

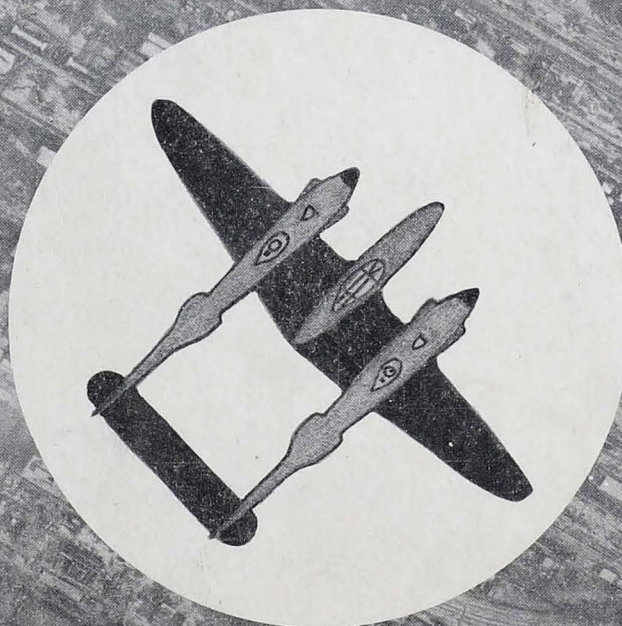
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67
STRATEGIC

09-RF-33030

PHOTO

RECONNAISSANCE



5TH RECONNAISSANCE GROUP

FIFTEENTH AIR FORCE

APO 520, US ARMY

15 JULY 1945

RESTRICTED

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HEADQUARTERS
5TH RECONNAISSANCE GROUP
APO 520 US ARMY

The 5th Reconnaissance Group was assigned to the Fifteenth Air Force on 1 October 1944. With this assignment the Air Force acquired the intelligence procuring and producing unit essential to the completion of its organization.

The primary function of this Group was to furnish intelligence upon a routine basis and on special demand of the Air Force. This intelligence was processed in its entirety within the Group and passed to the demander in a completed form, ready for use. While the Fifteenth Air Force was the chief demander, other agencies made requests for intelligence material, which was furnished if it did not conflict with the demands of the Air Force.

The succeeding report is a description of strategic photo reconnaissance, showing the relationship of the 5th Reconnaissance Group to the Fifteenth Air Force, and presenting the details of the operational functions of the Group in the accomplishment of the Air Force mission.



W. H. STRATTON
Colonel, Air Corps
Commanding

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FIFTEENTH AIR FORCE
Office of the Commanding General
A. P. O. 520

A:NFT:mbr

201.22

31 December 1944.


SUBJECT: Commendation.

TO : Commanding Officer, 5th Photo Group Reconnaissance, APO 520,
U. S. Army.

1. I wish to express my appreciation to you and to every member of your command for the valuable contribution your unit has made to the operations of this Air Force during December.

2. Though handicapped by poor weather and harassed by enemy fighters, your unit has made every effort to provide this Air Force with vitally important photographic reconnaissance. Due to bad weather, your efforts were largely unrewarded until the latter part of the month. Since 17 December your unit has covered over 900 pin-point targets. As a result of the initiative and daring of your pilots, operational intelligence is virtually complete on all targets in the three priority systems within our operational range.

3. I commend all the members of your command on this superb performance.



N. F. TWINING
Major General, USA
Commanding

cc: TAG

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FIFTEENTH AIR FORCE
Office of the Commanding General
A.P.O. 520

201.22

6 February 1945

SUBJECT: Commendation.

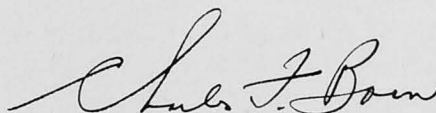
TO : Commanding Officer, 5th Photo Group, Reconnaissance, APO 520,
U. S. Army.

1. It has come to my attention through the Assistant Chief of Staff, A-2, that the 5th Photo Group Reconnaissance is producing communications target reports of a superior quality.

2. These reports are invaluable to this headquarters in determining the most fruitful targets in rail centers and are sufficiently detailed to permit an immediate calculation of the facilities remaining in a rail center when any portion of the total has been destroyed.

3. Members of your command responsible for all phases of the production of these reports, flight, photography, interpretation and reproduction, are commended for the quality of their work.

BY COMMAND OF MAJOR GENERAL TWINING:



CHARLES F. BORN,
Brigadier General, USA
Deputy Commander.

FIFTEENTH AIR FORCE
Office of the Commanding General
A. P. O. 520

201.22

22 March 1945

SUBJECT: Commendation.

TO : Commanding Officer, 5th Photo Group Reconnaissance,
APO 520, U. S. Army.

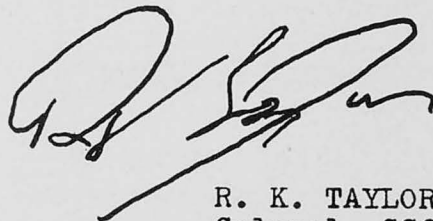
1. The Commanding General has noted with pride and satisfaction the outstanding performance of the 5th Photo Group Reconnaissance on 16 March 1945, when it dispatched 23 sorties, 19 of which successfully photographed 155 target pinpoints.

2. The speed and efficiency with which your laboratories and photo interpretation sections processed the unusually heavy volume of photography has also been observed.

3. The high degree of success attained in this day's operation demonstrates efficient staff planning, individual pilot initiative and superior maintenance by your service personnel.

4. It is desired that this commendation be brought to the attention of all members of your command.

BY COMMAND OF MAJOR GENERAL TWINING:



R. K. TAYLOR,
Colonel, GSC,
Chief of Staff.

RESTRICTED

HEADQUARTERS FIFTEENTH AIR FORCE
APO 520 U S ARMY

201.22

5 December 1944

SUBJECT: Commendation.

THRU : Commanding Officer, 5th Photo Reconnaissance Group,
APO 520, U. S. Army.

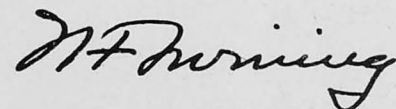
TO : First Lieutenant ANGEL ARCHILLA, O-362550, AC
First Lieutenant AUGUSTE H. FRIEDRICHS, O-906420, AC
Second Lieutenant HUGH P. MC GRADE, O-864678, AC

1. I desire to commend you for your contribution to the Pathfinder effort of this Air Force.

2. It has been brought to my attention by the Assistant Chief of Staff, A-3, that you were part of a small staff of the 4th Photo Tech. Sqdn. given the assignment of analyzing all Pathfinder photography and preparing radar pictures for reproduction in the form of target material. As a result of your work, this Air Force has been supplied with the finest compilation of Pathfinder target material in existence. This demonstration of superior ability in a new and difficult field has resulted in better target identification by Pathfinder Operators on heavy bombardment missions and in successful "through the undercast" bombing of the enemy's most vital installations.

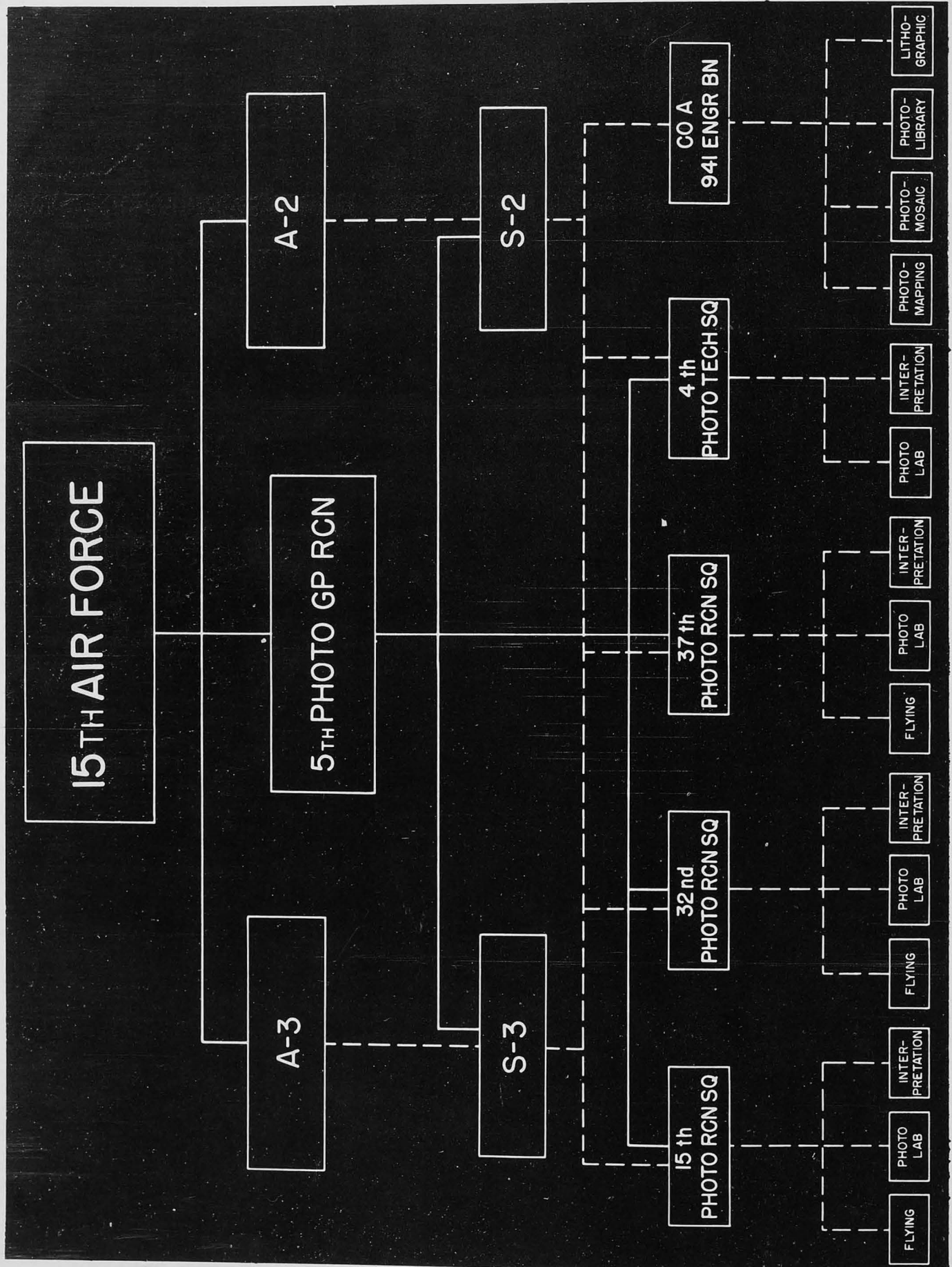
3. This commendation will be made a part of your official record.

cc: TAG



N. F. TWINING
Major General, USA
Commanding

RESTRICTED



THE GROUP STAFF

The dual role of the Commanding Officer of the Group serving as Air Force Photographic Staff Officer was perhaps unique in this and the European theaters. To assist him in this capacity, the Group Photo Officer was also detailed as Ass't Air Force Photographic Staff Officer. These Staff duties were as follows:

1. To advise the Commanding General on mapping and photographic matters.
2. To coordinate photographic operations, reproduction and distribution with the necessary staff sections.
3. To coordinate with the necessary agencies on matters of map and chart compilation, reproductions and distribution.
4. To supervise photographic and mapping activities of all assigned units.
5. To establish and maintain a central negative and print library and to coordinate the flow of photographs (not including PRO releases) from this to higher headquarters.
6. To establish priorities of photographic equipment and supplies within this Air Force; to coordinate on supply thereof, and to inspect for proper level of photographic supplies in organizations and in reserve.
7. To determine the requirements and direct the establishment of all photographic installations within the Air Force.
8. To perform necessary inspections, coordinate photographic reports and disseminate information on photographic matters.

The Operations and Intelligence Sections of the Group were established in the Air Force Headquarters Building, where the key personnel thereof were immediately available at all times for personal contact with A-2 and A-3 when desired. The Liaison Officer also maintained his office there for normal liaison functions as well as for the purpose of receiving and coordinating all demands from higher headquarters. All other staff sections including Headquarters and Headquarters Detachment had their offices in the Group Bivouac Area located approximately two miles from Air Force Headquarters. It may be noted here that the operational advantages resulting from this separation of two staff sections from the Group far outweighed any inconvenience caused by the split.

HISTORY

5th Reconnaissance Group was activated under the designation of Fifth Photo Group on 23 July 1942 at the Army Air Base, Colorado Springs, Colorado. However, a cadre of officers and enlisted men was not assigned to Group Headquarters until 12 January 1943, at which time Major James F. Setchell was designated Commanding Officer of the Group. Assigned to the Group in the early part of 1943 were the 21st, 22nd and 23rd Photo Squadrons (Light) and the 24th Photo Squadron (Heavy).

With the formation of these squadrons, a program of training of both air and ground personnel was instituted. A few months later, the 21st and the 22nd Squadrons left for overseas duty, the former going to the CBI Theater and the latter to ETO. In the meantime, Lt. Col. Waymond A. Davis assumed command of the Group vice Major Setchell on 27 February 1943.

The first of a series of redesignations of the Group took place on 19 May 1943, when the name of Group Headquarters became Headquarters, 5th Photographic Reconnaissance and Mapping Group. It was under the latter designation that Group Headquarters and the 23rd Photo Squadron, then commanded by Captain Lloyd R. Nuttall, left Peterson Field for the staging area at Camp Kilmer, New Jersey, on 8 August 1943. Thirteen days later, both organizations left the United States for overseas service.

Arriving at Bizerte, Tunisia, Group Headquarters and the 23rd Photo Squadron were assigned to NAPRW (Prov) and set up for operations at La Marsa, where other units of the wing were located. The pilots of the 23rd Squadron having preceded the remainder of the unit and having flown combat missions with other organizations, the squadron began operating within a very few days after its arrival at La Marsa. The missions allotted to the Group were primarily over Italy, Corsica and Sardinia, although a number of sorties were flown to Southern France, Albania and Yugoslavia. On 30 October 1943, the Group flew the first photo missions from Africa to Germany, when five pilots of the 23rd Squadron were dispatched to obtain coverage of targets in Munich, Augsburg, Regensburg and Stuttgart.

A period of changes within the Group began on 23 October 1943, when Lt. Col. Davis was relieved from assignment to the Group and was succeeded as Group Commander by Major Leon W. Gray. Furthermore, to balance the two photo groups in the wing, the 12th Photo Squadron was attached to 5th Group on 27 October. It was relieved of this attachment on 21 November and the 15th Photo Squadron was attached in its stead. On the same day, 1st Lt. Richard H. Burnor was named Commanding Officer of the 15th Squadron. This squadron was reorganized under T/O and E 1-767, 11 September 1943, and was redesignated as the 15th Combat Mapping Squadron (2-Engine) and assigned to 5th Group on 28 January 1944. At the time of its assignment, the 15th Squadron was under the command of Lt. Joseph E. Terrett, who assumed command of the Squadron on 14 January 1944.

Group Headquarters underwent another reorganization and redesignation on 18 December 1943, according to T/O and E 1-752, 14 September 1943, when it became Headquarters 5th Photographic Group, Reconnaissance. At the same time, the 23rd Photo Squadron was redesignated as the 23rd Photographic Reconnaissance Squadron and was reorganized under T/O and E 1-757, 17 September 1943.

As was the case with most units in North Africa late in 1943, 5th Group moved northward to Italy. At the time of its assignment to the Group, the 15th Squadron was already located at Grottaglie. On 7 November 1943, the 23rd Squadron left La Marsa and eventually set up base at Foggia No. 7 Airfield, south of the city of San Severo. The personnel of Group Headquarters was brought to San Severo for the most part by aircraft between the 3rd and 8th of December. Being committed to obtain photo intelligence for the Fifteenth Air Force, the 15th Squadron moved to Bari on 28 December. At the same time, the B-17's and B-25's of the 15th Squadron, together with 2 Officers and 66 enlisted men, were moved to San Severo and attached to Group Headquarters. It was with these heavy planes that the Group flew night photo missions in the following six months, having been entrusted with this phase of photo work by the Commanding Officer of the 90th Photo Wing. The Group Assistant Operations Officer, Captain John L. McQuigg, was designated Wing Consultant for night photography. It was during this period that many experiments in the methods and equipment for night photography were undertaken, such as the use of the Edgerton Flash Unit. This phase of work was abandoned by 5th Group when its heavy aircraft and their crews were transferred to the Third Photo Group and other units in June, 1944.

Upon the arrival of the Group in Italy, it was allotted for coverage the area of the Balkans, from the Adriatic to the Black Sea and from Southernmost Greece to Northern Hungary. With the 15th Squadron flying primarily the demands of Fifteenth Air Force, coverage of routine and special targets in the allotted area fell to the 23rd Squadron. A serious situation in regard to this coverage arose when the 23rd Squadron was committed to work with Force 163 in furnishing all photo reconnaissance of Southern France in preparation for the invasion of that territory. Since the task imposed upon the 23rd Squadron was a massive one, a flight of the II/33 Photo Reconnaissance Squadron, French Air Force, and a flight of the 682 Squadron, RAF, were attached to the squadron for operational purposes. The 23rd, meanwhile, left San Severo, Italy, in two echelons on the 9th and 18th of February 1944 in a movement to Alghero, Sardinia. Later, the squadron moved to Borgo, Corsica, in July 1944, to lessen the distance to its targets.

In order to cover the assigned targets in the Balkans after the departure of the 23rd Squadron from Italy, six pilots and a group of enlisted men of the 5th Combat Mapping Squadron were attached to 5th Group. Before this, however, there came a change in command of the Group when Captain Lloyd R. Nuttall was designated Group Commander vice Major Gray on 2 February 1944. Captain Nuttall's place as Commanding Officer of the 23rd Squadron was taken by Captain Harry R. Oakley, until the latter's assignment, on 20 April, as Deputy Group Commander, when Captain George K. Finan assumed command of the squadron.

In April 1944, word was received that the 32nd Photo Reconnaissance Squadron was on its way to Italy and that it would be assigned to 5th Group upon arrival. However, on 20 April, while the convoy carrying the squadron was in the Mediterranean, enemy Ju-88's attacked. The ship carrying all the pilots and all the enlisted men of the squadron was hit by a torpedo, which caused the death of all aboard. Twenty-five ground officers of the squadron, having been on board another ship, landed safely at Bari. With these officers as a nucleus, the squadron was reformed by the transfer of pilots and enlisted men into the squadron, which soon began operating under the command

of Captain Harry C. Jenkins. This squadron was given the Balkans as its operational area, thus permitting the detachment from the 5th Combat Mapping Squadron to return to its parent organization.

In June, 1944, shuttle photo missions between Italy and Russia were begun by the 90th Photo Wing. To 5th Group was given the responsibility of arranging clearance to the base at Poltava and all briefing and interrogation of pilots flying the missions. This responsibility was terminated in mid-September, when the shuttle missions ceased to be flown.

More administrative changes occurred in the interim. On 10 July, Captain Horace H. Myers became Commanding Officer of the 15th Squadron, which position he held until September of 1944 when he was succeeded by Captain Exum F. Bullard. On 23 August, the 23rd Squadron was attached to the Third Photo Group and, effective 1 October 1944, was relieved from assignment to 5th Group and assigned to the 3rd Group.

The 1st day of October 1944 was an important one in the history of 5th Group. On that day it was relieved from assignment to the 90th Photo Wing and became a unit of the Fifteenth Air Force. At the same time, in order that it have all units necessary for complete operations, the 4th Photo Technical Squadron, commanded by Major Stanley C. Brogren, was assigned to the Group and Company "A", 941st Engineer Aviation Topographic Battalion, commanded by Captain Cornelius Miller, was attached for operations. On 1 October, Colonel Wilbur H. Stratton assumed command of the Group. To provide for closer contact between Group and Air Force, Group Headquarters, the Technical Squadron and the Engineers moved to a camp on the southern outskirts of Bari where, at the end of November, material for the Air Force was being produced in abundance. Changes in Commanding Officers of squadrons occurred on 9 September when Captain Stanley W. Irons assumed command of the 32nd Squadron, and on 8 December when Captain Virgil A. Dinneen became Commanding Officer of the 15th Squadron.

On 10 November 1944, having arrived in Italy, the 37th Photographic Reconnaissance Squadron, under the command of Major Bernard S. Hendler, was assigned to 5th Group. The squadron was located at San Severo and, after a period of flying orientation missions, began combat operations on 3 February 1945. The addition of the 37th Squadron helped increase the extensive efforts of the Group, which efforts were recognized when the Group was awarded the Distinguished Unit Citation per paragraph 2, Section I, General Orders Number 2, Headquarters Army Air Forces, Mediterranean Theater of Operations, dated 16 January 1945. The award was made for the Group's outstanding performance of duty on 6 September 1944, when the photography of the Group revealed a movement of the German Air Force from one sector of the Balkans to another. The information thus secured resulted in an attack on the new airfields and the destruction of a large number of enemy aircraft. The presentation of the award was made by Major General Nathan F. Twining on 27 February 1945, in the presence of the Group Staff Officers, the Commanding Officers of all units within the Group and the enlisted personnel.

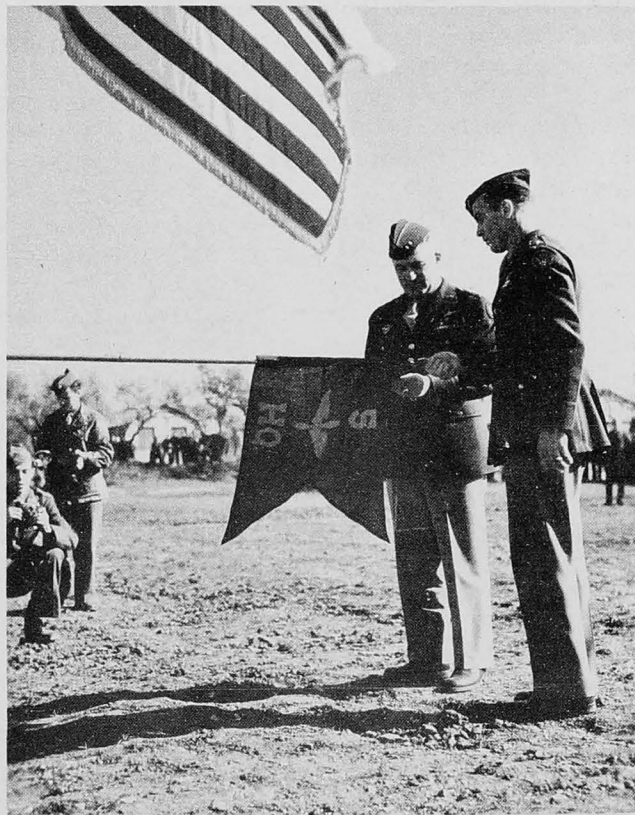
A few days before VE-Day, Group Headquarters was reorganized under T/O and E 1-752, 15 March 1945. At the same time, it was redesignated as Headquarters 5th Reconnaissance Group.

SEPTEMBER 1943 - MAY 1945

Total number of missions	4,068
Night missions	32
H2X missions	65
Local photo missions	181
Number of prints produced	2,406,840
Number of negatives produced	889,213

Combat Awards

Silver Star	8
Distinguished Flying Cross	47
Clusters to the Distinguished Flying Cross	3
Air Medal	122
Clusters to the Air Medal	417



Presentation of the Distinguished Unit Citation to the 5th
Reconnaissance Group by Major General Nathan F. Twining,
Commanding General of the Fifteenth Air Force, 27 February 1945

STRATEGIC PHOTO RECONNAISSANCE

Prior to being assigned to the Fifteenth Air Force, the 5th Reconnaissance Group was under the direct operational control of Mediterranean Allied Photo Reconnaissance Wing, which was responsible directly to MAAF. One squadron of the 5th Group was allotted to the Fifteenth Air Force for operational control. However, the needs of the Fifteenth Air Force were so varied and of such volume that one squadron could not adequately fill all the demands. To meet the increased demands of the Air Force and have a more direct control of those demands, the 5th Reconnaissance Group was assigned to the Air Force. At the time of this change, the Group consisted of two flying squadrons, the 4th Photo Technical Squadron and Company "A", 941st Engineer Aviation Topographic Battalion, which was attached to the Group for operational control. All efforts of the entire Group were, from that time, directed toward strategic photo reconnaissance.

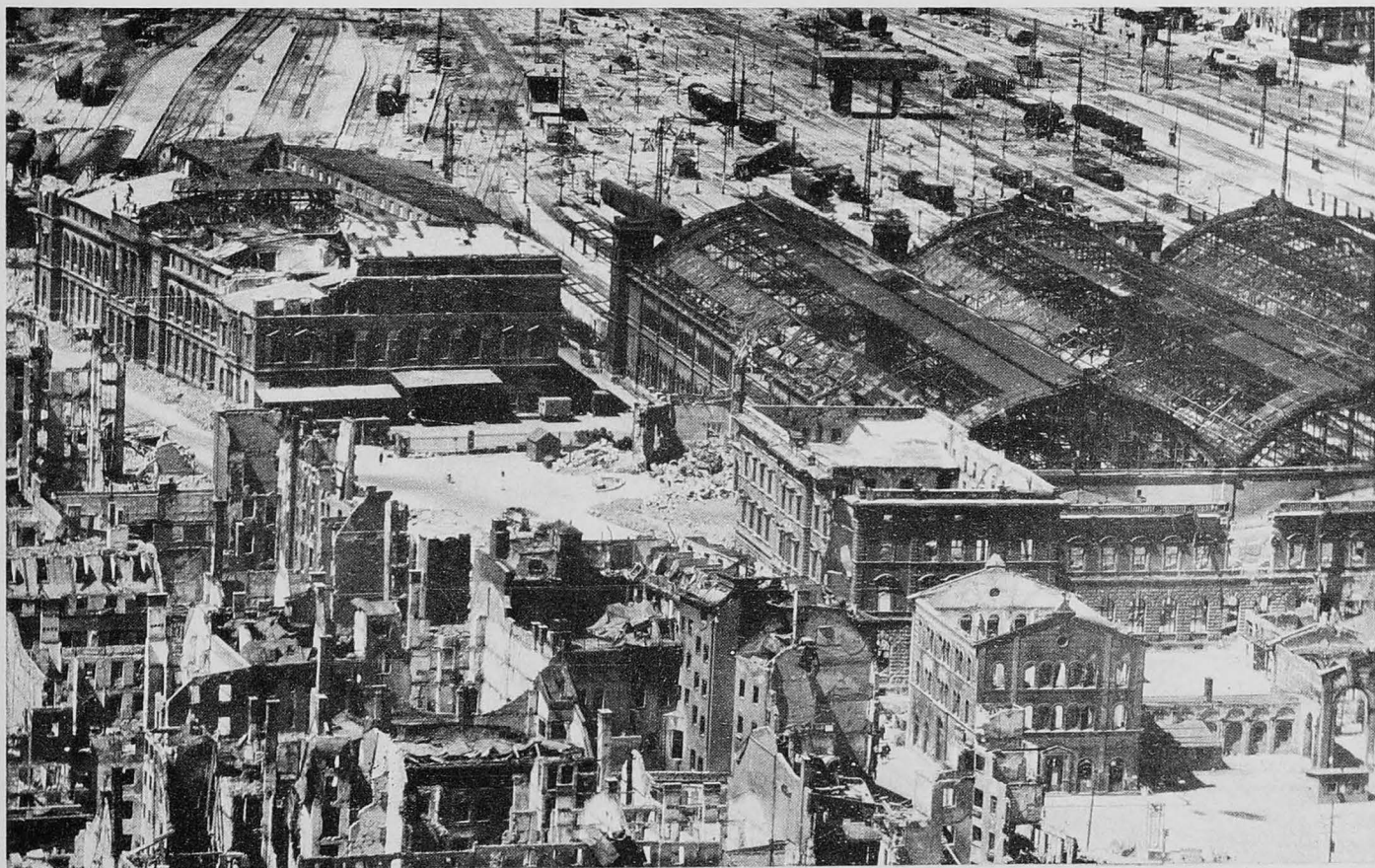
To plan long range strategic bombing effectively, intelligence must be collected well in advance of the actual bombing. Such intelligence was collected from many varied sources in peacetime, but, with the outbreak of hostilities, most of the sources were dried up. Secret agents supplied information of value, but often their information was brief or inaccurate. Meanwhile the enemy was active, building war plants, submarine bases, warships and new lines of communications. The only possible way in which comprehensive intelligence of all such developments could be made available in sufficient volume was through photo reconnaissance operating deep within the heart of the enemy country.

Such reconnaissance was a continuing process, that is, a routine photo cover of enemy installations. Every potential target of the Air Force was rated according to the value it held to the enemy. This policy was used to determine the frequency of coverage. Thus, the Brenner Pass, which was used by the Germans to supply their armies in Italy, was given a high priority and was, therefore, covered every day. Lechfeld Airdrome, which was one of the main "jet" airfields of the GAF and remained until VE-Day a constant threat to the strategic bombers, was covered every three days. Industrial plants and oil refineries, which were always high on the priority list, were covered on demand of the Air Force A-2. All this was in addition to the coverage of targets bombed by the Air Force.

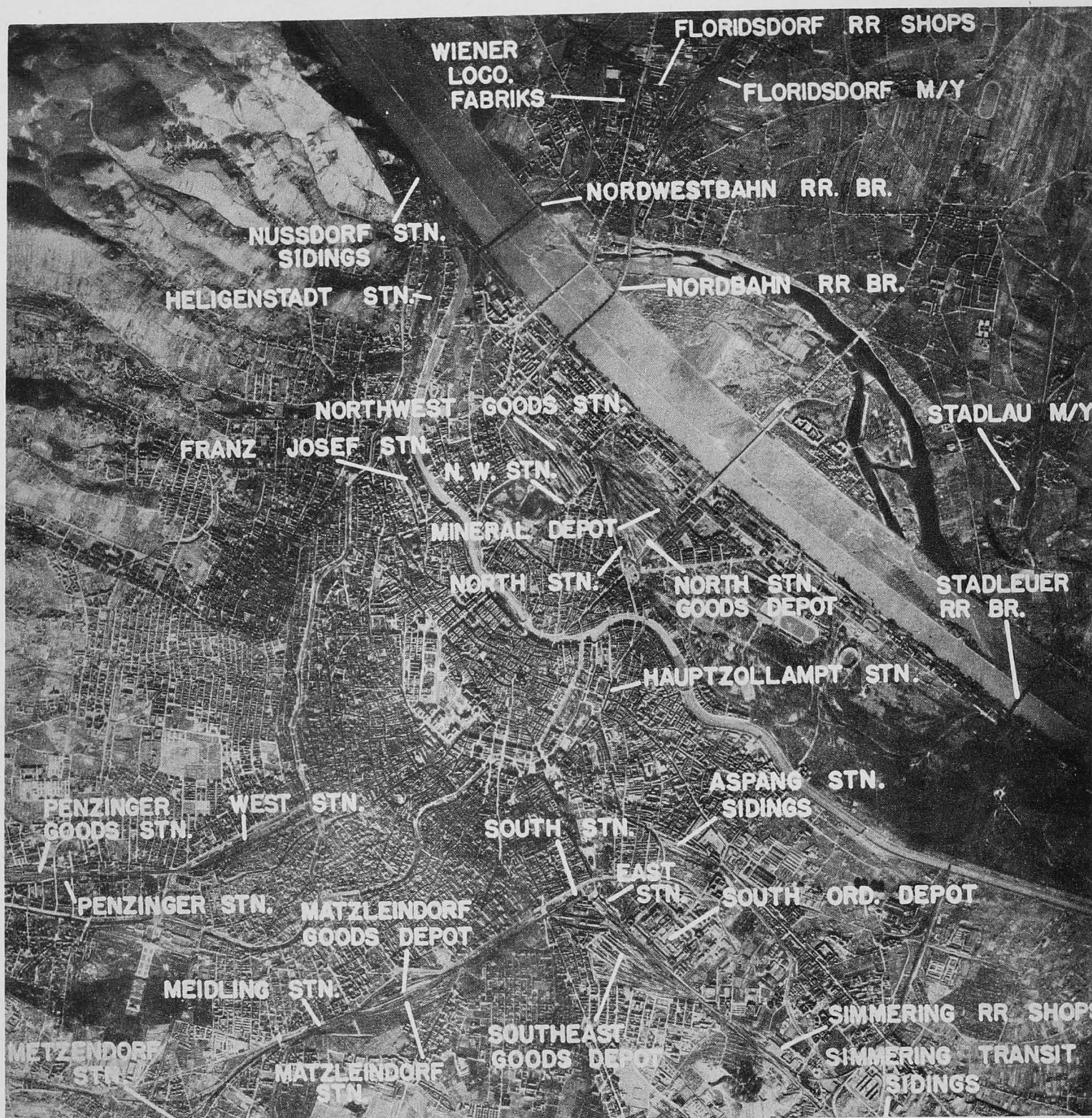
Oil, the lifeblood of the German war machine, was early selected by the Combined Strategic Target Committee as the one target system that was most vulnerable to strategic bombing. Photo reconnaissance played a most important part in the effort of the Fifteenth Air Force in the cutting off of the enemy's oil supplies. Beginning with Ploesti in early April of 1944 and ending with the announcement of the Commanding General of the Fifteenth Air Force on 23 March 1945 that the Counter-Oil mission of the Air Force had been accomplished, the 5th Reconnaissance Group's greatest single task was also completed - that of providing vital intelligence on all the targets in that system.

Keeping a close check on the GAF was another mission which the 5th Reconnaissance Group undertook and accomplished under the direction of the Air Force. Maintaining vigilance over the "jet" operational fields was a task which was creditably fulfilled, despite repeated attacks on the Group's reconnaissance aircraft by these same "jets". Provided with the resulting information, the Air Force could attack whenever concentrations of enemy aircraft made it profitable for strategic bombing.

In conjunction with the campaigns against the oil and air systems, photo reconnaissance was flown of the communications system of the enemy. This included a periodic check on the large and important marshalling yards and points of interdiction in the system. The high point in the program of communications reconnaissance was reached during the early months of 1945, when the complete communications system of Southern Germany was covered for a special report. This system included all rail lines, rivers suitable for barge traffic, bridges and autobahns south of Regensburg to the border of Northern Italy and between the Western and Eastern Fronts. By this means, the much publicized "Redoubt Area" was completely covered as a final strategic photo reconnaissance operation carried out by the Group.

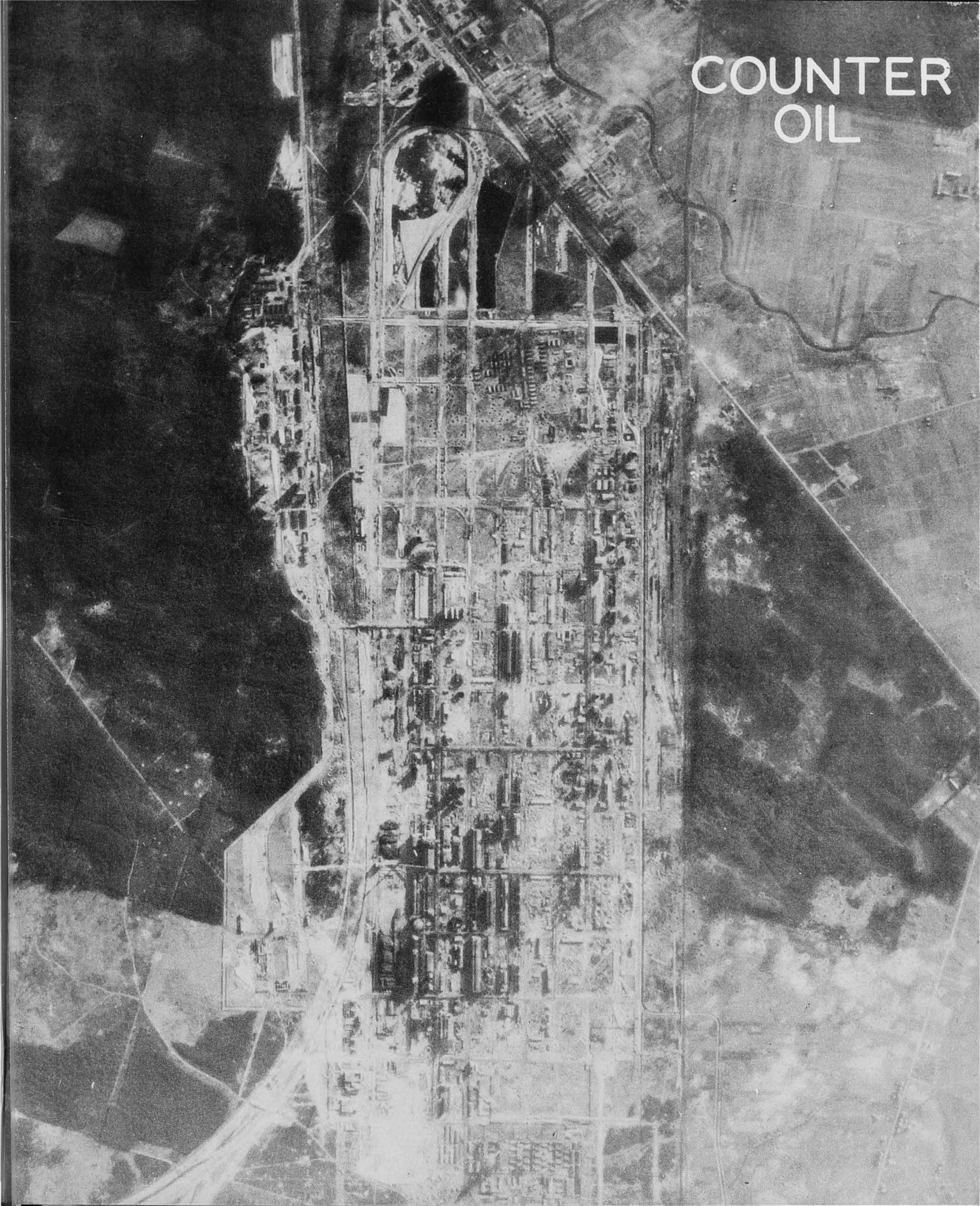


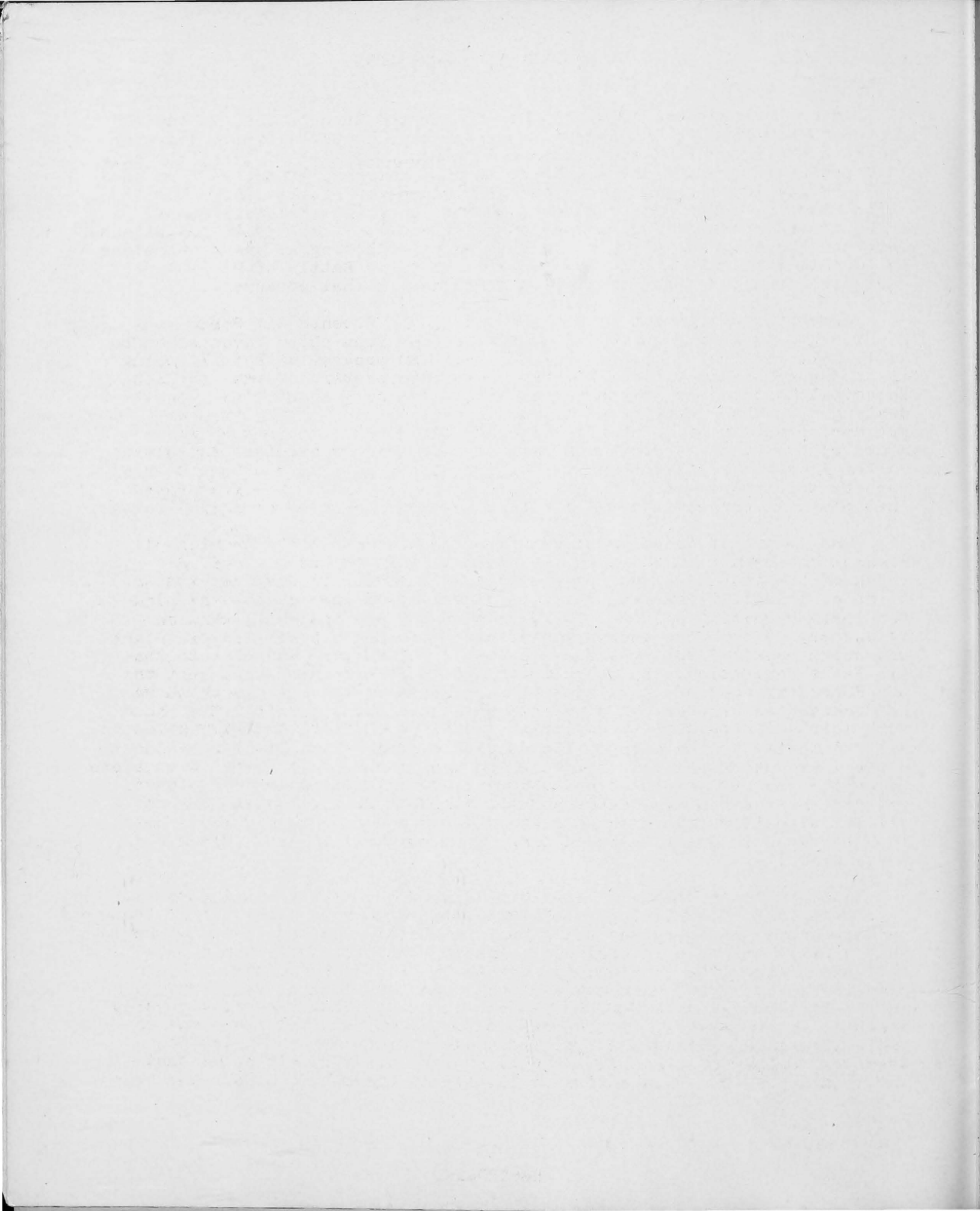
Strategic Target for the Fifteenth Air Force, Munich Main Station, Germany



Vienna, with its high concentration of strategic targets, was frequently visited by both the Fifteenth Air Force and the 5th Reconnaissance Group.

COUNTER OIL





COUNTER-OIL-OPERATIONS

Prior to 1 October 1944, 5th Reconnaissance Group's part in the Fifteenth Air Force's Counter-Oil Program was comparatively limited. The 15th Photographic Reconnaissance Squadron was, at that time, the sole link between Group and the Air Force in this program, since, as part of its work for the Air Force, the squadron did cover oil targets. The photo missions provided, therefore, photos for pre-raid intelligence, bomb damage assessment and checks on repairs of the damaged installations. The 15th Photo Squadron's part in the Counter-Oil program was nonetheless an important one and hazardous as well. The Air Battle of Ploesti, for instance, employed much information furnished by that squadron.

After the assignment of 5th Group to the Fifteenth Air Force, the Counter-Oil program received as much attention from photo reconnaissance as it received from bombing. Not only was the program of actual taking of photographs intensified, but the photo interpreters of the 4th Photo Technical Squadron began issuing a series of highly specialized reports dealing with the damage, activity and potentialities of the various refineries within range of the Fifteenth Air Force. Their work was aided by the findings of two of the interpreters who examined the plants in the Ploesti area and compared the actual damage with the bomb Damage Reports which were issued on the basis of photographs. Results proved that photo interpretation was a highly accurate means of assessing damage.

The important function of Photo reconnaissance in the Counter-Oil Program has been the assessment of damage. This included a periodic check of the installations between attacks in order to discover indications or amount of repairs, which information, in turn showed the need for further bombing effort. Thus, to cite but one instance, when on 14 January 1945 photos showed that Blechhammer South Synthetic Oil Plant was being repaired to a great extent, this information was sent to the Air Force for action. In other words, 5th Reconnaissance Group kept the Air Force informed of the status of each refinery by coverage which was as frequent as weather and other circumstances would permit. The haste with which repairs were accomplished indicated the high priority given to oil refineries by the enemy. The desperate efforts to maintain at least a small amount of production were shown when photographs revealed attempts to repair the refineries at Blechhammer, Odertal, Oswiecim, and others, in spite of their heavy damage and the approach of the Russian forces. A similar situation was shown when photo reconnaissance showed the enemy's interest even in small installations, such as those at Brod, Sisak and Sveta Clara.

Another phase of the Counter-Oil work of the 5th Reconnaissance Group was that of verifying ground reports. When word was received that an underground refinery was being built at Leitmeritz, photographs showed that excavations were in progress. Interpreters, however, could not indicate whether the construction was to be used as a refinery. Again, when the enemy turned to heavy reliance upon the gasoline-rich crude oil in the Nagykanizsa area, ground reports indicated that the oil was being taken to the Graz area. Photo reconnaissance showed that there was no indication of a pipeline, nor did tank car concentrations or loading stations indicate shipments to Graz. Photos, however, did prove that small installations were active at Lovasi and Lispe-Budafapusta and that

camouflaged tankage, pump houses, sidings and loading racks were in use at Ujudvar.

When 5th Reconnaissance Group undertook H2X scope photography, oil targets were among those on high priority. The successful blind bombing attacks on several refineries were aided by the charts and annotated prints resulting from this phase of the Group's work.

To accomplish its part in the Counter-Oil Offensive, the Group was forced at times to wage veritable campaigns in order to obtain photo coverage. The outstanding case in this respect was that of Brux Synthetic Oil Refinery. Anxious to discover the results of PFF bombing of that installation, Group placed it on top priority. Weather and the enemy's successful use of smoke pots prevented photography of the target on twenty-three missions dispatched to photograph the target during December, at a cost of one aircraft whose pilot was MIA. Finally, on 23 December, after one sortie was ineffectual because of smoke cover of the refinery, the target was covered by another pilot just after the smoke had been dissipated. Interpretation revealed that many repairs had been completed and that the refinery was operational. This necessitated another attack, which was made on 25 December by synchronous PFF method, Pathfinder aids for the raids having been prepared by the Group. To assess the damage of this raid, six sorties were flown, the first five being unsuccessful in obtaining coverage of the target. The sixth mission proved successful through a stratagem employed by the pilot, and showed the raid to have been a very successful one.



Blechhammer North Oil Refinery, Germany

COUNTER AIR





COUNTER-AIR OPERATIONS

The main contribution of the 5th Reconnaissance Group to the Counter-Air program was the maintenance of observation of enemy airfields. For this purpose, assignment orders provided lists of airdromes to be covered at specified intervals of time. Although weather conditions frequently prevented strict adherence to the schedule of coverage, the Group did its utmost to furnish regular intelligence of the required installations.

Interpretation of photographs of such fields provided information concerning the number and type of aircraft present, which, in turn, was an indication of enemy intentions to protect specific areas or installations and, at the same time, warned Allied forces of possible opposition or gave them the signal to attack. Thus, for instance, coverage of Szasz-Reghin Airdrome on 29 August 1944, revealed a total of 175 aircraft present, of which 19 were Me-109's, 57 were FW-190's and 48 were Ju-87's. Utilizing this information, the Fifteenth Air Force made a strafing attack on the airfield on 1 September. In spite of the fact that between the time of initial photography and the time of the attack many of the aircraft had been removed, 45 were completely burned out or badly damaged as a result of the attack. It was for the furnishing of such intelligence that the 5th Reconnaissance Group was awarded the Distinguished Unit Citation.

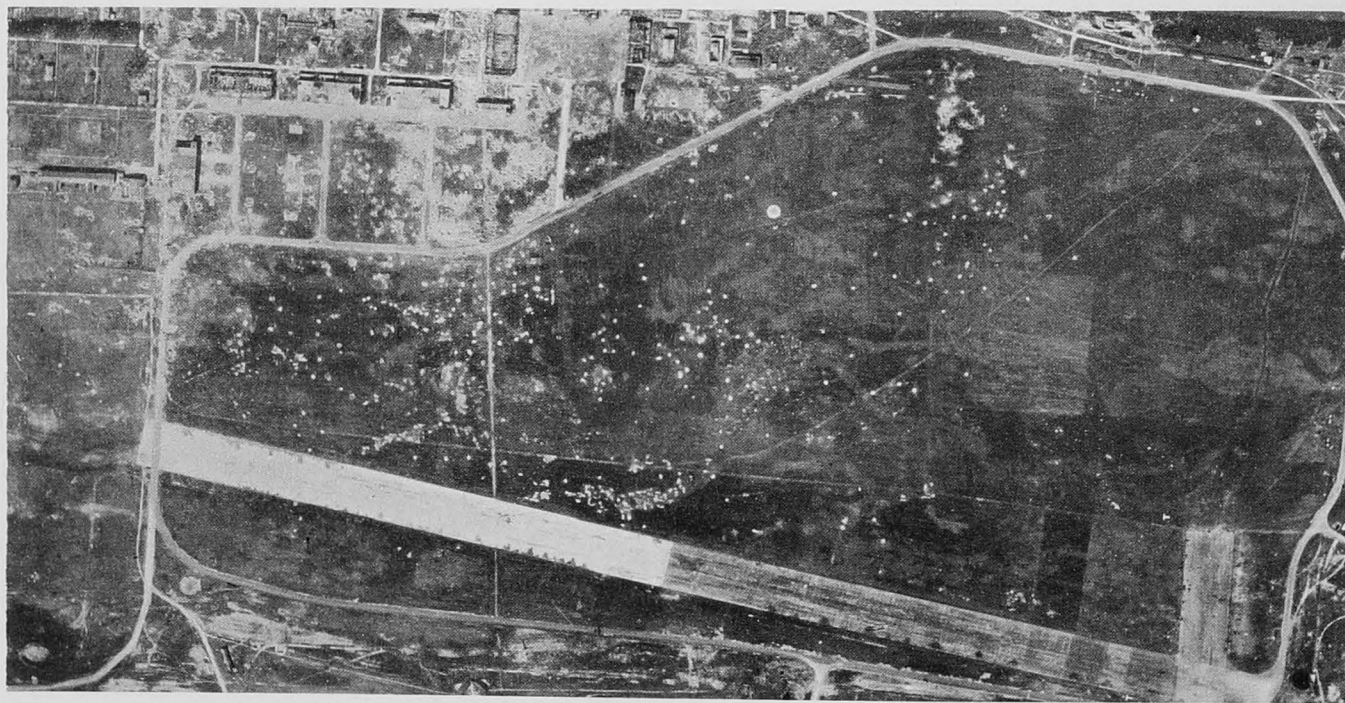
At times double coverage of airfields was obtained in one day. Photos taken on sorties flown within a few hours of each other provided information of the extent of activity on an airfield. This was accomplished by checking the number of aircraft present, their position on the field, fueling activity, etc.

Another phase of work in the Counter-Air program was the furnishing of intelligence concerning the aircraft industry. This not only included interpretation of photographs of known aero industrial plants, but also that of various assembly installations, some of which were discovered by the photo interpreters. At the same time, production of new types of aircraft was observed by their first appearance and gradual increase. The enemy's use of composite aircraft was confirmed, for instance, when 13 such planes were found on Prague/Ruzyne Airdrome.

The appearance of jet propelled aircraft gave additional work to the 5th Reconnaissance Group. Not only was it essential that the airfields serving as bases for such aircraft be discovered and numbers of jets noted, but details of their construction had to be provided. The Group, in many instances, was able to provide the required information. Among the items of intelligence furnished was proof of final assembly operations at Lechfeld, Neuburg and other airdromes, and the presence of training activity at Schongau and Bad Aibling. When in mid-February 1945, the Fifteenth Air Force decided to strike at the fields having greatest Me-262 activity, 5th Group furnished most of the intelligence for these attacks. Bomb damage assessment then aided the Air Force in determining the success of its efforts, which amounted to the destruction of 22 and damage of 20 Me-262's out of a total of 62 such aircraft present at Regensburg/Obertraubling.

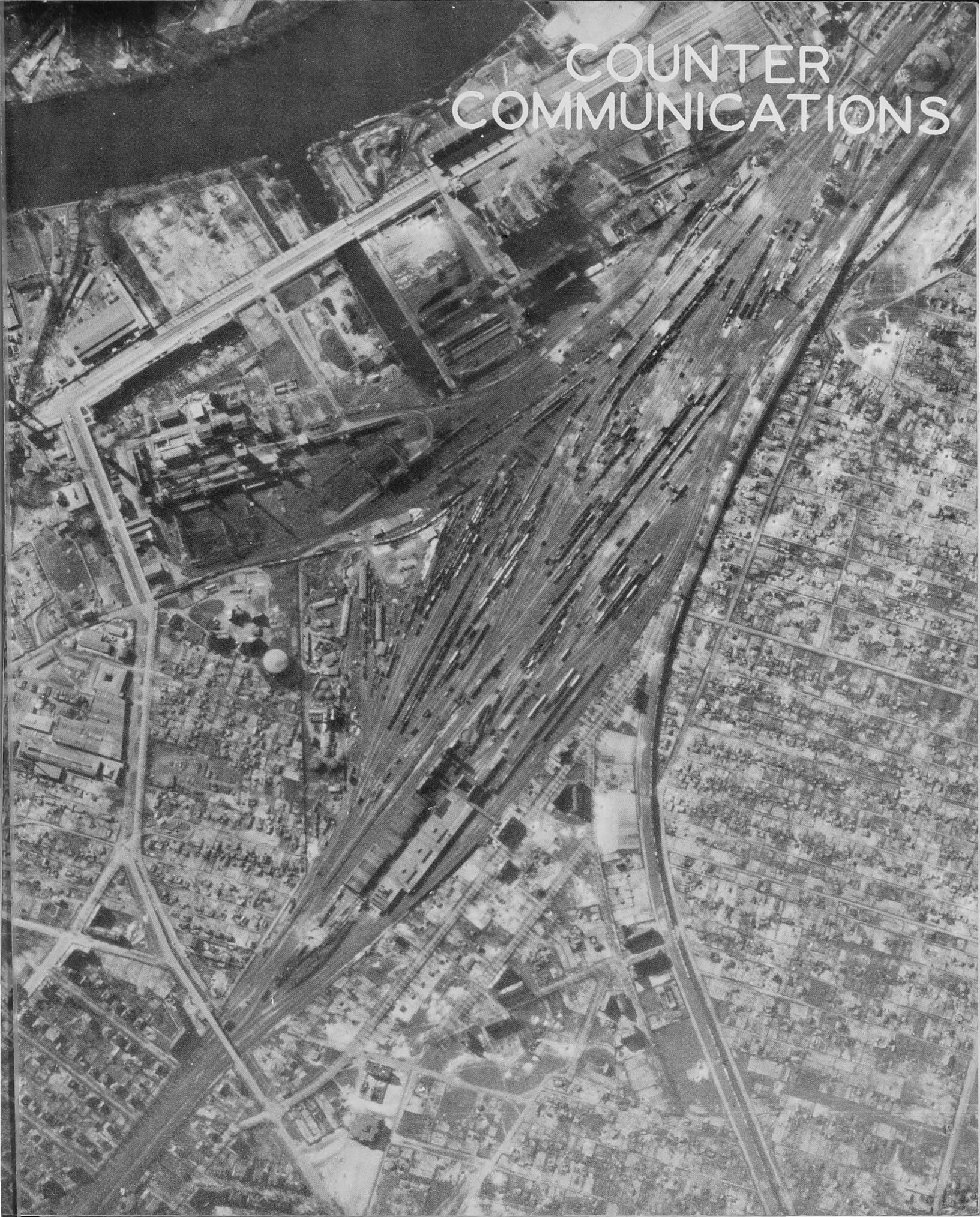
When Neuburg Airdrome became the center of jet activity, interpretation showed that as a result of the attack of 24 March 1945, 90% of the installations, which included training, conversion and assembly facilities, and 42 aircraft were destroyed or damaged. The next day's kill of 108 aircraft destroyed and 54 damaged in the Prague area was confirmed by the Group's photography.

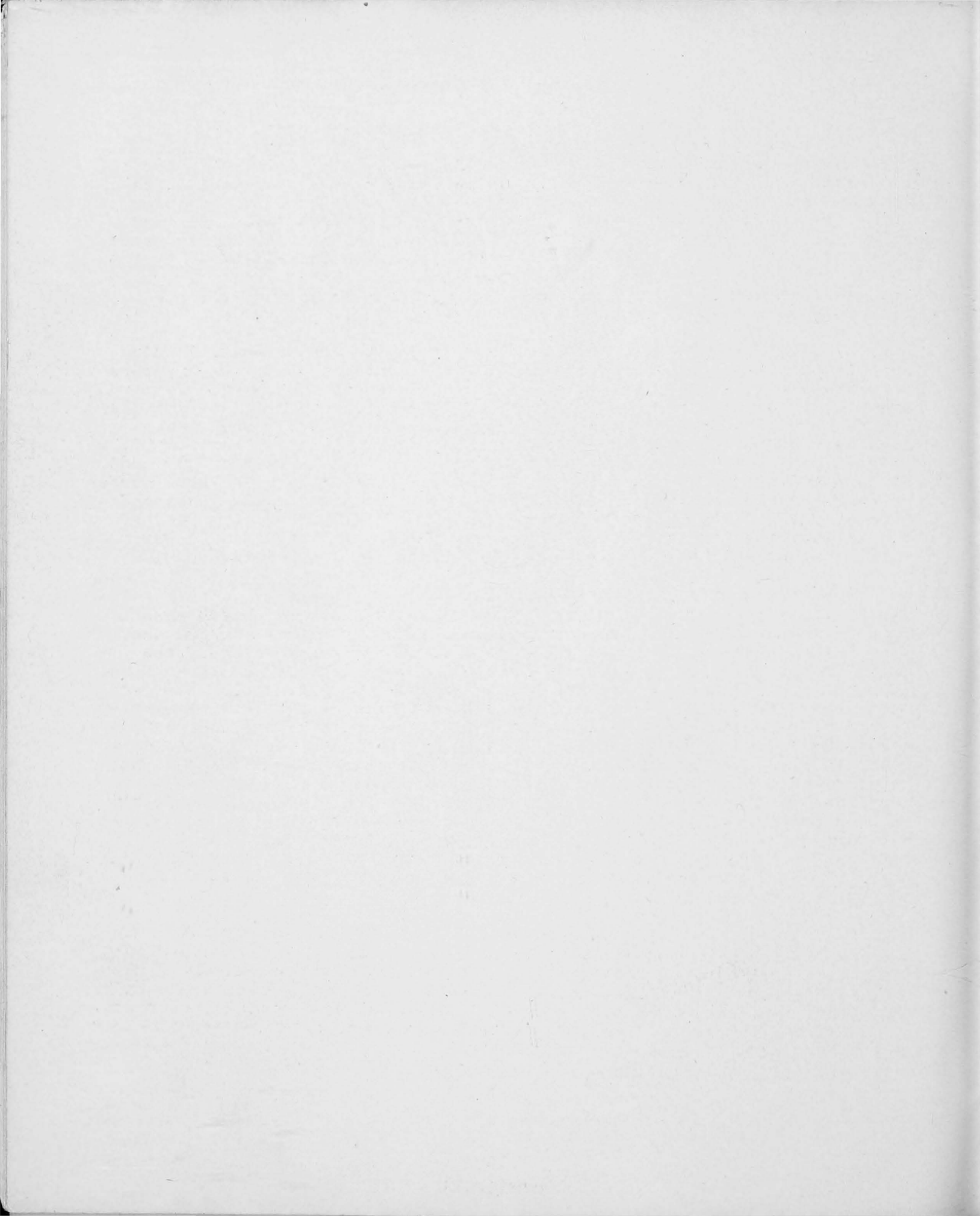
Allied advances and the resulting enemy reactions revealed interesting information. When ground reports stated that the enemy garrisons holding out in Budapest were being supplied from Malacky Airdrome, the Group was able to confirm such action. This was done by observing the increase from 5 to 42 He-111's, known to be used as transports, within a two months period. Again, the increase of aircraft to a total of 156 single-engine fighters was noted at Veszprem North Airdrome when the enemy was determined to aid its ground forces in the defence of Vienna. When Veszprem was endangered by the approach of the Russian forces, the aircraft were moved to Csapod, Szombathely and Vat, which eventually were evacuated and demolished. In the vicinity of Vienna itself, photo intelligence showed, for example, the presence of 136 aircraft on 31 March, a decrease to 22 aircraft on 2 April, and then attempts at demolition, which, for the most part, was limited to hangars and supplies, the runways being left intact. In retreat the Germans burned 41 Me-410's at Parndorf Airdrome, proof that fuel supplies were exhausted. Such action, together with attempts to build up second rate fields and even construct new ones as late as April 1945, was made of record by means of the photography of the Group.



A Typical Jet Air Field
Lechfeld A/D, Germany

COUNTER COMMUNICATIONS





COUNTER-COMMUNICATIONS

The work of the 5th Reconnaissance Group in the Counter-Communications program was extensive and furnished a variety of intelligence material. Although communications targets were covered as specific demands, frequently work on this program was accomplished in conjunction with work in the counter-air and counter-oil programs. Rail lines and river traffic in the vicinity of oil fields and refineries, for instance, gave indication of the operational activity of such installations by the presence of tank car or oil barge concentrations. Motor transport activity and load content of sidings near all other types of industrial establishments were used to provide similar information.

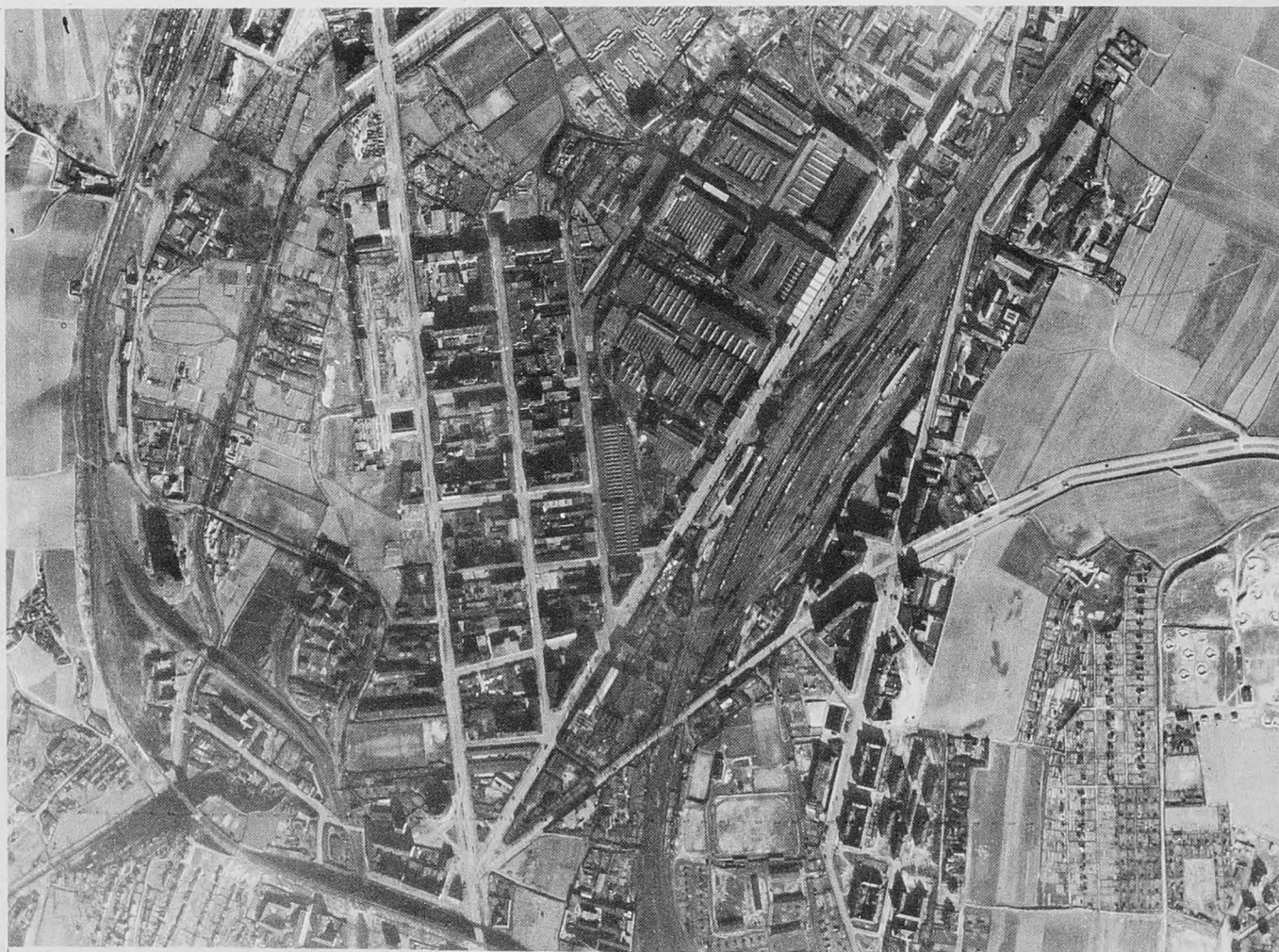
By furnishing detailed statistics relating to the content, loading capacity and types of wagons located at rail centers, photo interpreters were frequently able to report various activities of the enemy. For example, in early March, wagons loaded with minerals were located in the Vienna yards, reflecting an effort to meet coal shortages by getting as much as possible from the Morovska Ostrava area. Again, in early April of 1945, almost daily reconnaissance of the rail net in Western Hungary and Eastern Austria showed heavy movements of military trains. A large number of tank cars moving towards the forward areas indicated a large expenditure of fuel in support of the forces east of Vienna. After the fall of the latter city, photo reconnaissance was able to indicate the routes on which the Germans had to rely in order to send material to the front.

The Fifteenth Air Force having used much of its effort to hamper the German lines of communication, a large part of the 5th Reconnaissance Group's work was securing bomb damage assessment. In this program too, securing coverage as soon as practicable after an attack was only the beginning of this phase of work. Frequent photography of the targets was carried out in order to discover the rate and amount of repairs carried out. When Air Force attacks succeeded in crippling vital rail centers severely, secondary routes were placed in further use by the enemy. Thus, after the damage of the marshalling yards in the Vienna area in mid-February 1945, photo reconnaissance showed an increase in traffic over the Budweis-Gmund-Vienna and the Brno-Lundenburg-Vienna lines. Furthermore, proof was furnished that attacked marshalling yards were being purposely avoided as much as possible in order to lessen chances of loss of military equipment. Another attempt to save equipment from possible PFF raids was discovered when photos revealed that traffic concentrations in yards at Rosenheim and Salzburg were placed at a maximum distance from the towns.

The Brenner Pass line was one of the most photographed of the Group's targets. With continuous attempts being made to interdict this line, photo reconnaissance's job was to report on the success of these attempts. All bridges, but especially the ones along the Brenner route, received special attention. Here again, photos revealed interesting developments. It was discovered, for example, that, in certain instances, bridges were repaired for night use, the equipment being removed at daybreak. This stratagem was discovered by observing the slow movement of stock along the route.

Such close attention was given to the Brenner route that photo interpreters were able to report even the slow filtering of one enemy division through the line.

Another phase of the Counter-Communications program was preparing intelligence material in anticipation of events. A comprehensive study of the rail centers of Salzburg and Prague was made several months before these centers attained critical importance. Another such project was a study of the communications routes Munich-Ingolstadt-Regensburg, Regensburg-Nurnberg and Munich-Landshut-Plattling-Regensburg, which were directly in the path of General Patton's advance. With indications of a last-ditch stand by the Germans in the "Redoubt Area", plans for handling the situation were made with the aid of a program of interdiction of the entire area prepared by the Group's photo interpreters working in conjunction with Air Force A-2 Analysis Section.



Marshalling Yards at the Great Rail Center of Prague

OBLIQUE PHOTOGRAPHY FOR THE STRATEGIC AIR FORCE

Oblique photography for use of the Strategic Air Force did not come into its own until the closing months of the war in this theater. Much earlier, approach charts made from the six inch tri-met setup were used, but did not prove to be of great value to the bombardier on his bombing run, primarily because of scale.

The ideal approach photograph is one on which the Initial Point and the target can be seen. The Initial Point, as frequently used by the Air Force, was often as far as twenty miles away from the target. To secure adequate photographs under the latter conditions, a new camera setup was necessitated. Since one camera could not do the job and get proper scale, two twelve inch forward oblique cameras, which took pictures along the line of flight, were used. The high oblique was set at an angle of 17° from the horizontal and the lower oblique was set at an angle of 35° . The resulting type of approach chart was used to good advantage by the Fifteenth Air Force in the tactical bombing of enemy positions before the final breakthrough of the 5th and 8th Armies in the Po Valley.

Another type of oblique photography which was found to be successful was that of photographing bridges from a low altitude, using 40" cameras in the nose of an F-5 E, which had been modified to permit installation. The F-5 G, which was built to accomodate a 40" camera in the nose, arrived in this theater too late to be of any use. The Fifteenth Fighter Command requested this type of photography so that a study of bridges which would make suitable targets for dive bombing attacks might be made. At the end of hostilities, a request was received from the Fifteenth Air Force A-2 for oblique photographs of targets which had been bombed by the Air Force, for use in its summaries of bomb damage. The 40" oblique was selected for this task and the results were gratifying.

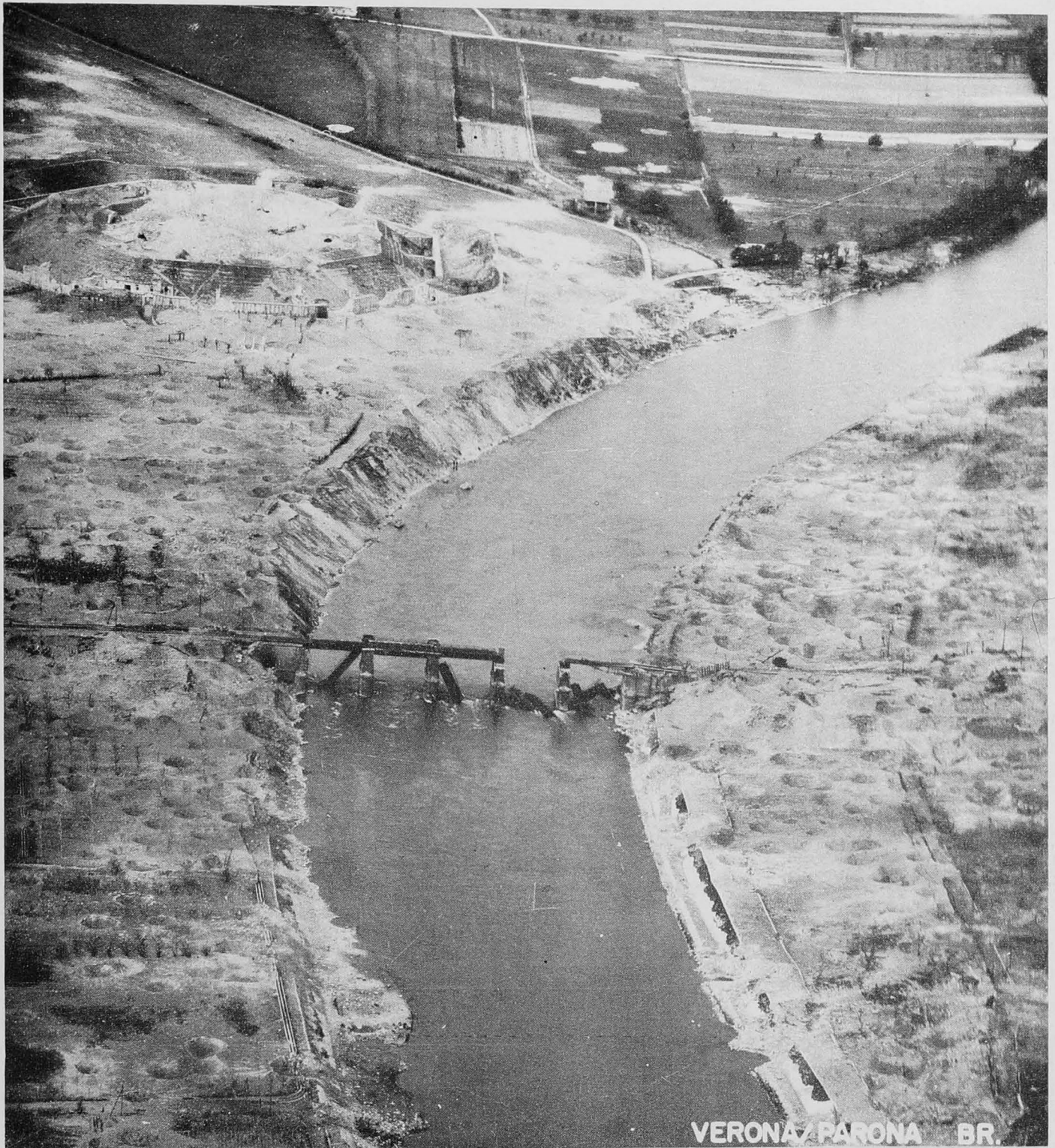


A TARGET FOR THE DIVE BOMBERS
40" Oblique of Road and Railroad Bridges at Magia-Elena, Austria



Bomb Damage Assessment With 40" Oblique
Landshut M/Y, Germany

RESTRICTED



VERONA/PARONA BR.

VERONA/PARONA RAILROAD BRIDGE

RADAR SCOPE PHOTOGRAPHY AND INTERPRETATION

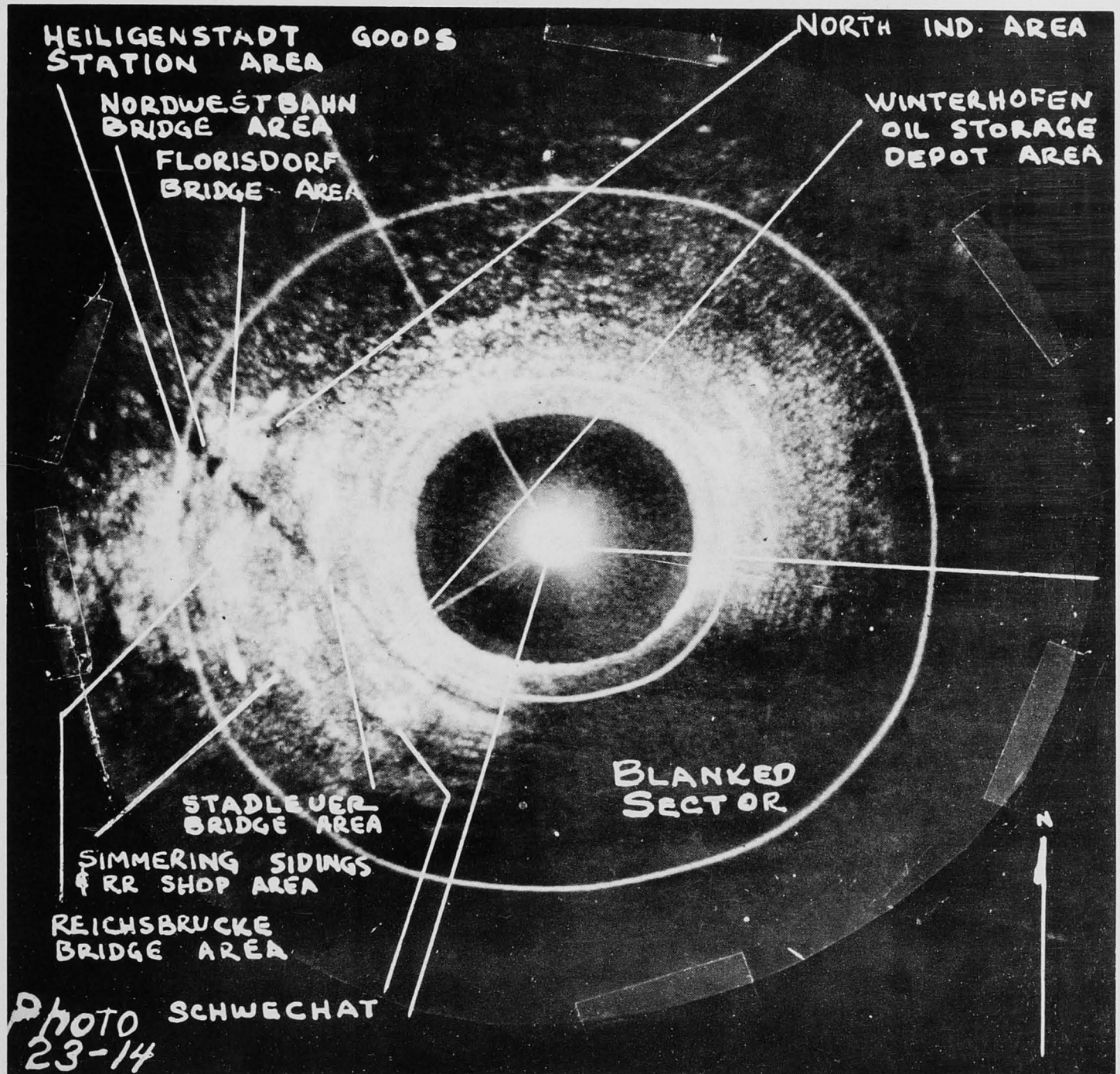
The purpose of radar scope photography was to secure intelligence photographs for the briefing of mickey operators on PFF bombing missions. In PFF combat operations, the success of the mission was dependent upon the accurate and speedy evaluation of the radar screen by the mickey operator and his coordination with the bombardier. To simplify this task and to insure good instrument bombing, photographs of the radar scope, showing the bombing approach to the selected target area, were furnished to each mickey operator for comparison and a check against his own radar scope.

These basic photographs were taken in an especially designed P-38, called a droopsnoot, in which was installed a complete radar set and camera, similar to the ones installed in bombers. A mickey operator rode in the nose of the droopsnoot to operate the equipment and obtain the photographs. This airplane, because of its range and combat performance, was the only type practical for long, extended flights over the most heavily defended Nazi targets and in which the radar set could be installed.

In actual operation, the mickey operator and the pilot of the droopsnoot would be briefed on two primary and possibly several secondary targets. Each target had at least three approaches and, to cover an assigned target successfully, all approaches to the target would have to be radar photographed. This meant that the crew would fly a thirty mile leg of a specified approach on a constant heading to the target, turn around, and fly the next approach in like manner.

The radar photographs were carefully and painstakingly annotated by specially trained interpreters. The target area and any other features of interest were checked with photographs and maps. The annotated photographs were then distributed to the Bomb Groups of the Air Force.

In appearance, the radar photograph looks something like a relief map of the subject area. It is a shaded representation of the earth, built up areas and massive metal objects showing up as bright shapes on the radar scope, and bodies of water showing up as dark areas in their respective sizes and forms.



Radar Scope Photograph of Vienna

TACTICAL MISSIONS

The strategic role of the Fifteenth Air Force came to an abrupt end in the early part of April, 1945. At that time, orders came from higher headquarters that it was to operate tactically in direct support of the 15th Army Group, which was then waiting to jump off on what was to be the last push in Northern Italy. The new mission of the Fifteenth Air Force was as follows: 1. To clear a path for the advancing infantry through German lines; 2. To deny the enemy his escape routes out of Northern Italy; 3. To destroy supply dumps; 4. To bomb other targets in Northern Italy and Austria upon request of higher headquarters. This program necessarily brought a change in the 5th Reconnaissance Group's work from a strategic to a tactical type.

Little in the way of briefing material was available to the Air Force for its new work. The task of the Photo Group was, therefore, to supply this material. This it did by putting all else in the background and by concentrating on the job at hand. The change over from the role of strategic reconnaissance to tactical reconnaissance was not easy, especially for the Group Operations and Intelligence Sections. However, by keeping constant liaison with the Air Force and by keeping the flying squadrons on the alert at all times, the material for briefing was delivered in ample time. One request was received by the Group at 0900 hours. The plane was in the air at 0925 and back from its mission at 1400. By 1700 hours, the film was processed and prints were annotated and delivered to the Bomb Wings, ready for use on the next day's missions.

Both vertical and oblique missions were flown to provide material on enemy installations directly in front of the 5th and 8th Armies. Oblique photo charts were prepared, showing the Initial Point, the front line and the target. Because of the changing front, charts could be prepared no more than twenty-four hours in advance of the actual bombing. This was one of the many safety devices taken to insure that friendly troops would not be bombed.

All routes out of Italy were covered every day to determine whether those lines were being used by the enemy to supply his armies in Italy or as avenues of escape. All known supply dumps and storage depots were covered to provide target material and to determine their importance to the enemy. In several cases, the exact location of the supply dumps was not known and mapping of whole areas was necessitated to locate them. In addition, the Adige, the Brenta, the Piave and the Ticino Rivers were stripped in order to provide target material on all bridges which were serviceable and in use by the enemy.



CONTROL SECTION

All requests for work from higher headquarters were received, analyzed and routed to the proper unit or section within the Group for accomplishment, by the Control Section. The bulk of the work demands, such as requests for new photo coverage, existing coverage, interpretation reports, target charts or lithographic reproduction came primarily from the A-2 Section of the Fifteenth Air Force, although such requests may have originated in another section or a subordinate command.

Contact with the Air Force was maintained through the medium of a Liaison Officer on duty at Air Force Headquarters, who was the representative of the Control Section and available for personal contact with demanding agencies. The Liaison Officer's duties included the recording of all demands received, the assigning of a control number and the setting of deadlines as indicated, with priority information as set by the Air Force. It was his job to know the production capabilities and limitations of the Group by keeping currently abreast of the status of all work being done. In this way conflicts in priorities were settled and any other coordination necessary was perfected.

The other three members of the Control Section were Group Staff Officers acting as advisors on matters pertaining to their specialty, with duties briefly outlined as follows:

The Group Photo Interpretation Officer was charged with the coordination of the interpretation work of the units within the Group as well as with that of other Photo Reconnaissance Units, through MPIC. He was also responsible for the continuous survey of finished photo interpretation work to insure the maintenance of high quality.

The Group Topographic Engineer was assigned the task of coordinating the reproduction work of the Engineer Topographic Company attached to the Group and adjusted all problems relating to operational requirements and production capabilities. He maintained close liaison with tactical units using topographical material such as target charts, briefing charts, navigational material, etc, and coordinated with the Survey Directorate, AFHQ and other topographic units to promote interchange of new developments, techniques, and topographic material produced.

The Group Photo Officer coordinated matters pertaining to photographic technique, and operational capabilities of the Group Photographic Laboratories. His additional duties as Assistant Air Force Staff Photo Officer were outlined in a preceding section.

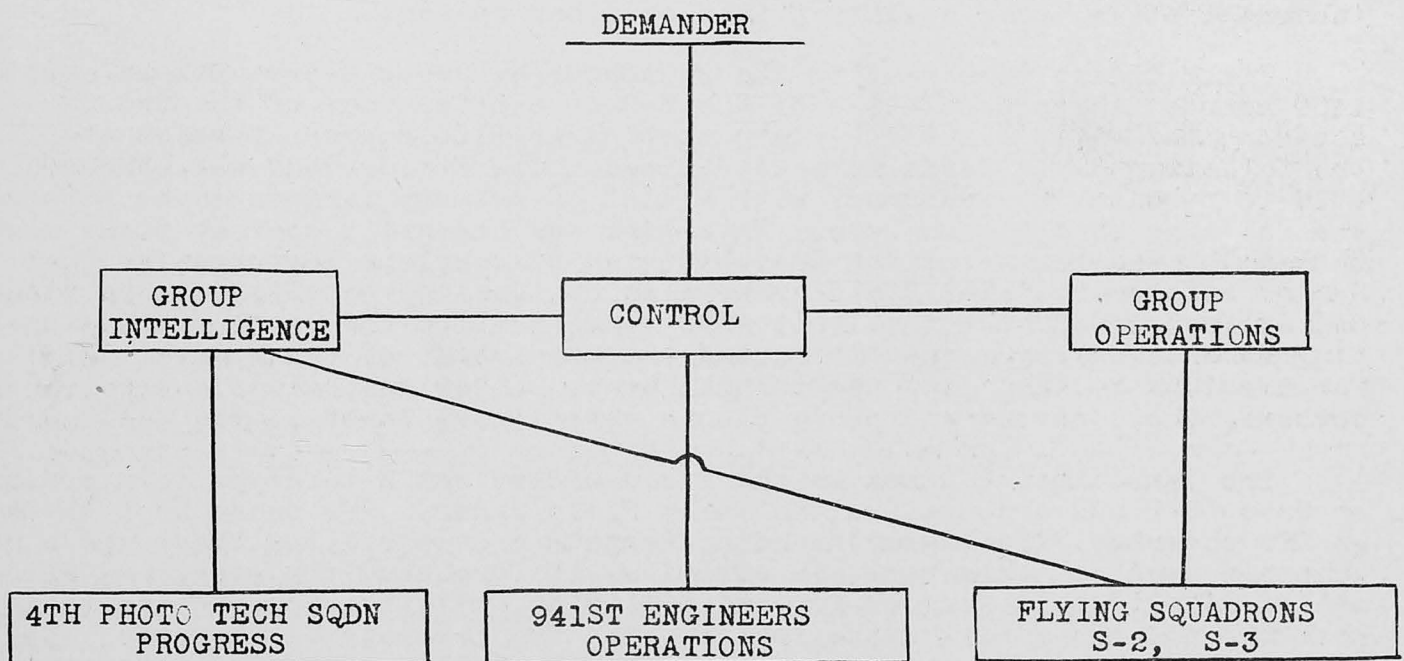
The following is an example of a typical request received which will serve to illustrate the processing of a demand under past operational conditions:

A request for prints or interpretation reports is received by the Control Section. The Liaison Officer must first determine if existing cover of the particular area will satisfy the demand or whether new cover is needed. If new cover is necessary, either of two courses is taken depending on the urgency of the request. Normally, the request is made a matter of record in the office of the Control Section by the assignment of a control

number and is then sent to the Progress Section of the 4th Photo Technical Squadron. Progress Section coordinates the request with Coverage Section and a trace of the required area is made. A flying job number is assigned and the job is sent to the Group Operations Section where it is incorporated into an amendment to the assignment orders and sent to the appropriate flying squadron. The entire transaction from the time the request is received by the Control Section to the time it is in the hands of the reconnaissance squadron's Intelligence Officer, takes less than twenty four hours.

If the demand is urgent and can be flown the day it is received or on the following morning, it is coordinated with Group S-2 and sent by teletype to the flying squadron in the daily annex to the operations field order or by special communication. Progress Section is then notified of the request so that it can take the appropriate steps when the film is sent in.

The Control Section proved to be a valuable asset to the operational efficiency of the Group, smoothing the flow of work requests, striving for higher standards, introducing new techniques and helping to expedite the accomplishment of needed photo intelligence.



PASSING DEMANDS TO SQUADRONS

The three flying squadrons of 5th Reconnaissance Group received their orders for flying jobs from three sources.

The Assignment Orders and their Amendments, which were issued by Group Operations, furnished the official list of targets to be covered by the squadrons. Special jobs were listed together with sufficient information about their requirements. The jobs were numbered according to a four element system in which the first element designated the type of photography required, the second indicated the country in which the target was located, the third showed the priority rating of the job, and the fourth indicated the job number. Thus, a job listed as M/AU/a/368 would be an "A" priority mapping job in Austria, it being the 368th demand received. The desired scale, coordinates and purposes of the job were generally given. Whenever traces were necessary, they were sent with the orders to the appropriate squadrons. The Assignment Order also furnished an up to date list of routine targets listed according to frequency of coverage. Jobs which were completed and accepted by the demander or jobs in which demanders lost interest were listed under cancellations. Another section of the Assignment Order dealt with suspensions, that is, jobs which have been completed but whose acceptance by the demander had not yet been received. The Refly section of the orders listed jobs which had to be reflown because the coverage obtained was unsatisfactory as a result of incorrect scale, poor quality prints or other reasons.

Field Orders were sent to the squadrons by Group S-3 by TWX at about 1400 hours. A representative of the S-2 or S-3 Sections of the Group attended the daily Air Force plans meeting at 1100 hours, at which meetings the following day's raids were determined. The Field Order was, therefore, able to furnish the squadrons with a list of primary targets to be attacked and the time of the bomb runs. This list was essential so that plans might be made by the squadrons for the obtaining of complete coverage for bomb damage assessment. The Field Order also designated the effort to be expended by each squadron. This took into consideration the weather, outstanding demands in the respective areas and the amount of escort available for missions in the "jet" operational area. Likewise, call signs for bombers, photo escort and photo planes were incorporated in the Field Order.

The Intelligence Annex to the Field Orders was a teletype form prepared by Group S-2 and accompanied the daily Field Order. The annex kept check on BDA coverage, listing outstanding targets and cancelling those whose coverage has been obtained. In addition, it furnished the squadrons with a list of alternate targets for the following day's bombing effort, so that the squadrons would make certain that BDA coverage of these targets would be obtained. A third section of the Intelligence Annex listed important new jobs, cancellations, suspensions and reflies in anticipation of the issuance of an amendment to the Assignment Order. Finally, one section was addressed to each squadron designating the jobs which were to be briefed for the following day. The jobs given this special attention were generally those in which the Air Force was particularly interested or those whose completion had a time limit. The Intelligence Annex was one of the results of close liaison between Group S-2 and the Air Force A-2 Analysis Section.

THE FIELD ORDER

22 MARCH 1945

5PG OPNS

URGENT

325 - 0

TO: OPERATIONS OFFICER, 32ND PHOTO SQDN
 OPERATIONS OFFICER, 37TH PHOTO SQDN

5PG
 FO 81 ABL
 22 MARCH 1945

- I SECRET. SPECIAL INTENTIONS FOR YOUR INFORMATION ARE AS FOLLOWS: ABLE PLAN IS RUHLAND, KRALUPY AND KAGRAN OIL REFINERIES, ST. VALENTIN TANK WORKS AND M/Y, ST. POLTEN SOUTH M/Y AND GMUND M/Y. RUHLAND AND KRALUPY WILL BE ATTACKED BETWEEN 1220 HOURS AND 1245 HOURS AND THE REMAINING TARGETS WILL BE ATTACKED FROM 1200 HOURS TO 1315 HOURS.
- II THE FIFTH GROUP WILL EMPLOY A REDUCED EFFORT IN ESCORT AREA WEST OF 14 DEGREES 30 MINUTES ON ONLY THE HIGHEST PRIORITY DEMANDS DUE TO UNAVAILABILITY OF FIGHTER ESCORT. MAXIMUM EFFORT WILL BE EMPLOYED IN ALL OTHER AREAS TO BRING STATUS OF ALL COVER UP TO DATE.
- III THE ASSIGNMENT OF SORTIES IS AS FOLLOWS:
- A THE FIFTEENTH SQDN WILL DISPATCH A MAXIMUM EFFORT INTO THEIR OPERATIONAL AREA NECESSARY TO COVER DEMANDS PENDING MOST RECENT COVER. ABLE PRIORITY WILL BE DOUBLE COVER OF ALL NEW BDA IN THEIR AREA
- (1) 1 A/C WILL BE DISPATCHED ON RED EFFORT AS SPECIFIED IN FIELD ORDER 80 ABL.
 - (2) 1 RECCE A/C WILL BE DISPATCHED TO COVER WELS ON AN AXIS OF 345 DEGREES, MOOSEBIER-BAUM ON AN AXIS OF 060 DEGREES.
- B THE 32ND SQDN WILL EMPLOY REDUCED EFFORT OF 3 A/C IN THEIR OPERATIONAL AREA. 1 A/C WILL COVER ANY OUTSTANDING DEMANDS SOUTH OF 47 DEGREES AND 2 A/C WILL PROCEED TO COVER BDA AT RUHLAND AND KRALUPY.
- (1) 1 ESCORT WILL BE PROVIDED THE BDA SORTIES. TAKE OFF FROM MONDOLFO A/D AT 1130 HOURS.
- C THE 37TH SQDN WILL DISPATCH A NORMAL EFFORT OF 6 A/C INTO THEIR OPERATIONAL AREA BRIEFING 2 MISSIONS CONSISTING OF 4 A/C FOR COVER OF RUHLAND AND KRALUPY OIL REFINERIES. REMAINING 2 A/C WILL BE BRIEFED ON OUTSTANDING DEMANDS IN OTHER AREAS.
- (1) 2 ESCORT WILL BE PROVIDED BDA SORTIES. TAKE OFF FROM RIMINI A/D WILL BE AT 1200 HOURS.
- X ON BDA SORTIES TO RUHLAND, 2 RECCE A/C WILL BE SENT WITH EACH ESCORT AND WILL TRAVEL TOGETHER IN ORDER TO ASSURE THAT IF A MECHANICAL FAILURE DEVELOPES, THERE WILL STILL BE A MAXIMUM PROBABILITY OF COVERING TARGET.
- IV OMITTED.
- V IDENTIFICATION CALL SIGNS: FIFTH GROUP IS PIXIS, 15TH FIGHTERS ARE ADMIN (NUMBERED IN ORDER OF CONTACT), JETBLACK, GREENHERD 1, POULTRY, SANDSAIL AND GREENHERD 2. NOTE: FIGHTERS IN RUHLAND - KRALUPY AREAS WILL USE ADMIN CALL SIGN AND FIGHTERS IN THE VIENNA - LINZ AREAS WILL USE THE REMAINDER OF CALL SIGNS LISTED ABOVE.

22 MARCH 1945

5PG OPNS

326 - 0

URGENT

TO: OPERATIONS OFFICER, 32ND PHOTO SQDN
OPERATIONS OFFICER, 37TH PHOTO SQDN

5PG
FO 81 BAKER
22 MARCH 1945

- I SECRET. SPECIAL INTENTIONS FOR YOUR INFORMATION ARE AS FOLLOWS: BAKER PLAN IS GMUND M/Y, ST. POLTEN SOUTH M/Y, BUDJOVICE M/Y, PASSAU M/Y, PLATTLING M/Y, AND ST. VALENTIN TANK WORKS AND M/Y PLUS STRAFING OF RR LINES FROM VIENNA TO PILSEN AND FROM ST. POLTEN TO REGENSBURG. TARGET TIME IS FROM 1200 HOURS TO 1315 HOURS.
- II THE 5TH GROUP WILL EMPLOY A MAXIMUM EFFORT IN ALL OPERATIONAL AREAS AS IS NECESSARY TO BRING COVER UP TO DATE PENDING RECENT COVERAGE.
- III THE ASSIGNMENT OF SORTIES IS AS FOLLOWS:
- A THE 15TH SQDN SORTIE ASSIGNMENT IS AS SPECIFIED IN FIELD ORDER 81 ABLE.
- B THE 32ND SQDN WILL DISPATCH 6 A/C INTO THEIR OPERATIONAL AREA. ABLE PRIORITY IS DOUBLE COVER OF NEW BDA AND SUCH TARGETS AS ARE SPECIFIED IN THE INTELLIGENCE ANNEX.
- (1) 5 ESCORT WILL BE PROVIDED FOR 32ND SQDN SORTIES.
- C THE 37TH SQDN WILL DISPATCH 6 A/C INTO THEIR OPERATIONAL AREA BRIEFING AS ABLE PRIORITY ALL NEW BDA AND SUCH OTHER ABLE PRIORITIES AS ARE SPECIFIED IN THE INTELLIGENCE ANNEX.
- (1) 4 ESCORT WILL BE PROVIDED FOR 37TH SQDN SORTIES.
- IV OMITTED.
- V IDENTIFICATION CALL SIGNS ARE SAME AS SPECIFIED IN FIELD ORDER 81 ABLE.

THE INTELLIGENCE ANNEX

22 MARCH 1945

5TH GROUP INTELLIGENCE

URGENT

I-166

TO: INTELLIGENCE OFFICER, 32ND PHOTO SQUADRON.
INTELLIGENCE OFFICER, 37TH PHOTO SQUADRON.

INTELLIGENCE ANNEX TO FIELD ORDER 81.

I SECRET. ADD TO OUTSTANDING BDA LIST:
VIENNA KAGRAN OIL REFINERY
BRUCK AD MUR M/Y

II CANCEL FROM OUTSTANDING BDA LIST:
ST. VALENTIN TANK WORKS COVERED ON SORTIES 15SG/1356 AND 37S/181.
ST. VERT M/Y COVERED ON SORTIES 37S/182 AND 683/1064.

III CANCEL JOB 488.

IV SUSPEND JOBS 508, L/I/c/88.

V REFLY THE FOLLOWING JOBS:
60 - PART COVER ON 15SG/1351 BUT UNSATISFACTORY FOR INTERPRETATION.
529 - PART COVER ON 32S/901, 902. NO COVER ON 37S/175
535 - CLAIMED BY NAME BUT NOT COVERED. PILOT APPROX 3 MILES SOUTHEAST OF TARGET.
499 - NOT COVERED ON 15SG/1349. PILOT NOT IN AREA.
540 - NOT COVERED ON 15SG/1349 OR 15SG/1348. PILOT STOPPED RUN JUST SOUTH OF STRIP.
542 - NOT COVERED ON 15SG/1349. COVERED ON 15SG/1348 BUT UNSATISFACTORY FOR INTERPRE-
TATION. 1/10,000 SCALE REQUESTED.

VI ALTERNATES TO PLAN ABLE AND BAKER:
1 - BUDEJOVICE M/Y
2 - PASSAU M/Y
3 - PLATTING M/Y
4 - PRAGUE/LIBEN AFV.
5 - PILSEN/SKODA WORKS
6 - KROTTENDORF/ST. MAREIN ENG. WORKS
7 - SELZTHAL M/Y

VII THE 32ND SQUADRON WILL BRIEF FOR JOB 529, LEIPHEIM A/D, LINDAU M/Y, BAUMENHEIM FACT-
ORY ON BCS 13-201. THIS FACTORY WAS HIT RECENTLY BY 8TH AF.

VIII THE 15TH SQUADRON WILL BRIEF FOR COVER OF JOBS 537, 542, 540, 482 AND 539 PLUS BAL-
ANCE OF OUTSTANDING JOBS IN AREA.

IX THE 37TH SQUADRON WILL BRIEF FOR JOB 529, BALANCE OF OUTSTANDING JOBS AND BRUX.

X THE 32ND SQUADRON WILL BRIEF FOR COVER OF LEIPHEIM AT 1140 HOURS.

HEADQUARTERS
FIFTH PHOTOGRAPHIC GROUP (RCN)
OFFICE OF THE OPERATIONS OFFICER

APO 520, U.S. Army
22 March 1945.

Amendment No. 28 to Assignment Order No. 3.

New Cover:

P/H/a/543, Cover of Landing Strip at 46 42'N-19 36'E, approx. 14 miles SSW of KECS-KEMET. For prints. Scale: 1/60,000 6" prints only.

O/AU/a/547, Cover from given I.P.'s to SALZBURG 47 47'N-13 00'E, with Head-on Obliques, as shown in RED on trace sent to Squadrons. For Mosaics. Scale: High Altitude, head-on Obliques. Note: Coordinate this job with M/AU/a/546 and O/AU/a/548.

O/AU/a/548, Cover from given I.P.'s to BERCHTESGADEN 47 37'N-13 02'E, with head-on Obliques, as shown in RED on trace sent to Squadrons. For Mosaics. Scale: High altitude, head-on Obliques. Note: Coordinate this job with M/AU/a/546 and O/AU/a/547.

Suspend:

P/G/a/508, (Amend No. 14) Not Covered on 37S179. Suspended by demander.
L/I/c/88, (Amend No. 21) Part cover on 32S(L)43. Suspend pending acceptance.

Refly:

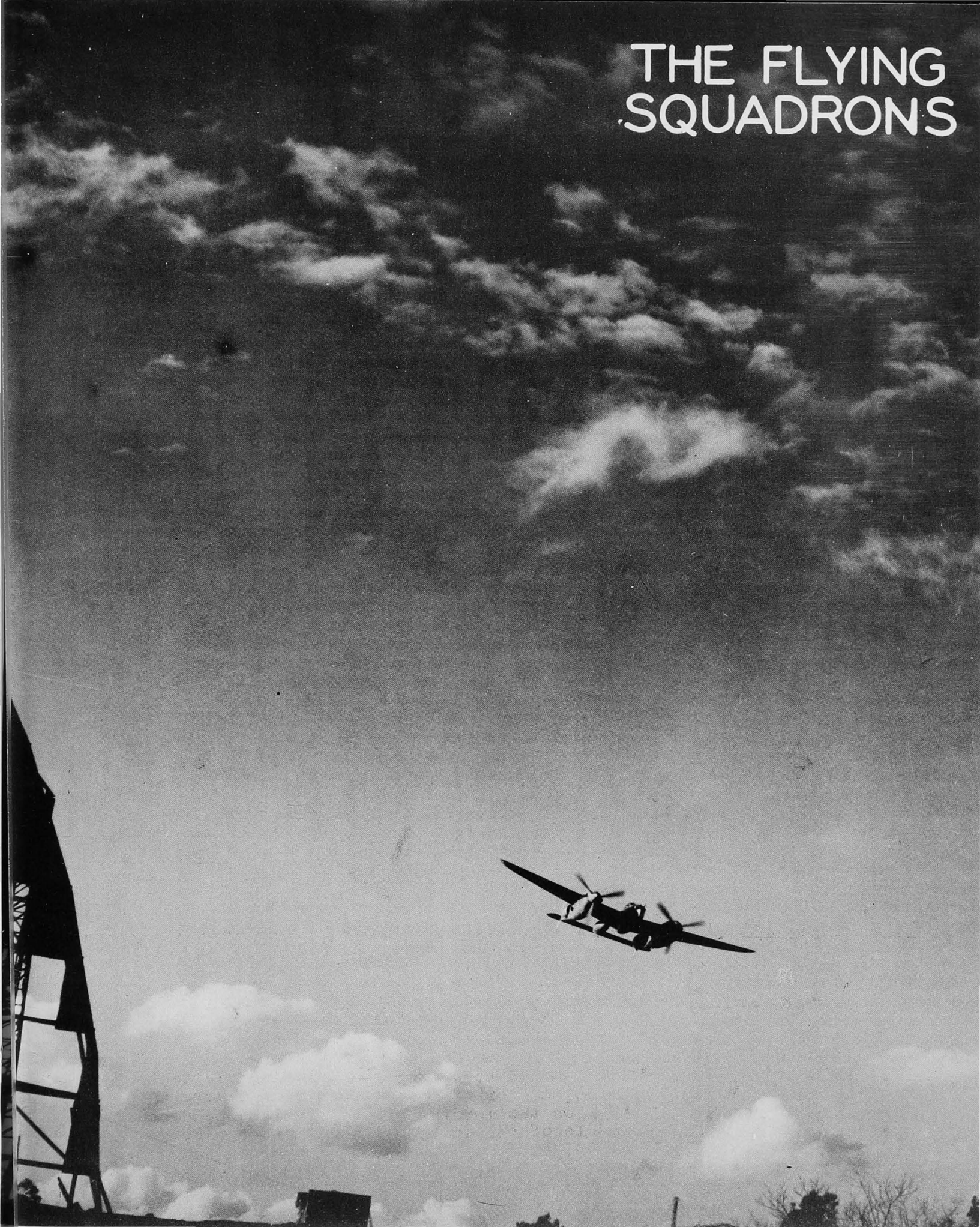
M/G/a/531, Not covered on 37S167. Pilot approx. 20 miles SW of area.
M/AU/b/60, Part cover on 15SG1351, but unsatisfactory for interpretation.
P/C/a/535, Claimed by name but not covered. Pilot approx. 3 miles SE of target.
M/G/b/499, Not covered on 15SG1349. Pilot not in area.
S/H/a/540, Not covered on 15SG1348 & 1349. Pilot stopped run just South of strip.
P/G/a/541, Covered on 37S179, but unsatisfactory owing to clouds.

Cancel:

P/G/b/400, (No. 42 on As. O. No. 3) Covered on 15SG1327.
P/AU/b/392, (No. 40 on As. O. No. 3) Cover on 15SG1328 accepted.

Joseph E. Terrett
JOSEPH E. TERRETT,
Major, Air Corps,
Operations Officer.

THE FLYING SQUADRONS



THE FLYING SQUADRONS

Within the 5th Reconnaissance Group were three flying squadrons, the 15th, 32nd and 37th Photographic Reconnaissance Squadrons. The mission of these units was to secure photography for intelligence purposes, process these photographs and make immediate, or First Phase, and Second Phase interpretations.

By the very nature of their work, the photographic Reconnaissance squadrons were composed of many specialized personnel and departments. The pilots were of the highest caliber and underwent special training both in the zone of the interior as well as in this theater before they could qualify as photo pilots. The photo laboratory was equipped with sufficient personnel and equipment to work on a 24 hour basis, if necessary. A camera repair section was maintained and staffed by men who were experts in their field. This department made all the adjustments on the cameras, installed cameras and handled the film from the time of the landing of the plane until it reached the photo laboratory. Each of these squadrons also had a plotting section which pinpointed each set of photographs. An interpretation section composed of specially trained officers was responsible for the interpretations. All of these sections were in addition to the usual departments which make up a flying squadron in the Army Air Force.

Each of the photo reconnaissance squadrons was allotted 16 aircraft, all of which were of the F-5 type, an adaptation of the P-38 for photo work. The planes were stripped of all unnecessary weight, this extra weight consisting of all armament and some of the armor plate. Thus stripped, the planes had a greater range and a greater speed. The extra range was necessary since strategic photo reconnaissance required penetration deep into enemy territory, while added speed was essential in order to outrun any enemy plane which attempted interception.

A TYPICAL STRATEGIC PHOTO MISSION

Because of the vast area which strategic reconnaissance covered, it was necessary to plan the mission carefully the night before it was to be flown. Where it was to be flown was determined by two factors, weather and priority of targets.

The Weather Officer briefed the Operations and Intelligence Officers on the latest available weather reports and predicted the areas in which the photo reconnaissance mission would most likely meet with success. Such planning meetings were usually held immediately after the Weather Officer collected his information for the following day. With this information at hand and the immediate coverage needs made known through Field Orders and Intelligence Annexes from Group Headquarters, the squadron's operations for the next day were settled.

For routine and special demand coverage, the briefing of pilots took place on the eve of the mission. Briefing for bomb damage assessment coverage, however, was held on the morning of the mission, pending any last minute change in the schedule of the bombing plan of the Air Force.

Both the Operations and the Intelligence Officer conducted the briefings. The former gave the pilots the time of take-off, time over targets, the general route to targets and, if the Strategic Air Force was operating, gave the routes to be taken in order to avoid the bombers. The Intelligence Officer then gave the pilots the targets to be covered, their priority, the reason for covering them and identification information. He also supplied a list of alternate targets to be covered in the event that weather prevented the photography of the primary ones. The pilots themselves worked out the navigation, under the supervision of the Operations Officer. In the case of new pilots, much care was taken, each target being dealt with separately and in great detail. Pilots with combat experience and whose familiarity with the targets was assured, needed a less detailed briefing.

Depending upon the target area, the number of briefed targets for a mission usually was between 10 and 30. The pilot was also briefed to pick up any important target in enemy territory while en route to or on return from a mission. This practice resulted in cutting down the number of unsuccessful missions during the winter months when the weather was adverse over the Group's entire operational area. The greatest number of targets photographed by a photo pilot on a single mission was 50. This record was made while emphasis on strategic targets was concentrated on those in Northern Italy. Fewer targets were briefed on missions which were scheduled to fly into the "jet" area since these missions were escorted, and because of the danger of interception if the mission remained in the area for too long a time.

Only a limited number of targets were briefed on missions which were to photograph bomb damage. This was done in order to insure the early return of these highly important missions, for on many occasions the planning staff of the Air Force delayed the operations orders for the next day pending the results of the interpretation. To make certain of bomb damage assessment coverage, generally two separate missions were briefed to cover the targets. In one instance, due to the range and importance of the target, Berlin, four missions were briefed to cover the single target.

During the period of the final briefing, the camera repair section was busy adjusting the camera settings to suit anticipated weather conditions. If the target area was covered with snow, the aperture had to be closed down. Then again, if the sun was not shining, the aperture had to be opened. Electrical connections were given a recheck to make certain that they would function perfectly. If the aircraft and its cameras did not measure up to standard during this early morning check, a stand-by plane was made ready for the mission.

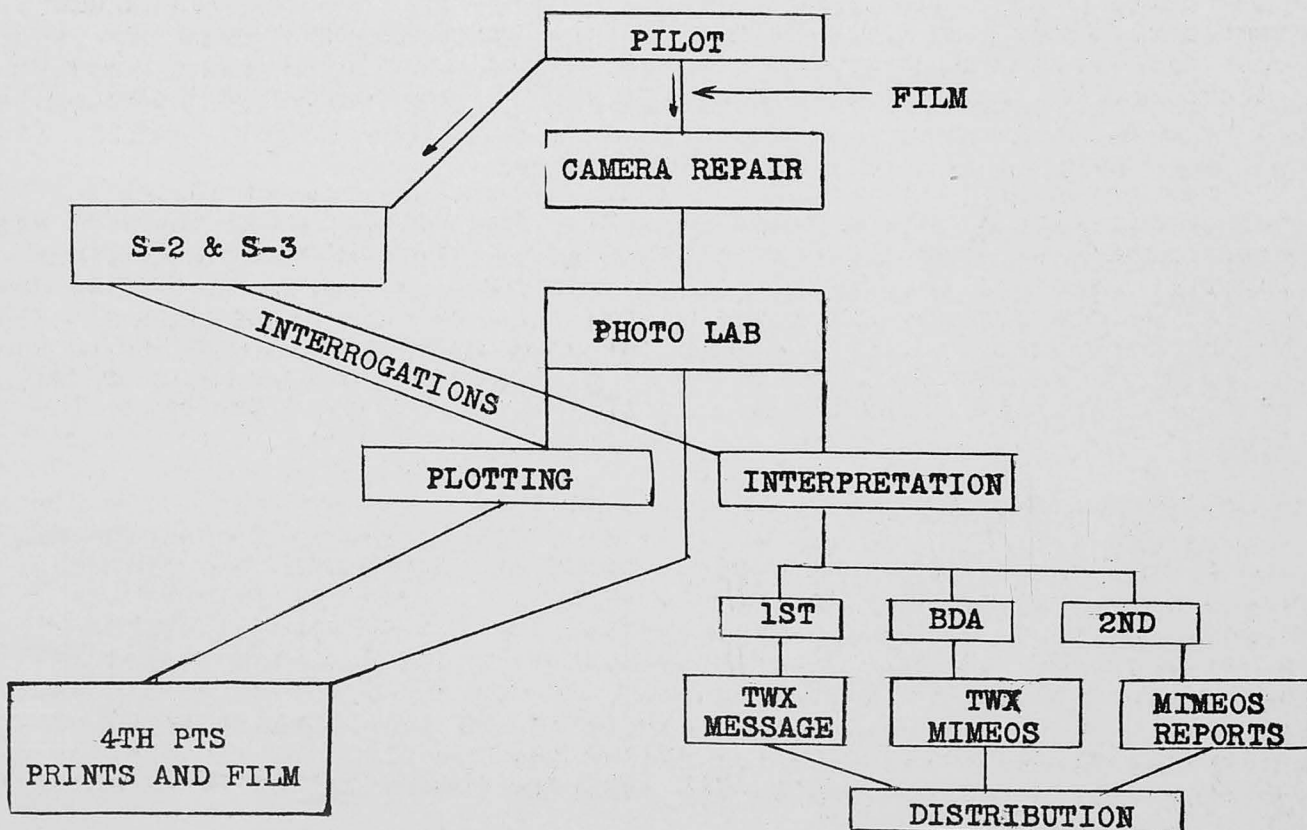
Because of the distances which the strategic photo pilots had to fly to reach their targets, the average mission took five hours from the time of take-off to the time of landing. When the pilot landed with his pictures, he was met by the camera crew which was waiting to rush the film to the photo laboratory. To the crew, the pilot also gave any special weather information necessary, so that special processing could be accomplished in the event that the target area weather was not the type for which his cameras had been set. The pilot then went directly to the Intelligence and Operations Officers where he was interrogated by the Intelligence and Weather Officers. Any "flash reports" which the pilot made were called in directly to

higher headquarters. The pilot then made a trace of his mission, indicating thereon the time over each target, the altitude and the direction of each run. This trace was sent, with one copy of the interrogation report, to the Plotting Section where it materially aided the plotters in locating each photograph.

After the exposed film had been removed from the plane, it was rushed to the photo laboratory where it was processed and printed. When several missions landed at the same time, the first film to reach the lab received first treatment. In the case of BDA film, all other mission film was set aside and priority was given to the BDA. Two complete sets of prints of the entire mission were made, one for the use of the plotters and the other for use of the interpreters. Reprints of selected prints were also made for the Air Force upon request of Interpretation Sections.

The Interpretation Section began work immediately upon receipt of the photos from the laboratory. First Phase reports of essential findings were sent out during the night in the form of TWX messages and reached their recipients before 0700 hours the following morning. The more complex Second Phase reports in the form of mimeographed copy were in distribution by the following morning. Interpretations for use of the Air Force, together with selected reprints, were delivered by special courier at 0900 hours.

PROCESSING INTELLIGENCE IN SQUADRONS



DESIGNATION OF OPERATIONAL AREAS

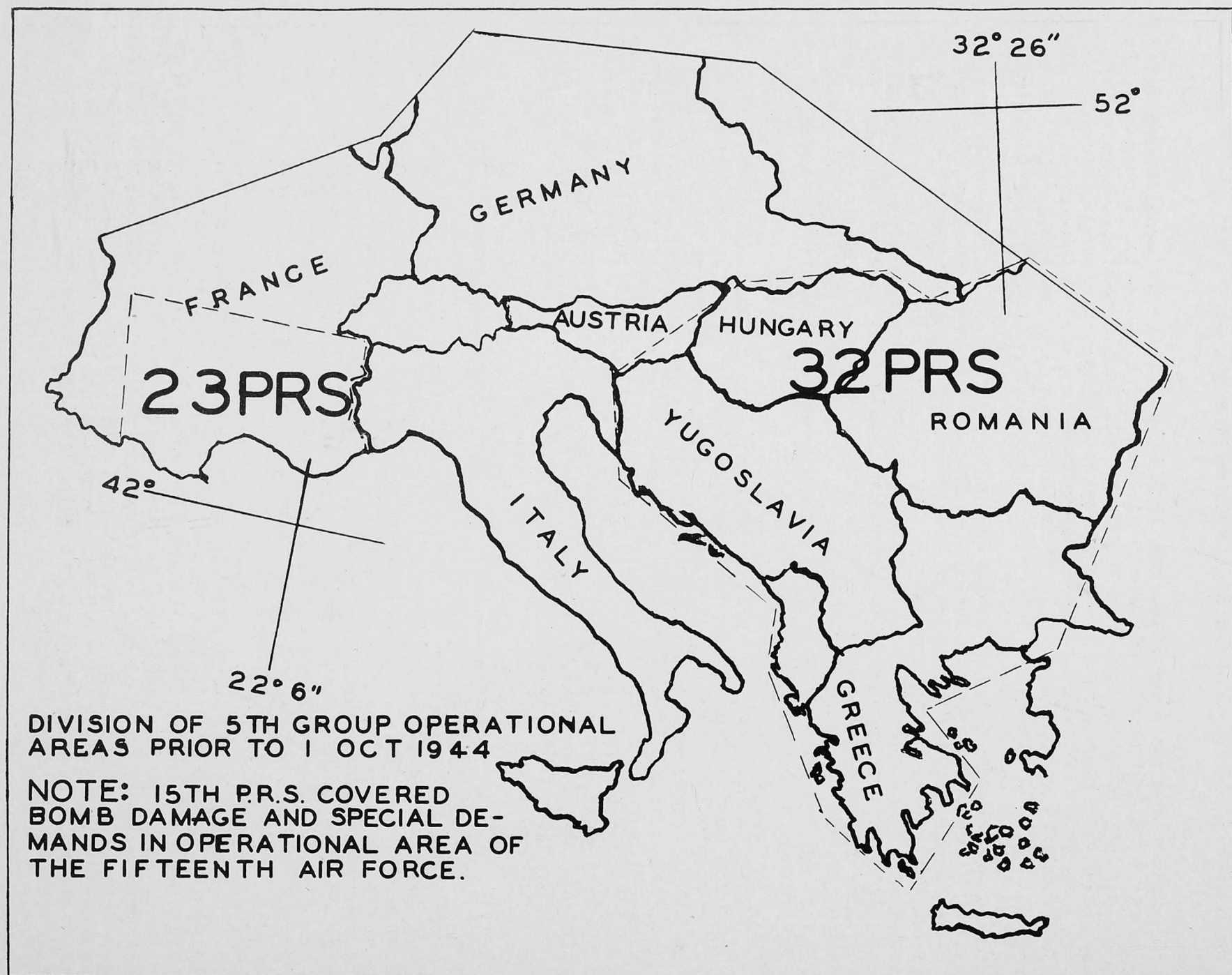
Prior to 1 October 1944, the 15th Photographic Reconnaissance Squadron was attached to the Fifteenth Air Force for operational purposes. It was the duty of this squadron to obtain all bomb damage assessment for the Air Force as well as pre-strike photographs, mapping jobs for dropping purposes and routine coverage. The operational area of that squadron was the territory extending from France to Greece, and embracing all localities within the range of the Fifteenth Air Force's bombing activities.

When the 5th Reconnaissance Group became a part of the Fifteenth Air Force, it had two reconnaissance squadrons, the 15th and 32nd. The area to be covered by the Group was, therefore, divided into two parts, comparatively equal as to the size of the territory to be covered and the number of targets within the areas. The boundary between the operational areas of the two squadrons was fixed at 14° 30' East Longitude, the 15th Squadron being allotted the territory east of the line and the 32nd Squadron being given that west of the line. At the same time, the squadrons in whose area the bombers operated was held responsible for the securing of bomb damage assessment photographs.

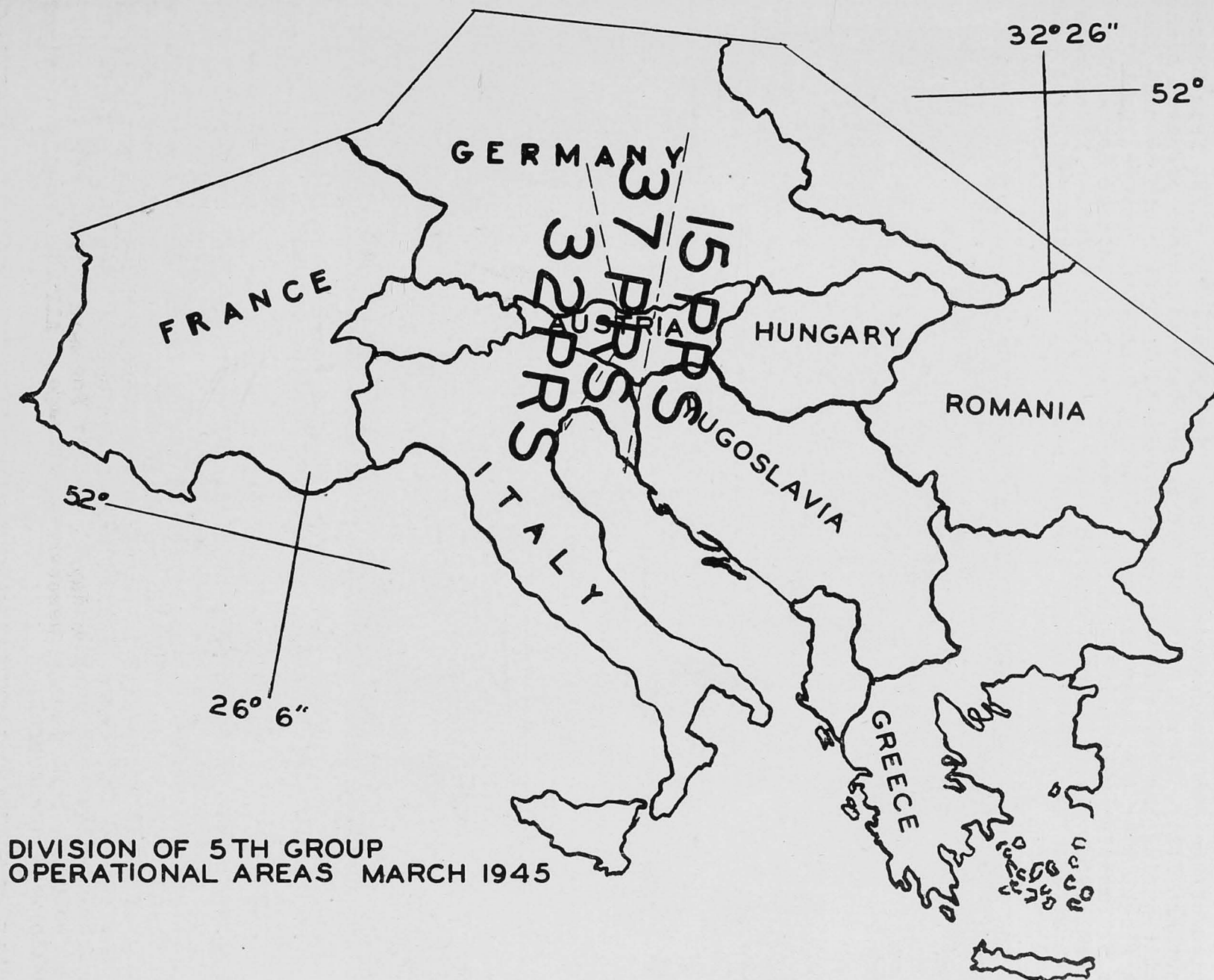
Upon the arrival of the 37th Photographic Reconnaissance Squadron in Italy and its assignment to 5th Group, a reallocation of operational areas was necessitated. Because of the lack of combat experience on the part of the pilots of the squadron, it was given an area of relatively shallow penetration south of 47° North Latitude. This demarcation of territory existed for several weeks, after which time the 37th Squadron was ready to begin deeper penetrations into enemy territory and another assignment of operational areas was made. Meanwhile, the operational area of the Fifteenth Air Force and, therefore, of the 5th Reconnaissance Group was being decreased by the Allied advances from both the Western and the Eastern Fronts.

The new revision gave each of the three reconnaissance squadrons a long but comparatively narrow territory. The 32nd Squadron was allotted the westernmost area from the Western Front to a line which ran, roughly, from Bayreuth, east of Straubling, through Brunau, Salzburg, Belluno and east of Padua. The 37th Squadron was given the territory bounded on the west by the line just indicated and on the east by a line running through Bauzen, east of Prague, Linz and Klagenfurt, through Ljubljana and to the east of Fiume. The 15th Squadron's area then became that adjoining the territory of the 37th Squadron and extending to the Russian front lines. Each of the squadrons was held responsible for special, routine and bomb damage coverage in its area.

The final change in operational areas of the squadrons was made on 14 April 1945. In order that the Air Force might receive bomb damage assessment reports and intelligence material for its tactical operations with greater speed, the 15th Squadron, because of its location at Bari, was made responsible for all BDA requests and for all special demands, regardless of the location of targets. The territory remaining in enemy possession was evenly divided by a longitudinally drawn line, the area east of which was assigned to the 37th Squadron while that to the west was allotted to the 32nd Squadron.



RESTRICTED



DIVISION OF 5TH GROUP OPERATIONAL AREAS MARCH 1945

40

RESTRICTED

PHOTO MISSION TO BERLIN

BERLIN, the heart of the German nation, was long a goal of the pilots of units of the 5th Reconnaissance Group. Lying over 750 miles from bases in Southern Italy, it was a target for which every pilot had prepared plans in anticipating the day when circumstances would be just right to make the first flight over the enemy capitol. Finally, conditions favored Captain James E. Emswiler when he took off to cover targets in Central Germany on 20 March 1945. Flying to his briefed targets, Captain Emswiler found them cloud-covered. Then, checking his gas and observing that the weather to the



Daimler Benz A.G. AFV Works, Berlin, Germany

north showed signs of improving, he continued on to Berlin. There he covered targets located on the southern edge of the city; targets which were to be the objectives of an attack by the Fifteenth Air Force four days later, on 24 March. For this mission which was successfully accomplished in the face of great odds, Captain Emswiler was awarded the Silver Star. Four more missions to the German capitol were flown by the 15th Photographic Reconnaissance Squadron on the day of the Air Force's attack, for the purpose of securing bomb damage assessment coverage. All the Group's missions to Berlin were successful.

THE "JET" AND PHOTO RECONNAISSANCE

The Germans fully realized the importance of preventing photo reconnaissance of their vital centers of communications, industrial and oil plants and airfields. Never did they cease trying to keep "Photo Freddie" from flying over such installations, either through interception or anti-aircraft defenses. Because of the speed of the F-5 photo planes, however, the conventional types of GAF fighters did not particularly bother the photo pilots on their missions. Occasionally, they did succeed in surprising an unwary photo pilot and, in this way, succeeded in downing several of our reconnaissance ships. On the average photo mission, however, an interception as a result of which the enemy plane got close enough to fire on a photo ship was an exception rather than the rule.

When the Germans started to send up against our photo ships the Me-262, which is approximately one hundred miles per hour faster than the F-5, counter measures had to be taken to insure the safe return of the photo planes. This counter measure was fighter escort provided by the Fifteenth Fighter Command on all photo missions which were dispatched into the operational areas of the jet bases. This area consisted of all territory north of a line running east and west through Innsbruck, and west of a line running through Salzburg, Linz and Kolin. The main jet bases were located in the Munich area, the largest being Lechfeld and Munich/Reim Airdromes.

The first known interception of a photo reconnaissance ship by a jet in this theater occurred during the latter part of August 1944, when a Mosquito of the 336th RAF Wing returned from a photo mission severely damaged by an Me-262, which had inflicted the damage after having made fourteen separate attacks on the Mosquito. The pilot of the Mosquito judged the speed of the Me-262 to be fully 100 MPH faster than the speed of his own aircraft.

Soon after the 5th Reconnaissance Group was assigned to the Fifteenth Air Force, an agreement was reached between Air Force and Group, as a result of which fighter escort was provided on all photo missions going to the area mentioned above. Even with the fighter escort, the "jet" continued to make attacks on the photo planes in this area. A total of twenty-nine attacks were made by Me-262's during the period from 12 November 1944 to 4 April 1945. In all cases, with the exception of one, the enemy was driven off without loss of a photo plane. In these attacks, one Me-262 was destroyed and one probably destroyed, in addition to several damaged.

Tactics had to be devised against such attacks and, to this end, several meetings were held between fighter and photo squadrons, at which time the problems of both the fighter and photo pilots were discussed. As a result, a formation was finally decided upon. The escort fighters were placed in close formation with the photo ship. When attacked, the photo ship maneuvered as a fighter, maintaining altitude and taking advantage of its ability to turn inside the attacking aircraft, thus giving the escort maximum opportunity to use its superior maneuverability.



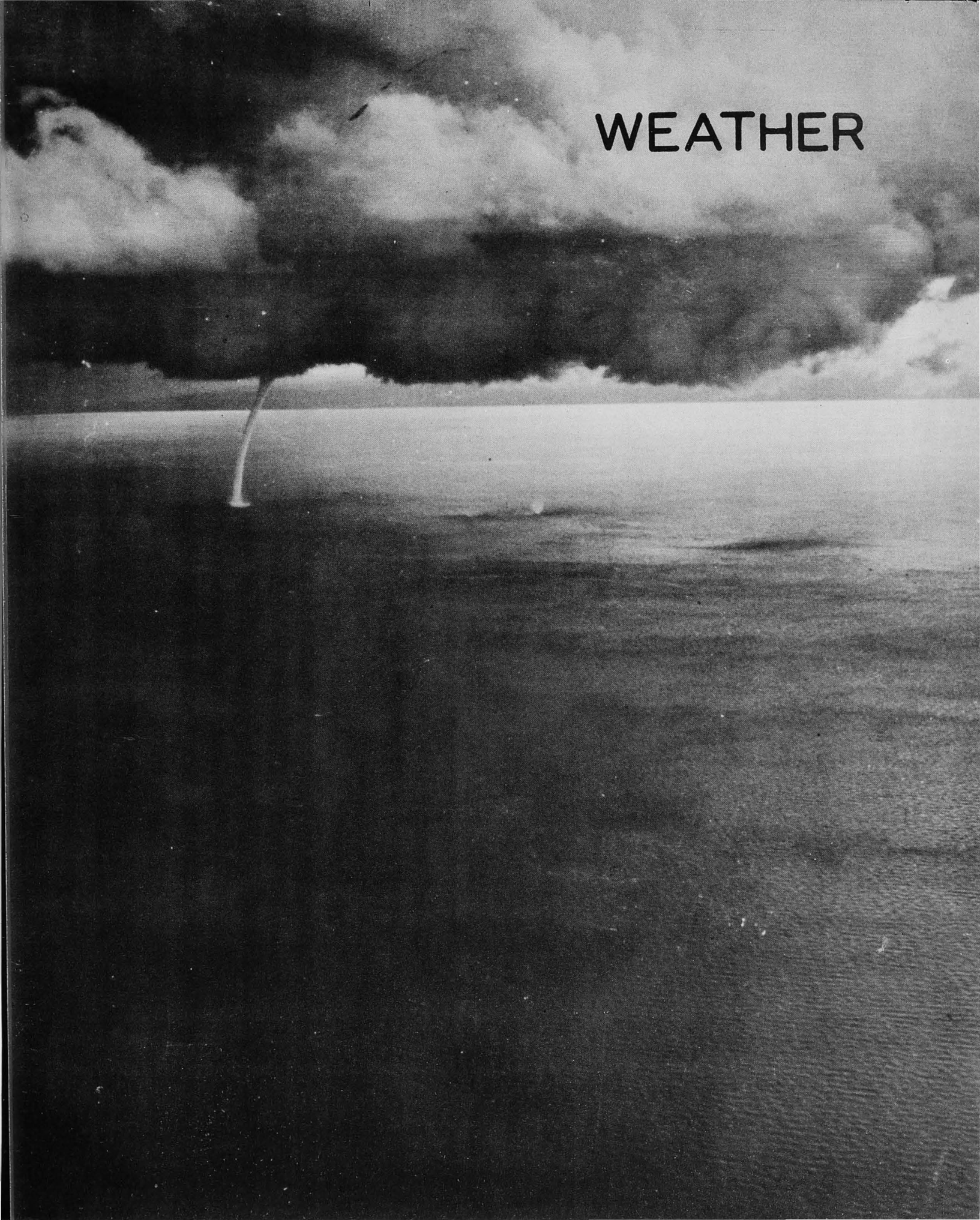
Me 262 photographed
in flight after it
had made a pass at
the Photo Ship.

December 1944

The picture at the
right shows the damage
sustained by one of
the 5th Reconnaissance
Group's planes as a
result of one of the
29 interceptions by
the German "jet".



WEATHER



WEATHER

Climatological statistics show that during the winter months only five to six days, on the average, can be expected with six tenths or less cloud cover, and only two to three days with less than three tenths over Central and Southern Europe. This means that pinpoint photography is possible less than twenty percent of the time and oblique and mapping operations are limited to less than ten percent of the time. Periods of good target weather, for the most part, prevailed for several consecutive days, followed by longer periods of extensive cloudiness. As a result, the frequency of photo coverage of any particular target was rather erratic, and the problem of maintaining routine coverage was one of the gravest facing photo reconnaissance operations.

Further limitations of photo reconnaissance were encountered as a result of base and route weather on many days, especially during the winter months, when target weather seemed favorable. Most of the frontal zones moving in over the continent in an easterly direction gradually slowed up in the area of the Alps and then moved southward into the Mediterranean area. If any clearing weather accompanied the passage of the front in the target area, the problem of flying through the frontal zone in going to and from that area still faced the pilot in flying from bases in Southern Italy, with deteriorating weather generally occurring back at the base. With the average mission ranging from 450 to 500 miles from base, it was an exceptional day when a pilot did not have to fly at least some instrument time along the route.

In the early part of each afternoon, a forecast for the following day was prepared by using the 0600Z synoptic chart for the day. The Group Operations Officer was then briefed on base, route and target weather and on the velocity and direction of the winds at altitude. Using this information, the next day's missions were planned as to type and effort, decision being made on mapping, pinpoint or radar photography, the possibility of taking escort, and the range that could be attempted safely. The Weather Officers of the squadrons were contacted during the later portion of the afternoon and they reported on the weather encountered during the day's operations. A further discussion was held concerning the forecast for the following day and target times and most favorable routes were decided upon. The squadron Weather Officers then briefed the squadron Operations and Intelligence Officers and final plans for the missions were drawn up at that time. The following morning, prior to the first take off, the squadron Weather Officers were again contacted by Group and, using information obtained from the 0100Z synoptic chart of that morning, as well as all available weather reconnaissance reports, a final forecast was decided and the necessary changes in the day's operations were made.

4TH PHOTO TECH SQUADRON



4TH PHOTO TECHNICAL SQUADRON

The organization of a Photo Technical Squadron is more complex and varied than that of any other unit of its size in the Army Air Forces. Its personnel strength is high in officers, its equipment is bulky and its files are voluminous. The squadron's function is to provide reprints, duplicate negatives and, above all, to furnish intelligence from photo interpretation.

While much of the photo intelligence provided by the Group came from the photo interpretation sections of the flying squadrons in the form of First and Second Phase reports, the Technical Squadron was responsible for the more complex Third Phase interpretations. On the average, such detailed Third Phase interpretations required eight hours of time and entailed the thorough study of prints, the consulting of previous reports and research in the intelligence library and files. These interpretations were made almost wholly by officer personnel. Enlisted men who were specially qualified and trained were detailed as interpreter aides.

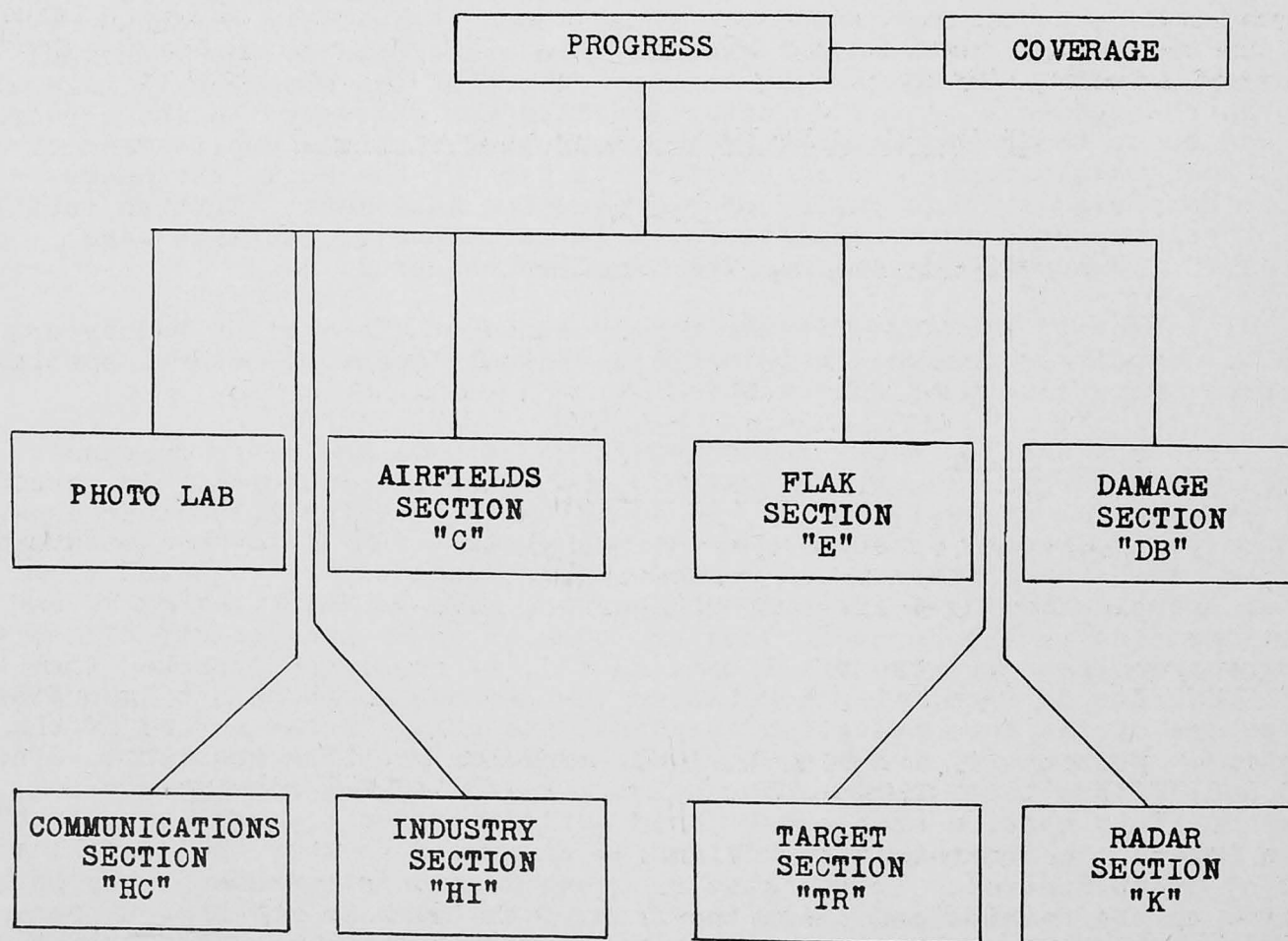
The 4th Photo Technical Squadron maintained a complete set of all photos taken by the flying squadrons of the 5th Reconnaissance Group. In addition, it was the repository for all aerial reconnaissance film taken by the squadrons of the Group, and of all bomb strike film produced by units of the Air Force. Because all exposed film was stored by the Technical Squadron, it fell to the lot of the laboratory of the squadron to make all reprints which were requested after the film was delivered to the squadron. In addition, the photo laboratory was entrusted with the duplication of negatives upon demand. To accomplish its part of the work, the photo laboratory used a large outlay of reproduction equipment. British multi-printers were used when requests for a large number of reprints were received. Handprinting was used for smaller requests.

In order to meet the diverse requirements of the various requestors and to coordinate the work within the Technical Squadron, several special sections were set up as follows:

Progress Section was established to coordinate and route demands through the various departments within the Technical Squadron. It received all demands for the services of the squadron, processing 3,125 such demands in the period from 1 October 1944 to 8 May 1945. 65% of the requests originated with the Fifteenth Air Force. Other demands were received from other agencies in the Mediterranean Theater, such as MATAF and MAAF, and from agencies in the European Theater, such as SHAEF and the Air Ministry. Progress Section registered all demands and, if necessary, checked them with Coverage Section. It then passed the demands to the photo laboratory or to one of the interpretation sections, according to the nature of the request. When new flying was required, Progress sent the request to Group S-3 and, later, took appropriate action when the flying mission was completed. This section also established priorities for the various phases of a demand, in order that work might be completed to meet the deadline set by Group Control. It was also Progress Section's responsibility to follow up the demands and check the flow of the work in the various sections, so that it could clear up any difficulties which may have arisen.

Coverage Section, by means of maps and traces, kept a record of all areas covered by photo reconnaissance flown by the 5th Reconnaissance Group. It also made a check of sorties flown by other units to determine if such units had covered areas for which 5th Group had demands, thus helping to eliminate unnecessary flying. Another function of this section was to keep a record of the status of all flying demands, except routine cover, and to inform the proper interpretation sections as soon as the requested cover was available. Likewise, it was Coverage Section's duty to check available sorties and to determine which negatives were to be printed in answering a request for photo cover of specific pinpoints or areas. This section also wrote up the flying demands and furnished briefing materials such as annotated prints and traces, supplying at the same time all details of a job which the demander may or may not have included in the request. If the Coverage Section found that suitable photo coverage already existed, no flying demand was initiated, available coverage being used instead.

FLOW OF DEMANDS



AIR FIELDS SECTION

The Air Fields Section made a routine examination of all cover, in order to locate and report new airfields and to check construction or demolition activity on those previously reported. During an average week 6000 prints passed through this section. The routine reports made by this department were used largely by planning staffs. A file covering 600 enemy airdromes was maintained in the section. This file contained photo interpretation reports compiled by other photo intelligence units as well as those originating in this organization.

In addition to the routine check of each sortie, the Airfields Section provided special information on request. The annotated mosaics of airfields are a good example of this type of work. These mosaics of small scale photos showing airfield facilities, dispersal of aircraft, and flying obstructions were of great value in planning bombing or strafing attacks and in briefing flying crews for such operations. Like other 3rd Phase sections, this section also used photographic interpretation methods to check the reliability and accuracy of other sources of information, such as ground reports.

The following shows a complete "C" type report, which includes a written report and two annotated photos. Also shown is an annotated photo issued by the section to show flying obstructions. This type of photo was used to good advantage by strafing planes of the 15th Fighter Command.

DETAILED INTERPRETATION REPORT NO. 4C/56GERMANY

Photographs by 32nd Squadron.

SORTIE: 32S/1014 16 April 1945
 SCALE : 1/11,000 (F.L. 24")
 PRINTS: 3001-3006, 4001-4006 (24"); 5002 (6")
 ANNOTATED PRINTS: 4004 (24"); 5002 (6")

ROTHENSTADT Landing Ground

Note: This is the first detailed report to be issued on this L/G by 5th Photo Group.

Map Ref: G.S.G.S. 4081 (GERMANY 1/100,000) Sheet 134.

COORDINATES: 49° 38' 35" N
 12° 07' 40" E

LOCAL POSITION: Approx. 50 miles ENE. of NURNBERG, 43 miles N. of REGENSBURG, 1 mile NW. of ROTHENSTADT village.

ALTITUDE: : Approx. 1400 ft. a.s.l.

OBSTRUCTIONS : N: Woods of boundary and buildings on perimeter
 E: Hills rising to cover 2000 ft. within 5 miles E. of field. Building approx. 750 yds. off ENE. boundary.
 SE: Village of ROTHENSTADT.

RESTRICTED

DIMENSIONS : Irregular in shape measuring.
NNE.-SSW. 1020 yds.
ESE.-WNW. 1060 yds.

SURFACE : Grassland appearing firm and level. One unfilled bomb crater in NW. corner. Remainder of landing area appears serviceable.

RUNWAYS & TAXI TRACKS : None.

FACILITIES : (a) Fuel and Oil: Possible refueling points in SE. corner.
(b) Hangars and workshops: One medium and 2 small buildings on N. perimeter are probable workshops. No hangar facilities.
(c) Accommodation: 4 barrack type buildings just N. of workshop buildings.

DISPERSAL : No organized dispersal. A/C parked around W. perimeter and in SE. corner.

ACCESS : (a) Road: Good road, forming NW. boundary of field, to WEIDEN.
(b) Rail: Branch line of the CHEMNITZ/NURNBERG railroad runs just E. and S. of L/G.

ACTIVITY : 4 probably active A/C visible
3 He 111 (Camouflaged)
1 Me 410
2 destroyed A/C also visible. Small amount of track activity indicates that the field is probably not very active.

RLP/jlp



Six inch Annotated Print to Accompany "C" Report



Type of Chart used in Briefing Pilots for Strafing Missions

DAMAGE SECTION

The Damage Section's prime function was to provide the Fifteenth Air Force with detailed information on attack damage. The Section maintained a small detachment of damage assessment specialists working with the 32nd and 37th Photo Reconnaissance Squadrons at San Severo, the task of the detachment being to prepare reports on the basis of photographs taken by the two squadrons. The 15th Photo Reconnaissance Squadron also maintained a Damage Section which was an integral part of its interpretation effort. It was mainly by means of the immediate and second phase reports issued by these interpreters that the Air Force was able to gain information of the success or failure of an attack in time to decide whether or not another bombing was necessary in the following few days.

Special requests for specific detailed information were also handled by the Damage Section. For example, blackout plots showing damage caused over wide built-up areas were often provided. In addition, Damage Section cooperated with the specialists of other sections in producing assessment intelligence on high priority targets.

The example below shows a typical second phase bomb damage assessment report issued by the 4th Photo Technical Squadron detachment.

PHOTOGRAPHIC INTERPRETATION REPORT NO. 4DB-46ITALYBOMB DAMAGE

<u>Sortie No.</u>	<u>Unit</u>	<u>Dated</u>	<u>Time</u>	<u>Scale</u>	<u>F.L</u>	<u>Qty</u>	<u>Pilot</u>
32S/991	32S	10 Apr	1500	12,000	24"	'A'	Lt Mann

LOCALITIES for REPAIR:- TRENTO

TRENTO : MARSHALLING YARD (1516 Hours)

Last Attack: 8/9 April, 1945 by 205 Group.
Last Report: 4DB-45 of 9 April, 1945.

One track in the North yard is open to through traffic. The yard is approximately sixty-five percent unserviceable, with the sidings blocked by numerous craters and destroyed rolling stock. There is approximately 56 active units in the yard with no visible activity.

In the Main Station Sidings, two tracks are open to through traffic. There are 50 active units in the sidings, and there has been a considerable decrease in rolling stock since 9 April, 1945.

Prints: 32S/991 : 3167-3168
Comparative: 32S/952 : 3033-3035

DLF/jac

FLAK SECTION

The Flak Section was always considered as one of the busiest sections within the 4th Photo Technical Squadron. Information on the strength, exact disposition, and movement of enemy air defense measures (A/A guns, balloons, smoke pots, and search lights) was reported by this section after routine examination of every aerial photograph taken by the flying squadrons over enemy territory. Written reports were distributed for each noted change. Consolidated flak information was disseminated largely by means of annotated maps.

Maps and reports issued by this section were as follows:

1. Flak map (1:100,000) covered a specific target area such as Brux, Munich, Vienna, etc.
2. A navigation map (1:1,000,000) covered the entire operational area of the Fifteenth Air Force. Issued monthly.
3. Written flak reports were issued whenever changes were noted, in order to keep previously issued flak maps up to date. Information from other sources was also used.
4. Concentration Maps (1:100,000) showed effective radius of of A/A fire at 23,000 feet and the total number of guns within that circle of fire.
5. Weekly photograph of 1/250,000 flak concentration map, which was issued down to and including squadron.

4th Photo Tech Sqdn. CONSOLIDATED FLAK REPORT 4-46

2 April 1945

5th Photo Group Rcn.

Flak Section

COUNTRY & LOCALITY		SERIES	MAP SHT	PREVIOUS REPORT	SORTIE & DATE	PINPOINT	BATTERIES REPORTED	GUN TOTALS	
								H	L
<u>YUGOSLAVIA</u>									
BROD		4396	48 F.Map	4-45 1 Apr.'45	336 PRW Signal- 2 Apr.'45	125276	3 Light guns	85	78
45° 09' N-						133269	3 Light guns		
18° 00' E						135263	3 Light guns		
						141261	3 Light guns		
						139273	3 Light guns		
						115285	4 heavy recd- cupied.		
<u>GERMANY</u>									
MUHL DORF		4416	W6&7 X6&7 F.Map 4E/488	4E/488 F.Map	32S/939 31 March- 1945	591751	4 Heavy guns	4	35
48° 15' N-									
12° 30' E									

THE COMMUNICATIONS SECTION

The Communications Section reported on the enemy's road, rail, and water communication systems. Studies were made on rail facilities, repair shops, water barriers, bridges, tunnels, and other installations vulnerable to air attack. Maps were issued showing supply concentrations and communications installations. Estimates on traffic flow and suggestions for interdiction points were presented to A-2, Fifteenth Air Force. In addition, exhaustive "Third Phase" reports on key rail centers were produced in conjunction with the Target Analysis section of the Air Force. The communications section also had direct liaison with the Fifteenth Air Force A-2 Section specialist on enemy communications.

Types of reports issued by this section were as follows:

HC Reports--Route studies (both rail and road) emphasizing vulnerable points as targets.

A-2 Analysis Reports--Detailed interpretation reports on various key rail centers in Germany and Austria describing in detail all parts of installations.

Letter Reports--Quick yes or no answers to specific demand questions.

Interpretation Notes--Reports serving the same purpose as the letter reports but having full distribution.

5th Photo Group Ren.
4th Photo Tech Sqdn.
HC Section

24 March 1945

COMMUNICATION REPORT NO. 4HC-3

ROSENHEIM M/Y
47° 52'N (GERMANY) 12° 08'E

G.S.G.S. 4416
1/100,000
Sheet X-6

Sheet M-48
G.S.G.S. 4346
1/250,000

Sortie
32S/440

Prints
4018-19
3017-18

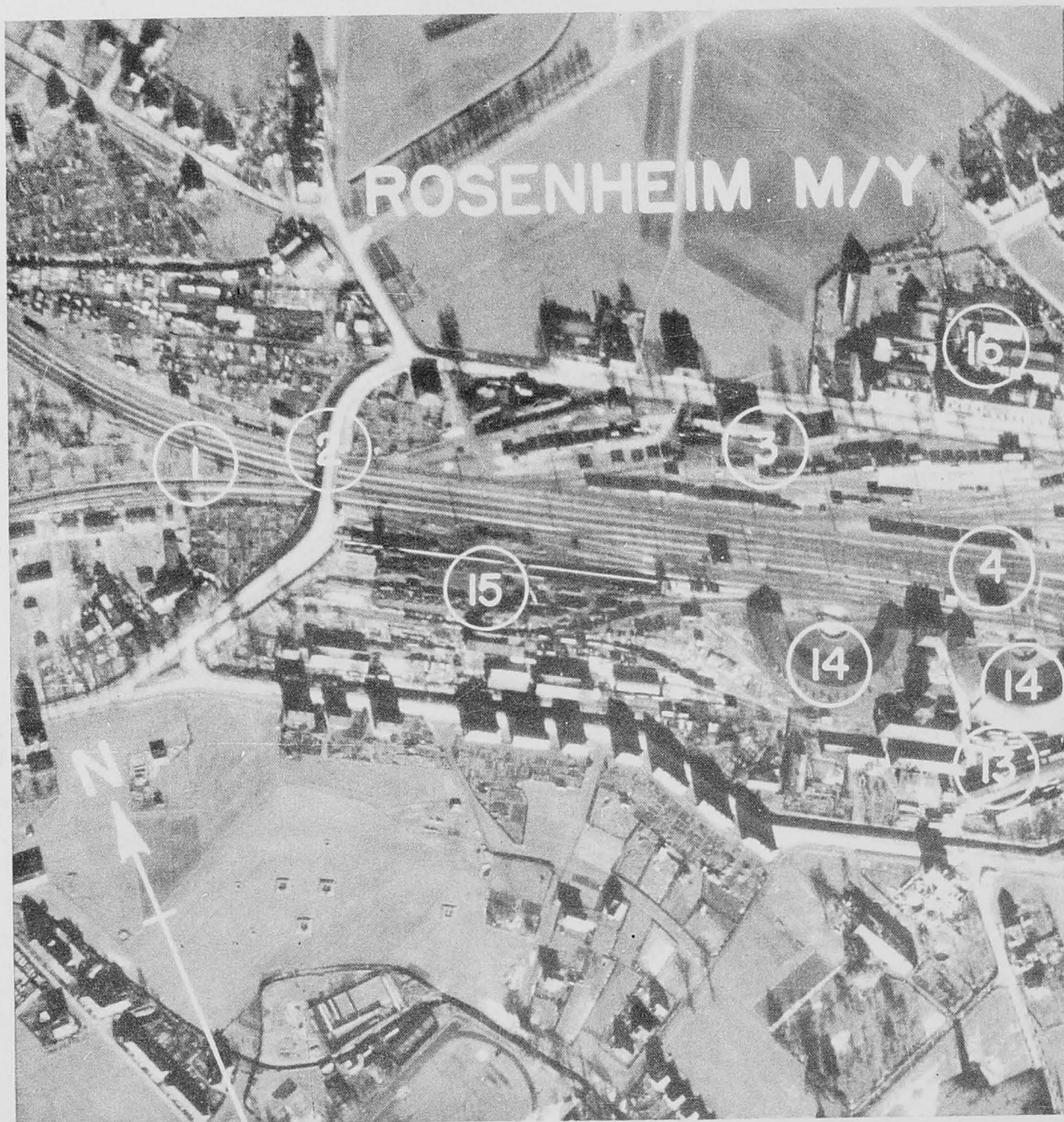
Scale
1/12,500

Date
19 Nov. '44

ROSENHEIM M/Y
GENERAL

ROSENHEIM M/Y is located at the junction of the main route MUNICH to INNSBRUCK, and the main line East to SALZBURG and VIENNA. MUNICH by-pass line from REGENSBURG through LANDSHUT and MUHLDOF joins main line at this point. Except for a small yard at WORGL, ROSENHEIM is the nearest classification point to INNSBRUCK.

<u>NO.</u>	<u>NAME</u>	<u>DESCRIPTION</u>
1	RR Junction	Intersection of rail lines from MUNICH & BAD AIBLING.



- | | | |
|----|------------------------------|---|
| 2 | Road Overpass | Road bridge over RR measures approx. 150' x 30'. |
| 3 | Transshipment Siding | Holding capacity 180 wagons. Approx. 20 D.E.S. serve open stores area. 1 transshipment shed approx. 225'x45' located west of station. |
| 13 | Repair Shop | One (1) repair shop building 288' x 40'. |
| 14 | Roundhouses | Holding capacity of each roundhouse- 25-30 locos. Two turntables each 87'. |
| 15 | Open Stores Area and Sidings | Holding capacity-140 wagons-10 D.E.S. 3 sheds approx. 150'x54'. 1 shed approx. 100'x26'. 1 shed approx. 94'x54'. |
| 16 | Industrial Plants | Unidentified. |

THE INDUSTRY SECTION

The Industry Section provided information on industrial installations within Fifteenth Air Force range of operations. To this section fell the responsibility of locating newly constructed plants, as well as checking on the activities of known factories. Reports issued by this section covered location, plant layout, types of products manufactured, plant capacity, approximate output at time of photography, activity, vulnerable points, plant expansion, etc. Some reports were produced on specific request of the A-2 Analysis Section, Fifteenth Air Force. Others were initiated by the Industry interpreters in accordance with a general policy that all plants contributing to strategically important industries be studied. Reports from this section were used mainly by the Fifteenth Air Force in the planning, briefing, and final assessment of results of bombing missions.

In concurrence with the policy, as laid down by the Air Force, specialists within this section were detailed to work on specific high priority target systems. These specialists worked in close cooperation with the experts of Target Analysis Section, Fifteenth Air Force, when the counter-oil and counter-air target systems were of the highest priority. As a result, the work of this section was of great value in determining what targets were profitable to bomb and when they were to be bombed.

The following types of reports were issued by this section:

HI Report--First report on an industrial installation which included location, activity, photo and identification of individual building.

HI (S) Reports--Periodic activity reports on industrial targets of special interest.

Comment Reports--Special reports on oil targets after attack.

Interpretation Notes--Special reports on counter-air targets.

Photo Intelligence Summaries--Consolidated reports on oil targets giving summary of attacks and intelligence since target was first covered by photography.

(Note) These last three types of reports were compiled only upon the demand of the Air Force and were not for general distribution.

THE RADAR SECTION

The Radar Section made routine examinations of all cover to discover and report enemy Radar stations. Target information was provided upon request. In addition, a file on enemy wireless stations was maintained. Information on the location and types of Radar stations was of great value in planning amphibious operations along the Italian and Southern French Coasts.

A "K" type of report is illustrated below:

INTERPRETATION REPORT No. 4K-1.

<u>SORTIE</u>	<u>PHOTO NOS.</u>	<u>DATE</u>	<u>SCALE</u>
32S/603	3143, 3144	26 December 1944	1/11,600

LOCALITY: MARIANSKE LAZNE (CZECHOSLOVAKIA)

RADAR STATION MARIANSKE LAZNE

1. A RADAR STATION consisting of a pole type FREYA, a GIANT WURZBURG and almost certainly three other FREYAS, is located about 3 miles SSE of MARIANSKE LAZNE (Marienbad) on the S.W. edge of the MARIANSKE LAZNE Airfield. The pinpoint of the pole type FREYA is approximately:

49° 55' 25" N.

12° 43' 18" E. of Greenwich.

MAP SERIES: G.S.G.S. 4060 CZECHOSLOVAKIA 1/75,000, Sheet 4049

MAP SERIES: A.M.S. M641 (G.S.G.S. 4416) GERMANY 1/100,000, Sht. T-7

GRID REF. : 576 589

The altitude is approximately 1,750 ft. above sea level.

2. An unemplaced pole type FREYA with three aerial frames is at the given pinpoint. There are, almost certainly, three other unemplaced pole type FREYAS located from the first, as follows: (1) a pole type FREYA with three aerial frames 186 yards SE on a bearing of 144° true, (2) a pole type FREYA probably with two aerial frames about 298 yards SE on a bearing of 147° true and (3) a pole type FREYA probably with two aerial frames about 293 yards SSE on a bearing of 159° true.

3. A GIANT WURZBURG is sited 220 yards SSE from the most northerly FREYA on a bearing of 157° true.

4. The RADAR apparatus described is only a few yards east and also to the SE of a large barracks area located along the south part of the west perimeter of the Airfield.

5. Approximately 500 yards NNW of the pinpoint on a bearing of 338° true, there are many objects on the aprons in front of the main hangars and work shops which have the appearance of SMALL WURZBURGS with up-turned reflectors. This therefore may indicate a probable assembly location.

6. There appear to be a number of A.A.-M.G. positions in the vicinity.

ROM/cfl

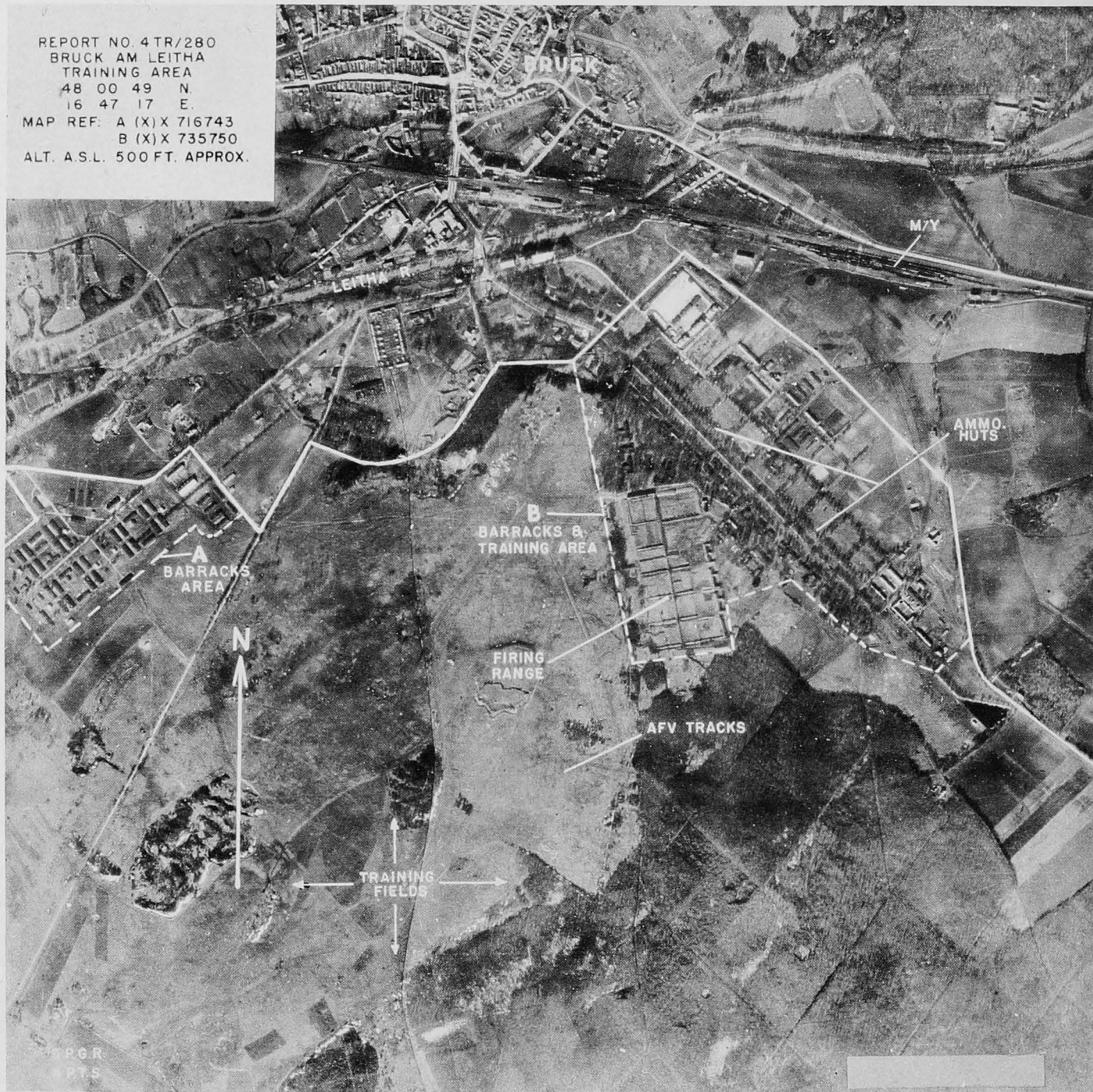
TARGET SECTION

The Target Section studied enemy supply concentrations and depots in order to determine the most propitious time for attacks upon them. This included checking ordnance, ammunition, engineer and other military supply depots, motor transport pools, and barracks areas. In addition, this section located prisoner of war camps and enforced labor camps so that Allied Air attacks could be planned to avoid possible injury to Allied personnel. Reports issued by this section included information on the location and layout of installations, activity, and increase or decrease in utilization.

The Target Section issued the following types of reports:

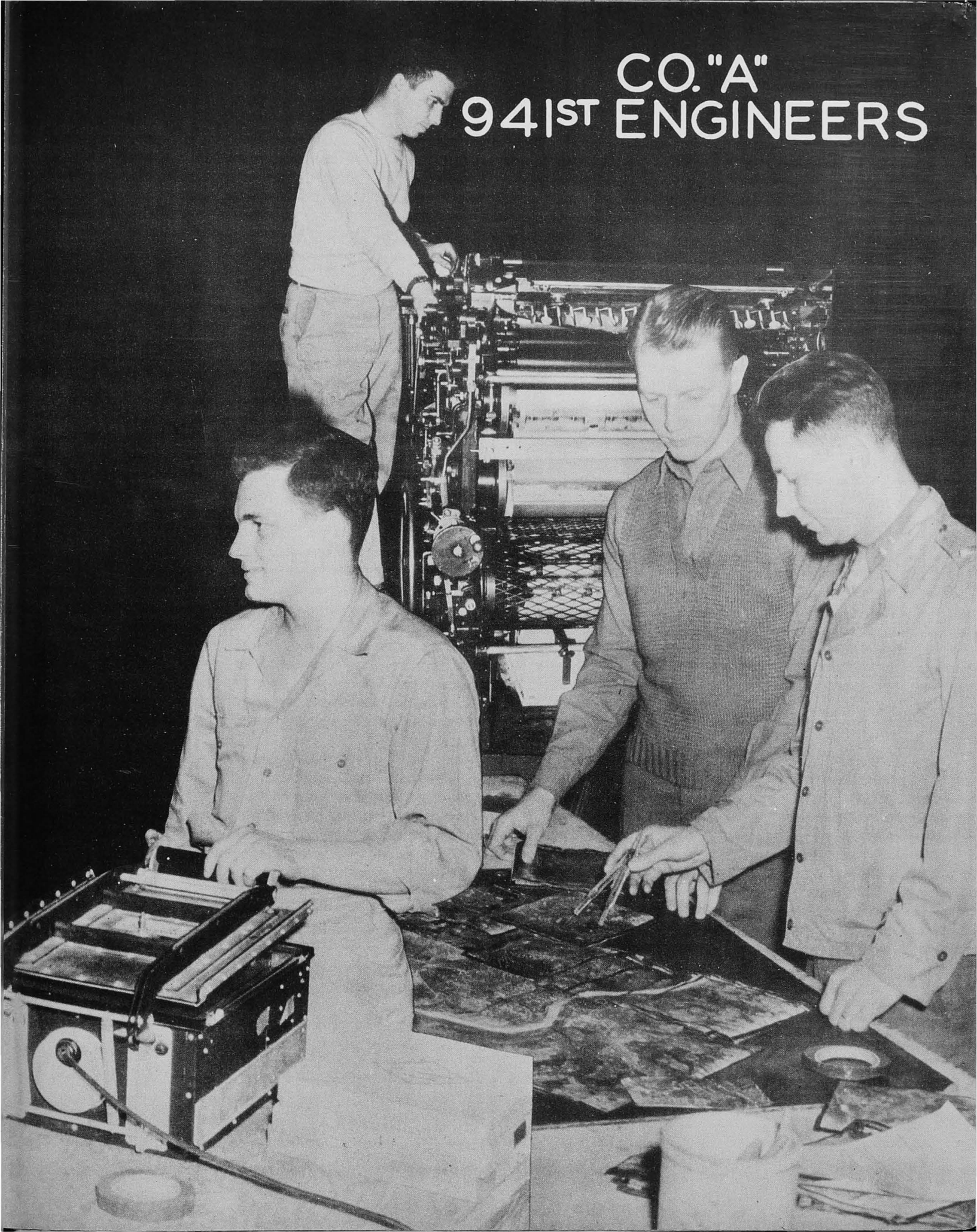
- TR Reports--Ground armament, food and fuel installations studies which presented data for determining capacity of an installation.
- TRA Reports--Amendment reports issued to replace an original report.
- TR (S) Reports--Short activity reports on targets already fully reported.
- Interpretation Notes--Used for special demands when a little information was required on several different targets.

REPORT NO. 4TR/280
 BRUCK AM LEITHA
 TRAINING AREA
 48 00 49 N.
 16 47 17 E.
 MAP REF: A (X) X 716743
 B (X) X 735750
 ALT. A.S.L. 500 FT. APPROX.



Annotated Photograph to Accompany "TR" Report

CO. "A" 941ST ENGINEERS



COMPANY "A", 941 ENGINEER AVIATION TOPOGRAPHIC BATTALION

The mission of the aviation topographic engineers as applied to Company "A" in its assignment was as follows:

1. Preparation, compilation and reproduction of all necessary charting, mapping and target charts.
2. Compilation, reproduction and distribution of all mosaics and other map information requested by the Fifteenth Air Force.
3. Supervision of all plotting and the indexing of pictures taken by photo reconnaissance aviation.
4. Making of all special contact prints, enlargements and restituted prints from such film.

While under the operational control of the 5th Reconnaissance Group, this organization performed its mission using various types of equipment. The Lithographic Section had in use two Lanston copy cameras mounted in vans, four Harris off-set presses mounted in vans, one stripping trailer, one plate processing trailer, and two plate graining machines mounted in vans. The Photomosaic Section was equipped with two B-9 projection printers with restitutional easel, two A-2 vacuum printers, three A-10 contact printers, two Peace Sheet dryers, one A-2 print washer and one Lanston copy camera. The Drafting Section made use of one reflecting projector and miscellaneous drafting equipment.

Within the Company, there were six operating sections similar to platoons in a tactical company. Headquarters was responsible for administration services. Photolibrary Section was purely a servicing type of section since it provided the basis for all target material, namely, prints and plots of aerial reconnaissance. The Operations, Photomosaic, Drafting and Lithographic Sections performed the integral functions in the production of target material. The procedure employed in the work of these sections may be likened to an assembly line wherein each section added an item to the raw material, which in this instance consisted of aerial photographs and target information, until the result came off the presses or contact printers in the finished form of a target chart or a map.

The four principal categories of work processed by this organization consisted of target material for the Fifteenth Air Force, photographic mosaics for the Air Force and aviation organizations making interpretation reports, flak maps compiled by the 4th Photo Technical Squadron and miscellaneous work, such as books and report summaries compiled by organizations within the Air Force. The first three categories constituted the intelligence and operational material required for strategic operations, while the fourth was produced as an out-growth of the first three.

TARGET AND APPROACH CHARTS

The types of target material compiled and reproduced by this organization are illustrated on the following pages. The target chart used by the Fifteenth Air Force included three elements which were the Approach Chart, the Target Chart (Strategic), and the Briefing Chart (Strategic). These were lithographed on two 20 x 22 inch sheets. The Approach Charts were reproduced in four colors, the plates for these colors having been either traced from 1:250,000 maps or made from color pulls of the maps. Instead of using contours in the Approach Charts, a monochrome layering system was used, thus giving ground elevations within various ranges in tints of brown. Water areas were run in blue. Roads, airdromes, concentric circles showing mileage from the target, and the target area box were done in red, while town names, railroads and border data were run in black. The square formed by red lines, called the target area box, gave the limits of the mosaic which appeared on the opposite side of the approach chart.

The Target Chart (Strategic) was a mosaic which covered the target area with reconnaissance photography of 20 and 24 inch focal lengths. The mosaic was assembled either from contact prints or from projection prints when restitution was necessary. The prints had to be carefully matched in scale and tone so that the final effect would be that of a single composite photo.

The Briefing Chart (Strategic), which was the third component part of this series was identical to the Target Chart with the exception of annotations which appeared in white on the mosaic. The annotations referred to the target and were compiled by the Engineers from intelligence and interpretation reports. The scale at which the mosaics, both Target Chart and Briefing Chart, were reproduced varied from 1:10,000 to 1:20,000 depending on the focal length of the photography and the area covered.

MINIMUM CHARTS

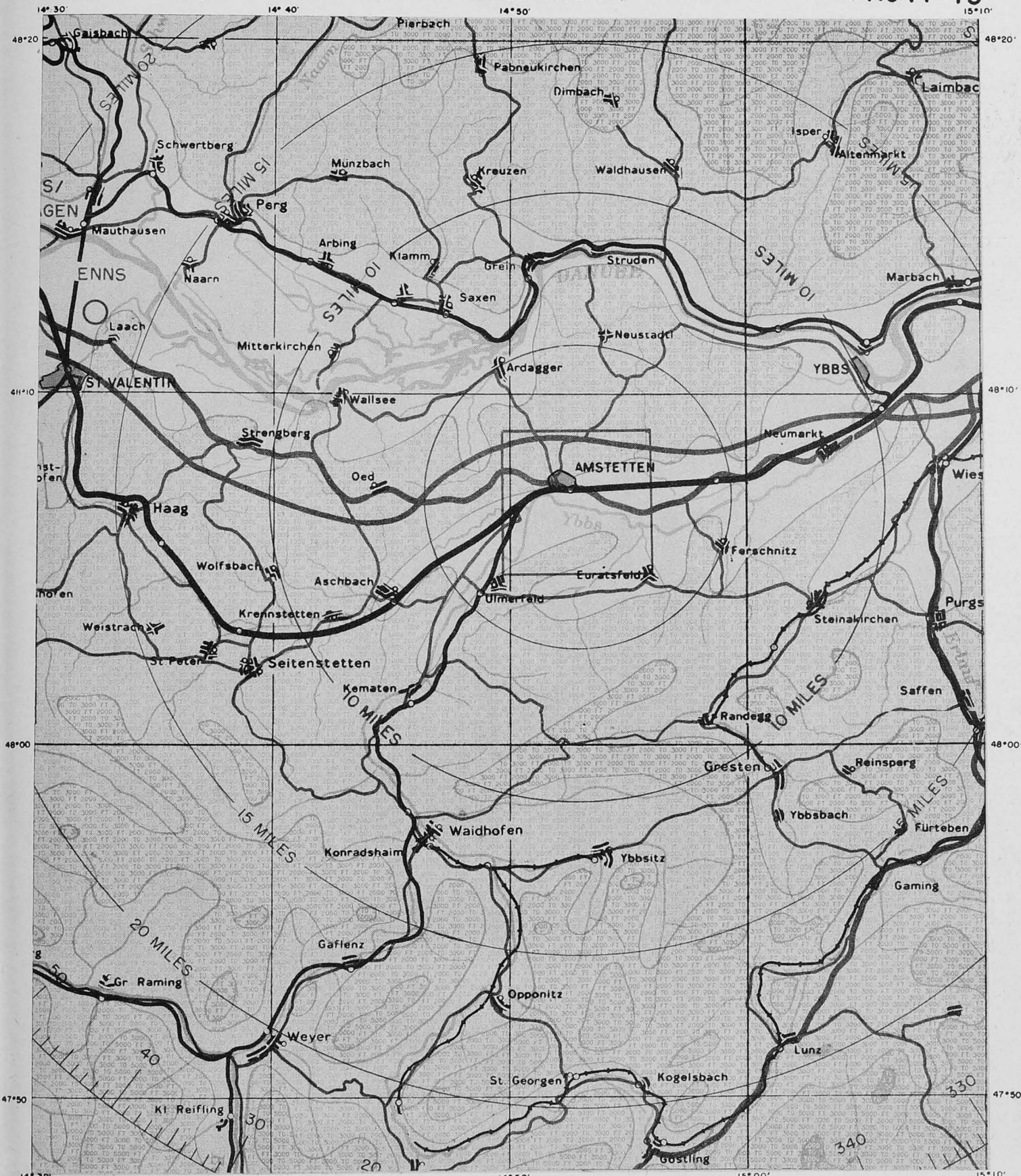
Minimum Charts were designed for use on secondary targets when visual bombing was practical. These charts, which were 9 inches square, were composed of two parts, the Minimum Photo Chart and the Minimum Briefing Chart. The Photochart was always produced at a scale 1:63,360 or one inch to a mile. Photography used for these charts was of the six inch vertical type, and the cover around the area had to extend in a three mile radius in order to make the chart of value. Annotations on these charts included the name of the target, elevation, streams, lakes and towns. Marginal information consisted of the title, center coordinates, north arrow and the sortie used in the mosaic assembly. Illustrated within these pages is a Minimum Photochart of JAGERNDORF, for which a single six inch print fulfilled the necessary specifications.

The Minimum Briefing Chart was produced at scales varying from 1:6,000 to 1:15,000 depending on the nature of the target. Annotations were more detailed than on the Photochart and included component parts of the target and details of structures such as bridges, industrial or counter-air installations. Marginal information for the Briefing Chart was similar to that of the Photochart, with the addition of an atlas grid. The Minimum Charts were reproduced photographically and lithographically.

AMSTETTEN, AUSTRIA

APPROACH CHART

NO AC 14-75



PREPARED UNDER THE DIRECTION OF A-2 SECTION 15AF
COMPILED AND REPRODUCED BY 941ST ENGR BN
MARCH 1945

STATUTE MILES
SCALE 1:250,000

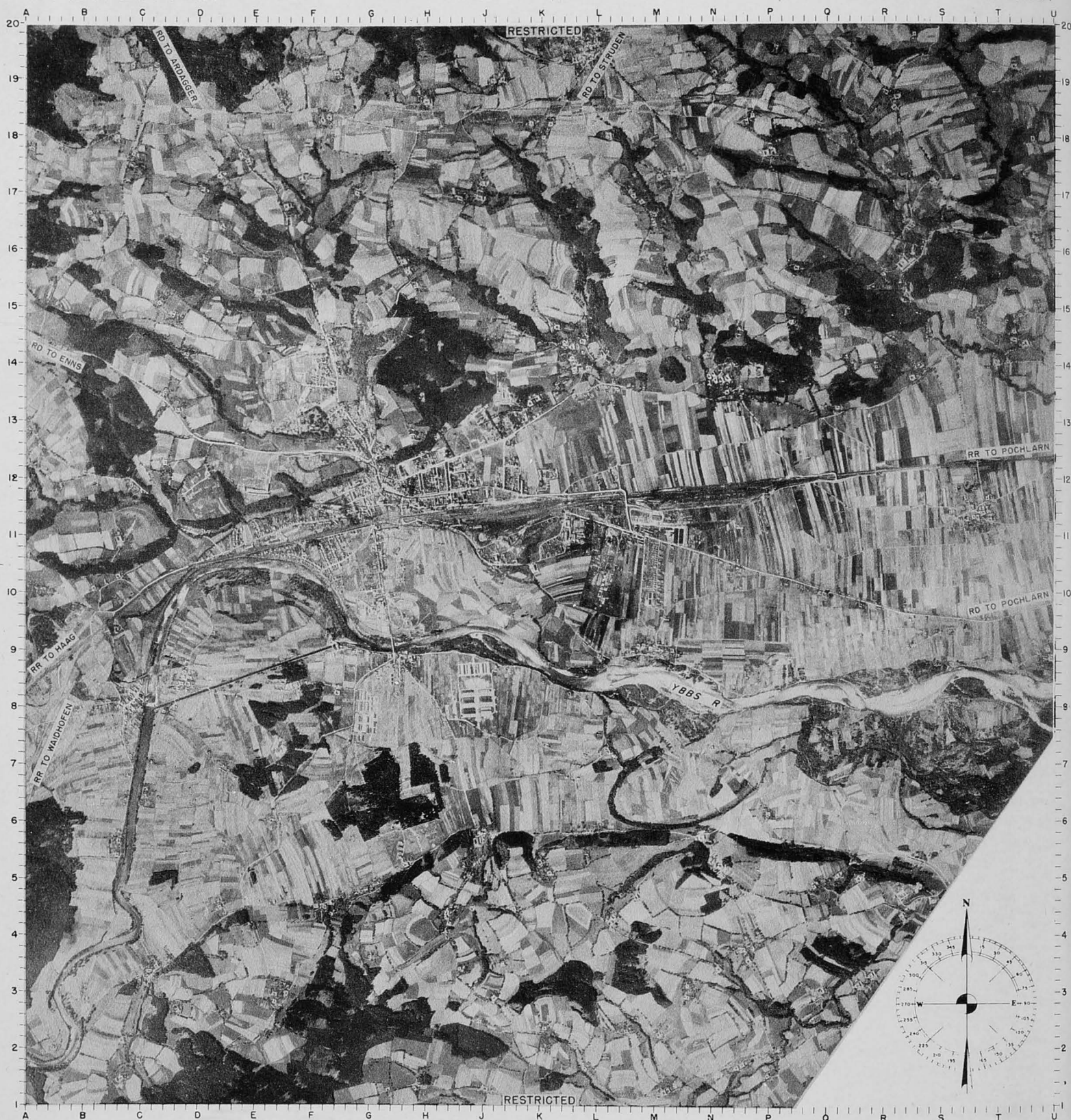
COMPASS ROSE SHOWS MAGNETIC AZIMUTH FROM THE SOUTH

LEGEND
TARGET AREA
AIRDROMES
LANDING GROUNDS

AMSTETTEN, AUSTRIA
CENTER COORDINATES 48°07'N - 14°53'E

TARGET CHART (STRATEGIC)

NO TCS 14-75
(REF 815-15 AF)



DATE OF PHOTOS 20 AUG 1944
COMPILED & REPRODUCED BY 9481 ENGR BN MARCH 1945

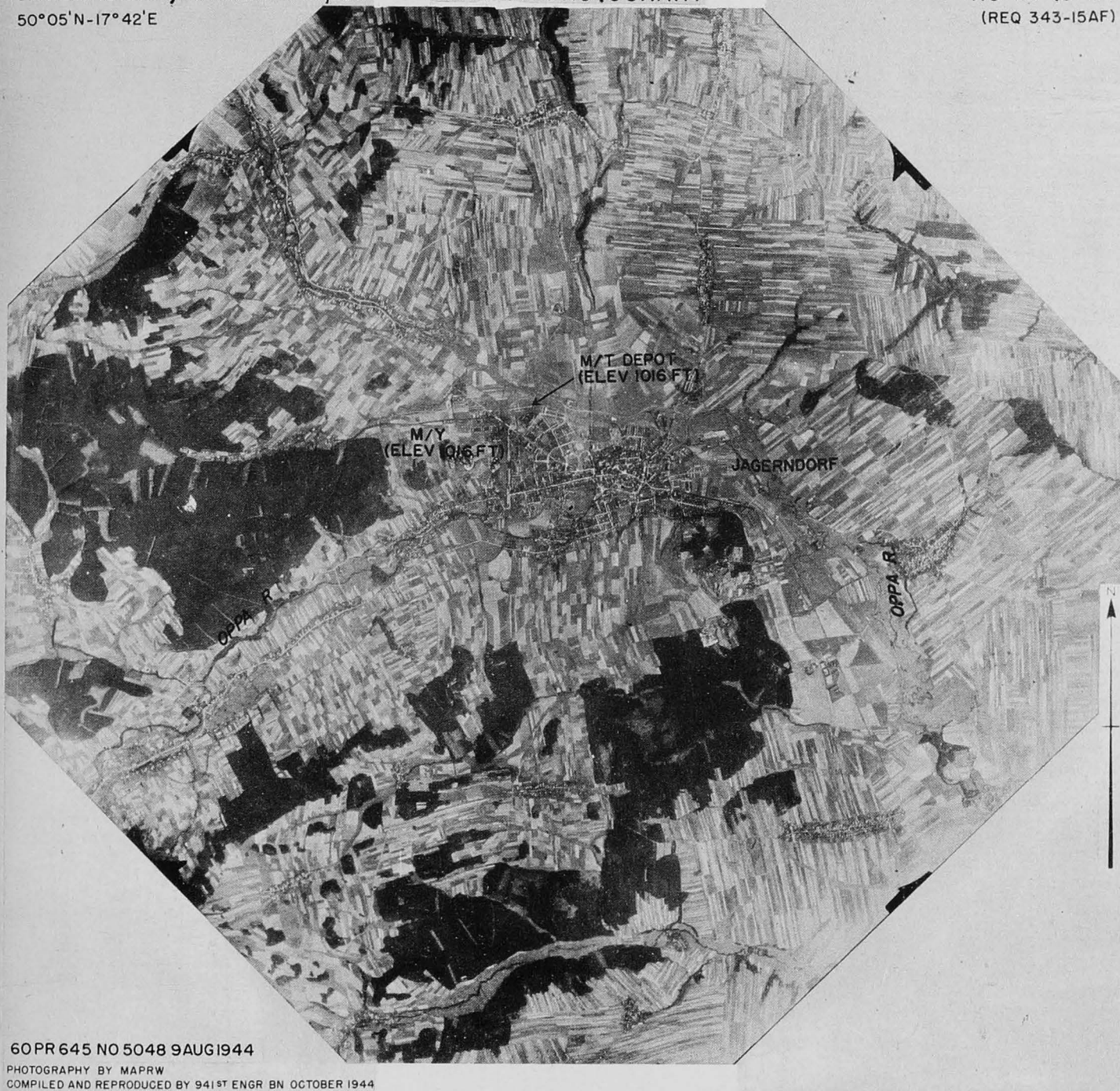
0 1000 2000 3000 FEET
SCALE 1:16,000

CORRESPONDING CHARTS
MP 14-75

JAGERNDORF, GERMANY 1:63,360
50°05'N-17°42'E

MINIMUM PHOTOCHART

NO MP 13-67
(REQ 343-15AF)



60PR645 NO 5048 9AUG1944

PHOTOGRAPHY BY MAPRW

COMPILED AND REPRODUCED BY 941ST ENGR BN OCTOBER 1944

JAGERNDORF, GERMANY
 CENTER COORDINATES ATES
 50°05'N-17°42'E

MINIMUM BRIEFING CHART
 1000 500 0 1000 2000 3000 FEET
 SCALE 1:11,400

NO MBC 13-67
 (REQ 343 15 AF)



60 PR 645 NO'S 3103-3106, 4103-4106 8 AUG 1944
 PHOTOGRAPHY BY MAPRW
 COMPILED AND REPRODUCED BY 941ST ENGR BN OCTOBER 1944

TARGET DETAIL
 ELEV 1016 FT
 REF TR/181

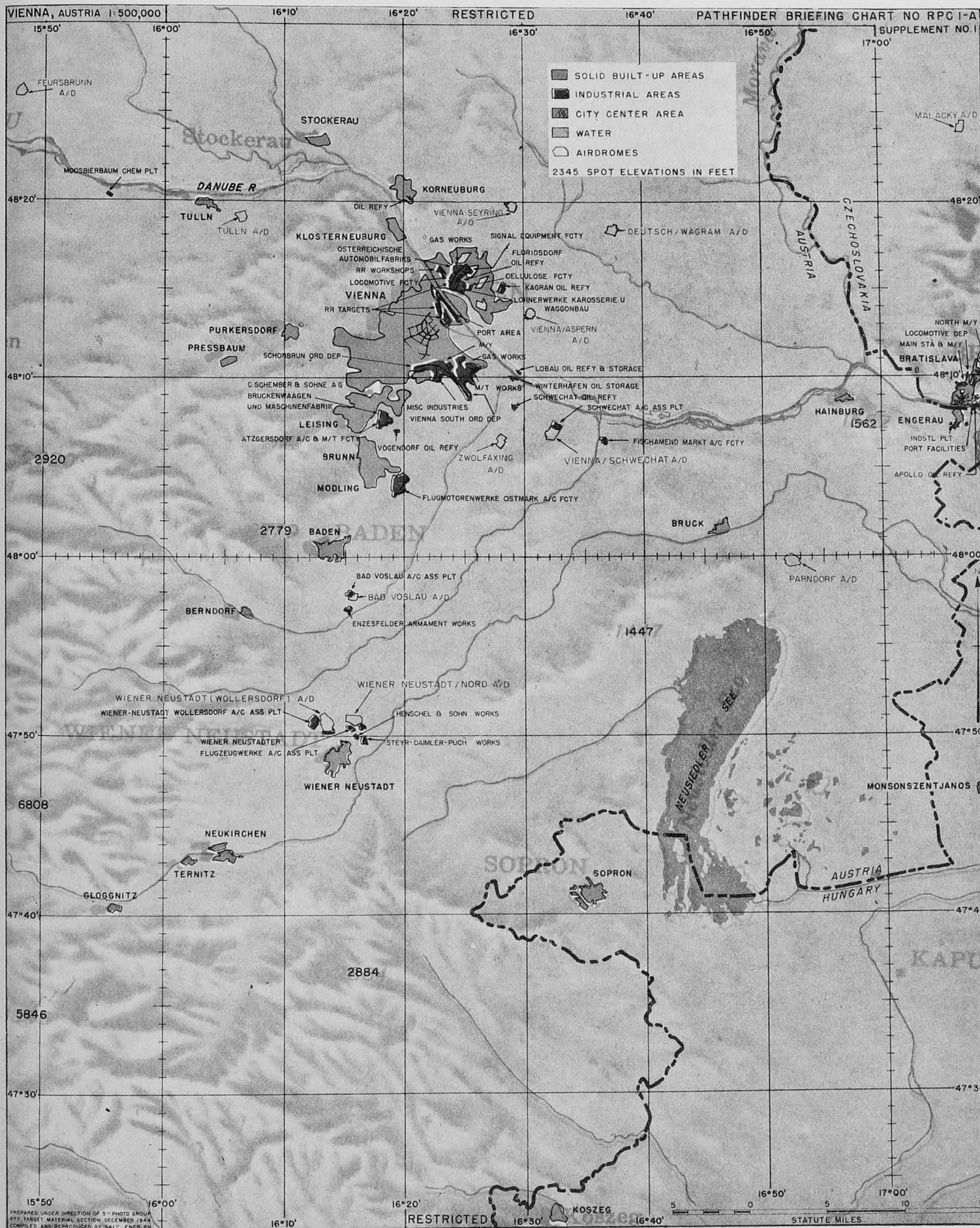


PHOTO APPROACH CHARTS

Photoblique Approach Charts consisted of high and low oblique photographs matched together along the isoline so as to form a continuous picture from the initial point to the target. These photographs were taken with cameras of twelve inch focal length mounted in the nose of the reconnaissance aircraft and pointed forward. The initial point, some 15 to 20 miles from the target, appeared in the low oblique while the target itself appeared in the high oblique. Information recorded upon the charts gave the axis of approach, the north arrow, initial point and the target. Mileage from the target along the approach was recorded in the right margin, while other data was placed in the top and bottom margins of the print. A similar chart was also used operationally combining three photos. The additional photo, a high oblique taken five miles from the target, was placed at the top of the chart. Since the additional photo was a close-up of the target, it could be considered similar to a briefing chart.

When radar bombing equipment began to be used in this theater, a new series of Radar Pathfinder Charts was developed by the Engineers. The series was designed to bring bombers to the target by means of a Radar Navigational Chart and to identify the target with the aid of a Radar Briefing Chart. The Pathfinder Briefing Chart, RPC 1-A, VIENNA, was an example of the radar charts which bombers used for their H2X missions. The information contained in these charts was compiled from existing maps, aerial photographs and scope photographs which had been annotated by qualified interpreters. Water, land and built up areas which appeared on the scope screen were shown on the charts in colors, necessitating five such colors in the lithographic reproduction of the charts. Background of the charts showing terrain was produced in brown, water in blue, town shapes in yellow, industrial areas in red and information lettering in black. A chart of this type is reproduced in half tone on the preceding page.

Other intelligence materials reproduced by this organization were special mosaics used for bomb damage study, tactical bombing and interpretation reports. These mosaics were assembled from contact or restituted prints of various focal lengths and then reproduced in quantity either photographically or lithographically. Flak maps, charts and summaries compiled by aviation organizations were reproduced lithographically in one or more colors. This material was usually produced at great speed to meet the demands of tactical organizations in operation against the enemy.

OPERATIONAL STATISTICS

1 October 1944 to 8 May 1945 *

Flying Squadrons

Squadron	Missions	Combat Losses		Pinpoints	Negatives	Prints	Photo Interp. Reports
		MIA	KIA				
15th PRS	801	2	0	5,341	133,367	395,955	625
32nd PRS	738	5	1	7,004	128,206	277,369	787
37th PRS	334	0	0	3,386	70,841	135,841	327
Totals	1,873	7	1	15,731	332,414	809,165	1,739

4th Photo Technical Squadron

Target Section Reports	139
Communications Section Reports	36
Air Fields Section Reports	133
Flak Section Reports	608
Industry Section Reports	134
Damage Assessment Section Reports	1,136
Radar Section Reports	2
Total Reports Issued	2,188

Lab Section	
Negatives	190,667
Prints	617,672

Company "A" 941st Engineer Aviation Topographic Battalion

Total jobs processed:	
Target Charts (Strategic)	140
Minimum Charts	489
Target Photocharts	70
Total Operational Material	699
Total Miscellaneous Material	850

Photographic Prints processed:	
Contact prints 10 x 10	44,555
Contact prints 20 x 24	21,651
Projection prints	4,928

Sorties Plotted	528
Prints Plotted	103,021

Square miles of mosaics assembled	39,491
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Total lithographic impressions	5,587,079
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* Period of combat operations under Fifteenth Air Force



REPRODUCED BY 941ST ENGR BN