by the many changes in the composition and organization of the units and by alterations in the chain of command, and even if they were complete the majority of those which still exist are not available for reference. For this reason the author has not been able to list anywhere near the number of transport missions carried out by the air transport units.

Once the individual undertakings, carried out under the leadership of a unified air transport commander's staff, had been concluded, the air transport groups which had been brought together for the duration of the mission were redistributed to the air fleet commands, air administrative commands, or air corps from which they had come and within which they were utilized for internal transport operations. Their employment was determined ordinarily by the quartermaster officer's staff and was based upon the particular needs of the area in which they were stationed. The majority of these missions involved, as an example, the transport of urgently needed supplies, special ammunition or equipment, or rush orders for spare parts, which had to be brought from rear front areas or perhaps from the home area to airfields located closer to the front.

As a matter of principle, the mass utilization of transport forces for the movement of materiel or supplies should be discouraged except under very special circumstances, for the advantages to be gained are not usually great enough to balance the forces required to carry it out. Under normal conditions, of course, there is no necessity for this type of mission; the need for supply transport by aircraft could arise only as a result of a situation forced upon one's own side by the enemy, terrain difficulties, or the insufficiency of other transport facilities, and in any one of these cases the resulting mission would be an air-supply rather than an air transport operation.

The only air transport mission of this type--which can be classed neither as combat employment nor as an air-supply mission--was the so-called Mediterranean airlift. Later, this action will be described in detail, including all of its component phases.*

* See below, pp. 108-136.

In all other instances of the mass utilization of transport aircraft for pure transport purposes, the primary goal was the movement of troops, the bringing up of reinforcements, or the shifting of a point of main effort. Inasmuch as these missions are also of interest within the framework of the present study, the author feels that they should be mentioned at least in passing.

The reasons behind these troop movements were not always the same. In Operation "Bucharest," for example, the motivating factor was both political and military in nature and was intended to further the plans and intentions of the German leaders. In this particular case it was possible to predict the chances of success in advance, for the enemy had relatively little freedom of choice in the matter. This was not true of other operations in which aircraft were used for the transport of troops. In these cases, air transport missions developed out of the deteriorating military situation and represented a last resort because the forces at the front and the reserves near the front were inadequate to the successful continuance of operations.

Inasmuch as the missions described below were too great in scope to be handled by single air transport units, and thus required the participation of several units, we may be justified in considering them bona fide air transport undertakings. They were: "Bucharest," Lyuban, the middle sector of the Eastern front (December 1941-February 1942), Volkhov, Kuban, and between southern France and Italy.

### B. Bucharest

On the basis of the German-Rumanian friendship pact, the German government had placed a number of training personnel at Rumania's disposal. These men were to help train and modernize the Rumanian Army. In addition, they were to organize an effective defense for the Rumanian oil fields, which were, of course, of paramount importance to the success of Germany's pursuit of the war. This German contingent was fairly small and was composed primarily of specialists from each branch of the service.

In April 1941, when the conflict with Yugoslavia extended the war into the Balkans and German troops prepared for an attack in the southeast, there arose the danger of intervention by Soviet Russia.

It was anticipated that the Russians, in order to protect their interests in the Balkans, might attempt an invasion and occupation of Rumania. It was highly improbable that the Rumanian Army would be able to resist such an invasion, and the resulting loss to Germany of the Rumanian oil fields would have meant a serious blow to her conduct of the war.

Thus it was imperative that a large and powerful force be transferred to Rumania at the same time as the attack on Yugoslavia began. Then, either the presence of German troops in Rumania would be sufficient to deter Russian intervention or, in case worse came to worst, they would be strong enough to hold back a Russian attack long enough to permit the bringing up of sufficient reinforcements to prevent the loss of the Rumanian oil fields. There were no surface transport facilities offering a direct connection with Rumania. A troop transport through Hungary would have been possible in theory; in practice, however, a certain amount of diplomatic negotiation would have been necessary. Transport through Yugoslavian territory, south of the Yugoslavian-Hungarian border, was unthinkable at this point because the attack on Yugoslavia could not be expected to advance so rapidly. Thus both of these possiblities entailed a certain amount of delay, and under the circumstances any delay might have had fatal consequences. The utilization of air transport forces seemed to offer the quickest and most favorable solution, and no difficulties were foreseen in obtaining the consent of the Hungarian government for the passage of German aircraft over Hungarian territory.

Accordingly, during late March and early April 1941, the 1st and 2d Special Duty Bomber Wings assembled in the Wiener Neustadt area and began preparations for their mission. As soon as it seemed clear that the mission would take place, the 22d Infantry Division (an airlanding division) was transferred to the same area and its elements distributed among the air transport groups. On 6 April 1941, these units, together with their equipment and light weapons, were transported in a single air operation to Ploesti and Bucharest where they were immediately employed as a security force.

The air transport mission itself was accomplished smoothly and without difficulty, for the take-off bases were well-equipped with technical facilities and possessed good ground organization services. The flights were timed so that the transport aircraft would reach the Rumanian airfields at stated intervals, and since landing procedures

of this sort had become second nature to the crews, unloading was accomplished rapidly and without any difficulty. During the flight itself, however, weather conditions took toll of several aircraft over the Leitha and Carpathian mountain ranges.* These mishaps could be attributed to lack of experience on the part of the pilots concerned. The importance of the mission was great enough, however, to justify the losses incurred, which were well within the limits of reasonable risk.

This airlift undertaking was motivated by both political and strategic considerations and it shows clearly the advantages of having an air transport force ready for action at all times. Air transport was the only possible method of accomplishing this action rapidly and successfully. Since it was neither part of an offensive action nor an integral component of an operation already under way, but rather a preventive measure, it differs basically from all other undertakings of the same general type. Without any doubt it must be counted as a kind of mission which may properly and profitably be assigned to an air transport force. In discussing this particular mission, it should also be remembered that it might have marked the beginning of a large-scale airlift operation, for actual intervention by Russia would certainly have brought with it the need for continued transport of troops and supplies to Rumania, at least until such time as adequate surface transport facilities could have been established. As it turned out, however, the favorable development of the existing situation (which was certainly due in great part to the air transport mission described above) obviated the necessity for increasing the scope of air transport services, and the air transport units were distributed to commands in the Balkan theater, where they were utilized in local transport runs until they were alerted for the action in Crete.

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* Editor's Note: The Leitha Mountains, which rise to less than 1,600 feet, extend about 20 miles southwest from Parnsdorf to the northwest coast of Neusiedler Lake (thus parallel to the Austrian border with Hungary). The Carpathians referred to here are probably the Southern Carpathians or Transylvanian Alps which extend in an east - west direction across Rumania for about 170 miles. Ploesti is just south of the Southern Carpathians.

C. Lyuban*

The next example of an air transport undertaking was the movement of the 1st Parachute Division to Lyuban. Inasmuch as the parachute units were to be committed in ground fighting exclusively this mission did not represent combat employment for the air transport forces but rather a routine troop transport operation.

By late September 1941, the fighting at Petrokrepost/ had come to a complete standstill. New impetus was to be furnished by the employment of a strong elite troop in order to take the city as quickly as possible. In order to avoid any further loss of time, air transport was requested for the new division, which was distributed among its home bases and the training field at Gardelegen (Central Germany). On 26 September 1941, Generalmajor Gerhard Conrad (commanding general of the 7th Air Division--a parachute division) received orders to alert all the transport units under his command to stand by to move the elite division. Should the available aircraft be insufficient in number, authority was granted to requisition additional machines from the instrument flight and C-schools. The transport units were reorganized in accordance with the strength of the parachute forces at each of the division garrisons and were ordered to report to the airfields located nearest them. Loading and take-off operations had to be completed within the space of two hours so that no instrument or night flying would be necessary.

After loading the first wave of paratroopers, the transport units took off for Gutenfeld, in East Prussia. Here there was a stopover for refueling, and billets were prepared for the night for those units arriving too late to go on. The next landing was at Pleskau-South,// from which the aircraft were to proceed directly to Lyuban

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* Editor's Note: Lyuban is situated 50 miles southeast of Leningrad.

/ Editor's Note: Called Schluesselburg by the Germans, Petrokrepost is a port city 25 miles east of Leningrad where the Neva River flows into Lake Ladoga. By holding it the Germans were able to close off the land route to Leningrad.

// Editor's Note: Pleskau (in Russian, Pskov), is an important road and rail junction 160 miles southwest of Leningrad.

to land the paratroopers. During the last leg of the flight between Pleskau and Lyuban, the transport units were picked up by German fighter aircraft which then escorted them to the landing area. Shortly before the landing there were a number of attacks by Russian fighters. Enemy aircraft were extremely active over this sector of the front, and at times not even the escort fighters were able to protect the transport aircraft from attack. As a result, eleven Ju-52's were destroyed and several more seriously damaged. German antiaircraft artillery defenses were more than adequate in the area, but the Russian fighters and bombers ignored them completely, firing into the midst of the fire without regard for losses in order to disrupt the landing operation.

The unloading of the paratroopers and the loading of wounded for the return flight had to be accomplished as quickly as possible, not only because of continued enemy harassment but also because the Lyuban airfield was small and poorly arranged. Each group had to take off within forty minutes after landing in order to clear the runway for the next group coming in. These operations were well organized and were carried out with exemplary discipline. The enemy's attacks on the airfield itself were without success; no aircraft were destroyed on the ground.

In the meantime the rest of the parachute division had been transported to East Prussia by railroad. Thus air transport for the second wave of troops was limited to the stretch between the airfields in East Prussia (Gutenfeld, Devau, Neuhausen, and Neukuhren) and Lyuban.

The handling of troops and aircraft at Pleskau (Pskov) had been organized and was accomplished very smoothly. Adequate provision had been made for the necessary stores of fuel and supplies, for billeting facilities, and for the servicing of aircraft.

A total of approximately 200 Ju-52's participated in the air transport operations at Lyuban, which reached their conclusion on 3 October 1941.

Whereas the resources were still relatively unlimited for the Lyuban operation (sufficient air transport space still being available), the next mission of this sort was undertaken pretty much as a last desperate measure, not only for the Army units involved but also for the air transport forces, since the majority of them had been constantly

employed on the Eastern front since the beginning of winter.

D. Middle Sector of the Eastern Front (December 1941-February 1942)

Conditions which prevailed on this sector of the front will be described in greater detail in the section dealing with the airlift operation at Demyansk. Here, it is sufficient to say that the German forces fighting on the middle sector of the Eastern front had been strained to the breaking point by the thrust towards Moscow. There was no longer any chance of their being able to reach their objective before the beginning of winter; nor were they in a position to maintain the gains they had already made in the face of strong Russian counterattacks. They were overrun and beaten back so rapidly that the entire structure of the front threatened to collapse within a very short time. The reserve forces needed to set up a tenable position from which to attempt recovery of the situation were not immediately available. An intensive enemy thrust had broken through the middle of the central sector of the front and opened a corridor to the west.

The only available reserve forces were located in Poland and in the home theater of operations; in view of the long distance involved and the relative lack of adequate surface transport facilities it would have been days--or even weeks--before they could have been on hand to begin defensive operations. The transport channels running parallel to the front were in no better order, and even if relief troops could have been spared from other sectors of the front they would hardly have been able to reach the threatened areas in time to be of much use. Rail and motor transport were out of the question because of the poor condition of the railroad and highway networks within the rear army area. Besides, troop transports via these facilities would hardly have been possible since all available space was desperately needed for the transport of supplies.

Under the circumstances, then, air transport was perhaps not the only possible answer but it was certainly the most practical one, providing a means by which relief could be furnished quickly, effectively, and independently of the insufficiencies of existing surface facilities. At least some of the desperately needed relief troops could be transported by air from stations located behind the rear area up to the front with a minimum loss in time. Preparations began immediately; all the transport aircraft which could possibly be spared from the other

sectors of the front were released without delay; all flight training schools and replacement groups were ordered to release most of the aircraft assigned to them; all special duty units and units on alert status were ordered to stand by for immediate employment.

The result was a large-scale, improvised air transport action, by means of which army units were flown to the front in uninterrupted sorties, landed at the scene of operations, and sent into action immediately. The first wave consisted of personnel replacement transfer battalions (Marschbataillone), brought in for immediate reinforcement of the front-line units; the second wave was composed of the advance troops of the approaching reserve forces; and the third of replacement troops brought up to reinforce the first two waves and to close any gaps remaining in the front line. As the reserve troops moved nearer the front by surface transport, the distance remaining to be covered by aircraft was steadily shortened, resulting in an increase in the operational readiness of the participating air transport units. In the meantime, the latter had been organized under a central command apparatus charged with over-all responsibility for the accomplishment of the mission.

Once the front was fairly firm again the transport phase of this mission ended. However, inasmuch as the well-known air-supply operations for the middle sector began immediately afterwards (some of them, in fact, while the transport action was still in progress), it is extremely difficult to distinguish clearly between the individual phases of the over-all operation. Examined separately, however, the air transport phase of this mission may be considered a successful beginning of the activity of the air transport units during that winter.

### E. Volkhov Front*

After the transport phase of the mission had ended, the urgent

*Editor's Note: The Volkhov Front got its name from the Volkhov River, about seventy miles east of Leningrad. By 5 December 1941 German Army Group North had managed to press forward to the outskirts of Tikhvin, about 50 miles to the east of the Volkhov. By 25 December, however, Army Group North had been forced back to the west bank of the Volkhov and was being subjected to heavy pressure by Russian ground forces.

need for air-supply assistance for the middle sector of the front and, somewhat later, for the forces trapped at Demyansk--operations which grew steadily in scope and required the continuous employment of all available aircraft--still made it impossible to release the air transport units for other missions. Under these conditions, of course, the attempt to fly in reserves to strengthen the struggling troops on the Volkhov sector had very few resources to draw on. Every single available aircraft had been commandeered for the action at Demyansk, and in view of the vital importance of their mission there none of them could be released for other purposes. It was no longer possible to requisition additional air transport facilities from the home area, in spite of the fact that the Air Transport Chief, Berlin (the home headquarters of all air transport forces being employed at the fronts) was ordered to release sufficient aircraft for the completion of the Volkhov mission.

An exact record of the Volkhov mission, during which troops were transported by air from East Prussia via Riga and Pleskau to Luga,* is no longer in existence, and it is highly improbable that we shall ever be able to reconstruct it completely. In itself, the mission would be hardly worthy of mention if it did not represent an extreme example of the utilization of air transport facilities in a desperate, last-minute attempt to save the situation. In this respect it is important, for it illustrates the possibilities inherent in the use of aircraft as an instrument of transport.

In respect to its method of accomplishment (not, however, from the standpoint of its scope and ultimate significance in the overall action), the Volkhov mission might best be compared with the transport mission--inspired by the courage of desperation--which saved the Marne Battle for the French during World War I. In the latter instance, every taxi in Paris was mobilized in order to bring every last man to the front; in the case of the Volkhov mission every single aircraft which could conceivably be used for transport purposes was commandeered in order to transport reinforcements to the threatened sector of the Eastern front. Ju-86's, W-34's, and Focke-Wulf Weihe's appeared on their way to Luga over the area in which the Demyansk operation was being carried out concurrently, and

* Editor's Note: Luga is eighty-five miles south-southwest of Leningrad.

provisions had to be made for the servicing of these aircraft in addition to the ones participating in the Demyansk action. The pilots and crews were, for the most part, young and inexperienced, and the difficulties which they faced during winter employment in Russia were enormous.

The transport mission lasted but a few days and, of necessity, its individual phases were rather haphazardly integrated. It has been included here, not because it was particularly successful, but because it goes to show that there are circumstances under which any type of aircraft may be profitably utilized for air transport purposes. In such a situation, of course, it is not feasible to insist upon certain indispensable prerequisites in regard to enemy situation or available technological facilities, as would be the case in combat employment or air-supply missions. There may be situations in which it is more important to transport a few hundred troops to the front through repeated employment of 100 twin-seater aircraft than to refuse to attempt anything because there are no suitable transport aircraft available. Undertakings of this sort, of course, always entail a certain amount of risk and should be the exception rather than the rule.

### F. Kuban

The action at the Kuban bridgehead has been included in this summary of air transport missions because it provided the first opportunity to observe and evaluate the advantages as well as disadvantages inherent in the use of long-range bombers as long-range transport aircraft. Inasmuch as the Kuban bridgehead was far from dependent upon air-supply operations alone in order to maintain its existence and its fighting power, the activity of the Fw-200's (Condor) there must come under the heading of air transport rather than air-supply missions. The fact that these aircraft were exposed to enemy action for a portion of their approach flight and while over the target area itself was of minor importance for the accomplishment of their mission. On the whole, however, this mission never really assumed the proportions of a true airlift undertaking. Those characteristics which make it particularly interesting are described in greater detail elsewhere in this study. *

It should be emphasized here, however, that the utilization of

* See below, pp. 202-219.

long-range transport aircraft for regulation transport missions is a field worthy of serious consideration and further development, for the basic principle of the transport mission will always be the same--the transport of the largest possible load as rapidly as possible over long distances. At the point where the transport action develops into either combat employment or an air-supply mission, medium or light transport aircraft should probably take over, since they would seem to be better suited to the particular demands made by the latter types of mission. *

G. Southern France/Italy

Another air transport undertaking carried out within the framework of a larger, over-all action was the movement of the 1st and 2d Parachute Divisions from southern France to the Italian theater of operations, where the Allied landing in Sicily had resulted in an unfavorable and dangerous disparity in forces. The two parachute divisions, up to full fighting strength, were to be brought into action in order to restore the balance.

The necessary prerequisites for smooth accomplishment of the mission had been created within the framework of the planning for Operation "Blue Point"/ and the preparations initiated for that action. The undertaking finally carried out, however, had little in common with Operation "Blue Point." The primary purpose of the action, as it was actually accomplished, was the air transport of troop units--in the shortest possible time--from distant assembly areas to a theater of war in which their employment was immediately and urgently necessary. Any other means of transportation (and there were other means available and fully exploitable) would have entailed a serious loss in time, which would have been catastrophic for the success of the over-all operation.

As far as the accomplishment of the transport operation was concerned there were no new or unusual factors in respect to planning, prerequisites, or possible further development into some other type of operation. The landing of the parachute forces at Lentini /Sicily/ must be considered as a separate action since it had no direct

* See below, pp. 367-368.
/ See above, pp. 60-64.

connection with the transport operation. The air transport phase of the over-all operation ended as soon as the required troops had been moved to their new theater of war--those air transport groups already stationed in the area proved to be sufficient to accomplish this--, and the transport units were returned to their original missions.

As the war progressed, and the need for air-supply assistance continued to increase on the various sectors of the front, the possibility of diverting a portion of the available air transport to troop transport operations decreased proportionately. Air transport facilities could no longer be spared to carry out troop movements over friendly territory.

## H. The Balkans, 1944-45

Before concluding this chapter let us discuss one other mission--one carried out in the Balkans between October 1944 and February 1945. Its destinations did not lie in enemy-occupied territory nor did the flight routes lead over enemy territory; thus it cannot accurately be termed an air-supply mission. Rather it was an airlift undertaking of the transport type. In respect to its ultimate goal, however, it implies a method of employment for the air transport forces which is completely different from that encountered in any other known mission.

When it became obvious, as a result of the over-all military situation in the Mediterranean theater of operations, that Germany had no choice but to withdraw from the southeast, the German troops in Greece and Bulgaria were ordered to withdraw in cross-country march through Yugoslavia to German-occupied territory. The withdrawal order included all troops still capable of operations; older troops and soldiers no longer capable of full employment (a total of some 22,000 men) were to be left behind on the islands of Rhodes and Crete so that there would be no risk of their slowing down the marchers and thus endangering their withdrawal.

After the defection of Bulgaria, German troops moving through southern Yugoslavia became involved in heavy fighting with Yugoslavian partisans and with Titoist forces. Basically, there were three routes*

* Editor's Note: Bitolj - Belgrade was the westernmost route of the three, beginning near the Greek border. The second route, Strumica - Belgrade, was about 75 miles to the east of the first and also began near the Greek border. Pirot - Belgrade, the third route, began near the Bulgarian border on the rail line Sofia - Belgrade.

in Yugoslavia available to the forces withdrawing from the Balkans:

1) Bitolj - Skoplje - Pristina - Mitrovica - Belgrade

2) Strumica - Skoplje - Nis - Belgrade

3) Pirot - Nis - Belgrade.

In no part of Yugoslavia had preparations been made for the accommodation and supply of the withdrawing troops, and in view of the condition of the existing surface transport facilities there was no chance of bringing in adequate supplies by rail or road without serious loss of time. Accordingly, a special duty transport unit, consisting of approximately forty Ju-52's and a number of long-range transport aircraft, was organized and given the mission of landing as large a store of supplies as possible along the three withdrawal routes. In view of the shortage in air transport space prevailing at that time, making a unit of this size available represented no mean accomplishment. The unit, under the command of Major Augst, utilized the airfield at Vienna-Aspern as the take-off base for its missions.

Plans had also been made for the utilization of Focke-Wulf 200's (Condors) and Ju-232's in air-supply missions to Rhodes and Crete. Foodstuffs were the main item carried on these flights, for the food supplies left behind on the islands were insufficient to maintain the troops there for more than a short time. Occasional items of equipment were also flown in for the naval troops stationed on the islands. The flights were made nonstop from Vienna to Rhodes and Crete. Sometimes the aircraft had to turn back shortly before reaching their destination because of sudden fogs which made it impossible for them to land. Since enemy air activity was fairly heavy during the day, making it dangerous for German aircraft to land at any time but during the early morning hours, the flights were carried out at night. A total of about ten missions were flown to the islands, during which about 80 tons of supplies were transported, including a new engine for a Ju-52 stationed on Crete and used for routine runs between the two islands. The last mission took place on 8 May 1945; participating personnel were caught on the island and taken prisoner.

The majority of the missions flown by the special duty unit, however, were air transport flights to Yugoslavia. Since most of the retreating troops had nothing but tropical uniforms, it was

important that they be supplied with heavier clothing before the onset of colder weather. In addition, they were supplied with ammunition, weapons, and radio equipment to supplement existing stores or to replace equipment lost in action.

Until early November the flights could take place by day, the aircraft landing in their appointed areas at dusk. Later, as a result of increasing activity on the part of guerilla units, the missions were flown at night. By that time, of course, the original air transport action had given way to an air-supply action. However, enemy activity was extremely irregular and it was impossible to tell in advance whether a given sortie would run into enemy resistance or not.

The guerilla forces were concentrated around Bitolj, Strumica, and Pirot, approximately one and one-quarter miles away from the landing bases utilized by the transport aircraft. Their usual method was to refrain from attack until the force occupying the airfield was fairly weak or until individual landings were in progress. A number of aircraft were destroyed by enemy fire. Occasionally it happened that the German aircraft were permitted to land and to unload unmolested and then, as soon as they had taken off again, the partisans would attack the airfield and destroy the supplies which had just been unloaded.

It was extremely difficult to carry out these operations smoothly, and it was not always possible to guarantee ultimate success. Sometimes it happened that supplies were landed at airfields which were completely unknown to the withdrawing troops or which had already been left behind by the majority of them. In cases such as these there was no alternative but to destroy the supplies to prevent their falling into enemy hands. The air transport leaders were not always accurately informed as to the progress of the marching forces, chiefly because of the lack of effective coordination on the part of the Army agencies responsible. As a result, supplies were sometimes delivered too late at the appointed areas or were delivered at airfields which no longer lay along the route of march, which, of course, had to be altered in accordance with the degree of enemy activity encountered. The marching troops actually had little freedom of choice in the matter of route, for the route selected had to be the one offering the best chance of escape after careful consideration of the over-all situation. Naturally, every attempt was made to keep the air transport forces informed of changes.

The accomplishment of the flights themselves made tremendous demands upon the aircraft crews. Weather conditions were extraordinarily bad, and the mountainous landscape and the continuous danger of icing contributed much to the over-all risk involved. Radio communication with the target airfields was rare and--even when it existed--quite poor. Since the air transport force was made up of so many different units, it was impossible for the commander to be aware of the degree of flight proficiency of each individual crew and to assign the missions according to the ability of the individual crews.

Once the withdrawing troops had reached northern Yugoslavia, the air transport mission became simpler. The distances to be covered by air were shorter and the supply operation (which heretofore had been accomplished exclusively by air) could now be taken over in part by surface transport facilities. By February air transport of supplies had been discontinued entirely.

During the course of the operation the forty Ju-52's involved had transported approximately 1,400 tons of supplies of all categories to the troops withdrawing from the Balkans. To accomplish this they had flown approximately 700 missions. Their activity was one of the most important factors contributing to the ultimate success of the withdrawal action.

In this chapter an attempt has been made to consider the various types and, to some degree, the scope of the missions in which German air transport forces were employed in World War II. In the next three chapters the most important of these missions will be described in detail.



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Chapter 3

# OPERATIONS IN THE NORTH, IN HOLLAND, AND IN THE MEDITERRANEAN AREA

## Section I: Norway and Denmark: 9 April through 13 June 1940[1]

### A. Preliminary Planning

Ever since the summer of 1939 the Scandanavian peninsula had played an important role in the thinking and planning of military authorities in Germany and England. Trade agreements assured the continued import of the Swedish ores* so important to Germany's armaments industry. Shipping routes were through the Baltic Sea during the summer and along the western coast of Norway during the winter. As early as September 1939, British military planners were concerned with ways and means of stopping these ore shipments which were of such great importance to Germany. German leaders, of course, were also aware of the implications of a British operation in Norway. Studies were made regarding the feasibility of a German occupation of Norway and of the advantages inherent in such an action.[2]

Early in December 1939, Hitler issued orders to the Armed Forces High Command to begin work on plans for an invasion of Norway. Later, as these plans were being carried out, responsibility for the direction of the undertaking remained with the Armed Forces High Command.†

Although neither side took any overt action in the beginning, the Finno-Russian war of 1939-40 served to bring the over-all

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*Editor's Note: Also of importance in this area were the Finnish nickel mines at Petsamo (now Russian-Pechenga) near the northern extremity of the Finnish-Russian border.

†Editor's Note: To the military historian, the German campaign in Denmark and Norway is of particular significance because it was not only the first joint military operation of World War II, but also the first campaign directed from start to finish by a unified armed forces high command (the German Oberkommando der Wehrmacht).

problem to the foreground once again. British planners began to consider the possibility of landing Allied troops in Norway in order to kill two birds with one stone, i. e. to help Finland, and to realize the basic purpose of such an action--the prevention of Swedish ore exports to Germany.[3]

In February 1940, German leaders decided that it was imperative to act before the British did in order to prevent the British from gaining any influence in the Baltic area and to assure continued freedom of action for Germany in the Bay of Helgoland and in the waters off the Norwegian coast. It was decided to carry out the necessary undertaking (which went under the code designation "Weser Exercise" /"Weseruebung"/ before launching the campaign on the Western front. Accordingly, "Weser Exercise" was scheduled to begin on 9 April 1940. At the same time, and simultaneous with the collapse of Finnish resistance against Soviet Russia, the British decided on an undertaking in Norway, which was slated to start on 8 April 1940.[4]

In keeping with the British plan, on the morning of 8 April 1940 the entrance to the Western Fiord, the approach to the Norwegian harbor of Narvik, was mined under the protection of English destroyers. At the same time German battleships were sighted from the Norwegian coast on their way to the north, and one German troop transport was sunk off the southern coast of Norway. According to statements made by the survivors the ship had been en route to Bergen.

Generaloberst Franz Halder, Chief of the Army General Staff at that time, has written[5] that Norway constituted a difficult problem in strategy for Germany and England, and that the leaders of both countries hit on the same military solution (although the English solution was clothed in more acceptable political terminology). According to Halder, objective military historians will have to concede that Hitler's timing, from a purely military point of view, enabled Germany to seize the initiative and frustrate British plans. Halder remarks, on the other hand, that the enemy weakness was also an important factor, that the German victory hung in the balance for a time, and that German naval losses were so high that they hampered later German naval operations.

Speaking for the opposite side, Churchill states[6] that the German invasion of Norway was characterized by surprise, brutality, and precision, and adds that within 48 hours all the main Norwegian ports were in German hands.

It was not the invasion itself, of course, but rather its beginning and its scope which profited so much from the element of surprise. In order to assure full exploitation of this factor all troop elements participating in the landing had to be brought to their respective departure points days--and, in some cases, weeks--ahead of time and in absolute secrecy. This was particularly important for the operation at Narvik which was the most remotely located scene of action. Following their usual return route the otherwise empty ore ships were utilized to bring the necessary military equipment into the area of operations. The troops were transported by ten destroyers (under the command of Captain Bonte) traveling in convoy under the protection of the battleships Scharnhorst and Gneisenau.

Prior to the launching of the invasion, the Danish and Norwegian Governments received notes from the German Government in the form of ultimatums demanding their acquiescence to a German military occupation as a means of protecting them against a similar action on the part of the enemy. These notes permitted only two alternatives: the governments concerned could either accept German occupation or call upon their people to resist. The occupation would be carried out no matter which course of action was selected. It was important, however, that the German forces be informed as soon as possible of the governments' decisions, for certain measures to be carried through immediately after the landing depended upon the reactions of the two governments involved. Detailed plans of action had been worked out to meet either of the two alternatives and had been included in the operational orders issued. The last-minute receipt of a prearranged code signal was to determine which of the two plans would be used.

Denmark declared herself willing to accept German occupation; Norway could not make up her mind to do so. The landings occurred almost simultaneously in both countries. The occupation of Denmark was accomplished smoothly although minor local resistance was encountered on the part of communities which were not yet aware of what was happening.

### B. The Preparations for Air Transport Participation

1. The Prerequisites. The occupation of Denmark and Norway was World War II's first major test of the capabilities of the air transport units. Whereas their role during the action in Poland had

been comparatively unimportant, their part in the Norwegian campaign was of vital significance, for successful accomplishment of the missions assigned to them was absolutely indispensable to the outcome of the over-all operation. In retrospect, we may best term the activity of the air transport units in Norway an airlift operation in combat employment. The conditions considered prerequisite to a justifiable and proper utilization of air transport facilities were all present:

a) Air transport was the only possible method of bringing a strong assault force from relatively remotely located assembly areas into the midst of the enemy, either by parachute or by airlanding, in the shortest possible time and without jeopardizing the secrecy required to assure full exploitation of the factor of surprise. It was the only method capable of assuring the appearance of the first wave of troops suddenly enough and in sufficient strength to enable them to capture the most important positions immediately, to hold down enemy defensive fire, and to keep the way open for subsequent attack waves.

b) Air transport was also the only possible method of bridging enemy-occupied territory and thus providing isolated positions with reinforcements, ammunition, and other badly needed supplies as quickly as possible.

c) In addition to the two missions outlined above, which were based primarily on the activity of the forces fighting on the ground, there was a third mission which--in view of the special conditions characterizing the Norwegian campaign--was hardly less important, and which, like the first two, thoroughly justified the utilization of air transport facilities. Since the flight range of the Luftwaffe's tactical fighter forces was not sufficient to permit effective air support of ground operations or the maintenance of air supremacy over the scene of action from their home bases in northern Germany, the first wave of transport aircraft would have to carry supplies of aviation fuel and aircraft equipment, as well as ground organization personnel, to the newly occupied Norwegian airfields, in order that the German fighters might be serviced on the spot and sent back into action immediately.

The above three missions, carefully coordinated in timing, would gradually develop from the combat-type employment of the first day into the air-supply operations (i.e. an uninterrupted airlift

action) of the following days. In addition to meeting all demands for fuel, supplies, materiel, and equipment, the air transport forces would also continue to fly troops and command staff elements into the area of operations in order to assure the presence of a large enough force to administer the areas already occupied and to extend the operation in accordance with the over-all plan.

Once the Norwegian ports were securely in German hands and the majority of troops and materiel had been landed at them, the air transport units no longer would be the only available instrument with which further operational objectives could be reached. Their part of the undertaking then would come to an end, and the majority of them could be recalled immediately to their home airfields to prepare for the campaign in the West.

2. The Air Transport Command Organization and the Participating Units. The preliminary preparations for the air transport operations were entrusted to the 10th Air Corps, which was commanded by Generalleutnant Hans Geissler. His headquarters' staff included the offices of the Air Transport Chief (Land)* and the Air Transport Chief (Sea),/ in addition to those offices responsible for bomber, fighter, and reconnaissance operations.

The 1st and 2d Special Duty Bomber Wings were placed under the command of the Chief of Air Transport (Land), the 2d Special Duty Bomber Wing still being in the process of activation at Lippspringe. The 1st Special Duty Bomber Wing was composed of its own four groups, but the 2d Special Duty Bomber Wing was composed of the 1st and 2d Groups of the 172d Bomber Wing, and the 11th and 12th Special Duty

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* The staff of the Air Transport Chief (Land) was formed by the consolidation of the staffs of the Air Transport Chief, Office of the Quartermaster General, Luftwaffe, and the Headquarters Staff, Instrument Flight Schools. Lt. Colonel Carl August Freiherr von Gablenz was appointed chief of the new staff.

/ Editor's Note: Little information is available on the Air Transport Chief (Sea). Since the forces he commanded consisted of only 22 He-59's (a twin-engine biplane with pontoons) and a few Ju-52's equipped with pontoons, it can be assumed that his role was less important than that of the Air Transport Chief (Land).

Bomber Groups. All four groups, however, were never committed together as a single unit. The 2d Special Duty Bomber Wing was essentially a reserve unit. Most of the aircraft scheduled for delivery to it had already been issued to its individual groups and thus were available for employment in Norway.

Utilizing the rest of the aircraft slated for the 2d Special Duty Bomber Wing and additional machines requisitioned from the Office of the Chief of Training, the 101st-108th Special Duty Bomber Groups were activated and placed under the command of the Chief of Air Transport (Land). Their numbers were only valid for the duration of the campaign in Norway. Those groups which had existed previously and already had numbers of their own, such as the 9th Special Duty Bomber Group, did not bother to assume the new designation but continued to use their original numbers.

3. The Personnel, Equipment and Technical Facilities. The crews of the 1st Special Duty Bomber Wing were made up of personnel who had been with their units for a long time. The pilots had had thorough training in parachute and airlanding techniques and most of them had also had experience in these fields (peacetime exercises with parachute units, the undertakings in Austria, the Sudetenland, and Bohemia/Moravia, and minor landing actions during the campaign in Poland). Their mastery of the techniques of instrument flying was uneven; thus, in the event of employment as a unit, instrument-flying requirements had to be kept to a minimum in order to permit the participation of the younger pilots who had joined the wing under the recent activation program. Inasmuch as blind flying was rarely necessary during the course of a normal large-scale parachute action, instrument flight techniques were not an important part of the training program, which was designed primarily to fit the trainees for parachute undertakings.

In addition to a radioman and a mechanic, most of whom were well qualified by training and experience, each crew also had an observer or assistant observer. After completion of the standard observer training course, the observers were also required to take a special course devoted to the techniques of dropping paratroopers. The lead aircraft of each element also carried a so-called "drop leader," a member of the parachute forces, who was flown back to the unit's home base after the drop had been completed.

The crews of the groups activated by the Chief of Training

were made up, for the most part, of instructional personnel from the flight training schools; naturally, their mastery of basic flight techniques left nothing to be desired. Thus, they were fully capable of meeting the demands of an air transport action in combat employment even without previous specialized training. Moreover, those pilots who had come originally from the Lufthansa had had many years of experience in long-distance flight.

Accordingly, the flying personnel scheduled to participate in the undertaking in Norway could all be considered capable of full employment.

As far as technical personnel were concerned, both the 1st and 2d Special Duty Bomber Wings had at their disposal one maintenance man for each aircraft. These maintenance men made up a maintenance squadron, which was in the charge of a maintenance supervisor. Since the maintenance squadron was always moved together with the flying personnel, it was ready to begin work as soon as it was needed.

Each group of the 1st and 2d Wings had an airfield maintenance company, which was moved by motor transport from the group's home base to the assembly area enough ahead of the group itself that it was already at the new base and ready to begin aircraft maintenance operations by the time the group arrived. Moreover, once in the assembly area, the groups could take advantage of the technical facilities at the airports and advance airfields located there.

As for those groups which had been activated by special command specifically for the operation in Norway, adequate arrangements had been made for them to be maintained by the technical personnel, equipment, and facilities already present at the airports and advance airfields. There were no significant instances of a reduction in operational readiness because of the lack of technological facilities and services.

Each air transport unit (those already existing as well as the newly activated ones) was equipped to full strength with fifty-three Ju-52's (over-land transport); one long-range group was assigned Ju-90's, Fw-200's, and one G-38. Three groups under the command of the Air Transport Chief (Sea), equipped with He-59's, Ju-52's (over-water transport), and any other available seaplanes, also participated in the operation.

Since they had been serviced in accordance with peacetime standards at their home airfields, all aircraft were in excellent condition and fully operational. Group stocks of standard aircraft equipment were in full supply; moreover, the service depots and aircraft parks within the assembly area could be counted upon to furnish any items required for aircraft overhaul and repair.

As regards runways and landing strips, billeting facilities, troop supply, maintenance, and communication facilities, the airfields located within the assembly area were uniformly adequate to the demands made upon them. All airfield command staffs cooperated to the fullest extent.

4. The Preparation of Operational Orders. In March 1940, approximately one month before the operation began, the staff of the Air Transport Chief (Land) had been established and had started work on the operational orders for the units subordinate to it. Because of the need for absolute secrecy it was impossible to brief the wing or group commanders on details of the contemplated operation or to entrust them with any of the preliminary preparations. The fact that a large-scale undertaking sometime during the spring was generally assumed to be likely, reduced concern in this respect.

In any case, no definite orders could be released until just before the action was to begin and as a result planning had to be carried out somewhat in the same way as the planning for a field exercise. The Air Transport Chief (Land) hit upon an ideal solution: he assembled the orders and supplementary data intended for each unit in a master file, which could be utilized as a reference work by the planners. The four major divisions of the order file represented the four political possibilities under which the action could take place: "Denmark and Norway: no resistance"; "Denmark and Norway: resistance"; "Denmark: no resistance/Norway: resistance"; and "Denmark: resistance/Norway: no resistance." For each one of these possibilities complete plans had been worked out, and each set of orders was accompanied by the required data (navigational and communication plans, time schedules, technical instructions, supply and refueling schedules), maps, and photographs. When the time came to issue the orders, the order file could be taken apart and the appropriate documents given to the unit commander concerned, or even distributed directly to the particular men concerned with each phase within the unit. All planning was based on the premise that,

once the code word Weser Exercise had been received, there would be no more time for questions or for changes in orders.

Although the enemy could hardly be assumed to anticipate a parachute and airlanding of the scope contemplated, the highly efficient planning organization of the Air Transport Chief (Land) succeeded admirably in keeping the preparations secret. Due to its care in this respect the factor of surprise, which was the key to the success of the first day's operations, could be exploited to the fullest possible extent.

C. The Opening Phase

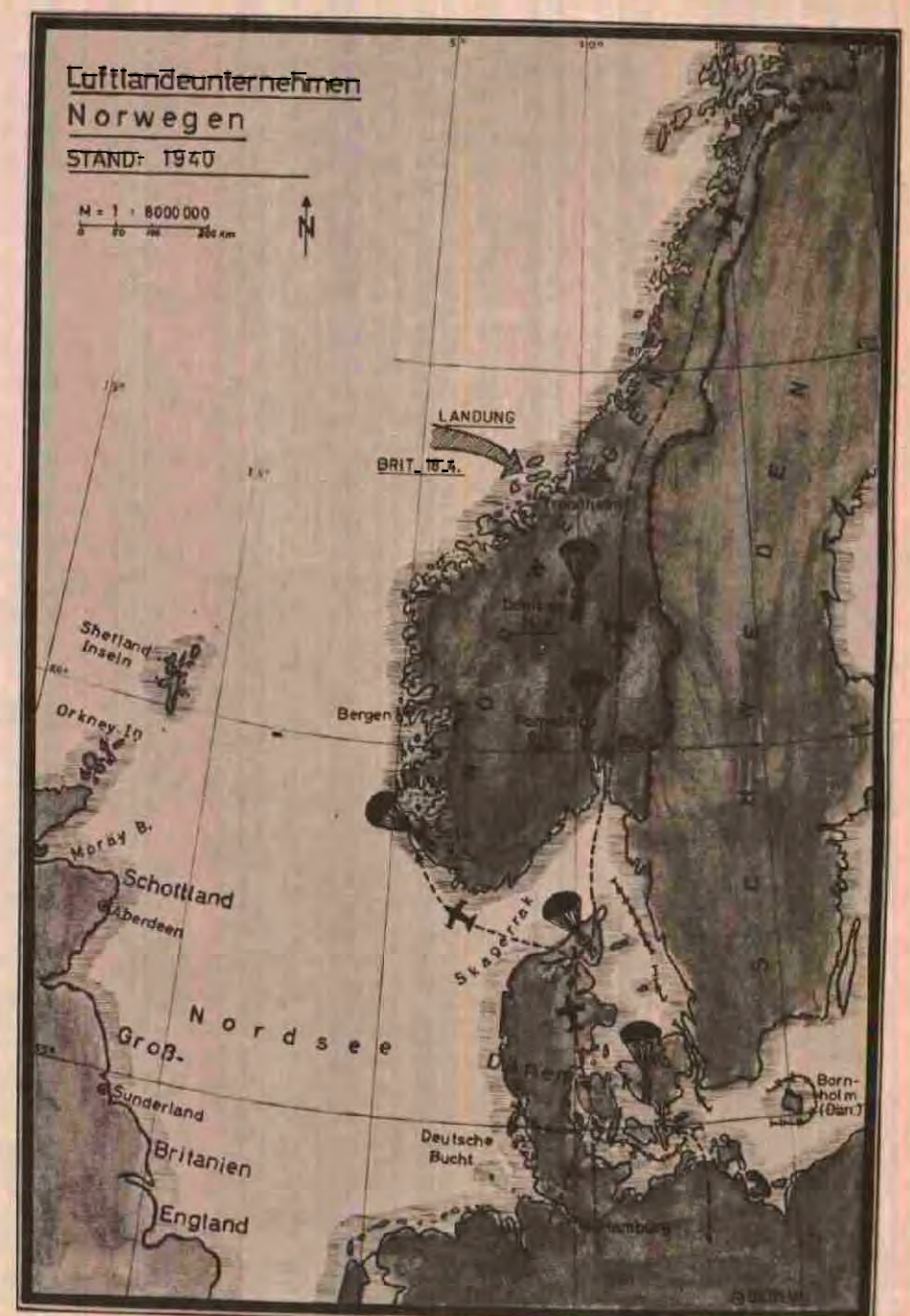
The air transport units scheduled to participate in the action on 9 April 1940 had been moved from their home airfields to assembly bases in Schleswig-Holstein, Hamburg, Bremen, and Oldenburg two or three days beforehand. The units activated by the Office of the Chief of Training were alerted to stand by for action at their assembly airfields. During 8 April the parachute and airlanding units arrived at their appointed take-off bases. The orders, contained in sealed envelopes, were turned over to the unit commanders. Late during the evening of 8 April the following signal was received: "Weser Day - nine meters flood waters at 0530 Weser time."

This meant that the action was scheduled to begin at 0530 on 9 April. The order envelopes could be opened and the contents distributed for briefing orientations.

The first wave consisted of ten air transport groups and four additional squadrons which, together, carried one paratroop battalion, two additional paratroop companies, one airlanding infantry battalion, three regular infantry battalions and three infantry companies. In addition to these combat units, the first wave transported six airfield maintenance companies, staff elements of an air administrative command, the staff of an infantry regiment and over 45,000 gallons of aviation fuel.

In Denmark, the destinations of the first wave were Aalberg East and West (in North Jutland) and Vordingborg (50 miles south-southwest of Copenhagen). The destinations in Norway were Oslo (Fornebu airport) and Stavanger (200 miles west-southwest of Oslo).

The morning of 9 April 1940 was cloudless, but hazy, with




A German sketch showing the principal air-landing operations in Denmark and Norway



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visibility of one and one-fifth to two and one-half miles. Early morning fogs, especially over the ocean, were antiticpated.

As soon as it began to grow light, the first groups took off on schedule. During the flight the prearranged code word was radioed through, indicating that the participants were aware of the Danish and Norwegian reactions to the German ultimatum. Denmark had declared itself willing to accept German occupation, whereas Norway was determined to resist. The majority of the air transport units reached their appointed destinations at the proper time and carried out their assigned missions without difficulty. The landing in the Aalborg area was completed smoothly and no resistance was encountered. At 0845 paratroopers were dropped over the airfield at Stavanger. The Norwegian defenders had set up barbed-wire barriers in order to render the field unusable; a group of paratroopers set to work immediately to remove the barriers and to clear a landing strip for the transport aircraft bringing in additional Army troops. The paratrooper force sustained some losses in the battle to subdue Norwegian forces defending the airfield but the field was securely in German hands by the time the second wave was ready to land. As a result, the ground organization elements of the 200th Special Duty Staff, Air Administrative Command, landed by the second wave of transport aircraft, could begin work on the same day to convert the Stavanger field into an efficient take-off base for tactical and strategic Luftwaffe elements and an intermediate landing field for the transport units to use in extending the airlift to Trondheim, about 350 miles to the north.

In contrast to the events at Stavanger, the airlanding at Oslo's Fornebu airport, [7] which could have been of very great significance to the outcome of the over-all operation, met with a critical mishap. The staff element and two squadrons of the 2d Group, 1st Special Duty Bomber Wing, were flying at the head of the transport formation carrying elements of the 1st Parachute Regiment. The paratroopers were to be dropped over the Oslo-Fornebu airfield; they were to capture it in a surprise attack, hold off Norwegian defensive fire, and keep the field open for the coming airlanding troops.

It was vitally important to the success of subsequent operations in Norway that Fornebu be secured as soon as possible. Whereas, from the standpoint of later operations Kristiansand (south Norway) was less important in the early stages, Stavanger and Bergen had only limited significance as bases from which the air transport

of troops and supplies could be protected from attack by enemy naval forces, and Trondheim could not even be utilized as a take-off base until the airfield facilities had been improved, Fornebu was urgently needed to serve as a base for bomber and fighter aircraft, for the protection and air cover of ground troops moving inland, as a main unloading point for reinforcements and supplies, and as a base from which air reconnaissance could be carried out as far as the Narvik area. Moreover, Fornebu was needed as an intermediate landing and take-off base for the aircraft engaged in air-support and supply operations for the forces at Narvik. Any delay or setback in the scheduled accomplishment of the Fornebu action could result in the complete failure of operations in central Norway and thus endanger the ultimate outcome of the over-all undertaking. The possibility of total failure at Fornebu, however, was considered to be very remote.

The squadrons from the 2d Group, 1st Special Duty Bomber Wing, were over the Skagerrak on their way to the Oslo Fiord when they ran into ugly weather. They came up against a fog bank which extended far above the altitude which they had been ordered to maintain. Fog patches were fairly scattered in the beginning, so that the unit had no difficulty in remaining together and even the less experienced pilots could be expected to get through the fog zone without mishap. As the fog grew thicker, however, reducing visibility to only a few feet and making it virtually impossible for the planes to fly in close formation, these pilots were simply no longer up to the difficulties. If it had been a practice flight, at this point the order to turn back would have been appropriate since approximately one-fourth of the crews were not really capable of going on and weather conditions showed no sign of improving. However, because of the tremendous importance of the mission, the flight commander, Lt. Col. Drewes, put off the decision to turn back as long as possible in the hope that the aircraft might soon leave the foggy area behind. Soon he received a radio message to the effect that two aircraft were missing.* Taking these circumstances into consideratipn, and attaching due importance to the fact that weather conditions along the remainder of the flight route and over the target area were totally unknown, Lt. Col. Drewes'

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* Subsequent investigation revealed that, in all probability, the two pilots concerned had lost control of their aircraft; both machines, with their crews and paratrooper loads, presumably crashed in the water and sank.

difficult decision to turn back and land at Aalborg was undoubtedly the right one.

Lt. Col. Drewes' message, "returning because of bad weather," was relayed to the Air Transport Chief (Land). Shortly thereafter, 10th Air Corps Headquarters confirmed it with an order to turn back. The squadrons with their paratrooper loads landed at Aalborg. The original plan had called for them to land there for refueling on their way back, so that they could return safely to their take-off bases in Schleswig.

In the meantime, the Air Transport Chief (Land) was anxiously following the new developments. In spite of the unfavorable situation and the decision of the 10th Air Corps, he was unwilling to accept defeat and refused to order all units back to their bases. He felt that the first unit which was able to reach the goal should have the chance to decide on the spot whether it wanted to attempt an airlanding at an airfield which had not yet been wrested from enemy hands. The worst that could happen in case of failure would be a certain number of losses sustained by the lead unit, and there was at least a chance that a forced landing of this type might succeed in occupying the airfield and in subduing enemy defenses. Subsequent units could then be guided by the situation on the ground below them, and could either land according to plan or return to their take-off bases without landing. If a general order to turn back should be given, those units capable of completing their mission in spite of the bad weather would be caught entirely by surprise. This might well lead to even greater confusion, especially since the lead units--if they were on time--were probably already nearing Oslo. The air transport units concerned were, without exception, those which had been activated through the Office of the Chief of Training; thus, their pilots were fully capable of instrument flight and had had more than enough experience in bad weather flying.

At the time the Air Transport Chief (Land) made the above decision and was engaged in justifying it to the 10th Air Corps, he was already in radio communication with a number of small units from the naval forces stationed at Oslo Fiord. Shortly thereafter, these units reported that the airlanding at Fornebu was apparently in full progress. The reports indicated that German transport aircraft were landing and taking off from Fornebu airfield, which was hidden by a range of hills so that enemy defenses (if any) were invisible

from the coast and there was no battle noise to go by.

A further reason against a general return order was the danger of too great a concentration of aircraft over Aalborg East and West. If the operation proceeded as scheduled, these two airfields would be able to refuel each unit as it came in, provided that it took off again according to schedule and thus cleared the landing strip for the next unit. The timing of the phases making up the first wave had been based on these admittedly limited facilities. If, however, a general turn-back order were issued, nearly all of the units affected would have been aloft for so long that they would be unable to get back to their take-off bases without refueling at Aalborg. And, if all the units turned back at the same time and headed for Aalborg without reference to the established time schedule, the inevitable result would be a dangerous overloading of the airfield area. All the aircraft, having used up their fuel supply, would have descended upon the tiny Aalborg fields at once, at a time when the fields were also being used by transport aircraft bringing up fuel from northern Germany. All of these aircraft, converging on these two small fields, could well have caused a catastrophe.

It was purely coincidence that the first transport unit was spared the ignominy of total failure, a failure for which it could not have been held entirely responsible. In retrospect, however, --and this is the reason that this action is being examined so carefully in the present study--we must accept as one of the lessons of experience the principle that all the members of any unit employed in such a vitally important mission must be fully capable of carrying out at least the flying aspects of their mission under all circumstances. A responsible commander can never be reproached for breaking off a mission because some of his pilots are incapable of continuing, unless, of course, he has explicit orders to carry on no matter what the price. However, a contingency such as this should be considered in the planning of an operation and every effort made to avoid its occurrence. Only then can one be sure that every conceivable factor contributing to the success of an operation has been adequately covered. *

Despite the objections of the Air Transport Chief (Land),

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* The landing at Dombas was another action during the Norwegian campaign which illustrates the principle stated above.

10th Air Corps Headquarters issued the command to turn back. As a result of the heterogenous chain of command, the 103d Special Duty Bomber Group, one of the transport groups bringing Army troops into Oslo in the second wave, failed to obey the command. This Group, activated by the Office of the Chief of Training, was directly subordinate to the Air Transport Chief (Land) and naturally would expect such a basic order as this one to come from the Air Transport Chief and not from the 10th Air Corps. In addition, the group commander was of the opinion that the enemy might be intercepting radio communications and that the order to turn back, which seemed entirely unmotivated, might have been given by the enemy, in ignorance of the appropriate chain of command, in an attempt to confuse the German units and thus jeopardize the undertaking. Accordingly, the 103d Group continued as planned and forced a landing at the Oslo-Fornebu airfield in the face of heavy enemy ground fire. The German air attache at Oslo, who was aware of the coming attack, had come out to the airfield, and was killed during the landing. Captain Wagner, Commanding Officer of the 103d Group, whose aircraft was the first to land, was also killed in action. Captain Ingenhoven took over command of the Group, ordered the Army elements to subdue enemy resistance at the airfield and in the immediate vicinity, organized the necessary defensive measures, and directed the landing of the rest of his group and of subsequent units.

The wreckage of destroyed and damaged German and Norwegian aircraft, some of them still in flames, was scattered over the landing strips and along the edge of the field, requiring a high degree of skill on the part of the pilots coming in for a landing. Moreover, the presence of the wreckage did much to reduce the capacity of the field for handling the scheduled number of aircraft. It was due primarily to the personal efficiency and the tireless work of Captain Ingenhoven that Fornebu was captured with relatively few losses in personnel and materiel. Thanks to him, operations could proceed according to schedule after only a short delay, and the potentially catastrophic effects of the initial mishap were avoided.

In order to bring additional forces into this critical area as rapidly as possible, the 3d Battalion, 324th Infantry Regiment, together with a reduced regiment staff, was ordered to continue to Oslo instead of landing at Stavanger as planned. At the same time, aircraft from the 2d Group, 1st Special Duty Bomber Wing, (carrying paratroopers), took off from Aalborg for Oslo; in the meantime,

weather conditions over the ocean had improved considerably. The paratroopers completed their later missions using Oslo as a base of operations.

By the afternoon of 9 April, all flights were back on schedule and the airlift undertaking itself was able to start according to plan. The airlift continued until 13 June, with the number of participating transport units being steadily reduced as conditions permitted.

As soon as the troops stationed in southern and central Norway could be serviced by normal land and sea supply transport--a few days after the start of the operation--the majority of the air transport units were no longer needed, and during the second half of April most of them were recalled to their home airfields. There the 1st and 2d Special Duty Bomber Wings were quickly brought up to full personnel and equipment strength so that they would be ready for employment by 8 May, the date by which they were to be standing by for action in the campaign in the West at assembly bases in the Dortmund - Werl - Muenster area. Two of the groups which had been set up by special command were returned to the Office of the Chief of Training, where their personnel resumed duty as instructors in the various flight training schools. The only groups left in Norway were the 107th and 108th Special Duty Bomber Groups, which were employed in air-supply operations for the action at Narvik. After the Narvik undertaking had come to an end the 107th Group was deactivated and its personnel and aircraft distributed to other units as replacements. The 108th Group remained in the northern theater of operations until Norway was cleared.

The parachute landing at Dombas and the air-supply operation at Narvik must be considered as separate actions, developing independently out of later stages of the over-all undertaking. Like the air transport action at the beginning of the campaign, these two operations were well justified by the conditions under which they were carried out.

### D. The Dombas Paratroop Drop

On 14 April 1940, fifteen aircraft from the 2d Group, 1st Special Duty Bomber Wing, together with a reinforced company from the 1st Parachute Regiment, carried out a parachute drop over

Dombas, an important rail center in the Gudbrandsdal* in central Norway. A relatively large British force, after landing successfully at Andalsnes (on the coast and about sixty miles west-northwest of Dombas), was reported to be advancing towards the south. If this force was permitted to proceed through the Gudbrandsdal it would represent a serious threat to the German troops in the Trondheim area because it would cut them off from the only rail and highway connection between Oslo and Trondheim. A small German force had succeeded in reaching Lillehammer, at the entrance to the Gudbrandsdal, but had not been strong enough to turn back the enemy invaders and to keep the road to Trondheim open. Accordingly, the Armed Forces High Command ordered a parachute drop at Dombas. The paratroopers were to block the highway and railroad lines leading from Dombas to Andalsnes with explosives and to maintain this blockade long enough for the Army units on their way north to arrive and take up the battle.

Since this situation was unexpected, systematic preliminary planning was out of the question. The Armed Forces High Command telephoned orders to the transport and parachute units during the forenoon of 14 April. There were no aerial photographs, and very few adequate maps, of the target area available; nevertheless, the importance of the mission was sufficient justification for any improvisation needed. Both the air transport and parachute personnel were well qualified by training and experience, and there seemed to be no reason why the operation should not succeed as planned. The fifteen aircraft, manned by pilots experienced in instrument flight, took off during the late afternoon of 14 April. The cloud cover extended from about ninety-three feet above the airfield to an estimated one and three-tenths to two miles; weather conditions farther north were thought to be somewhat better.

To reach Dombas, the aircraft followed a radio-direction signal from Oslo. During the last third of the flight route the clouds dispersed and the aircraft were able to descend to the proper altitude for the parachute drop. The transport aircraft, flying in loose formation, had to circle over the target area for some time before finding

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* Editor's Note: Gudbrandsdal, about 100 miles long, is the valley of the Lagen River and a vital link in the North-South communications of Norway.

a suitable place to release their paratroopers and nearly all of them ran into heavy enemy ground fire. One aircraft, complete with crew and paratroopers, was destroyed over the target area; four others were so badly damaged that they had to make crash landings during the return flight. Some of the crews were taken prisoner, while others managed to reach safety among nearby German troops. Three aircraft had to fly on to Trondheim because of serious damage. Of the original fifteen, only seven made their way back to Oslo, and they did so under extremely adverse weather conditions.

The operation itself must be considered a complete success, despite the relatively high personnel and materiel losses sustained. As far as the transport units were concerned, the operation was a tactically important and perhaps even decisive undertaking, carried out only by the joint employment of transport units and parachute forces. It illustrated that such an undertaking is possible under certain given circumstances, even though both parties must accept the risk of exceptionally high losses. The Dombas landing, however, was not a stop-gap measure; on the contrary, it embodied the sensible utilization of the only possible means to the desired end.

Under normal conditions, the Dombas action would no doubt have developed into an air-supply mission of several days duration. Unfortunately, however, the extraordinarily bad weather over central Norway precluded supply flights for the landing of ammunition, foodstuffs, and other supplies. A number of attempts were made but all were without success. As a result, the paratroopers were entirely on their own and were forced to carry out their mission in the face of great personal privation until they had fought their way through to other German troops or were liberated from temporary enemy custody.

### E. Air Transport Operations at Narvik

After the initial German successes, the situation in and around Narvik had become extremely critical as a result of intervention by the British and the sinking of the German destroyer fleet. The harbor was blocked by enemy naval forces and the city itself was in British hands. A great deal of German equipment, ammunition, and food supplies had been lost during the fighting, which meant that supply operations from outside had to be undertaken earlier and in far greater scope than had been anticipated. Air transport proved to be the only available instrument whereby the fighting power of the

Narvik force could be maintained.

Both Army and Navy units in the Narvik area had to be supplied by air with urgently required reinforcements and equipment. The available Ju-90's and Fw-200's could only carry a portion of the total requirements. Ju-52's needed to make up the difference had to have auxiliary fuel tanks installed, since their normal flight range was only long enough to get them from their take-off bases to Narvik. The auxiliary tanks naturally reduced both transport space and weight-carrying capacity.

Aircraft were unable to land at Narvik, and as a result all supplies had to be delivered by air drop. Depending upon the kind of supplies involved, they were either released in paratrooper weapons containers or dropped directly from the opened door of the aircraft. Seaplanes also took part in the supply operations, bringing relief troops and equipment too bulky or too delicate to be dropped. They landed in a nearby fiord which was fairly well protected against the fire of the British battleships. An interesting point about these operations was that volunteer troops from the German mountain infantry units, who had never had any formal paratrooper training, were dropped by parachute. As a result of this experiment, paratrooper training, which normally took several weeks, was considerably shortened.

One serious disadvantage faced by the force at Narvik was the complete lack of heavy weapons, which could have been transported in sufficient number only by sea. As it became apparent that this lack was one of the most important factors in determining the course of events, German military leaders decided to send a 75-mm. Skoda mountain gun battery to Narvik by air. This mission was assigned to a carefully selected transport group under the leadership of Colonel Baur de Betasz, and the requisite number of Ju-52's (this time without auxiliary fuel tanks) were loaded with the gun parts, personnel, and as large a supply of ammunition as possible. Each aircraft carried only enough fuel to enable it to reach an ice-covered lake near Bardufoss (about 70 miles north-northeast of Narvik), where they were to be abandoned. The resultant loss in materiel had already been taken into account. Even if the military situation had improved to such an extent that normal land communication could have been established, the aircraft would not have been able to take off again from the lake. As soon as the spring thaw came, they

simply sank. The crews had joined the forces fighting on the ground.

The fact that as costly a transport mission as this one was approved presupposed, of course, that the Narvik force would be able to hold out until the operations of the tactical Luftwaffe against the supply routes between England and the Narvik bridgehead--combined with the impression made by Germany's success in France--would persuade the enemy to abandon the northern theater of war.

In evaluating the Narvik action from the point of view of the air transport forces, one must bear in mind that the criterion of a proper employment of air transport facilities, i.e. the relationship between the strength of the air transport units available and their potential effectiveness to the end achieved, was by no means fully met. The incidental fact that the desired end was attained, however, should not be accepted as evidence for the establishment of a general principle. The air transport of a mountain infantry battery, in the prior realization that all of the participating Ju-52's would be lost, can be viewed only as a last, desperate measure. It is true that desperate measures such as this can be justified, provided that their purpose is indispensable to ultimate victory. This purpose, in turn, can be judged only from the standpoint of the outcome of the over-all operation; and any commander who orders a mission of this kind must be fully aware of these implications.

## Section II: "Fortress Holland," 10-15 May 1940

### A. Preparations

Operation "Fortress Holland" was carried out under the aegis of the 7th Air Division, commanded by Generalleutnant Kurt Student. Its planning and preparation were characterized by farsightedness and careful attention to detail. Both the parachute troops and the air transport units, which had completed joint training for their mission during peacetime, were assigned to the 7th Air Division. Their equipment was entirely adequate to the demands of the mission. The airlanding force, the Army's 22d Division, had also been especially trained and equipped during peacetime and had completed intensive joint training with the 7th Air Division.

After the invasion of Norway, many of the air transport units had been sent back to their home airfields, where losses in personnel

and materiel were made up as rapidly as possible in order to restore the units to full combat readiness for Operation "Fortress Holland." By early May 1940, the 7th Air Division had at its disposal two air transport wings of two hundred and twelve Ju-52's each.

On 8 May 1940 the transport units were ordered to airfields in the northwestern corner of Germany near Dortmund, Lippstadt, Osnabrueck, and Muenster. At approximately the same time, the parachute and airlanding forces moved by cross-country march to these take-off bases. There were no technical difficulties nor were there any problems in connection with the organization of ground services at the airfields concerned; for the most part these were either peacetime airfields, expanded to accommodate military activity, or well-equipped home fields. The moves of the ground forces and the transport units were completed with equal smoothness; the two forces were accustomed to working together.

B. The Operation

They were ordered to go into action on 18 May 1940, with 0530 set as the moment for the first wave of units to fly over the border. Take-off times for the various groups were set in accordance with the distance between their airfields and the border.

The first wave was made up of the 1st Special Duty Bomber Wing, under the leadership of Lieutenant Colonel Fritz Morzik /the author of this study/; the second wave consisted of the 2d Special Duty Bomber Wing, under Colonel Gerhard Conrad, and the 1st Group, 1st Airlanding Wing, under Lieutenant Colonel Gustav Wilke.*

Taking off in groups of three aircraft, the units came together in a circling climb and set off on their course in javelin formation by groups. The take-off times for the groups within each wing had been carefully computed so that the groups would all reach the border at exactly the right moment to permit them to cross it in broad front

* Precise information regarding personnel strength, organization, unit commanders, home airfields, etc. is not available at the present time. These data may eventually be compiled from the Combat Reports of the 7th Air Division.

formation. In order to exploit fully the factor of surprise, it was of the utmost importance that the parachute troops be dropped over their respective targets simultaneously. The aircraft crossed the border zone at high altitude in order to keep out of the range of light antiaircraft and infantry fire. Once over the border, the formations descended at a previously ordered, uniformly decreasing speed to a lower altitude, approached the drop area at hedge-hopping altitude, climbed to the drop altitude of 400 feet shortly before reaching the drop area, and then departed at hedge-hopping altitude. The return flight was carried out in the same fashion as the approach flight. The first wave of transport aircraft dropped their paratroopers without mishap at the four important assault targets, all of which were taken in coup de main actions. The Moerdijk bridges, the most important point of access to "Fortress Holland," fell undamaged into German hands.

The battle for the Waalhaven airfield, near Rotterdam, was less successful in the beginning. The second wave, consisting of most of the aircraft of the 2d Special Duty Bomber Wing, had been ordered to fly directly to Waalhaven and to land there. At the time of their approach, however, the assault by the paratroopers dropped by the first wave had come to a halt in the face of the fire of units defending the airfield. Some of the aircraft commanders mistakenly assumed that the airfield was already in German hands and some of them, their thinking based on the experience gained during the action in Norway, decided to force a landing. Thus, the first aircraft of the second wave, carrying elements of the 22d Division, began their landings. The enemy, however, basing his action either on an extremely accurate evaluation of the situation or on previous knowledge of the coming attack,* had equipped the airfield for defensive operations and had

* Editor's Note: According to Wheeler-Bennett, Generalleutnant Hans Oster of the German Abwehr (Counter-espionage Intelligence) informed Colonel J. G. Sas, the Dutch Military Attache in Berlin, of the impending attack on Holland and Belgium. Sas, in turn, reported to The Hague on 4 May that an invasion of the Low Countries would take place in a matter of days. Count Ciano, in his diary, reports that Mussolini, on learning of Hitler's plan to invade Holland and Belgium, ordered Ciano to warn the Belgian and Dutch ambassadors. (See: J. W. Wheeler-Bennett, The Nemesis of Power, Macmillan & Co. Ltd., (London, 1954), p. 495; and The Ciano Diaries, 1939-1943, Doubleday & Co., Inc., (New York, 1946), Ed. by Hugh Gibson, p. 183.)

Destroyed Ju-52's at Waalhaven Airport; Rotterdam in the distance

Interior of a Ju-52 loaded with 110-lb. bombs

mined the landing field. As a result, several aircraft, with their crews and their cargos of airlanding troops, were destroyed as they landed. Finally, through the combined efforts of the airborne troops and the paratroopers, enemy resistance was overcome and the airfield captured. The occupation of the airfield near The Hague followed approximately the same course and the field was captured only at the cost of fairly high losses in aircraft and personnel.

In such large-scale parachute and airlanding operations as these, the duration of which cannot be accurately estimated in advance, an unexpected turn of events can easily lead to a serious crisis, as might have been the case here if, for example, the outcome of the ground fighting during the later stages had also been dependent upon the continued employment of all available air transport aircraft. Due to the rapid success of the undertaking, which was considered concluded after a few days, the 1st Special Duty Bomber Wing was able to handle all requests for supply and transport service without additional help. In fact, during the two days immediately following the attack, only a small percentage of transport aircraft were actually required. Therefore, the Wing was detached from the 7th Air Division and transferred to the Western front for utilization in pure air transport missions.

## Section III: The Mediterranean and Africa/Tunisia, December 1940-October 1943[8]

### A. General

Because of the rapidly changing picture in the African theater of war, air transport activity in that area, which extended over a period of almost three years, will be treated in seven separate phases.

In preparation for airlift operations in the Mediterranean, a network of military bases had to be established to permit the rapid air transport of replacement troops and supplies to important areas within the theater.

The success of the initial German advance in Africa increased the demand for air transport services, without, however, exceeding the available capacity. In other words, the conditions under which air transport activity was carried out remained the same; it was merely necessary to utilize additional air transport facilities.

Because the Mediterranean area constituted a distinct theater of operations, the air transport units stationed there were organized under a special staff, the Air Transport Chief (Mediterranean). The function of this staff was to establish an air bridge between the mainland and North Africa, permitting a rapid and uninterrupted transit of supplies. Although the basic purpose of air transport operations in the Mediterranean remained the same, their scope varied greatly as the war progressed.

The individual missions frequently entailed more than pure air transport duty, some of them being more closely akin to combat employment or air-supply actions. As a result of the steady increase in theater troop requirements, the network of bases--so well organized originally--was soon overburdened and inadequate to the demands made upon it. During the course of Mediterranean operations, the role of the air transport units gradually developed from pure air transport duty into air-supply duty. The undertaking, which was an extremely costly one for the air transport forces,* came to an end when German troops on Cape Bon in Tunis surrendered to the Allies in May 1943. Thereafter, German air transport operations in this theater were restricted to the northern edge of the Mediterranean in the Italian and Balkan areas.

### B. Foggia-Albania, December 1940-February 1941

The first German air transport operations in the Mediterranean grew out of the Italian campaign in Greece. Italy's attack on Greece, on 28 October 1940, can perhaps best be explained by the conviction of Italian leaders that the ensuing war would soon be over. Despite

* Editor's Note: During the almost three years of Luftwaffe operations in the Mediterranean area, the following air transport units saw service for varying lengths of time in this theater: the 7th, 9th, 11th, 13th, 102d, 106th, 300th, 400th, 500th, 600th, and 800th Special Duty Bomber Groups; the Wittstock and Frankfurt Special Duty Bomber Groups; the 3d and 4th Groups of the 1st Special Duty Bomber Wing; the 30th Air Transport Group; the 3d Group, 1st Air Transport Wing and the 4th Group, 3d Air Transport Wing; the 1st and 2d Groups, Me-323 Wing; the 1st Squadron, 1st Training Wing; one Aircraft Tow Squadron (He-111's), one Long-Range Air Transport Squadron and one Air Transport Squadron, Sea (Bv-222's).

initial successes, the Italian troops were soon forced to retreat into the Albanian mountains. The presence of enemy submarines in the coastal waters allegedly made it impossible to supply the Italians by sea; another solution had to be found.

It is not within the province of this study to determine whether or not political considerations may have been behind the decision not to attempt supply by sea. The fact remains that Italian leaders wanted the Albanian front supplied by air. Although the Italian Air Force did possess an aircraft model (the SM-82)* suitable for transport purposes, the Italians maintained that they had no machines of their own with which to do the job; the SM-82 was utilized only sporadically for supply missions to Albania. It was much less trouble simply to request their ally, the Third Reich, to detach one of its air transport groups for the mission. Hitler fulfilled Mussolini's wish and ordered the release of the 3d Group, 1st Special Duty Bomber Wing, for this purpose.

The 3d Group took off from the airfield at Wesendorf on 8 and 9 December 1940 and proceeded to Foggia, in eastern Italy, north of Bari, with one intermediate landing at Graz. The group was up to full aircraft strength, with fifty-three Ju-52's, and the crews, veterans of the undertakings in Norway, Holland, and the Western theater, had had sufficient combat experience to fit them for their present mission. The airfield maintenance companies had already started for Foggia by train.

The Italian High Command relayed its instructions through the Air Commander, Italy.† The group was to be utilized for the transport of Italian troops (trained and equipped for winter warfare), winter clothing, ammunition, weapons, and other military equipment to the

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* The SM-82 was a twin-engine machine, capable of transporting a payload of two to two and one-half tons. It was not equipped for long-distance instrument flight.

† Editor's Note: The Office of the Air Commander, Italy, also served as a liaison staff to the Italian High Command and as the agency responsible for ground organization services for Luftwaffe units stationed in Italy. After the arrival in Italy of the Second Air Fleet in 1941, the staff of the Air Commander, Italy, assumed the status of an air administrative command subordinate to the Air Fleet.

Albanian airfield of Tirana. On their return flights the transport aircraft were to carry sick and wounded personnel and unserviceable weapons and equipment. The transports were to be made up of 40 percent replacement personnel and 60 percent supplies and equipment. No requirement had been established in terms of tons per day, since this would depend largely upon whether or not the Ju-52's would be able to fly two sorties daily. During this period there was little danger that the transport aircraft would be harassed by British fighters. Periods of bad weather and the presence of fog over the target area were factors which could disrupt the missions and which had to be taken into account. On the other hand, the transport crews were experienced in instrument flight, and serious interruptions because of inclement weather were not anticipated. No difficulty was foreseen in the assembling of personnel and supplies for transport to Albania, and provisions had been made to insure adequate supplies of aviation fuel.

Although the 3d Group, 1st Special Duty Bomber Wing, was organizationally subordinate to the Air Commander, Italy, operationally it was dependent upon the supply branch of the Italian High Command. Coordination with the Italian agencies was good. The Italians utilized two or three of their own transport aircraft for special missions each day.

The airfield at Foggia, with all its technological facilities (which included air traffic control), had been placed at the disposal of the 3d Group as a take-off base. From the point of view of weather conditions at this time of year, the airfields farther to the south, either at Bari or at Brindisi, would have been more suitable. Whenever low-lying clouds reduced visibility too greatly Foggia had to be approached at hedge-hopping altitude from the water. There was no enemy harassment of the flights themselves or of loading and unloading activity, and the missions were carried out under almost peacetime conditions. At both Foggia and Tirana the aircraft were serviced by aircraft maintenance crews provided by the 3d Group, and both fields had sufficient personnel available to help with the loading and unloading of the aircraft. The Italian supply agencies were extremely cooperative and did everything in their power to comply with the unit's desires. The 3d Group had assigned a liaison officer and an interpreter to the Italian agencies. Medical personnel and ambulances were available in sufficient number at both Foggia and Tirana to handle the loading and unloading of wounded.

The supply missions were flown only during daylight hours. Soon, the crews became accustomed to the almost 200-mile route over the ocean. For purposes of safety, each Ju-52 was equipped with life vests and inflatable rubber rafts. The aircraft flew two missions daily, taking off in groups of three at five-minute intervals, and landing singly at Tirana. After landing, each group of three aircraft had thirty minutes in which to unload, load, and take off again.

During the first half of the period there were approximately one hundred flights each day, and during the last few weeks approximately sixty. There were ten days throughout the entire period when weather conditions precluded any flights at all. Italian antiaircraft artillery offered protection at both Foggia and Tirana. During the course of the operation, however, there was only one British bomber raid on Foggia and it failed to do any damage.

The Italian communications network was at the disposal of the 3d Group. In order to meet its needs in the fields of air traffic control, weather observation and reporting service, and air-sea rescue, the Italian radio and direction finding stations in the take-off and target areas and the direction finding station at Bari were available, as well as a crash boat in the Adriatic at the halfway point of the flight route, and the Group's own radio station at Foggia. The air-sea rescue unit at Bari was standing by ready for action, but fortunately its services were never required. Weather reports were supplemented by observations made at Tirana, by the crash boat, and at the local stations in Foggia.

As far as technological servicing and maintenance were concerned, the Group relied on the facilities available at the airfield in Foggia and on the services of two German airfield maintenance companies. Adequate arrangements had been made to ship any needed spare parts from Germany.

Of the 4,028 missions flown to Tirana during the fifty-day period of the operation, 1,665 missions were devoted to troop transport and 2,363 missions were earmarked for transport of supplies. As a result, 30,000 troops and 4,700 tons of supplies were flown to Albania, while approximately 10,000 wounded and sick were brought back to Italy on the return trips. During the course of the entire operation, no aircraft were lost.