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ARMY GROUND FORCES AND THE AIR-GROUND BATTLE TEAM

INCLUDING ORGANIC LIGHT AVIATION

Study No. 35

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Historical Section . Army Ground Forces

1948

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The Army Ground Forces

ARMY GROUND FORCES AND THE AIR-GROUND BATTLE TEAM INCLUDING ORGANIC LIGHT AVIATION

Study No. 35

By
Kent Roberts Greenfield, Col. Inf. Res

Historical Section - Army Grc nd Forces
1948

DEPARTMENT OF THE ARMY
Office, Chief, Army Field Forces
Fort Monroe, Virginia

GNHIS 314.7(17 May 48) 17 May 1948

SUBJECT: Studies in the History of Army Ground Forces

TO: All Interested Agencies

1. The history of the Army Ground Forces as a command was prepared during the course of the war and completed immediately thereafter. The studies prepared in Headquarters Army Ground Forces, were written by professional historians, three of whom served as commissioned officers, and one as a civilian. The histories of the subordinate commands were prepared by historical officers, who except in Second Army, acted as such in addition to other duties.

2. From the first, the history was designed primarily for the Army. Its object is to give an account of what was done from the point of view of the command preparing the history, including a candid, and factual account of difficulties, mistakes recognized as such, the means by which, in the opinion of those concerned, they might have been avoided, the measures used to overcome them, and the effectiveness of such measures. The history is not intended to be laudatory.

3. The history of the Army Ground Forces is composed of monographs on the subjects selected, and of two volumes in which an overall history is presented. A separate volume is devoted to the activities of each of the major subordinate commands.

4. In order that the studies may be made available to interested agencies at the earliest possible date, they are being reproduced and distributed in manuscript form. As such they must be regarded as drafts subject to final editing and revision. Persons finding errors of fact or important omissions are encouraged to communicate with the Office, Chief, Army Field Forces, Attention: Historical Section, in order that corrections may be made prior to publication in printed form by the Department of the Army.

FOR THE CHIEF, ARMY FIELD FORCES:

L. V. Warner

L. V. WARNER
Colonel, AGD
Adjutant General

1 Incl
Historical Study

PREFATORY NOTE

This study was prepared by Lt. Col. Kent Roberts Greenfield while he was Chief of the Historical Section, Army Ground Forces. The first draft of this study was written in 1944-45~~, and is based upon research undertaken during the war.~~ This draft is being reproduced with ~~only~~ minor revision. It has some unfinished portions, and certain important aspects of air-ground cooperation, such as airborne and antiaircraft artillery training and air supply~~, have not been included in the study in its present form.~~ The record of the performance of the air-ground battle team in theaters of operations was likewise incomplete when this draft was compiled. It is the intention of Dr. Greenfield, now Chief Historian of the Department of the Army, to revise and extend this study before its eventual inclusion in the Army Ground Forces subseries in The United States Army in World War II, in process of publication.

The purpose of reproducing this study ~~in its present form~~ is to explain the responsibilities and outlook of Army Ground Forces with reference to ~~United States~~ air power and air-ground cooperation during World War II. It is presented for use by Army planning agencies and for reference material in Army Service Schools. Specifically, its aim is to stake out those areas of fact and controversy relative to the difficulties encountered and the achievements realized in making the air-ground battle team work. By examining this record, it is hoped that similar pitfalls may be avoided in the future, and the concepts which produced good results can be exploited.

Joseph Rockis

JOSEPH ROCKIS
Lt. Col., Inf.
Chief, Historical Section

22 March 1948

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TABLE OF CONTENTS

		Page
	Prefatory Note	ii
I	INTRODUCTION	1
	American Doctrine Regarding the Employment of Air Power	1
	Increasing Autonomy of U. S. Air Forces before March 1942	5
	Responsibilities and Outlook of General McNair	7
II	AIR-GROUND TRAINING IN 1942	9
	The AGF Program of Joint Training	9
	Demonstration at Fort Benning, June 1942	11
	Difficulties in Obtaining Aviation for Joint Training	13
	Execution and Failure of Joint Training Program	17
	Effect of the Failure on the Relations between AGF and AAF	20
III	ORGANIC AVIATION IN FIELD ARTILLERY, 1942	23
IV	AIR-GROUND TRAINING IN 1943	29
	The AGF Program for Air-Ground Training in 1943	30
	The Air Support Board, December 1942	32
	The AGF Air-Ground Tests	33
	Aviation Requested by Army Ground Forces for Training	35
	Intervention of the War Department	36
	Extensions of the Joint Training Program	39
	Progress and Shortcomings of Air-Ground Training in 1943	40
V	REVISION OF AAF DOCTRINE AND ORGANIZATION, 1943	45
	FM 100-20 and Its Impact	47
	Reorganization of Aviation for Ground Combat Support	50
	Reorganization of Aviation for Ground Intelligence	51
VI	ORGANIC GROUND FORCE AVIATION, JANUARY 1943-JUNE 1944	57
	Proposed Extension of Organic Ground Force Aviation	58
	Organic Divisional Flights Proposed and Rejected	59
	The Problem of a Suitable Field Artillery Airplane	62
	Renewed Effort of the Army Air Forces to Recapture Artillery Aviation, 1944	65
VII	PRACTICAL STEPS TOWARD AIR-GROUND COOPERATION	69
	Recognition and Identification	69
	Developing Means of Communication	71
	Summary of Progress in the Zone of Interior	76
	Cooperation in the Fifth Army and XII Air-Support Command in Italy	76
	Authorization of Ground-to-Air Liaison Officers	83

	Page
VIII DEVELOPMENTS IN THE EUROPEAN AND PACIFIC THEATERS, 1944-1945	87
Air-Ground Cooperation in ETO	87
Air Reconnaissance, Photographic and Visual	92
Developments in the Pacific and Far East, 1943-45	93
IX ORGANIC GROUND AVIATION IN COMBAT	97
Extension of Use by Field Artillery	98
Use of Cub Airplanes for Other than Field Artillery Missions	98
Efforts of Army Ground Forces to Improve Field Artillery Air Observation	100
Efforts to Obtain a More Suitable Airplane	104
Efforts to Extend the Role of Organic Ground Aviation	108
Reorganization of Aviation Organic in Ground Forces	111
X AIR-GROUND DOCTRINE AND ORGANIZATION	115
Air-Ground Cooperation in the Zone of Interior	120
The Problem of Adequate Aviation for Joint Training	120
Joint Exercises with Navy Aviation	124
The Training Program 1944-45	125
Improvements in Joint Training	126
Organization and Training for the Use of Aerial Photography	127
Air-Ground Training in AGF Service Schools	129
Obstacles and Shortcomings	130
Adoption of a Standard Air-Ground Liaison System	131

Chapter I

INTRODUCTION

In World War I the initial and basic role of aviation in the U.S. Army had been to serve as the eyes of the ground forces and to shoot out the eyes of the enemy. During the war aviation developed rapidly as a means of extending the fire power of the combined arms by strafing and bombing. Before the end of the war extensions of the range and power of military aircraft had brought within the realm of application the concept of its use as a means of attacking directly the bases of the enemy's power far behind his lines, and the British in April 1918 established an "Independent Air Force" to apply this concept.

In the period between the two world wars the military potentialities of air power became, as is well known, the subject of agitated discussion that produced bitter controversies. These turned on the capacity of long-range or "strategic" bombing to effect a military decision in war. Extreme theorists, led by Douhet,[1] held the view that combat aviation used in mass could break the enemy's will to resist, with only minor cooperation from forces on the ground. Douhet believed that the combat effort of air power should be wholly concentrated on gaining superiority in the air and striking at targets remote from the scene of ground operations, that is, on strategic bombing. Air and ground forces would ordinarily not be even in visual contact. The only tactical cooperation between them which might be required would be that involved in isolating the battle area by attacks on lines of communication and on troops and supplies in the rear area of the enemy's forces. Teamwork between air and ground would be restricted to the headquarters of higher commanders.

In the U.S. Army after World War I the most ardent and conspicuous advocate of the unique and decisive potentialities of the air arm was Brig. Gen. William D. Mitchell. The stormy controversy that centered on him and came to a climax when he was tried by court-martial left an aftermath of bitterness which made it more difficult to arrive at agreements and decisions regarding the role of air power in the team of combined arms. With some airmen belief in the efficacy of air war had been rendered passionate by controversy, and a strong group within the Air Corps became convinced that an adequate test of their doctrine would be possible only if the air forces were made independent. The example of Great Britain, which had maintained the Royal Air Force independent of the rest of the Army, strengthened the determination and aggressiveness of American advocates of air war.

AMERICAN DOCTRINE REGARDING THE EMPLOYMENT OF AIR POWER

The influence of progressive thought about the use of air power was reflected in American military doctrine when war came. The broad statements of air doctrine were included in Field Manual 100-15, "Larger Units," issued on 29 June 1942.

FM 100-15 laid down as basic the principle that "successful modern military operations demand air superiority."[2] It prescribed that "the initial objective [of a campaign] must include the attainment of air superiority."[3] It made clear that what was meant was not merely local superiority, but air superiority within the theater of operations of an offensive campaign on whatever scale planned. It also stated that, in achieving air superiority, air forces had a broader mission than to create a condition

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1. Guilio Douhet, The Command of the Air (Eng trans, New York, 1942).
2. FM 100-15, "Larger Units," 29 Jun 42, Foreword.
3. Ibid, par 34

essential to the success of ground forces. Air forces were to "deny the establishment of and destroy existing hostile bases from which an enemy can conduct operations on land, sea, or in the air"; more generally, they were "to wage offensive air warfare against the sources of strength, military and economic, of the enemies of the United States in the furtherance of approved war policies."[4] The strategic mission of the air forces was recognized. They must be prepared to "operate . . . as a . . . striking force beyond the range of surface forces," and "striking force aviation must be designed primarily for the application of air power in initial long-range strategic air combat operations."[5]

On the other hand FM 100-15 made clear that extreme views of air power had not been approved. As one of the "basic tasks of the air forces," it listed "close cooperation with the other arms of the mobile army in the conduct of land operations."[6] Support of ground forces "from the time these forces enter battle" was given the same weight of importance as strategic air operations, and "ability to fulfill both requirements" was declared to be "vital."[7] The ability to support ground forces was to be achieved in two ways: (1) "All combat aviation will be trained within its means to provide effective air support to ground forces"; and (2) "certain classes will be specifically trained to furnish close support to ground forces."[8]

For the air forces "priority" as between the two missions, strategic and cooperative, was put on a basis of timing and not of relative importance. "The initiation of strategic air operations normally will precede the contact of surface forces."[9] But, "even though close support may normally occur last in chronological order, it is essential that designated agencies give this type of operation consideration and that all agencies be prepared for such operations at any time."[10]

With regard to "close support," no weighting was given to the relative importance of "attacks on the immediate front or flanks of the supported ground forces" as compared with "attacks against troops, installations, or other objectives more distant from the supported units."[11] Though employed in an earlier expression of doctrine,[12] the phrase "isolating the battle area," which was to be a subject of disagreement between air and

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4. Ibid, par 208 a and d. An earlier manual, FM 100-5, "Operations," 22 May 41, repeatedly emphasized the fact that air superiority was prerequisite to the success of ground operations, but might have been interpreted as referring to local superiority. See pars 460 (armed operations), 777 (operations against a fortified locality), and 1001 (landing operations); par 1033 (general) stated that "air superiority in the area involved is prerequisite to continued, successful military operations."

5. FM 100-15, pars 213 and 214.

6. Ibid, par 208.

7. Ibid, par 213.

8. Ibid, par 210 b. In par 233, it was stated that: "all classes of aviation may be used to support ground forces. Light bombardment aviation is practically trained and equipped to operate in close support of ground forces." In par 210 b, it was made clear that "support forces include observation aviation needed to provide air observation for ground troops."

9. Ibid, par 213.

10. Ibid. In par 234, these were described as comprising "all types of operations . . . which have the primary mission of intervening against hostile ground forces in contact with the supported friendly ground forces or capable of interfering with their mission."

11. Ibid, par 234.

12. Air Corps Field Manual 1-10, 20 Nov 40, pars 4 c and 205 c.

ground forces during the war, was not used. While pertinent standing doctrine, as stated in FM 100-5, "Operations," 22 May 41, provided that "the hostile rear area" might "frequently be the most favorable zone of action for combat aviation," it left the question of whether air power should be used in "the hostile rear area" or "in direct support" to be determined by "the higher commander" according to his estimate of each situation.[13]

The attention of commanders was directed in FM 100-15 to certain "fundamental considerations" in deciding how aviation was to be used in support of ground forces. These turned on the primary mission, mobility and limitations of air forces. Ground commanders were to bear in mind that the primary mission of the air forces was to gain air superiority. Again, because of their greater vulnerability and the greater cost of replacement, air "should normally be employed on targets that could not be engaged effectively or overcome promptly by the use of artillery alone." In general, "great care must be exercised to see that the efforts of combat aviation are not devoted to targets which could be more economically overcome by ground forces alone." The fact that full effect could be achieved only by mass employment was emphasized: "Sufficient aviation will seldom be available for allocation to subordinate elements of the supported unit." Warning was given that air support could not always be guaranteed. It might be "interrupted by bad weather, enemy interceptions, hostile attacks on airdromes, or strong antiaircraft fire."[14]

On the issue of control in combined air-ground operations, FM 100-15 contained only broad declarations of principle. It stated: "All combat aviation in a theater of operations or similar command ordinarily is organized as an air force under the theater or similar commander."[15] All combat aviation was thus placed in a single pool. On the other hand it was prescribed that "observation aviation must be attached to the ground unit specifically supported."[16]

Meanwhile the principle had been established, in FM 31-35, "Aviation in Support of Ground Forces," 9 April 1942, that Army aviation must remain under control of its own commanders in all but the most exceptional circumstances. FM 31-35 was an initial attempt to reconcile this rule with the imperative need for prompt results in the area of battle. Since this manual remained the only authoritative guide to tactical cooperation between air and ground until the publication of Training Circular No. 17 on 20 April 1945, it will have to be reviewed in some detail.[17]

The situation envisaged as normal in FM 31-35, as in FM 100-15, was the assignment of an air "force," composed of all elements, to each theater. One component of this force, an "air support command," would "habitually" be made available to support an army.[18] Such a command might be expected to contain fighter, bomber, and observation elements. Only the observation element was to be organic in the air support command. The others were to be assigned or attached to it at the discretion of

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13. FM 100-5, par 79.
14. FM 100-15, par 236.
15. Ibid, par 209.
16. Ibid, par 210 b.
17. For the circumstances under which this manual was prepared, see "Origins of the Army Ground Forces: General Headquarters, United States Army, 1940-42," in United States Army in World War II: The Army Ground Forces, The Organization of Ground Troops for Combat (Washington, 1947), pp 113-14.
18. FM 31-35, par 2 a.

authority at higher levels.[19] The flexibility of the air force was thus carefully safeguard.

"Control" of the air support command was centralized in an air commander in whom the commanding general of an army would normally find his opposite number. With his "collaboration," the army commander would decide on the air support required and plan its allocation. To speed up cooperation at lower levels, the control of the air commander could be decentralized to "air support controls" located in immediate proximity to the command posts of units to whose support air units were "specifically allocated."[20] It was indicated that normally such air support controls would be found opposite ground headquarters only at the corps level. But they might be located as far forward as divisions,[21] and would be so located normally in the case of armored divisions. With any ground unit likely to need air support would be an air liaison element, known as an "air support party."[22]

A request for support from any ground unit engaging the enemy was to be passed back through channels to the first command post at which there was an "air support party." The ground commander at that level was to be advised by this "party" regarding the practicability of the mission. Thence the request, if he approved, was to go by radio to the first command post that was provided with an "air support control," possibly at the division level, more normally at corps headquarters. The air control officer, if the request was in accord with the ground-air plan, would then send it directly to the airdrome of the supporting air unit in the form of an attack order.[23] Once the planes were in flight on a mission, they could receive instruction directly from "air support controls" acting on occasion through "air support parties."[24] Such, in broad outlines, was the system of coordination for combat support.

FM 31-35 was far less explicit regarding the control of observation than of combat aviation. It was only remarked that since very close liaison was called for the commander of the observation unit was to be designated as the air adviser to the commander of the supported unit. Observation aviation was generally to be decentralized to permit each corps and division to count on its own supporting aviation for missions.[25]

Under the terms of FM 31-35, control of support aviation was thus kept in the hands of air commanders. Orders to air units could be issued only by them. Air support was to be massed, and control of supporting aviation centralized, as high up as seemed practicable. But "the ground force commander [normally the army commander], in collaboration with the air support commander," was to determine "the air support required," and the ground commander was to decide whether or not an air mission was to be ordered.[26] On priority of targets the decision of the ground commander was made "final."[27] Given parallel chains of command, the object of the procedure sketched in FM 31-35 was to

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19. Ibid, par 2 b.
20. Ibid, pars 6 and 12.
21. Ibid, Fig 1, p 4.
22. Defined as "a highly mobile group composed of one or more air support officers and necessary personnel and equipment to transmit air support requests to air support control, and to operate communications with aircraft-in-flight net." FM 31-35, par 4 h.
23. Ibid, par 37.
24. Ibid, Fig 1, p 4.
25. Ibid, pars 51 and 58.
26. Ibid, pars 12 and 37 d.
27. Ibid, par 31.

get the quickest possible results in a matter in which prompt action was vital, and might be decisive.

Communication by telephone to effect coordination was to be limited to command purposes. Responsibility for the necessary wire nets was divided between Signal Corps troops and air force troops. Communication within the air party system was to be exclusively over a radio net which was to be a responsibility of the air force. Air support controls and, at times, air support parties might communicate by radio with planes in the air.[28]

Doctrine regarding communication between ground troops and planes in movement was, of necessity, general and tentative in 1942. FM 100-5 had mentioned "visual signals and drop and pick-up messages."[29] It had stated that "signal communication for target designation and mutual recognition normally is by panel from the ground, pyrotechnic signals, colored tracer ammunition, aircraft maneuvers and radio."[30] In FM 31-35 an effort was made to be more specific, and the use of maps, map substitutes, and marked air photographs for target designation was emphasized.[31] But standardized procedure in these matters, as in making the "air party" system work effectively, could be established firmly only on the basis of experience yet to be acquired. The system of communication to achieve teamwork was exceedingly complicated and could be expected to work effectively only by assiduous planning and intensive cooperation. The weakness of existing procedures was reflected in warnings: (1) "The identification of targets may be difficult."[32] (2) "Methods to identify friendly troops to friendly air units must constantly be sought and tested."[33] (3) "Close supporting operations . . . may require such intimate coordination, and the time element in signal communication and staff action may be so short, that the air unit must be attached to the ground unit for definite limited periods.[34]

INCREASING AUTONOMY OF U.S. AIR FORCES BEFORE MARCH 1942

The approach to World War II was marked by a drive on the part of the air element in the U.S. Army for autonomy of the air forces within the Army. This was justified by Maj. Gen. Henry H. Arnold, Chief of the Army Air Forces,[35] on the ground that the unique mobility of that form of military power had

> introduced new methods of waging war . . . . In the past, the Military commander has been concerned with the employment of a single decisive arm, which was supported by auxiliary arms and services. All these arms and services were welded into a single cohesive battle team, whose principal effort found all forces cooperating in time and space at a decisive point.
>
> Today the military commander has two decisive striking arms. These two arms are capable of operating together at a single time and place, on the battle field. But they are also capable of operating singly at places remote from one another.

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28. Ibid, pars 102, 108 and 109.
29. FM 100-5, 22 May 41, par 186.
30. Ibid, par 1040.
31. FM 31-35, par 34 a and b.
32. FM 100-15, par 236 h.
33. FM 31-35, par 46.
34. FM 100-5, par 1041.
35. Memo, CofAAF for CofS USA, Nov 41, sub: Reorganization of the WD. AGO Records, WPD 4614(S).

General Arnold waged that the "priceless attributes of air power"--summed up in its mobility, permitting an endless variety in the choice of an objective and the massing of its whole strength on that objective--would be valid "only if the Air Force is organized and controlled as a single entity."[36]

In spite of vigorous opposition, advocates of air power in the U.S. Army had advanced far on the road to autonomy before the war came. The need for intensive development of the air arm had been recognized in the constitution of the Air Corps in July 1926. As an arm, it had no direct control over the training of tactical air units. These units in July 1940 came under the authority of General Headquarters, U.S. Army, but the vigor, activity, and influence of the Air Corps had become so great by that date that Maj. Gen. Lesley J. McNair, as Chief of Staff of GHQ, decided to assume a passive role with regard to this aspect of the training responsibilities of GHQ.[37] On 20 June 1941, the Air Corps was incorporated in a separate force, and General Arnold, Chief of the Air Corps, became Chief of the Army Air Forces. As a separate force, it was empowered to train and "operate" its own tactical units, as well as make the plans for their organization and employment. A large measure of autonomy was thus achieved, and, with General Arnold also Deputy Chief of Staff for Air, the new force gained a powerful position within the War Department. Its leaders viewed with alarm the war powers foreshadowed for GHQ after July 1941, fought against their extension, and threw their weight into the effort to obtain a reorganization of the War Department and the Army high command, which would put the air forces on an equal footing with the ground forces.[38]

The objective of equality was achieved in the reorganization effected on 9 March 1942, which created three major commands, the Army Air Forces, the Army Ground Forces, and the Services of Supply (later Army Service Forces). Secretary of War Stimson stated this to have been one of the two principal objectives of the reorganization, it having been recognized "that this war is largely an air war."[39] The view of the Air Chief had been adopted that "the proper organization for the air forces is to bring them up from their previous status . . . to exactly the same status as the ground forces."[40] To accomplish this end, the Army Air Forces was not only made a separate command, but the Air Corps was also to be given a representation of 39 officers out of the 98 on the streamlined General Staff: one-third of those in the War Plans Division, one-half of those in each of the other divisions. The last-name provision was not actually carried out when the General Staff expanded under the stress of war.

The strategic situation of the United States favored such measures, calling as it did for concentration of energy on the expansion and effective use of American power in the air. In the desperate fight for time, during 1940-41, rapid expansion of air power was clearly a necessity if the aid of the United States to the powers still holding the Axis at bay was to be given in time to be effective. It was also clear that, once the United States was engaged, and with Allied control of the high seas in doubt, the best chance for the first American body blow at Nazi power was by means of an air offensive. In a period of enormous and rapid expansion of the armed forces, the situation indicated a high priority for the preparation of strategic air forces, and concentration on the far-ranging, high-performance airplanes which such forces required. The situation therefore favored also the views of the

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36. Ibid.
37. Organization of Ground Combat Troops, pp 99-100.
38. Ibid, pp 134-41, 148-55.
39. Statement reported in New York Times, 5 Mar 42.
40. Statement of Maj. Gen. Joseph T. McNarney, in testimony before Senate Military Affairs Committee, 6 Mar 42.

element within the Army Air Forces who were convinced of the yet untested capacity of strategic air forces to bring the enemy to terms, and it tended to increase their influence. On the other hand, as indicated above, after the reorganization of 9 March 1942 the doctrine of the Army gave the same weight of importance to the direct cooperation of air with ground forces as to strategic air operations; and the preparation of a mobile, hard-hitting ground army on a large scale reflected the belief of the War Department that such a force would have to be used in World War II, as in World War I, to obtain a decision. The anxiety of the more thoughtful ground commanders, as they watched the development and increasing independence of the Army Air Forces, was based on the concentration of that development on its startegic mission. Their fear was that the airplanes and the trained air units necessary to the effectiveness of ground action in modern war would not be available when needed. Their anxiety had been heightened when equipment and trained units had not been made available for the execution of the great prewar training program of the combined arms which culminated in the Louisiana and Carolina maneuvers of 1941. When war came, the new team of ground arms had been developed and tested on a large scale; but organization, equipment, and training of American air power for direct cooperation with ground forces in the battle area had as yet been only sketched.

RESPONSBILITIES AND OUTLOOK OF GENERAL McNAIR

After the War Department reorganization of March 1942, General McNair, as Commanding General, Army Ground Forces, was made directly responsible for the organization, training, and equipment of the ground forces for combat. He was made jointly responsible with General Arnold, the Commanding General, Army Air Forces, for "the development . . . of ground-air support, tactical training, and doctrine in conformity with policies prescribed by the Chief of Staff."[41]

General McNair, as Chief of Staff of GHQ, had already manifested in his conduct of training and in his counsels regarding the organization of the Army and its high command, the principles which were to guide him in meeting his new responsibilities. He had demonstrated his grasp of the fact that sweeping changes in the Army were necessary to take advantage of the mobility and fire power which scientific and mechanical progress had put within its reach. In the development of new specialties of ground combat and their integration into the battle team, he had shown himself--conspicuously in his program for meeting the tank menace--a firm advocate of the principles of flexibility and massing of force which the Army Air Forces had inscribed on its banners. On the other hand, he had firmly opposed, within the ground forces, the tendency to excessive specialism, both in organization and training, which accompanied the emergence of new and highly mechanized arms. The Army was becoming a new kind of team, but to be effective it must be really a team. General McNair had demonstrated his conviction that two conditions must be met to make it such. One was experience in the field. He had bent all his energies on extending the actual cooperation of the combined arms, including the air arm, until, in the fall maneuvers of 1941, two army-size teams of the combined ground arms, with supporting aviation, were successively pitted against each other in free maneuvers. The other basic requirement was singleness and responsibility of command. In the organization of the Defense Commands within the United States in 1941 he had contended for this in insisting that the interceptor commanders of the air forces be given direct command of the antiaircraft elements necessary to the execution of their orders, and he had manifested his deep distaste for the term "operational control" which the Army Air Forces had borrowed from British usage. Again, singleness of command within the field of operations had been the issue in his conflict with the Air Forces over the powers and responsibilities of GHQ after July 1941. It must be added that in all decisions reservation of his confidence for what was practical was combined

41. WD Cir 59, 2 Mar 42.

[redacted]

with firm and comprehensive grasp of theory in the make-up of General McNair. It was the trait behind his ironical reference to himself as a "pick-and-shovel" man. He pressed forward into experiments with new combinations: as an artillery officer in World War I, in his development of the artillery fire direction center and the infantry-artillery team; as the test officer, who in 1937-38 established the basis of the new triangular division; and as director of GHQ, an agency in which General Marshall sought "openmindedness with reference to innovations."[42] But, while ready to experiment, General McNair consistently manifested distrust of theory beyond the point where it had been demonstrated to be practical.

The traits and principles mentioned were reflected in the few public statements General McNair had made regarding air power as he watched its rapid expansion and increasing independence in the U.S. Army. Addressing the young airmen of the graduating class at Kelly Field in June 1938, he recalled a test of bombing he had been charged with conducting in Hawaii in 1923, when the young bombers, eager to demonstrate their skill and power, had been shocked to find that, in spite of their highly skilled efforts, they had not come closer to their target. "I beg of you," he said to his audience of young air officers, "to know yourself and your weapons, and to be frank among yourselves and with the rest of the Army. The Army will believe what the Air Corps says it can do, and rely on it. If its prowess is exaggerated, through whatever cause, disillusionment surely will come with war."[43] In February 1940, he referred with satisfaction to an extensive test of bombing at Maxwell Field, remarking that "the Air Corps is on its way--and this time the right way--because in many ways it is seeking and finding the facts."[44] He was ready to follow the lead of American experience. But in the fall of 1941, after observing the great Louisiana maneuvers, he declared his conviction that aviation could not win the war alone. "A new and more serious problem," he said, "has come along--cooperation between air and ground forces. Without this vital teamwork, the vast power of aviation is futile; with it, the infantry, is shielded and pulled forward against all obstacles. Events in Europe have proved conclusively that aviation itself is indecisive." In the same address he took an open stand against an independent air force. He termed it "an organization which would increase the difficulty of air-ground cooperation immeasurably. . . . . Our reason has ruled against this false proposition for twenty years, and the war abroad has now produced such a mountain of evidence against it that it should be interred once and for all."[45] Of the March reorganization he said at West Point, in May 1942, "the change placed the air forces in the big picture more appropriately than had been the case previously. . . . The picture today calls for a minimum of accent on the arms, and the greatest possible attention to developing balanced fighting units. . . . Both the Germans and the Japanese have shown the way. We dare do no less, and we shall be smart to do more, in perfecting the task-force idea, including not ground forces alone, but the air forces as well."[46]

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42. Organization of Ground Combat Troops, p 12.

43. Address to graduating class, Kelly Field, Tex, 16 Jun 38. McNair papers, Army War College Records.

44. Address to graduating class, Ft Leavenworth, Kan, 1 Feb 40. Ibid.

45. Address, "Benefits Derived from Second and Third Army Maneuvers Recently Completed," before Commanders' and Adjutants' Conference of the American Legion, 3 Nov 41. Ibid.

46. Address to the graduating class, West Point, 5 May 42. Ibid.

Chapter II

AIR-GROUND TRAINING IN 1942

The program for air-ground training in 1942 reflected the experience of ground and air elements in the large-scale Louisiana and Carolina maneuvers of 1941. To meet the urgent need for mutual understanding between ground and air which the 1941 maneuvers had revealed, the Air Force Combat Command prepared an elaborate training directive on air support, dated 4 December 1941, and recommended that GHQ prescribe a similar program for ground commanders.[1] In response to this request, the Aviation Section of GHQ drafted a directive and submitted it to General McNair for approval. Although General McNair, as early as August 1941, had advised the War Department that the fall maneuvers should probably be followed by "training in air-ground cooperation on a large scale throughout the service,"[2] he now felt that the proposed elaboration of the air-support program should be postponed in favor of more pressing needs. It would require more troop schools, and these would interfere with the return to basic training which he had decided that the ground forces must make in the post-maneuver period.[3] By informal agreement the proposed directives on air-ground cooperation were withheld, but they served as a basis for the instructions on air-ground training issued after the March 1942 reorganization.

THE AGF PROGRAM OF JOINT TRAINING

With the newly issued Field Manual 31-35, "Aviation in Support of Ground Forces," 9 April 1942, to serve as a doctrinal guide, the Army Ground Forces published its 1942 program for joint air-ground training in its master training directive of 23 April 1942.[4] This program called for nine weeks of training in air-ground cooperation. It began with six weeks of preliminary training, the first four of which were to be devoted to schools for officers. In the unit-training phase of the over-all training program, two weeks were to be allotted to training in cooperation with air support. Finally, three of the eight weeks to be spent in corps-directed maneuvers were to be given to "air-ground maneuvers." The maneuver periods, based on a staggered schedule extending through the year, were arranged to provide maneuver training both for newly activated units and for those which had completed the "post-maneuver training" directed by GHQ on 30 October 1941. All AGF units were thus included. They were to be trained in all forms of the "technique and tactics of air support," including observation, bombing and strafing, identification, communications, control, exploitation, and defense. The program contemplated the training of air forces as well as ground forces. It was nothing if not comprehensive.

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1. (1) AFCC ltr ACC 353 Tng Dir, 4 Dec 41, sub: Supplementary AFCC Tng Directive 1941-42 for Air Support Aviation. (2) AFCC ltr ACC 322.082 Observation to CofS GHQ, 12 Dec 41, sub: Air-Ground Operations. Both in GHQ Records, 353/21 (Air-Gnd).

2. GHQ 2d ind to TAG, 11 Aug 41, on IV Army Corps ltr, 19 Jul 41, sub: Texts to Develop Doctrine and Methods for Aviation Support of Ground Troops. GHQ Records, 353/37/38 (C).

3. Pencilled note, LJM to DCofS, on draft directive submitted to Gen Clark 28 Dec 41. GHQ Records, 353/21 (Air-Gnd).

4. AGF ltr to CGs, 23 Apr 42, sub: Training Directive for the Period 1 Jun-31 Oct 42. 353/1043.

The success of the program would turn on extensive cooperation from the Army Air Forces in furnishing both personnel and planes. On 9 April the Army Ground Forces outlined the program to the Army Air Forces and requested the cooperation regarded as necessary.[5] Army Ground Forces was aware that its request involved "a considerable amount of aviation,"[6] and subsequently modified the total originally requested. During the initial phase of the program--the first two weeks of the preliminary training period--experienced air officers were needed to assist with the officer schools. For the two weeks of unit training, aviation, chiefly of the observation type, was required for 27 infantry divisions, 8 armored divisions, 1 cavalry division, and the units at training centers.[7] Army Ground Forces proposed that in unit training, noncombat aviation should, besides serving its normal purposes, be used to simulate combat aviation.

For the three weeks of air-ground maneuvers, in which combat as well as observation aircraft would be needed, Army Ground Forces in April asked for the allotment of a complete air support command to each corps-controlled group of units; each corps group was to be trained in the maneuvers as "an independent task force." Army Ground Forces asked that each air support command include at least one group of combat aviation, a communications squadron to provide air "parties" and "controls," a light observation squadron for each infantry or cavalry division, a medium observation squadron for each armored division, two additional medium observation squadrons, two photographic squadrons, one mapping squadron, and, finally, one signal battalion. The tentative schedule compiled in April called for seven corps maneuvers in the period 1 July-31 October 1942, with three to be conducted concurrently in October.[8] As subsequently modified, only five corps maneuvers were held, with no more than two being held concurrently. Thus a maximum of two air-support commands was eventually required.[9]

The Army Air Forces' promise of cooperation--"to the full extent of availability of equipment, personnel, and air support units"--fell considerably short of the requests of the Army Ground Forces. Army Ground Forces had especially emphasized the importance of having adequate observation aviation during the unit training period, stating that "without such aviation . . . the preliminary air-ground unit training would be of little value."[10] The Air Forces promised that such aviation would "be made available as requested regardless of status of training or equipment." It acceded to the request for air officers to assist with the preliminary schools. In response to the AGF request for the allocation of "a complete air support command" to each corps during its air-ground maneuvers, the Army Air Forces promised only the headquarters and certain elements of such a command. It would provide for each air-support command

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5. AGF ltr to CG AAF, 9 Apr 42, sub: Joint Air-Gnd Tng. 353/39 (Air-Gnd).

6. AGF M/S, G-3 to CofS, 7 Apr 42. 353/39 (Air-Gnd).

7. Request for this support of unit training and other normal training was made in AGF ltr to CG AAF, 2 Aug 42, sub: Ground-Air Training 1942. 353/2 (Air-Gnd)(R).

8. See ltr cited in n. 5 above.

9. (1) AGF ltr, 8 Jul 42, sub: Training Directive for the Period 1 Jun-31 Oct 42. 353/1043. (2) Memo of Gen McNair for CG AAF, 30 Dec 42, sub: Aviation in Support of Ground Forces. 354/4 (Air-Gnd)(C).

10. See ltr cited in n. 5 above.

a group of light bombardment aviation, a communications squadron, a squadron of observation aviation for each infantry and cavalry division, and a signal battalion. The AGF requests for a medium observation squadron for each armored division and for two squadrons of this type to each corps were not met. The request for two photographic squadrons (18 planes) to each air-support command was met by the statement that one photographic flight (3 planes) "should be available to each corps . . . dependent on the progress of operational training." No mapping squadron would be available. The experiences of 1941 had inspired two particular anxieties in Army Ground Forces with regard to joint training--shortage of airplanes, and the greenness of air personnel provided. The promises of the Army Air Forces were not reassuring on either point. They contained the warning that "the status of training and of equipment of the air force units to be employed . . . will vary, and of necessity, some newly activated aviation units will be employed.[11] Two days after receiving the response of the Army Air Forces, Army Ground Forces issued its training directive for 1942.

DEMONSTRATION AT FORT BENNING, JUNE 1942

The 1942 air-ground training program began with a large-scale, three-day demonstration at Fort Benning, Ga., designed to acquaint ground commanders and their staffs with the procedures to be followed in the unit and maneuver phases of the program outlined in the AGF directive of 23 April. It was to culminate in a series of "joint air-ground maneuvers." In addition to its headquarters delegation, Army Ground Forces summoned more than 180 of its officers from the field to be present, including the commanding generals and staff officers of 2 armies, 10 corps, and 35 divisions.[12]

The demonstration at Fort Benning was staged on 11-13 June 1942. The first phase, run off on 11-12 June, was to demonstrate methods of joint training for the benefit of ground commanders and their staffs. In the second phase, on 13 June, aviation supported an infantry division reinforced by armored elements in an attack, with supporting artillery and aviation using live ammunition. A special demonstration of the attack was run off for Gen. George C. Marshall on 8 June. Representative of the War Department, the Army Air Forces, the Navy, and the British Army were invited to witness the demonstration on 13 June.[13]

The demonstration was conducted by the Commanding General of the II Army Corps, Maj. Gen. Lloyd R. Fredendall. The ground team comprised the 1st Division, a combat team of the 2d Armored Division, and two GHQ tank battalions. The Army Air Forces was asked to provide an air support command, comprising three observation squadrons, one squadron of dive bombers, one group of light bombardment planes, and a photographic

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11. Hq AAF 1st ind, 20 Apr 42, on AGF ltr, 9 Apr 42, sub: Joint Air-Gnd Tng. 353/39 (Air-Gnd).

12. (1) The initial plans for the Ft Benning demonstration were made in conversations between Gen Marshall, DCofS Gen McNarney, and Gen Clark, the CofS, AGF. The plans were outlined in a memo of Gen Clark for Gen McNarney, 2 May 42, sub: Demonstration of Air-Gnd Tng and Opns. This and most of the sources used in this section are in a separate binder, 353 (Air-Gnd Demonstration, Ft Benning Ga). (2) Report of the Third Demonstration Air Task Force (Prov.), sub: Air-Gnd Demonstration, Ft Benning, Ga, June 11, 12, 13, 42, hereinafter referred to as Report. 353/93 (Air-Gnd)(sep binder).

13. AGF ltr to CG II Army Corps, 16 May 42, sub: Demonstration of Air-Gnd Tng and Opns. 353/10 (Air-Gnd Dem, Ft Benning, Ga). Lists of those invited will be found in the correspondence contained in this file.

squadron. An Army squadron of dive bombers was not available, and one was borrowed from the Navy.[14] The air units assigned, which were organized to form the Third Demonstration Air Task Force, Provisional, commanded by Col. Clinton W. Howard, had only 30 percent of the normal strength of an air-support command. The organization of this force and the joint rehearsals were impeded, according to the report of its commanding officer, by "numerous changes in units assigned, the withdrawal of many units, the poor status of training and low experience level of certain participating personnel, and the lack and inadequacy of vital equipment." Units arrived late, and at various intervals, during the period scheduled for rehearsals. Many of the airplanes were in an unsatisfactory condition. The air commander remarked that "the organization of this provisional task force is an example of the difficulties which may be encountered in assembling stray airplanes from all corners of the United States, pilots from units that have departed for overseas, borrowing of personnel from the Navy and then expecting to operate with what should be relatively trained personnel."[15]

General McNair issued a critique after coordinating it with the Air Staff. The demonstrations, he declared, had clearly indicated the need of further air-ground training. In general, he passed on to his commanders the criticisms which the participating air officers had made. These were chiefly directed toward bringing into line with the doctrines expressed in FM 31-35 misleading impressions which observers might have received. It was pointed out, for example, that in contrast with the situation presented at Fort Benning, an air support command would normally work with an army, not a corps, and that ground commanders should not expect "fixed numbers and types of combat groups" to be habitually allocated to corps and divisions. The air commanders regretted the fact that, because of the restricted demonstration area, targets bombed had been within artillery range, and Colonel Howard, the air task force commander, wished to emphasize the "axion that 'unless the situation is critical, targets will usually not be selected within the effective range of the weapons of ground forces'" General McNair restricted himself to saying: "Usually, missions by light and dive bombardment aircraft will be in forward areas outside the zone of artillery fire. They may be used on missions farther to the rear." He added: "At times it may be essential to employ support aviation on missions close to our front lines and within range of artillery." In the preliminary discussion the air officers had sought to have a declaration made that support aviation would not be assigned to, attached to, or otherwise placed under the control of ground commanders. General McNair repeated the language of FM 31-35: "An air support command is habitually attached to or supports an army in a theater of operations." He emphasized three points in his critique: (1) "primary air support consists of observation aviation," and this should be used "habitually," even in the absence of bombardment aviation; (2) "photographic missions are most important"; "there has been a tendency on the part of ground commanders in the past to disregard this type of mission"; (3) "the recognition and identification of air targets continues to be the most difficult and undeveloped part of air support."[16]

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14. (1) Memo of Gen Kuter, Air DCofS, for DCofS, WDGS, 4 May 42, sub: Demonstration of Air-Gnd Tng and Oprtns. 353/6 (Air-Gnd Dem, Ft Benning, Ga). (2) Telgm, Cominch to CG AGF, 29 May 42. 353/1 (Air-Gnd)(C).

15. Report, pars 3, 9 a, and 9 b.

16. (1) AGF ltr to CGs, 19 Jul 42, sub: Critique of Air-Gnd Demonstration at Ft Benning, Ga. 353/55 (Air-Gnd Dem, Ft Benning, Ga). (2) Gen McNair's critique was based on the reports of the Third Demonstration Air Task Force, the CG II Army Corps, and Col Howard, a memorandum of G-3 WDGS, and a personal ltr of Gen Lynd to Gen McNair. AGF M/S, G-3 to DCofS, 7 Jul 42, item (3). Ibid. (3) Personal ltr of Gen Lynd to Gen McNair, 19 Jun 42. Ibid. (4) Report, pars 49 to 52.

DIFFICULTIES IN OBTAINING AVIATION FOR JOINT TRAINING

The Army Air Forces initially scheduled for the joint corps maneuver program five air-support commands with a combined T/O strength of 753 airplanes--an average of 150 planes for each air-support command, of the modified type agreed to by the Air Forces on 20 April 1942.[17] The number actually allocated was 400. Of these, an estimated 263 were in a condition to operate--an average of 53 for each air-support command. Table No. 1 summarizes the contrast between plans and execution.[18]

As early as July the Army Air Forces warned that, because of "priority commitments, special diversions and restricted flow of aircraft," it had been unable to allocate enough "approved type" aircraft to support the air-ground program, and that it would not be able to do so during the maneuver period.[19] Reports of shortages accumulated at Headquarters, Army Ground Forces. After observing the first phase of the VI Corps Carolina maneuvers in July, Col. Sterling A. Wood reported[20] that

> the observation group that was available during the maneuvers was not provided with either trained pilots or suitable equipment. . . . The air support control did not function . . . for lack of sufficient personnel and organization. . . . At the end of the first week . . . subordinate units, such as infantry battalions, were asking me why this phase of the maneuvers was called "air-ground." They had seen no bombardment aircraft. . . . While they did see an occasional observation plane, they did not know on which side that plane was operating, and they did not see any difference in the way they were functioning in this maneuver than they functioned last year when no emphasis was placed on air-ground support.

On the eve of the VIII Corps maneuvers in Louisiana, Army Ground Forces was notified by the Army Air Forces that bombardment aviation could not be provided during the first week of the air-ground maneuver period (31 August-6 September); that only a limited participation of the group allocated could be promised for the second week; and full participation only for the third.[21] In commenting on the VIII Corps maneuvers, the Chief of Staff, Army Ground Forces, reported: "Practically no observation planes were provided. . . . In one problem . . . there were 5 observation planes available for missions when there should have been 4 squadrons, or a total of 48 planes."[22] In final reports on the corps maneuvers, the Second Army stated that they had been inconclusive, "due to limited participation by air units, and then with only substitute equipment"; the Third Army reported that units participating in its maneuvers were

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17. See n. 11 above.

18. Incl No 2 to memo of Gen McNair for CG AAF, 30 Dec 42, sub: Aviation in Support of Ground Forces. 353/4 (Air-Gnd)(C).

19. Memo of Gen Arnold for CofS USA, 20 Jul 42, sub: Ground-Air Support of Armored Forces. 353/282 (Air-Gnd).

20. (1) Pers ltr of Col Wood to Gen McNair, 8 Aug 42. 353/128 (Air-Gnd). (2) Col Wood wrote to the same effect in his Report, forwarded to Hq AGF by 6th ind, 16 Aug 42, on AGF ltr, 18 Jul 42. 354.2/271 (Obs-42).

21. AGF ltr to CG Third Army, 27 Aug 42, sub: VIII Corps Air-Ground Maneuvers. 354.2/8 (La '42)(R).

22. WD Gen Council Min (S), 7 Sep 42.

TABLE I

AVIATION IN SUPPORT OF ARMY GROUND FORCES

CORPS MANEUVERS, 12 JULY - 5 NOVEMBER 1942

Corps		Airplanes			
		P-A*	O-L**	B***	Total
VI	Required	60	45	54	159
	Assigned	26	26	63	115
	Actual	13	13	38	64
VIII	Required	60	45	54	159
	Assigned	2	48	7	57
	Actual	1	42	6	49
VI	Required	48	36	54	138
	Assigned	8	35	18	61
	Actual	7	22	12	41
I	Required	60	45	54	159
	Assigned	12	48	27	87
	Actual	7	28	18	53
IV	Required	48	36	54	138
	Assigned	--	53	27	80
	Actual	--	40	16	56

* High performance observation planes -- pursuit and attack.
** Observation and liaison planes.
*** Bombers -- light and dive.

seriously short of planes, transportation, and communication equipment, and "this condition was not corrected as the maneuvers progressed."[23]

The shortage of planes to support the air-ground training program was not confined to corps maneuvers. In July 1942, in order to ration the planes available, the Air Forces requested Army Ground Forces to assign priorities to ground units and special training centers that required air support, exclusive of the corps maneuver program.[24] Army Ground Forces complied,[25] but continued to receive reports of shortages. On 14 August the Amphibious Training Command, then about to train the 36th Division, reported that it could get no reconnaissance missions and only such photographs as patrol planes could take when off duty.[26] In November the Commanding General of the Tank Destroyer Center, pressing urgently on Headquarters, Army Ground Forces, the need in his training for "continuous air support," pointed out that the II Air Support Command had been charged by Headquarters, Army Air Forces, with furnishing support aviation for the Third Army, the III Armored Corps, two separate armored divisions, the Mountain Training Center, and the Tank Destroyer Center--in all, 20 divisions and 2 training centers. The II Air Support Command had available for these purposes 11 observation squadrons, "recently reduced to 50% of their T/O strength," and not a "single pursuit or light bombardment plane." Its principal equipment consisted of approximately 30 obsolete or obsolescent observation planes, "some of which were manufactured in 1935." The only other equipment it had available consisted of liaison-type aircraft.[27]

Repeatedly during the training period Army Air Forces officers expressed regret that they were unable to provide the cooperation desired. Brig. Gen. Laurence S. Kuter reported to the War Department that the Army Air Forces felt very bad about its inability to furnish enough observation planes. "The planes needed," said General Kuter, "have been sent all over the world," the observation planes, particularly needed in air-ground training, "have been used as light or medium bombers," and no combat type observation planes would be available until April 1943.[28] In explaining shortages to

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23. (1) Second Army 1st ind, 19 Nov 42, on AGF ltr to CG Second Army, 28 Oct 42, sub: Air Support Tactical Doctrine. (2) Third Army ltr to CG AGF, 25 Nov 42, sub: Air Support Tactical Doctrine. Both in 461/5 (FM 31-35).

24. AAF ltr to CG AGF, 17 Jul 42, sub: Ground-Air Support Tng 1942. 353/3 (Air-Gnd)(C).

25. AGF ltr to CG AAF, 2 Aug 42, sub: Ground-Air Support Tng 1942. 353/111 (S).

26. ATC ltr to Hq AAF, 14 Aug 42, sub: Air Support for Amphibious Tng Cmd. 353/114 (Amphib).

27. TDC ltr to CG AGF, 30 Nov 42, sub: Support Avn for Tng Purposes, quoting, in par 2, 1st ind of II Air Support Command, 19 Nov 42, on ltr of request from TDC. 353/6 (TD Air Obsn). Gen Bruce (CG TDC) enclosed a copy of this letter in personal letter to Gen Parks, Hq AGF, begging him for a sympathetic view of his plight. It is to be noted that at just this time (Nov 42) the Army Air Forces was making an attempt to obtain control of the artillery observation planes which the Army Ground Forces had developed to meet its urgent needs. See below Chap III, "Organic Aviation in Field Artillery, 1942."

28. WD Gen Council Min (S), 7 Sep 42.

Headquarters, Army Ground Forces, in October, Col. D. M. Schlatter advanced such reasons as "priority commitments," "demands for aircraft in active theaters," "special diversions," and "restricted flow of aircraft to the Army Air Forces." Colonel Schlatter acknowledged that the situation was "far from satisfactory for training purposes," but added that it was "dictated by approved policy."[29]

Behind such statements were the decisions and exigencies of high policy. In April 1942 all the resources of the War Department were subjected to the demands of a plan to mount an invasion of the north coast of France in April 1943, or a smaller invasion of the same coast late in 1942 if necessary to support the Soviet Union. This plan was set aside in July in favor of the invasion of North Africa in November. All forces were subjected by these plans to uncalculated demands. The Army Ground Forces knew all too well how activation and training schedules were torn to pieces by the demands of changing war plans.[30] For example, General McNair stated on 23 November 1942 that one reason why the 1942 maneuvers lacked realism was that, for want of equipment, no antiaircraft units could be used.[31] The principle was not questioned that the first step in modern warfare must be to gain air superiority. Furthermore, if the United States was to take the offensive at the earliest practicable moment, the air arm, as that least impeded by the shortage of shipping, was clearly indicated as the one to be readied for action first, and its power to strike had to be built up simultaneously at home, in England, in Africa, and in the Pacific. Seeking necessary equipment, the Army Air Forces had to adjust its pace to the commitments made by the United States to supply aviation to Great Britain and the Soviet Union, and particularly it had to adjust its pace to the requirements of the Soviet Protocol, to which General McNarney pointed in September as the root of the trouble in getting enough observation planes, since that agreement "called for all of the production of this particular type of plane."[32] Such demands and difficulties, on top of a rapid and enormous program of expansion, gave the Army Air Forces a staggering task in 1942.

General McNair, recognizing the difficulties with which the Army Air Forces was contending, repeatedly counseled patience. "They are extended far beyond their capacity," he wrote in August, "and we simply must be patient while they get straightened out and catch up with the procession."[33] On 30 December he wrote General Arnold:[34]

> As I have said many times to you and other air officers, the Ground Forces appreciate the tremendous load which the Army Air Forces are carrying, the difficulties they face in expanding so rapidly and so enormously, and the fact that they are fighting heavily in many theaters. Under these

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29. AAF ltr (Col Schlatter) to CG AGF, 27 Oct 42, sub: Antiaircraft Measures. 353/8 (Air-Gnd)(R).

30. For the impact of changing war plans on AGF see "Mobilization of the Ground Army," in Organization of Ground Combat Troops, pp 201-4.

31. Par 5, AGF 1st ind, 23 Nov 42, on AAF ltr to CG AGF, 27 Oct 42, sub: Antiaircraft Measures. 353/8 (Air-Gnd)(R).

32. WD Gen Council Min (S), 7 Sep 42.

33. Pers ltr of Gen McNair to Col Sterling Wood, 20 Aug 42. 353/128 (Air-Gnd).

34. Memo of Gen McNair for CG AAF, 30 Dec 42, sub: Aviation in Support of Gnd Forces. 353/4 (Air-Gnd)(C).

conditions the Ground Forces must be patient in the demands for air units in connection with training in air-ground cooperation, vitally important as such training is.

EXECUTION AND FAILURE OF JOINT TRAINING PROGRAM

The program of joint training was carried out as scheduled. Supervision of air participation was delegated to a Directorate of Air Support, headed by Col. D. M. Schlatter, an agency set up in the Air Staff for the purpose. Air units needed by AGF commanders were requested by direct correspondence with the First, Second, Third, and Fourth Air Forces. At Army Ground Forces headquarters supervision was vested in the Training Division of the G-3 Section, and on 6 July Lt. Col. David M. Dunne was designated to handle questions regarding the joint program which required special attention. In August General McNair rejected a recommendation that an air-ground section or division be created in his headquarters.[35] He habitually kept staff specialization to a minimum, and with regard to matters of capital importance desired that responsibility be felt by his whole staff. When a proposal was made in October 1942 to create an Air Section in the Special Staff, he rejected it as he had the earlier recommendation. He did not object to having an air officer attached to G-3, but noted that "if there is an air officer present constantly at this headquarters, he will probably have the effect automatically of severing our direct connection with Headquarters, Army Air Forces, since all requests involving that headquarters will be taken up by him rather than by us."[36] The implication that he wished his whole headquarters to face up to air-ground problems seems clear. All issues between the Army Ground Forces and the Army Air Forces in 1942 and later went to General McNair himself for decision, and he either wrote, or annotated in his own hand, the correspondence deemed necessary.

The results of air-ground training under the 1942 program produced a great disappointment in the Army Ground Forces. Reports from the field during the maneuver exercises and after their conclusion were unanimous in regard to the failure.[37] The units which performed them remained unprepared. General McNair said in a public address on 12 September: "It is regrettable to report that the pressing matter of air-ground cooperation still is essentially in the future. . . . Experimental work has been done, but we still have far to go along the road which air and ground must and will travel together before we can face the enemy decisively."[38] On 30 December,

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35. (1) Pers ltr of Col Wood to Gen McNair, 8 Aug 42. (2) Pers ltr of Gen McNair to Col Wood, 20 Aug 42. Both in 353/128 (Air-Gnd).

36. (1) Memo of Plans Sec AGF for CG AAF, 22 Oct 42, sub: Orgn of Hq AGF. (2) AGF M/S, CG to CofS, 26 Oct 42. Both in Plans Sec file, 320.2 Org Hq AGF (S).

37. (1) Hq AGF requested the commands responsible for the 1942 maneuvers to report the number of types of air force units which had participated, their state of training, strength and equipment, including deficiencies, and "other factors . . . which have interfered with the maximum accomplishment of air-ground training results." Identical AGF ltrs to CGs DTC, Second Army, Third Army, and VI Corps, 28 Oct 42, sub: Air-Gnd Opns in Summer Maneuvers 1942. 354.2/9 (Maneuvers)(C). (2) The reports are bulked in a G-3 Staff Study submitted to the CofS AGF on 7 Dec 42. 353/4 (Air-Gnd)(C) Incl 1 (sep bndr).

38. Address to graduating class, Command and General Staff School, Ft Leavenworth, 12 Sep 42. McNair Papers, AWC Records.

after considering all the returns, he reported to General Marshall: "We have made little progress in air-ground cooperation, in spite of our efforts, if we view frankly the conditions that must obtain in order to secure effective results in combat. . . . The trouble is that the air side of the setup has been too sketchy to permit effective training. I say this," he added, "without criticism of the air forces."[39]

The program was doomed to failure in the absence of the airplanes, equipment, and trained air personnel which it had required. Ground commanders did not escape criticism for failure to utilize the aviation that was provided. For example, Col Sterling Wood, observing the initial phase of the first air-ground maneuvers in July, directed by VI Corps, reported that on 29 July when 46 light bombardment planes were available, only 6 were used. The II Armored Corps had ordered one light bombardment mission at daylight, and one request had come from a division during the day--that was all. The pilots flew about over the area during the afternoon to get in training time.[40] The Commanding General of the VI Corps, in his report, recommended that "tactical commanders make greater use of requests for air support."[41] On 27 October, the Army Air Forces, while acknowledging with regret that the aviation supplied had been inadequate for training purposes, intimated that ground commanders had not been resourceful enough in employing expedients and makeshifts.[42] General McNair called attention to this deficiency in the critique of the 1942 maneuvers which he directed to his commanders on 7 January 1943.[43] There can be no doubt that ground commanders had yet to obtain a firm grip on the use and limitations of air support. They were also groping, and making errors, at home and abroad during this same period, in learning the use of newly developed forms of ground combat. At the end of the year General McNair was still firmly convinced that to teach them how to work with aviation nothing could "replace an insistent and persistent training effort,"[44] with an adequate number of "ships in the air" over the troops in training and available to ground commanders for joint operations.

General McNair had hoped that the 1942 program would yield, besides training, enough joint experience to permit a revision of the doctrines formulated in FM 31-35. He persisted in this hope in spite of initial disappointments. "After five scheduled maneuvers," he wrote on 20 August 1943, "we should be in a much better position to codify our experience, amend or replace our literature, and go on to the next stage of this progressive development. . . . Probably by the end of the summer the Air Forces will be in better shape and much more able to grasp the problem than has been indicated thus far. If this is not the case, we certainly shall be in a rather bad way."[45] His

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39. Memo of Gen McNair for CofS USA, 30 Dec 42, sub: General Robinett's ltr of 8 Dec 42 Regarding Air Support of Ground Troops. 353/4 (Air-Gnd)(C).

40. Pers ltr of Col Wood to Gen McNair, 8 Aug 42. 353/128 (Air-Gnd).

41. VI Corps 1st ind, 24 Nov 42, on AGF ltr to CGs, 28 Oct 42, sub: Air-Support Tactical Doctrine. 461/5 (FM 31-35).

42. AAF ltr to CG AGF, 27 Oct 42, sub: Antiaircraft Measures. 353/8 (Air-Gnd)(R).

43. AGF ltr to CGs, 7 Jan 43, sub: Post Maneuver Comments 1942. 354.2/840.

44. Memo of Gen McNair for CofS USA, 30 Dec 42, sub: Gen Robinett's ltr of Dec 8 regarding Air Support of Ground Troops. 353/4 (Air-Gnd)(C).

45. Pers ltr of Gen McNair to Col Wood, 20 Aug 42. 353/128 (Air-Gnd).

hopes were disappointed. His commanders reported unanimously that the tests of doctrine afforded by the maneuvers were too inconclusive to warrant changes in FM 31-35.[46]

As evidence of the failure of the 1942 air-ground program piled up during November and December, General McNair refrained from making formal representations to the War Department, though he mentioned the situation "from time to time" in the Secretary of War's Council Meetings.[47] The divisions that had gone to Africa had had only incidental training with air. It was now becoming evident that those scheduled for shipment in the first six months of 1943 would be similarly unprepared. General McNair's anxiety was deepened by a personal letter addressed to General Marshall 8 December by Brig. Gen. Paul McD. Robinett, Commanding General, Combat Command B of the 1st Armored Division, and formerly G-2 of GHQ and Headquarters, Army Ground Forces.[48] The campaign in Africa, wrote General Robinett, was showing that the Germans knew how to use air support with decisive effect, and that the Americans did not. He concluded:

> My regiment has fought well, has had rather severe losses, but can go on. I have talked with all ranks possible and am sure that men cannot stand the mental and physical strain of constant aerial bombings without feeling that all possible is being done to beat back the enemy air effort. News of bombed cities or ships or ports is not the answer they expect. They know what they see and at present there is little of our air to be seen.

General Arnold, given this letter, sent it to his Director of Air Support, with a sharp memorandum directing him to take "personally . . . the necessary steps to impress upon all concerned not only the necessity for absolute teamwork between the Air Support and Ground elements, but also the very thorough step by step training necessary in all of the Air Support elements in order to develop the technique and procedure so essential to bring such teamwork about. . . . This is something that I have been pounding on now for over a year--apparently with little success."[49]

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46. On 25 Nov 42 the CGs of Second and Third Armies, VI Corps, and R&SC were requested to make recommendations regarding necessary revision of air support tactical doctrine. The reply of the CG R&SC is in 353/182 (Air-Gnd), those of the other addressees in 461/5 (FM 31-35). A digest of proposed changes is in File No 11, Binder 1, "Doctrine," Air Branch, G-3, AGF.

47. (1) AGF M/S, CG to G-3, 2 Nov 42. 353/4 (Air-Gnd)(C). (2) On 23 October, Gen Arnold reported to Secretary of War Stimson that the aviation of all types then available for joint training totaled 818 planes. This seemed an impressive total; but subtract from it 211 planes for specialized airborne training and 28 dive bombers not made available until mid-October, and the total actually available for unit and corps maneuver training in 1942 was 579 planes (35 bombers, 83 high performance observation planes (P's and A's), and 461 observation and liaison planes. Most of the latter were employed at special training centers and in the preliminary 2-week unit training program. For the corps maneuver program, the maximum number of planes available and in a condition to operate was 109--approximately one-third of the 297 planes "required" to equip the air-support commands at planned T/O strength. See correspondence and data in 353/4 (Air-Gnd)(C).

48. Copy in 353/4 (Air-Gnd)(C).

49. Memo of Gen Arnold for Director of Air Support (Col Schlatter), 28 Dec 42, sub: Teamwork between Air and Ground Units. 353/4 (Air-Gnd)(C).

On 28 December General Arnold sent General McNair the Robinett letter, a copy of this memorandum, and a personal note stating that the correspondence "indicates the steps which apparently we in the Air Arm must take. . . ."[50] General McNair at once (30 December) made the report to General Marshall mentioned above, and directed a reply to General Arnold, which, after recognizing the burden the Air Forces were carrying, concluded:[51]

> If we are frank, we must admit that our progress in air-ground cooperation thus far has been distressingly limited, in spite of our appreciation of the importance of the matter and the efforts made.
>
> You may be sure that the Ground Forces will do everything in their power to meet your needs in this connection, and to make the maximum use of whatever aviation you may find it practicable to furnish. I hope devoutly that future reports from overseas may be more and more different from that by General Robinett.

EFFECT OF THE FAILURE ON THE RELATIONS BETWEEN AGF AND AAF

In considering the deficiencies in the 1942 air-ground training program, General McNair had counseled patience and practiced it; he had expressed his appreciation of the difficulties of the Air Forces; and he did not challenge their statements of the reasons for inadequate air support. Nevertheless, an unfortunate collateral effect of the inadequacy of their cooperation in 1942 was to build up a feeling in the Army Ground Forces that the subordination of joint training to other interests was not wholly dictated by the necessities of the moment. It strengthened a fear that the Army Air Forces were being expanded, directed, and trained on the basis of a system of thought in which direct cooperation with ground forces was regarded as unimportant or unnecessary. Brig. Gen. William E. Lynd, an air officer in whom General McNair had developed great confidence through his association with him in GHQ for two years, and who had drafted FM 31-35, shared this fear. In June, when asked by General McNair to give him a frank criticism of the Fort Benning demonstration, he noted that "for this demonstration for which any and every unit in the country should have been available, it was necessary to call upon the Navy in order to obtain even one full squadron of dive bombardment."[52] And he continued, at the demonstration

> General McNarney was present as Deputy Chief of Staff, General Edwards as War Department G-3, and they were present only one day. Neither were there primarily in the capacity of air officers. Out of the seventy-five air Generals now in the Army, General Rudolph and myself were the two present. Although excellent reasons may be advanced for the absence of all others, this is actually a true indication of the interest of the air forces in air support. There is but one individual really interested in it, and that is General Arnold himself.

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50. Pers ltr of Gen Arnold to Gen McNair, 28 Dec 42. 353/4 (Air-Gnd)(C).

51. Memo of Gen McNair for CG AAF, 30 Dec 42, sub: Aviation in Support of Ground Forces. Ibid.

52. From pars 9 and 10, ltr of Gen Lynd to Gen McNair, 19 Jun 42. 353/55 (Air-Gnd Dem, Ft Benning).

The opinion expressed by General Lynd was strengthened in the Army Ground Forces, not only by the events of the summer and fall, but also by the statements of air staff officers in their frequent conferences at the Pentagon with representatives of the ground staff. Brig. Gen. John M. Lentz, G-3 of Army Ground Forces, got the impression that the doctrine of "isolating the battlefield," in lieu of close-in-support, "finds favor with Air Corps officers of almost every rank."[53] Various other indications confirmed a feeling that the training need for the "absolute teamwork" of which General Arnold spoke was not taken too seriously in his staff. For example, his headquarters recommended in October that ground commanders, in the absence of actual aviation, employ expedients more resourcefully.[54] But when the Commanding General of the 1st Cavalry Division made an arrangement with the air commander of a neighboring base to have heavy bombers fly over ground troops in training, with the express understanding that the bombers would not be diverted from their own training mission, and sought approval of their arrangement through Army Ground Forces, Army Air Forces withheld it on the ground that the "Heavy Bombardment OTU program is too intensive to permit any interferences."[55] Headquarters, Army Air Forces, seems to have been oblivious of the anxiety and mistrust that was being built up at the headquarters of Army Ground Forces. Otherwise, it would hardly have seen fit to transmit to General McNair for comment, on 5 November 1942, the memorandum of an air theorist in which the onus of cooperation and training was put on the ground forces, and in which it was maintained that strategic bombing--defined as "all operations at a distance greater than approximately 100 miles in front of friendly ground forces"--takes precedence in time over ground operations, and must be expected to continue after H-hour.[56]

Into the unfortunate mistrust of the views and aims of the Air Staff built up by the failure of the 1942 joint training program other factors undoubtedly entered. One was resentment over the aggressiveness of the Army Air Forces in pressing the advantages given it by preferential policies, particularly in the recruiting of high quality personnel--policies which imposed grave difficulties on the Army Ground Forces in meeting its responsibility for training units fit for combat.[57] Another factor was the attitude of the Army Air Forces toward the inclusion of organic observation aviation in field artillery units, ordered by the War Department in June 1942.[58]

To sum up, the impression was given that, whatever the views of General Arnold might be, the Army Air Forces was moving toward the establishment of a concept of air war, centered on strategic bombing, which called for cooperation with the ground arms only at the highest levels of command. General McNair's position was that such a concept, not having been tested or approved by the War Department, could not safely be followed in planning, organizing, or training the Army in the midst of war until shown by experience to be sound, and that, meanwhile, training for the cooperation required by approved doctrine must be thorough and effective.

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53. Pers ltr of Gen Lentz to Col Louis J. Compton, 18 Jan 43. 353/6 (Air-Gnd)(C).

54. AAF ltr to CG AGF, 27 Oct 42, sub: Antiaircraft Measures. 353/8 (Air-Gnd)(R).

55. AAF 3d ind, 5 Dec 42, on ltr of 1st Cavalry Division, 6 Nov 42, sub: Air-Gd Training. 353/9 (Air-Gnd)(R).

56. AAF ltr to CG AGF, 5 Nov 42, sub: Comments on Air Support, with incl, memo of Maj Orin H. Moore for Col Schlatter, 23 Oct 42. 353/6 (Air-Gnd)(R).

57. The effects of the preferential policy regarding personnel are described in United States Army in World War II: The Army Ground Forces, the volume entitled The Procurement and Training of Ground Combat Troops, pp 1-163.

58. See below, Chap III, "Organic Aviation in Field Artillery, 1942."

Chapter III

ORGANIC AVIATION IN FIELD ARTILLERY, 1942

Army Ground Forces had an air program of its own to initiate and carry out as a result of a War Department decision in June 1942 to make observation aviation organic in field artillery units. The development of this program, and proposals for its extension to other types of ground force organizations, produced problems in air-ground cooperation that persisted throughout the war.

Proposals to include light observation planes organically in field artillery units were first advanced in 1941, partly in consequence of experience in the Louisiana maneuvers of September. At that time, observation units of the Army Air Forces were under the control of the air support commands created on 25 July 1941.[1] In the Louisiana maneuvers the observation aviation provided by the air support commands proved to be inadequate. Commenting on reports of the maneuvers on 8 October, Maj. Gen. Robert M. Danford, Chief of Field Artillery, stated that the "only uniformly satisfactory report of air observation during the recent maneuvers comes from those artillery units where . . . light commercial planes (Piper Cubs) operated by civilian pilots, were used." He therefore renewed a recommendation that he had previously made to the War Department that light liaison-type planes, operated by field artillery officer-pilots, be made organic in the artillery component of each division and in each corps artillery brigade. Division and corps commanders who had participated in the recent maneuvers, General Danford reported, were unanimously in favor of this change.[2] G-3, WDGS, recommended that the proposal be turned down, as at variance with the principle of economy of force. GHQ concurred in G-3's recommendation, which was not surprising, since General McNair had declared himself to be in favor of a fair trial for the new system of air-support commands, and favored generally the massing of support elements.[3]

Early in December the Office of the Chief of Staff reopened the question, by ordering a test of the Chief of Field Artillery's proposal with one infantry division and one corps artillery brigade. Because of Pearl Harbor the test was postponed, but the War Department renewed its order on 25 February 1942, designating the 2d Division and the 13th Field Artillery Brigade as the units in which the test was to be conducted.[4] The boards appointed to observe the test and the commanders concerned reported strongly in favor of organic observation for field artillery units.[5] Headquarters, Army Ground Forces, which in March 1942 became the directing headquarters, concurred in their

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1. WD ltr AG 320.2 (7-17-41) MR-M-AAF to CofAAF, 25 Jul 41, sub: Air Support Avn. See especially par 3. GHQ Records, 320.2/102 (AAF).

2. Memo of CofFA for CofS USA, 8 Oct 41, sub: Air Obsn. GHQ Records, 322.082/5 (Air Corps)(C).

3. (1) Memo G-3/42989 for CofS USA, 28 Oct 41, sub: Air Obsn. (2) Gen McNair indicated his concurrence, 4 Nov 41, on memo of ACofS, G-3 GHQ, for Gen McNair, sub: Air Obsn. Both in GHQ Records, 322.082/5 (Air Corps)(C).

4. (1) Memo of Sec GS for G-3 WD, 3 Dec 41, and WD ltr AG 320.2 (12-8-41) MTC to CofFA, 19 Dec 41, sub: Air Obsn. GHQ Records, 322.082/5 (Air Corps)(C). (2) WD ltr AG 320.2 (2-5-42) MTC to CG Field Forces, 25 Feb 42, sub: Service Test of Organic Air Obsn for FA. 353/1 (FA Air Obsn)(R).

5. Reports in 353/1 (FA Air Obsn)(sep bndrs)(R).

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recommendations, declaring the tests "convincing," except in regard to the vulnerability of cub planes--although on the latter score AGF headquarters was impressed by the evidence that even under unfavorable conditions some missions could be performed. Army Ground Forces recommended that "the program be expanded without delay to include all field artillery units."[6] On 6 June 1942 the War Department approved this recommendation, at the same time making it clear that the new program was to supplement the existing system of air support, not to supersede it; AAF observation units were still to be responsible for the adjustment of artillery fire from high-performance aircraft.[7]

General McNair himself was not firmly convinced at the time of the wisdom of the change. On 7 March he wrote the Assistant Secretary of War, Mr. McCloy, that he "favored in the main air observation by air forces." But, he added, "these cub planes are something new and well worth considering in a different light than the standard combat airplane of the air forces." When informed of the results of the tests and of the action of Army Ground Forces, which, to meet a deadline, had been taken in his absence, he was still doubtful. His view was that the report on the tests "proved little" and that the conclusions were "opinions."[8] But he soon became convinced of the value of the program and subsequently supported it with all of his powers.

In the War Department order of 6 June 1942, two airplanes--"commercial low performance aircraft of the 'Piper Cub' type"--two pilots, and one mechanic were made organic in each field artillery battalion, two in each divisional field artillery headquarters, and two in the headquarters of each field artillery brigade and group.[9] Each infantry division, since it contained four field artillery battalions, was therefore given ten planes. Armored divisions had only six, since the armored division contained only three artillery battalions and had no artillery headquarters until September 1943, when the number of planes was increased to eight with the incorporation of such a headquarters in the armored division. The number of planes in a field artillery brigade or group varied with the number of battalions it contained.

Since aviation as an arm and technical service was in the Army Air Forces, and Field Artillery, the using arm, was in the Army Ground Forces, responsibilities for equipment, maintenance, and training had to be divided between the two major commands. The Army Air Forces was to procure and issue the planes, spare parts, repair materials, and necessary auxiliary flying equipment. The Army Ground Forces was to be responsible for first and second echelon maintenance. Third echelon maintenance was to be performed by the Army Air Forces. As for training, Army Air Forces was made responsible for the basic flight training of student pilots and their rating "according to standards established for liaison pilots." The "tactical" training of pilots and mechanics to operate

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6. AGF 1st ind, 30 Apr 42, on WD ltr cited in n. 4 (2) above. 353/1 (FA Air Obsn)(R).

7. WD memos WDGCT 320.2 (2-5-42) for CGs AGF and AAF, 6 Jun 42, sub: Organic Air Obsn for FA. 353/1 (FA Air Obsn)(R).

8. (1) Memo of Gen McNair for AS/W, 7 Mar 42, sub: Organic Short Range Obsn for FA. 352/2 (FA Air Obsn)(R). (2) Penciled note, 13 May 42, on file copy of AGF 1st ind 1 May 42, on WD ltr of 25 Feb 42, sub: Service Test of Organic Air Obsn for FA. 353/1 (FA Air Obsn)(R).

9. WD memo WDGCT 320.2 (2-5-42) for CG AGF, 6 Jun 42, sub: Organic Air Obsn for FA. 353/1 (FA Air Obsn)(R).

the planes as "air OP's" was to be given by the Army Ground Forces.[10] The necessary courses for this tactical training were organized in a Department of Air Training set up in the Field Artillery School at Fort Sill, Okla. The first pilots trained at Fort Sill (18 in number) graduated on 18 September 1942.[11]

During the initial period, serious friction arose between the Army Ground Forces and the Army Air Forces over the recruiting of pilots and their qualifications. Army Ground Forces was to send to Fort Sill as many volunteers under its control as could qualify as liaison pilots. It was originally contemplated that field artillery pilots might be noncommissioned officers with the rating of staff sergeants, as all AAF liaison pilots were. The majority of those recruited from the Army Ground Forces were commissioned officers. Beginning in September 1942 the Army Air Forces was to send to Fort Sill qualified liaison pilots at the rate of 100 a month. These were to be enlisted men. This plan worked badly. The Army Ground Forces had difficulty in finding enough volunteers who were qualified to fly, its personnel having already been combed by the Army Air Forces.[13] The Army Air Forces, which was exclusively authorized to rate AGF student-pilots for flying status and flying pay, challenged the qualifications of those admitted to the courses at the Field Artillery School, with the result that the ground officers immediately concerned believed that the whole program was likely to be hamstrung.[14] On the other hand, when the student pilots supplied by the Army Air Forces began to arrive at Fort Sill in mid-September, many were found to be unable to measure up to the flying requirements of the School.[15] All of the first installment were rejected aviation cadets, who, with a few exceptions, had still to receive basic military training.

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10. (1) Ibid. (2) AGF ltr to Comdt FAS, 17 Jun 42, sub: Pilots and Mechanics for Organic FA Air Obsn. 353/4 (FA Air Obsn). (3) AGF memo for CG AAF, 20 Jun 42, sub: Ln Planes for the FA. 353/2 (FA Air Obsn). (4) AGF ltr to CG R&SC, 24 Jun 42, sub: Tng of Pilots, Obs, and Mechanics for FA. 353/5 (FA Air Obsn)(R).

11. AGF 1st ind to ACofS, G-3 WDGS, 17 Mar 43, on WD memo for CGs AGF and AAF, 12 Feb 43, sub: Ln Pilots for FA. 353/262 (FA Air Obsn).

12. (1) ACF ltr to CG R&SC, 17 Jun 42, sub: Pilots and Mechanics for Organic FA Obsn. 353/4 (FA Air Obsn). (2) AGF ltr to CG R&SC, 24 Jun 42, sub: Tng of Pilots, Observers, and Mechanics for FA. 353/5 (FA Air Obsn)(R). (3) Ltr of Comdt FAS to CG AGF, 23 Jul 42, sub: Detail of Student Pilots and Observers. 353/4 (FA Air Obsn).

13. (1) AGF memo for CofS USA, 14 Jul 42, sub: Organic Air Obsn for FA. 353/4 (FA Air Obsn). (2) Ltr of Comdt FAS, 23 Jul 42, cited in n. 12 (3) above. (3) AGF ltr to CG R&SC, 17 Nov 42, sub: FA Officers for Pilot Tng. 353/171 (FA Air Obsn).

14. (1) WD memo WDGCT 320.2 (8-28-42) for CG AGF, 28 Aug 42, sub: Organic Air Obsn for FA. 353/103 (S). (2) R&SC ltr to CG AGF, 10 Sep 42, sub as in (1). 353/79 (FA Air Obsn). (3) Ltr of Comdt FAS to CG R&SC, 28 Sep 42, sub as in (1). G-3 WDGS Records, 320.2 Gen, Vol IV. (4) At the outset AGF had requested authority to confer the necessary ratings. AGF memo for CofS USA, 27 Jun 42, sub: Pilot and Mechanic Ratings, Authorization to Fly, and Flying Pay for FA Air Obsn. 353/8 (FA Air Obsn).

15. The AAF rating board at Fort Sill was willing to rate only 41 of the 104 in the first installment to arrive. The Department of Air Training, testing 11 (a cross section) of those qualified by the board, found only 5 that were passable, 2 of these by a narrow margin. On the basis of the same test only 15.3 percent of the candidates from AGF sources had been rejected. Incl 1 to ltr of Comdt FAS to CG R&SC, 28 Sep 42, sub: Organic Air Obsn for FA. G-3 WDGS Records, 320.2 Gen, Vol IV.

Behind these difficulties was an issue which did not come fully into the open until later. The Field Artillery believed that its pilots should be observers trained to adjust artillery fires, preferably branch-trained artillery officers. The Army Air Forces, in whose system a liaison pilot needed only to know how to operate a light plane, "always contended that adjustment of artillery fire from multi-seater aircraft can be performed better by an observer than by the pilot of the aircraft."[16]

On 28 September the Commandant of the Field Artillery School reported that the conditions under which he was required to operate were "chaotic" and proposed measures which would make the procurement and rating, as well as the operational training, of field artillery pilots exclusively the responsibility of the Army Ground Forces. General McNair indorsed the report to G-3, War Department, as a "searching analysis," and presented the measures proposed as an "acceptable solution" for a "confused and impracticable set-up."[17]

The Assistant Secretary of War, Mr. McCloy, himself an artilleryman in World War I, had from the first taken a strong and active interest in giving the Field Artillery its own planes.[18] On 13 November 1942 he called a meeting of the interested parties to get the situation clarified. It was agreed that, while the Army Air Forces should continue to send liaison pilots to Fort Sill for special training, at the rate of 40 a week, the Army Ground Forces should at once begin sending, each week, to the Army Air Forces for basic flight training, 25 ground officers, who would eventually be included in the quota of 40.[19]

Early in August General McNair was informed by the Assistant Secretary of War that there was a movement on foot to reopen the question of organic aviation for Field Artillery. He reported on 17 August to Mr. McCloy that he had informed the Air Forces that the Field Artillery

> had waited for many years for proper air observation, with disappointing results; that sheer necessity had forced the present procedure, that the proper outlet for the Air Forces in this connection lay in demonstrating with the regular observation units that the Air Forces could and would give the sort of observation that was so vitally necessary under modern conditions, and if and when they gave a convincing demonstration of this kind it would be time to discuss a change, but not before.

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16. Par 6, memo of Gen Arnold (AAG 452.1 Observation) for CofS USA, 29 Jan 44, sub: Ln Aircraft in the AGF. 353/102 (FA Air Obsn)(S).

17. (1) Ltr of Comdt FAS to CG R&SC, 28 Sep 42, cited in n. 15, with ind of CG R&SC to CG AGF, 6 Oct 42. G-3 WDGS Records, 320.2 Gen, Vol IV. (2) Memo of Gen McNair for CofS USA, 20 Oct 42, sub: Organic Air Obsn for FA. 353/46 (FA Air Obsn).

18. (1) Ltr of Mr. McCloy to Gen McNair, 3 Mar 42, 353/2 (FA Air Obsn)(R). (2) Memo of Gen McNair for AS/W, 31 Mar 42, sub: Air Obsn of Arty Fire. 353/40 (Air-Gnd). (3) AGF M/S, CG to G-3, 11 Aug 42. 353/69 (FA Air Obsn).

19. Memo of Gen McNair for CofS USA, 13 Nov 42, sub: Organic Air Obsn for FA. 353/46 (FA Air Obsn).

The Air Forces had assured him in return that they would take no steps to interfere with the program--"at least not for the present."[20] G-3 of the War Department stated that he regarded organic observation for Field Artillery as "a closed issue."[21] Army Ground Forces was nevertheless disturbed when on 28 August General McNair was reprimanded by G-3 of the War Department for permitting, at Fort Sill, a departure from basic instructions regarding the flying qualifications of student pilots.[22] This problem was straightened out in conference with the War Department G-3;[23] but the continuing difficulties in obtaining properly qualified personnel for training as pilots and mechanics for the field artillery program, as well as the failure of Air Forces to provide adequate liaison aviation for other ground units in training led to proposals for fundamental reorganization of the Ground liaison aviation program.

On 16 November 1942, at the suggestion of Mr. McCloy, General McNair proposed to the War Department the extension of the organic aviation program to ground units other than Field Artillery.[24] Three days later the Army Air Forces countered with an open effort to regain control of the aviation that had been made organic in field artillery units.[25] Neither of these proposals was to be acted upon favorably by the War Department,[26] but they reflect the viewpoints of the respective commands toward organic ground force aviation and their increasing tension over the general problem of air-ground cooperation.

Army Air Forces, in its proposal of 19 November, was willing that all liaison aviation should be "organic": this, it stated had been established by "maneuver experience." What it proposed was that all observation and liaison aviation should be provided by flights of AAF liaison planes. These flights would be "assigned," on the basis of "one per army, one per type corps, and one per type division." It was declared that the plan would place "under control of the division commander" means for meeting the requirements of division headquarters for various types of liaison and also the demands of other arms and services than Field Artillery. It observed that the liaison flights, in addition to present functions, would be "capable of photographic work for terrain studies, testing camouflage, etc." The new flights would supplant the field artillery liaison planes, and also Flight "C" of the AAF observation squadron, the air unit designed to work with ground headquarters. It was argued that this "would reduce overhead, centralize control, increase flexibility, and simplify maintenance and supply."

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20. (1) AGF M/S, CG to G-3, 11 Aug 42, sub: Organic planes for the FA. (2) Memo of Gen McNair for AS/W, 17 Aug 42, sub: Organic Airplanes of FA. Both in 353/69 (FA Air Obsn).

21. Par 5, memo of Tng Br, G-3 AGF, for CofS AGF, 2 Sep 42, sub: Report of Conference with WD G-3 on FA Air Obsn. 353/8 (FA Air Obsn).

22. WD memo WDGCT (28 Aug 42) for CG AGF, 28 Aug 42, sub: Organic Air Obsn for FA. 353/103 (S).

23. See memo cited in n. 21 above.

24. Memo of Gen McNair for CofS USA, 16 Nov 42, sub: Organic Air Obsn for Ground Units. 353/150 (FA Air Obsn).

25. AAF memo for CofS USA, 19 Nov 42, sub: Organic Liaison Aviation for Ground Units. 353/150 (FA Air Obsn).

26. See below, Chap VI, "Organic Ground Force Aviation, January 1943-June 1944."

The Army Air Forces admitted that, "owing to the high priority demand for high performance aircraft," Flight "C" was not now being provided for divisions and it expressed doubt whether the Army Air Forces could ever live up to the obligation. But with all liaison planes pooled, plenty of planes and personnel would be available for the liaison flights proposed. The tactical training of the new flights would be the responsibility of the Army Ground Forces, and they would be assigned to Ground commands. But they would be organized, equipped, and trained to fly by the Army Air Forces, and they would, of course, be commanded by Air officers.[27]

General McNair, commenting on the Air Forces proposal, agreed that all liaison aviation should be organic in ground units. The question, he wrote,[28] was

> whether the organization should be an AAF unit assigned to each large unit, as proposed by the Army Air Forces, or that [which] is now in use by the field artillery. The latter is favored. It is recommended either that the field artillery system of organic aviation be extended at once to include all interested elements of the Ground Forces, or that there be no change until experience has either confirmed or denied that system.

It will be recalled that at about this time, in mid-November 1942, the failure of air-ground maneuvers for lack of planes had been fully disclosed. From the viewpoint of Army Ground Forces, the situation was hardly favorable to the thought of accepting still greater dependence on the Army Air Forces for what was becoming an indispensable instrument of ground warfare.

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27. See memo cited in n. 25 above.

28. AGF memo for CofS USA, 9 Dec 42, sub: Organic Liaison Aviation for Ground Units. 353/150 (FA Air Obsn).

Chapter IV

AIR-GROUND TRAINING IN 1943

The cooperative action of United States air and ground forces was entering a critical period in the winter of 1942-43, a period which extended to the invasion of Normandy in June 1944. At the beginning of this period both the Ground and the Air Forces were approaching their maximum strength, a maximum which both attained in the Zone of Interior during the summer of 1943. This meant that insofar as the two commands were the matrix in which the combat elements of the Army were taking shape, the pitch of efficiency with which the mass of these elements would enter the final test of combat was being determined. At the same time both forces were realizing the organization with which they could meet that test. The basic tactical organization of ground combat units was fixed in the summer of 1943 when the work of the Reduction Board was put into effect.[1] A reorganization of the Air Forces took place in an upheaval which began with a sweeping restatement of their doctrine in July 1943 and extended far into 1944.[2] Under these circumstances a firm agreement on the methods governing joint employment of air and ground forces was exceptionally urgent and exceptionally hard to achieve.

In 1943 both forces were beginning to enjoy an advantage they had previously lacked. This was the guidance that could be derived from the experience of American forces in action. Until late in 1942 the Army had no extensive means of testing methods of air-ground cooperation except maneuvers. After November 1942 the experience of the first large-scale expeditionary force of the Army committed to combat--that of Task Force A in North Africa--became available. The flow of information regarding this experience deepened and broadened as the Tunisian campaign progressed through disappointments to a victorious conclusion in May 1943, and was followed by the conquest of Sicily in July and August, and the invasion of Italy in September. Contemporaneously, in the winter and spring of 1942-43, the British carried out their first victorious operation, with General Montgomery's sweep across the desert to Tunisia, and British methods wearing the authority of success could be brought to bear on American problems of organization and tactics.

Unfortunately, the reports of these experiences did not bring the Army Ground Forces and the Army Air Forces into closer harmony, but were cited to emphasize divergent points of view. The diversity of outlook of the two commands increased during the year in spite of honest efforts on both sides to solve common problems.

To understand this divergence, the responsibility imposed on the Air Forces by the over-all strategy of the United States during this per' i must be borne in mind. The Air Forces were called on to carry the main burden of the offensive against Germany, and at the same time to work with the Navy to cut the way for the slender ground forces of the Allies in the Pacific as they jumped from island to island against Japan. The air offensive against Germany was a heavy bomber offensive. The hope was entertained that it might paralyze Germany by direct blows at the sources of its military and economic strength. The War Department suspended until September 1943 its final decisions for 1944 regarding the strength and proportions of the Army; not until then could the effect on Germany of the Anglo-American bomber offensive and the offensive of the Russians on the ground be assessed.

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1. See "Reorganization of Ground Troops for Combat," in Organization of Ground Combat Troops.

2. See below, Chap V, "Revision of AAF Doctrine and Organization, 1943."

American strategy in 1943 had two consequences which bore directly on air-ground cooperation. It gave priority to the demands of the Army Air Forces for personnel and equipment regarded as necessary to meet its responsibility, over the requirements of the Army Ground Forces. It also stimulated and encouraged the elements in the Army Air Forces who hoped to demonstrate that strategic bombing could be the decisive weapon in modern war. A corresponding discouragement of interest, within Army Air Forces, in developing teamwork with the Ground Forces was to be expected. It is not surprising that in this situation the Army Air Forces sought aggressively the means and the freedom to concentrate on long-range bombing, or that in these efforts the Air Forces seemed to many ground commanders, including General McNair, to be pulling away from the rest of the Army. To some the Army Air Forces seemed to be seeking independence as well as liberty of action.

The Army Ground Forces, on the other hand, faced the possibility, which to many officers of the ground arms naturally seemed a probability, that the ultimate burden for defeating the enemy would have to be borne largely by the ground forces. Given this conviction, two facts confronting the Ground Forces seemed of grave importance. One was that the mobility of the ground units necessary for a successful offensive could not be achieved without the use of aviation to extend the range of their reconnaissance and to strike at targets in the path of their advance. The other was that without extensive joint training in 1943 the bulk of both ground units and air units in the Army would be shipped to theaters without having acquired the experience necessary for joint employment. The Army Ground Forces made its plans and requests for 1943 with the possibility mentioned and with these assumptions in view.

The fundamental issue was the relative importance, in the total effort of the Army, that should be assigned to the direct cooperation of air and ground forces within the battle area, and, therefore, to the importance of such cooperation in training. Since approved doctrine for the employment of air power, even after its restatement in July 1943, required such cooperation, the practical question narrowed down to the importance of direct, close-in support. The Army Air Forces minimized the value of such support. General McNair believed it to be essential to the success of ground action. In February 1943 he expressed the position for which he contended until his death in July 1944, namely, that close-in support should be emphasized in joint training because it was the form of cooperation that was hardest to learn. He stated that close-in targets of opportunity "may not have the same importance or general application as planned targets designed to 'isolate the battlefield,' but they are the most difficult to coordinate and attack. If close-in targets of opportunity can be attacked with air-ground coordination, planned distant missions offer no particular problem."[3]

THE AGF PROGRAM FOR AIR-GROUND TRAINING IN 1943

Headquarters, Army Ground Forces, made its basic decisions regarding air-ground training in 1943 when the comprehensive AGF Training Directive, effective November 1, 1942, was framed. By that time (October 1942) the failure of the air-ground program for 1942 was manifest. In the new program air-ground training was not the subject of a separate program, as in 1942. It was to be "progressive, continuous and concurrent with other training." It was included in all of the four stages of training through which the personnel in all AGF units were to pass. In the individual training period

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3. AGF memo for CofS USA, 10 Feb 43, sub: Report of the Air Support Board. 353/190 (Air-Gnd).

4. AGF ltr to CGs, 19 Oct 42, sub: Tng Dir effective November 1, 1942. 353.01/52 (Tng Dir).

instruction in recognition of aircraft and defense against them was prescribed.[5] For the unit and combined training period air-ground training was listed as a required subject, along with attack of fortified areas, combat in cities, and infiltration.[6] "During the combined training period and maneuvers . . . more intensive air-ground training using support aviation" was to be given.[7] In the combined training period, two of the six "D" exercises were air-ground exercises, in which combat teams of a division were pitted against each other.[8] Supplements to the master directive issued on 4 February and 7 June 1943 emphasized training with aviation.[9]

Schools for indoctrination of ground officers in air-ground cooperation were provided by both the Air Forces and the Ground Forces. The Air Forces set up a course for senior ground officers in its new School of Applied Tactics at Orlando, Fla. General McNair concurred in the proposal that his officers attend but, on guard as always against purely theoretical instruction and distraction from training with troops, stipulated that the course include a field exercise, that its duration be fixed at about four days instead of a month, as proposed by the Air Forces, and that the number of AGF officers to attend during 1943 should be limited to 120. The length of the course was finally fixed at six days, and instruction began in September 1943.[10] All armies and the commanders and staffs of corps were represented in the classes taking the course during the fall and winter of 1943-44. Seventeen general officers attended. The schools set up by Headquarters, Army Ground Forces, were in the field. Its 1 November directive called for schools for the preliminary or refresher training of officers and units. This training, as in 1942, was based on FM 31-35, FM 1-35, "Aerial Photography" and on the "Air-Ground Series" of Training Bulletins (Nos. 132-140, inclusive) prepared by the Infantry School.[11] In January the Army Ground Forces decided to set up air-ground schools in maneuver areas, under the direction of the Army concerned. Running for not less than sixteen hours prior to each maneuver, these were designed to prepare both air and ground units for proper performance of their combined role.[12]

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5. MTP 7-1, 1 Jul 42, which allotted 12 hours (in 13 weeks) to "defense against parachute, airborne and mechanized attach, individual; individual protective measures; recognition of aircraft and mechanized vehicles; counterintelligence."

6. Par 3 a (3), ltr cited in n. 4 above.

7. AGF M/S, G-3 to CofS, 5 Nov 42. 353/7 (Air-Gnd) (R).

8. Incl 3 to ltr cited in n. 4 above.

9. (1) Par 2 d, AGF ltr to CGs, 4 Feb 43, sub: Special Battle Course, required that troops be mentally conditioned to air strafing and dive bombing. 353.01/61 (Tng Dir). (2) Par 2 c, AGF ltr to CGs, 7 Jun 43, sub: Supplement to Training Directive effective November 1, 1942, emphasized training in close air support as justified by the experience of ground troops in battle. 353.01/52 (Tng Dir).

10. (1) AGF 3d ind, 16 Jan 43, on AAF ltr, 27 Nov 43. 353/121 (AAF Sch). (2)For views of Gen McNair, see AGF M/S, CofS to G-3, 31 Dec 42. 353/8 (Air-Gnd)(C). (3) AGF ltr to CGs, 19 Aug 43, sub: Air Support Senior Officers Course. 352/156 (AAF Sch).

11. Incl 5, Notes A, B, and D, to ltr cited in n. 4 above.

12. (1) AGF ltr to CGs, 17 Jan 43, sub: Special Instruction in Employment of Air Support. (2) Second Army ltr to CG AGF, 14 Apr 43, sub as in (1), contains schedule of the first of these schools. Both in 353/217 (Air-Gnd).

THE AIR SUPPORT BOARD, DECEMBER 1942

Notwithstanding the reports of all the responsible AGF commanders that the tests of doctrine afforded by the air-ground maneuvers of 1942 were inconclusive, the Army Air Forces requested and the War Department ordered a joint board to reconsider current doctrine in the light of experience. Known as the Air Support Board, it was instructed to assume that a shortage of planes and trained personnel was the main reason for unsatisfactory joint training in 1942.[13] Its meetings began on 7 December 1942, and it produced recommendations with regard both to training and doctrine.[14]

The Board proposed a revision of FM 31-35, "Aviation in Support of Ground Forces." This would have extended the air control system to include observation aviation as well as combat support. It would have removed the distinction between "controls" and "parties," giving the parties, normally located with divisions and exceptionally with lower ground units, authority to act as controls. At the same time, it was to be made clear that the supported ground commander was to make the final decisions on air support. The chapters on signal communications and airborne operations were to be brought into line with "current practice and experience."

To improve training the Board recommended the following: (1) a revision of the air-ground umpire manuals; (2) tests to determine the proficiency of air and ground units; and (3) a specially constituted unit to test out air support techniques and to train air and ground staff officers in preparation for the 1943 maneuvers.

General McNair chose not to challenge the revisions of FM 31-35 proposed by the Board,[15] though he feared that the effect of the changes in the air control organization recommended would be "to sever the Air Forces from the Ground Forces as completely as possible."[16] He recommended that the changes proposed be tested before being published, reiterating his conclusion that existing doctrine had yet to be "field tested adequately, due to personnel and equipment deficiencies in air units participating in the maneuvers of 1942."[17]

In general, the stand taken by the Army Ground Forces on the findings of the Board was that one way to get effective air-ground cooperation was by experience--more particularly and immediately, by executing the joint training program for 1943 with adequate air support. The Board's proposal of a special testing and training unit was rejected. It meant overhead and distraction. The proposed improvements in umpiring could be tried without republishing the manuals. Tests for determining air-ground proficiency of both ground and air units were approved in principle. The Army Ground Forces had been preparing air-ground tests as a feature of its 1943 training program,

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13. (1) AAF memo for ACofS, G-3, WD, 23 Nov 42, sub: Air Support Doctrine. (2) AGF memo for CofS USA, 30 Nov 42, sub: Air Support Doctrine. Both in 353/190 (Air-Gnd).

14. Summaries of the action of the Board, with the comments of G-3 AGF, are in the following: (1) AGF M/S, G-3 to CofS, 22 Dec 42. Air Br, G-3 AGF, file 11/8 Doctrine. (2) AGF M/S, G-3 to CG, 9 Jan 43, sub: Report of Air Support Board. 353/190 (Air-Gnd).

15. Par 3, memo of CG AGF for CofS USA, 10 Feb 43, sub: Report of the Air Support Board. 353/190 (Air-Gnd).

16. Item (2), AGF M/S, CG to G-3, 15 Jan 43. 353/190 (Air-Gnd).

17. Par 6, AGF memo cited in n. 15 above.

and proposed that it be authorized to substitute these for the tests recommended by the Board.

THE AGF AIR-GROUND TESTS

The feature of the air-ground training program in 1943 to which Headquarters, Army Ground Forces, attached greatest importance was a comprehensive examination of proficiency in air-ground cooperation. The four air-ground tests prescribed on 20 April 1943 occupied an important place among the "standardized tests covering essentials of training" which units of the ground arms had to pass to be certified for combat readiness.[18]

The Air Support Board had recommended tests for both ground and air units.[19] Dissatisfied with those which the Board had proposed, G-3 of the Army Ground Forces had drafted a substitute. General McNair himself took a hand and made the tests at once more comprehensive and more specific. As finally issued they were designed not only to test the training of troops in self-defense against air attack, in recognition of aircraft, and in identification to the air of themselves and of ground targets, but also to test the training units, both ground and air, in the methods and procedures of close-in combat support. General McNair directed that, for the last of the four tests prescribed, "a field maneuver--division, less a combat team, against a combat team" would be employed, "in order to afford realism." At his suggestion the test included the use of a "lead-in" reconnaissance plane to assist bombers in locating targets in the path of advance--the "Horsefly" device eventually standardized by the Fifth Army in Italy. He himself wrote the preamble: "Air Support of ground troops is so vitally essential that positive steps must be taken to insure proficiency of units by standardized tests."[20]

General McNair believed that the tests would "themselves shape training automatically." He also hoped that with War Department approval they would "constitute a binding directive" to both the Army Air Forces and the Army Ground Forces and stimulate the interest and activity of the Air Forces in cooperating with the Ground Forces.[21] Tests III and IV, with this object in view, provided for the grading of air as well as ground units engaged. Submitting a draft of the tests on 23 March, General McNair

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18. AGF ltr to CGs, 20 Apr 43, sub: Air-Ground Training Tests. 353/268 (Air-Gnd). The four tests prescribed (Incl 1), with subjects were as follows: (I) Identification of friendly aircraft by ground troops. (II) Action of ground troops against hostile aircraft. (III) Identification of friendly troops by aircraft. (IV) Air attack of targets designated by friendly ground troops.

19. Par 3, Item 1, AGF M/S, G-3 to CG, 9 Jan 43, sub: Report of the Air Support Board. (2) AGF memo for CofS USA, 10 Feb 43, sub as in (1). Both in 353/190 (Air-Gnd).

20. (1) Item 1, AGF M/S, G-3 to CG, 8 Feb 43, submitting revision, with comment: "Your remarks on the train reference air-ground tests stimulated more thought on my part." 353/268 (Air-Gnd). (2) The gist of these remarks appears in a page and a half of proposed amendments by General McNair. Item 4, AGF M/S, CG to G-3, 8 Feb 43. 353/190 (Air-Gnd). See also Item 21, CG to G-3 AGF, 9 Feb 43. 353/268 (Air-Gnd). (3) When G-3 submitted a revised draft, General McNair suggested five typed pages of amendments. Item 4, M/S CG to G-3, 15 Mar 43. 353/268 (Air-Gnd). (4) For the "Horsefly" device, see below Chap VII, "Practical Steps Toward Air-Ground Cooperation."

21. Par 2, Item 4, M/S, CG to G-3 AGF, 15 Mar 43. 353/268 (Air-Gnd).

recommended that the War Department direct the testing of units of both forces, and on the same date appealed to General Arnold to consider adopting the tests, and offered to cooperate in perfecting them. "I feel strongly," he wrote, "that, if standardized tests of this nature could be developed and conducted systematically as a prerequisite of overseas service, air-ground cooperation would be placed on a satisfactory basis--one which would meet the needs of combat operations."[22]

General McNair's effort to get the Army Air Forces to go along with him met with disappointment. Receiving no response for a month, he promulgated the tests on 20 April, making it clear that as they had not been approved by General Arnold, they would apply, for the present, only to ground units.[23] The response of the Army Air Forces, when it came four days later, was a qualified concurrence. Army Ground Forces had sought to avoid the stumbling block of doctrine by stating that "direct, close-in support against targets of opportunity is stressed in Test IV, not because it is believed that the major part of air support will take this form, but because it is the most difficult type to execute promptly and effectively." But the Army Air Forces objected to the emphasis on close support and the inclusion of missions of the call type, "such as General Robinett describes." The exchange of memoranda brought out a characteristic difference of outlook between the two major commands concerned. General Arnold wished to have the doctrinal issue settled first, "by mutual agreement," and then proceed to tests and training. General McNair wanted to get on with training and let doctrines of employment grow out of experience acquired at home as well as abroad.[24]

The Army Air Forces informed the Army Ground Forces that the AGF tests were being disseminated to all AAF units concerned, with a directive that they be accomplished, "pending revision of currently approved doctrine."[25] But they were not applied to AAF units. The Army Ground Forces continued to recommend their application to both air and ground units, and on 15 June General McNair made a personal appeal to General Arnold regarding them.[26] In October, G-3 of the War Department General Staff finally took the position that, while the tests had "unquestionably contributed to the success of the air-ground training program," air units could not be "tested simultaneously with Ground

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22. (1) Par 1, Sec II, memo of Gen McNair for CofS USA, 23 Mar 43, sub: Combined Air-Gnd Tng. 353/5 (Air-Gnd)(S). (2) Memo of Gen McNair for CG AAF, 23 Mar 43, sub: Air-Gnd Tng and Cooperation. 353/5 (Air-Gnd)(S).

23. Par 4, AGF ltr to CGs, 20 Apr 43, sub: Air-Ground Training Tests. 325/268 (Air-Gnd).

24. Memo of Gen Arnold for CG AGF, 24 Apr 43, sub: Air-Gnd Tng & Cooperation, with Incl, "Comments [of the Air Staff] on the Proposed Air-Gnd Tests." 353/5 (Air-Gnd) (S).

25. (1) AAF memo for CG AGF [no date; received by G-3, AGF, before 1 Jun 43], sub: Air-Gnd Tng & Cooperation. 353/5 (Air-Gnd) (S). (2) For a moment Hq AGF believed that AAF had prescribed the tests for its units. See par 6 c, AGF ltr to CG Second Army, 31 May 43, sub: Inspection of Second Army Exercises, 17-20 May 43. 354.2/59 (Tenn '43).

26. (1) Par 14, AGF memo for CofS USA, 17 May 43, sub: Gen Montgomery's Notes on High Command in War. 353/16 (Air-Gnd)(S). (2) Personal ltr of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd)(S). (3) General McNair again asked for their application to both air and ground units in a memo for CofS USA, 28 Sep 43, sub: Air-Ground Training & Operations, 353/20 (Air-Gnd)(C). (4) See also memo CG AGF for ASofW, 6 Oct 43, sub: Air support for the Ground Forces. 353/33 (Air-Gnd) (S).

Force units."[27] Lack of airplanes made it difficult to give the tests even to ground units. G-3, Army Ground Forces, wrote a friend on 21 June that actually "we expected no great help from the air in our air-ground tests. That is why we drew them up so that they can be conducted with our own little ships. It isn't that they are not willing in many cases, but they just don't have the equipment here."[28]

AVIATION REQUESTED BY ARMY GROUND FORCES FOR TRAINING

The AGF Training Directive effective 1 November 1942 contained only guarded references to the actual presence of aviation. For example, it noted that representative of the air support commander "should be present for the division schools." Again, in reference to "identification of friendly troops and materiel by our airplanes," the directive stated that "consideration will be given to this subject and training conducted in it regardless of whether or not planes are present."[29] Nevertheless, the Army Ground Forces launched a determined effort to obtain the aviation required by the program, still convinced that, without actual cooperation in the field with planes overhead, no substantial progress would be made.

In December 1942 Headquarters, Army Ground Forces, presented a consolidated statement of the aviation required to support air-ground training of tactical units and at special training commands in the first half of 1943. The number of observation squadrons requested varied between 29 (a total, at minimum T/O strength, of 261 planes) and 33 squadrons (297 planes). The number of combat squadrons ranged from 19 (171 planes) in January and February to 25 (225 planes) in May and June, with a peak of 30 (270 planes) in April. The Army Ground Forces requested for "the entire period of each of the five maneuvers scheduled" that support be planned to provide the following elements of an air support command: an air support communication squadron; a signal battalion (air support); 1 bombardment group (light or dive); 1 observation group, to include at least 1 observation squadron for each participating corps or division; and 1 flight of a photographic squadron (reconnaissance). The Army Ground Forces also requested for each maneuver the allotment of 18 planes, suitably manned and equipped, for the use of umpires.[30]

The prospect of getting the aviation requested was not bright. A report of the Third Air Force on 22 December 1942 showed that that command had at its disposal only 25 "modern tactical planes" to meet AGF requirements for 300 planes of this type, and only 16 obsolete observation planes.[31]

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27. WD memo WDGCT 452.1(28 Aug 43) for CGs AAF and AGF, 16 Oct 43, sub: Air-Gnd Tng and Operations. 353/10 (Air-Gnd) (C).

28. Pers ltr Gen Lentz to Col C. V. Allen, 21 Jun 43. Personal files of Gen Lentz.

29. Incl 5, Note A, and par 3, to AGF Training Directive, effective 1 Nov 42, cited in n. 4 above.

30. (1) Chart in 353/4 (Air-Gnd)(S), summarizing requirements. (2) AGF ltr to CG AAF, 22 Dec 42, sub: Air Support for 1943 Maneuvers. 354.2/3 (Maneuvers 43)(R). (3) AGF ltr to CG AAF, 22 Dec 42, sub: Personnel & Equipment Desired for Air-Ground Umpire Purposes during Combined Maneuvers in 1943. 354.2/1 (Maneuvers '43).

31. Third Air Force ltr 3 AF 373 (22 Dec 42) SOGU to CG AAF, 22 Dec 42, sub: Aviation in Support of Gnd Forces, with AGF 2d ind to CG AAF, 3 Feb 43. 353/1 (Air-Gnd) (S).

Two measures were taken to improve the situation. The Army Air Forces pooled in the Third Air Force, almost all of the aviation available for combined training,[32] and the War Department intervened to regulate the relations between the Army Ground Forces and the Army Air Forces.[33]

INTERVENTION OF THE WAR DEPARTMENT

Positive intervention by the War Department began with a study initiated by the War Department G-3 on 5 December 1942. The results, as far as aviation available for combined training was concerned, were made known to the Army Ground Forces on 1 March 1943 in a conference at the Pentagon, at which Col. James B. Burwell, an air officer, and chief of the Air Support Section of G-3, spoke for the War Department. Colonel Burwell was reported as stating "emphatically" that "we have got to have air support for ground forces. Is the air going to do it or is someone else going to? The combined air-ground team has got to function." Strong letters had been written to the Operations Division, he said, and it had agreed to "a stated program" of which one feature was that "the observation program [that with which the Army Ground Forces was most concerned] will keep abreast of other programs." He declared that it had not been the Air Forces fault that more planes had not been available for training. Other programs had cut into the production of high performance types, notably the Russian program, to which 100 out of every 167 light bombers produced each month had been going. The AGF representatives at the conference were presented a table showing "Estimated Maximum Availability of Air Support Units." In the discussion Colonel Burwell stated that "the necessity for using close-in support at a critical point where a concentration of the power of all arms may be needed to advance the ground troops is recognized." But he argued with vigor that the necessity would seldom arise, a view which the Army Ground Forces found prevalent in the Air Staff. The theory was that ground forces could win if air forces concentrated on gaining air superiority and isolating the battlefield.[34]

The War Department "Table of Estimated Maximum Availability" produced a sharp disappointment when analyzed at Headquarters, Army Ground Forces. It promised fairly well as far as observation aircraft were concerned. On the average, the number of squadrons projected as available from 1 January to 1 April was 85 percent of the number requested; for May and June it rose to 104 and 112 percent. Only 1½ troop carrier groups were to

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32. (1) AAF ltr to CGs Second and Third Air Forces and Troop Carrier Comd, 20 Jan 43, sub: Asgmt of Responsibility for Air Support. 353/236 (Air-Gnd). (2) AGF delegated to the CGs of its armies, separate corps, and separate training centers and commands the establishment of priorities for the units concerned and authorized direct communication with the CG, Third Air Force, except in the following cases: (1) the Desert Training Center, to which the IV Air Support Command was assigned; (2) units requiring troop carrier support, which were to be supplied by the I Troop Carrier Command; and (3) the Cavalry and Infantry Schools, to which the 6th and 7th Observation Squadrons were assigned. AGF headquarters was to make the initial arrangements for air support units for maneuvers. AGF ltr to CGs, 7 Feb 43, sub: Air Suppt Responsibility. 353/16 (Air-Gnd) (R). (3) The decision regarding the DTC was announced in WD memo WDGCT 320.2 Genl (2 Jan 43) for CGs AGF, SOS, and AAF, 9 Jan 43, sub: Desert Training Center. 320.2/28 (Desert).

33. (1) Par 2, WD memo WDGCT 320.2 Gen C (2 Mar 43) for CG AGF, 2 Mar 43, sub: Aviation in Suppt of Gnd Units. 353/1 (Air-Gnd) (S). (2) WD memo WDGCT 353 (5 Dec 42) for CG AGF, 5 Dec 43, sub: Combined Air-Gnd Tng. 353/4 (Air-Gnd) (S).

34. Memo signed by Col J.B. Lindsey and Maj Roy C. Flannagan for G-3 AGF, 2 Mar 43, sub: War Department Conference on Air Support. 353/4 (Air-Gnd) (S).

be made available for airborne training, instead of the four requested. The number of bombardment planes to be expected until June was about 30 percent of that which the Army Ground Forces believed to be necessary. This percentage was cut still further on 15 March, at the request of the Army Air Forces. No fighter planes were provided.[35]

The Army Ground Forces believed that it could make the observation aviation promised suffice. But the meager troop carrier and bomber support proposed seemed to threaten the realism of the whole training effort. "The light bombardment program--and this is the very guts of air support," the AGF G-3 observed on 18 March, "has been cut to two groups of light squadrons. With this we are expected to give realistic air support training to 66 divisions, not to mention task forces preparing to go overseas, schools and training centers. Eight (8) squadrons /of bombardment aviation, light and medium_7 are promised us when we required at least 40."[36] On 6 March General McNair informed the War Department that the observation squadrons proposed could be made to do, if at full strength; but that an increase in troop carrier units was "imperative"; that, in the opinion of the Army Ground Forces, the bombardment aviation proposed was insufficient for "effective and realistic combined air-ground training"; and that "the lack of fighter units will impair realism of training of ground troops."[37] Compromises were effected with regard to observation and troop carrier aviation which General McNair accepted on 14 April. But he declared that with the bombardment squadrons proposed it would be possible "only to a limited extent" to meet the responsibility for air-ground training imposed on the Army Ground Forces and the Army Air Forces by the War Department. "As an example," he wrote, "one bombardment group only will be available for the period April to August, inclusive, and in September and November none will be available. Approximately fifty (50) divisions will require combat aviation for combined training, for prescribed demonstrations and for maneuvers during these months." He stated that the number of groups needed monthly to meet minimum requirements satisfactorily was eight. Accepting the decision that "operational requirements" prevented the Army Air Forces from furnishing this number, he recommended that eight groups be provided "when available."[38]

Meanwhile, AGF commanders were instructed to seize every opportunity "to play air support with all means available," including, if necessary, organic field artillery liaison-type planes. On 26 February the VIII Corps was reprimanded for approving the cancellation of a "D" exercise because bombers were not on hand, and on 5 March the letter was circulated to all commanding generals to stimulate resort to "improvisation and training expedients."[39]

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35. See correspondence and summary graph in 353/4 (Air-Gnd) (S).

36. Draft of AGF M/S, G-3 to CofS, 18 Mar 43. In Air Support Br, G-3 AGF, file 14/19.

37. AGF memo for CofS USA, 6 Mar 43, sub: Combined Air-Ground Tng. 353/4 (Air-Gnd) (S).

38. AGF memo for CofS USA, 14 Apr 43, sub: Combined Air-Gnd Tng. 353/4 (Air-Gnd) (S).

39. (1) AGF ltr to CG Third Army, 26 Feb 43, sub: Air Suppt in Division Combined Tng Exercises. 353/257 (Air-Gnd). (2) AGF ltr to CGs, 5 Mar 43, sub as in (1). 353/19 (Air-Gnd) (R). (3) Substitution of liaison planes became necessary in giving air-ground tests, but was recognized as unsatisfactory, and commanders were directed to employ them only "when every effort to obtain high performance aircraft for these tests is exhausted." Par 5, AGF Weekly Directive No. 38, 21 Sep 43.

At the end of 1942 General McNair had declared and General Arnold had acknowledged that the training resulting from their joint efforts had been unsatisfactory. The War Department now intervened to regulate the training program. Its effort to get firm commitments regarding aviation available for training was only one feature of this attempt to exert a more positive influence.

One purpose of appointing an Air Support Board in December 1942 had been to obtain the basis for a better joint training program.[40] The reaction of the Army Ground Forces to the recommendations of the Board showed that General McNair would strongly oppose a revision of doctrine without more experience. It was also clear that the Army Ground Forces and the Army Air Forces had pulled far apart in their views regarding the use of aviation for close-in support of ground forces. Given this situation, the War Department attempted to formulate a modus vivendi regarding the application of doctrine in training, issuing a statement which it declared to be deducible from theater experience. This put a heavy emphasis on careful advance planning and pre-planned missions; and it indicated as the most profitable targets conspicuous ones such as reserves, wharves, large dumps, traffic jams, etc., the bombing of which would tend to isolate the battlefield. In general, the statement was calculated to shield the Air Forces from expectations and demands on the part of ground commanders regarded by the Air Staff as excessive. Two guarded concessions to the desires of the Ground Forces were made. "Call-initiated" missions were recognized as legitimate. But a warning was included that "frequent performance" of them on maneuvers "might lead to erroneous conclusions" unless explained as "necessary in order to develop the required team play." It was also stated that while "the best air support objectives are normally found beyond the range of available friendly artillery," "critical situations" might call for the concentration of "all available fire power upon a single objective," "therefore, support aviation should be capable of attacking targets within range of artillery." The support foreshadowed might well seem to ground commanders distant and chilly.[41]

On 2 March 1943, in two directives, the War Department summed up the results of its intervention to date. In one, addressed to the Commanding General. Army Ground Forces, it stated what aviation would be made available for AGF training, pointing out the improvements effected by its intervention. The most important of these was having had the observation program "placed in equal priority with other programs which compete with it for assignment of aircraft, personnel and equipment."[42] In another directive, addressed to the commanding generals of the three major commands, the War Department outlined a minimum program for combined air-ground training, itemized the arrangements made to carry it out, and particularized the responsibilities of the three commanders. The first phase of ground training was to include "practice in the call-initiated type of mission to reduce the time required for accomplishment." The Commanding General,

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40. The principal duty of the Board was to recommend changes in doctrine as stated in FM 31-35. Its "secondary mission" was "to determine the method of combined air-ground training which will enable us to readily place those doctrines into effect and tests to measure our success." Copy of "Instructions Given the Air Support Board at the First Meeting," in 353/16 (Air-Gnd) (S).

41. WD memo WDGCT 580 (6 Feb 43) for CGs AGF, AAF, and SOS, 10 Feb 43, sub: Combined Air-Gnd Tng during 1943 Army Maneuvers. 353/267 (Air-Gnd).

42. WD memo WDGCT 320.2 Genl (2 Mar 43) for CG AGF, 2 Mar 43, sub: Avn in Suppt of Gd Units. 353/1 (Air-Gnd) (S).

Army Air Forces, was directed to prepare a three-phase training program similar to that of the Army Ground Forces.[43]

EXTENSIONS OF THE JOINT TRAINING PROGRAM

One extension of the joint training program directed by the War Department on 2 March was a fire-power demonstration, to be given "by at least three modern tactical planes using live ammunition and bombs." It was to be witnessed by large ground force units.[44] Never enthusiastic about demonstrations, General McNair saw that this order would insure the presence of at least three modern airplanes with his larger units and directed his commanding generals to work the demonstrations into the air-ground tests which the Army Ground Forces was to give. On 26 August 1943 the War Department directed the extension of these demonstrations to the Infantry, Field Artillery, Cavalry, Tank Destroyer, and Armored Schools, and to the United States Military Academy.[45]

Another type of demonstration flight was worked into the training program--one designed to train ground troops to recognize planes in the air. An air support attack demonstration staged at Camp Gordon, Ga., on 31 December 1942 had been found valuable for training in recognition. When General Lear expressed the hope that a similar demonstration might be arranged for each of the divisions in the Second Army, General McNair scribbled on his letter, "Yes, but this does not teach tactical air support. It's largely eyewash."[46] Nevertheless, in June, replying to a letter in which General Arnold called his attention to the air losses in Africa inflicted by the fire of friendly troops, General McNair proposed that the Army Air Forces organize a demonstration flight to visit the training stations of the Army Ground Forces, and expressed the opinion that such demonstrations "would pay large dividends." A flight consisting of seven different airplanes was organized. This "flying circus," as it came to be called, made the rounds of AGF training camps during the second half of 1943, and was received with enthusiasm.[47]

One barrier to maximum cooperation between ground and air units undergoing training in the United States was removed on the initiative of the Army Air Forces when, in August 1943, ground and air units down to battalions and squadrons were authorized to arrange for unscheduled combined training by direct correspondence, provided it did not interfere with the scheduled training of either unit. A reversal of the chilly reception

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43. WD memo WDGCT 580 (2Mar 43) for CGs AGF, AAF, and SOS, 2 Mar 43, sub: Combined Air-Gnd Tng during 1943 Army Maneuvers. 353/267 (Air-Gnd).

44. Ibid, par 8 d.

45. (1) AGF ltr to CGs, 29 May 43, sub: Air-Gnd Demonstrations. 353/273 (Air-Gnd). For Gen McNair's comments, see M/S, 20 May 43, same file. (2) AGF memo for CofS USA, 17 Jul 43, sub: Combined Air-Gnd Tng. 353/273 (Air-Gnd). (3) WD memo WDGCT 353 (17 Jul 43) for CGs AGF, ASF, and AAF, 26 Aug 43, sub: Combined Air-Gd Tng. 353/298 (Air-Gnd).

46. (1) VII Corps ltr 353.66 to CG Second Army, 9 Jan 43, sub: Air Support Demonstration, Camp Gordon, 31 Dec 42. (2) Ltr of Gen Lear to Gen McNair, 18 Jan 43. Both in 353/256 (Air-Gnd).

47. (1) Ltr of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd) (S). (2) AGF ltr to CG Second Army, 2 Aug 43, sub: Demonstration Flight. 353/294 (Air-Gnd). (3) Correspondence with CGs Third Army and XIII Corps regarding the flight, showing the number of units that witnessed the demonstration, is in 370.7/260.

which the Army Air Forces had given to such a proposal in 1942, it was welcomed by the Army Ground Forces as a step forward.[48]

PROGRESS AND SHORTCOMINGS OF AIR GROUND TRAINING IN 1943

More AGF units received air-ground training in 1943 than in 1942, and the training was better. In August General McNair wrote General Arnold that "while we are getting only about 50 percent mutual identifications and coordination at this time, that much marks a tremendous advance."[49] On 1 October the air support officer in G-3, Army Ground Forces, stated that since 1 January 1943 the program of combined training had "expanded enormously and brought excellent results." By that date some 500,000 troops had examined on the ground and seen overhead the planes of the demonstration flights, which had operated from 7 to 20 planes of various types on a tour of AGF installations.[50] By 14 December, 43 divisions had seen this "air circus"; 13 had witnessed the air fire-power demonstration; and 33 divisions had been tested for their capacity to withstand and repel air attacks, identify themselves to friendly planes, and work with air support.[51] The scores of ground units tested up to 1 September averaged 88.2 on a scale of 100.[52] The Army Air Forces did not support the testing program initially, but presently began to send staff officers to supervise air participation in the tests.[53] Reviewing improvements, General McNair found in September that the "air circus" had "helped measurably" in training troops to recognize aircraft and that the demonstrations of firepower by air and ground units had been "of value in security training."[54] The course for senior ground officers at the AAF School of Applied Tactics was found to have contributed to mutual understanding. The air-ground schools conducted by the Second Army Maneuver Director in the Tennessee Area before each maneuver period had been a distinct success.[55]

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48. (1) AAF D/F AFACT-4, JHF/ec/73193, 17 Aug 43, inclosing proposed draft of ltr to air commands. AGF concurred, in a ltr to CG AAF, 27 Aug 43, sub: Unscheduled Combined Trng. 353/295 (Air-Gnd). (2) Authorization was given to AAF units on 31 Aug 43, and to AGF units in par 6, AGF Weekly Directive No. 37, 14 Sep 43.

49. Ltr of Gen McNair to Gen Arnold, 12 Aug 43. 353/289 (Air-Gnd).

50. AGF M/S, G-3 Misc to G-3, 1 Oct 43, sub: Summary of Air Support Br, G-3 AGF, file 11/28.

51. Incl 2 to AGF memo for CofS USA, 14 Dec 43, sub: Combined Air-Gnd Tng. 353/29 (Air-Gnd) (C).

52. Incl 3 to AGF memo for CofS USA, 28 Sep 43, sub: Air-Gnd Tng &Opns 353.10 (Air-Gnd) (C).

53. See M/S referred to in n. 50, above. At first tests went badly for lack of planes. (1) See report of Hq X Corps to CG AGF, through CG Third Army, 11 Jun 43, sub: Air-Gnd Tng Tests. 353/25 (Air-Gnd)(R). (2) Ltr of CG 80th Division to CG AGF, through CG Second Army, 16 Jun 43, sub: Results of Air-Gnd Tng Tests. 353/285 (Air-Gnd). (3) VIII Corps ltr 15 Jul 43, sub: Rpt of Air-Gnd Tng Test of 90th Inf Div. 353/293 (Air-Gnd). Complaints on this score do not appear in later reports. See reports for Nov-Dec in 353/327-34 (Air-Gnd) and 353/293 (Air-Gnd).

54. AGF memo for CofS USA, 28 Sep 43, sub: Air-Gnd Tng and Opns. 353/10 (Air-Gnd)(C).

55. (1) AGF M/S, G-3 Misc to G-3, 1 Oct 43. Air Support Br. G-3 AGF file 11/28. (2) Pars 12 and 40 of memo of Lt Col Roy C. Flannagan, Air Support Off, G-3, for CG AGF, Aug 44, sub: G-3 Summary of Air-Gnd Tng Ltrs and Memoranda, Apr 42-Aug 44, with Comments. Air Support Br, G-3 file 14/30. (3) Memo of Air Support Br, Misc Div G-3, for G-3 AGF, 27 Apr 43, sub: Report of Obsns of Air-Gnd School, Second Army, Tenn Maneuver Area, 23-24 Apr 43. 353/275 (Air-Gnd).

General McNair believed that the most effective means of increasing interest and enforcing training had been the air-ground tests.[56]

Progress in effective training was uneven. Notable results were achieved by the Second Army, whose maneuvers were staged in the fairly open terrain of the Tennessee Maneuver Area, and which received "excellent and sympathetic support" from the Tennessee Air Support Command (later I Tactical Air Division).[57] On 10 November G-3, AGF, reported that the combined training of air and ground units in the California-Arizona Maneuver Area was by far the most satisfactory training being received by AGF units in the United States. Units maneuvering in that area enjoyed continuous support from the IV Air Support Command (later the III Tactical Air Division), which in January 1943 had been placed under the control of the Army Ground Forces and assigned to the Commanding General of the Area for combined training.[58] It was felt that some progress had been made in other maneuver areas in teaching the fundamentals of close combat support.[59]

The most serious practical handicap in the training effort was still the lack of sufficient planes and of trained air personnel, particularly for maneuvers.[60] During only one month of the year (November) was the number of planes regarded as adequate.[61] But the planes made available were used with more economy, thanks to the plans described above, and, as the year advanced, more combat-type planes were supplied.[62] A marked improvement took place in the cooperation of ground and air officers in the field. The enthusiastic local cooperation of air officers was frequently praised by

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56. (1) Ltr of Gen McNair to Gen Arnold, 12 Aug 43. 353/289 (Air-Gnd). (2) AGF memo for CofS USA, 28 Sep 43, sub: Air-Gnd Tng and Opns. 353/20 (Air-Gnd)(C). (3) Memo of Gen McNair for the ASW, 6 Oct 43, sub: Air Support for Gnd Forces. 353/33 (Air-Gnd)(S). (4) AGF memo for CofS USA, 17 Nov 43, sub: Air-Gnd Tng and Opns. 353/35 (Air-Gnd)(S). (5) M/S, G-3 to CG AGF, 24 Dec 43. 353/35 (Air-Gnd) (S).

57. (1) Ltr of Gen McNair to Gen Arnold, 12 Aug 43. 353/289 (Air-Gnd). (2) Par 40 of memo of Col Flannagan, cited in n. 55 (2) above. (3) AGF memo for CofS USA, 28 Sep 43, sub: Air-Gnd Tng and Opns. 353/10 (Air-Gnd)(C). (4) Air-Ground training conducted by the Second Army is described in History of the Second Army (Historical Section, Army Ground Forces, 1946), pp 156-60.

58. (1) M/S, G-3 to CofS AGF, 10 Nov 43, sub: G-3 WD Conference on Joint Training Facilities. 353/27 (Air-Gnd)(C). (2) WD memo WDGCT 320.2 Genl (1-2-43) for CGs AGF, AAF, and ASF, 9 Jan 43, sub: DTC. 320.2/28 (C-AMA).

59. Par 1 c, memo of Gen McNair for the A/SW, 6 Oct 43, sub: Air Support for Gnd Forces. 353/33 (Air-Gnd)(S).

60. Par 2 d, AGF M/S, G-3 Misc to G-3, 1 Oct 43. Air Support Br, G-3 AGF, file 11/28.

61. Par 45, memo of Col Flannagan for CG AGF, Aug 44, sub: G-3 Summary of Air-Gnd Tng Ltrs and Memoranda, Apr 42-Aug 44, with comments, commenting on WD memo WDGCT 452.1 (28 Aug 43) for CGs AAF and AGF, 16 Oct 43. Air Support Br, G-3 AGF, file 14/30.

62. (1) AGF M/S, G-3 Misc to G-3, 1 Oct 43. Air Support Br, G-3 AGF, file 11/28. (2) M/S, G-3 to CofS AGF, 24 Dec 43, where credit for progress is attributed, in part, to the fact that more high performance aviation had become available during the year. 353/45 (Air-Gnd)(R).

ground commanders.[63] Writing to General Arnold in August, General McNair attributed the improvements on combined training primarily to "the determined effort on the part of both air and ground commanders and staffs to cooperate and solve their mutual problems in a simple practical manner."[64] The practice of exchanging ground and air liaison officers grew up; division and higher ground staffs were detailing, for contact with air units, a specially trained "air" officer; and AAF and AGF staff officers were working together in observing combined training exercises.[65]

While air and ground officers in the field were taking more interest in mutual problems, and cooperating more effectively, the Air Staff in the Pentagon was bending its efforts on making a success of strategic bombing in 1943, and sought to limit its obligations for close cooperation with ground forces. Air Staff officers, in their conferences with staff officers of Headquarters, Army Ground Forces, "openly scoffed at the AGF training plan." They stated that the air forces got "no training value whatever" out of flying for ground troops in demonstrations, tests, and maneuvers. They took the position that close-in battle cooperation between ground and air forces (or "third phase missions," to use the term employed after the publication of FM 100-20 in July 1943) would ordinarily be unnecessary, if air superiority and isolation of the battlefield--the first and second priorities or "phases" of air action--were achieved. They also contended that "third phase missions normally are uneconomical and ineffective."[66] In conferences with the G-3 Division, War Department, the Chief of the Air Section of that Division vigorously defended the view that, while the necessity for close-in support might occur, it would occur rarely.[67] The Army Ground Forces, on the other hand, consistently contended that, even though the need should occur rarely--a question that would have to be referred to experience for final decision--it might well be critical in determining the outcome of large operations in the war. General McNair stuck to his position that training for it must be thorough, since "this form of air support offers the most difficulties," and "if training for these difficult missions is effective, training for other missions will be comparatively simple." This was the "theme song" on which his G-3 continued to "hammer away," and General McNair's comment was "fine!"[68] The results were so discouraging that General McNair remarked at the end of the year. It must be admitted that to date air-ground cooperation has been pretty much a paper battle and going through the motions. I say this without recrimination, for doubtless we are making progress, even though slowly."[69] When he wrote this, 33 divisions were

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63. (1) AGF M/S, 1 Oct 43, cited in n. 62 (1) above. (2) Interview of Col Flannagan, Air Support Officer, G-3 AGF, 1 Mar 44.

64. Ltr of Gen McNair to Gen Arnold, 12 Aug 43. 353/289 (Air-Gnd).

65. AGF M/S, 1 Oct 43, cited in n. 62 (1) above.

66. Par 18, memo of Col Flannagan for CG AGF, Aug 44, sub: G-3 Summary of Air-Gnd Tng Ltrs and Memoranda, Apr 42-Aug 44, with Comments. Air Support Br G-3 AGF, file 14/30.

67. (1) Memo for G-3 AGF, 1 Mar 43, sub: WD Conference on Air Support. 353/4 (Air-Gnd)(S). (2) Par 18 of memo of Col Flannagan cited in n. 66.

68. (1) Ibid. (2) Pars 5 and 7, AGF memo for CofS USA, 17 Nov 43, sub: Air-Gnd Tng and Opns. 353/35 (Air-Gnd)(S). (3) AGF M/S, CG to G-3, 8 Nov 43. 353/35 (Air-Gnd) (S).

69. AGF M/S, CG to G-3. 2 Dec 43. 353/30 (Air-Gnd)(S).

still in need of aviation for joint training and initial air-ground tests; 21 had not witnessed a recognition demonstration; and 48 had had no opportunity to participate in the comparative air-ground fire-power demonstrations prescribed by the War Department.[70] The invasion of Normandy was only six months away.

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70. AGF memo for CofS USA, 14 Dec 43, sub: Combined Air-Gnd Tng. 353/29 (Air-Gnd)(C).

Chapter V

REVISION OF AAF DOCTRINE AND ORGANIZATION, 1943

It became increasingly evident during 1943 that American air and ground forces not only were failing to work in close cooperation but also were actually injuring each other on the battlefield. Experience in the Tunisian campaign made a change for the better seem imperative. In the early phase of combat in North Africa, friendly aviation was not present in enough force to keep Nazi planes from attacking American troops.[1] As the Tunisian campaign progressed the Allied air forces gained an increasing superiority over the Luftwaffe; but along the front on which United States troops were engaged American aviation concentrated on fighting an air war and did not effectively provide the ground forces with observation or with supporting assault aviation in combat. The air forces failed to supply ground commanders with sufficient photographic intelligence or with photomaps which they could use; such as were supplied were not received in time for use. In some cases, as at Faid Pass, the absence of observation and of close support may have spelled the difference between disaster and success. So little close-in support was given that it did not offer an adequate test of existing procedures.[2] On the basis of all the reports from North Africa available at the close of the Tunisian campaign, General McNair in July 1943 concluded that "in general, our divisions and smaller units fought in North Africa with no air observation. Comparatively speaking, they attacked into the unknown although the need of air observation on close-in areas was ever-present. Conditions in this respect during the first world war were far better than during the Tunisian campaign."[3] In September, in a letter to a friend, General McNair reiterated this opinion: "It is absolutely true that the air helped the ground in Tunisia far less than in the World War--this in spite of the fact that the German air had been driven from the skies"; and he had just been informed by Lt. Gen. Omar N. Bradley that in Sicily there had been no improvement.[4]

When close combat support was given in the Tunisian campaign, aviators had difficulty in distinguishing targets on the ground, and they bombed or strafed friendly troops to such an extent that higher commanders habitually set bomb lines far in advance of their positions. On the other hand, the reaction of American as well as Axis ground troops to attacks by enemy air in the early stages of combat in Africa showed that the fire of infantry weapons, as well as antiaircraft fire, against the dive bombing and strafing planes of the enemy was surprisingly effective. But

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1. (1) Statements of Col William B. Kern, CO 1st Bn, 6th Armed Inf, 1st Armd Div, 29 Apr 43. 353/14 (Air-Gnd)(C). (2) Sec D, par 2, AGF Bd, ETO, Report No. C-31, sub: Obs on an Inf Regt in Combat, by Col George A. Taylor, CO 16th Inf, 1st Inf Div. 314.7 (AGF Hist).

2. Pars 3 and 44, Report of Col Henry V. Dexter, 11 Jun 43, sub: Air-Ground Support in North Africa. 319.1/21 (For observers) (C). Col Dexter was sent to North Africa by Hq AGF to make a special study of air-ground relationships in Tunisia. He was on the Tunisian front during the period 18 February (Kasserine Pass period) to 18 April 1943 (reorganization following Mareth-El Guettar).

3. AGF 1st ind to CG AAF, 30 Jul 43, on AAF ltr to CG AGF, 8 Jul 43, sub: Organization of AAF Reconnaissance and Photographic Squadron. 353/23 (Air-Gnd)(S).

4. Ltr of Gen McNair to Brig Gen Henry J. Reilly, 21 Sep 43. McNair Papers, AWC Records.

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American ground weapons were also being used effectively against United States planes, which ground troops failed to recognize in time to withhold their fire.[5]

In the light of American combat experience in the North African campaign, the need for an improvement in air-ground relationships was obvious. Two courses of action were possible: either air and ground forces could be pulled farther apart by concentrating air action on strategic objectives and on targets in the rear of hostile ground troops with the object of "isolating the battlefield," or attention could be centered on developing means by which the two forces could know, recognize, and understand each other, and communicate and cooperate in action. The year 1943 was marked by developments in both directions. The Army Air Forces sought and obtained broad statements of doctrine and effected an internal reorganization both of which minimized the importance of aviation in close support of ground forces on the battlefield. The Army Ground Forces, as far as possible avoiding doctrinal controversy, took the stand that since the employment of aviation in close support roles was sanctioned, even though given a low priority, preparation for it must be pursued intensively both by the Air Forces and Ground Forces because of the numerous difficulties inherent in teaming mile-an-hour ground troops with 300-mile-an-hour aviation. Behind this stand remained the conviction that before the war was over such use of air power would be found critically important. Meanwhile, practical steps were taken both by the Air Forces and by the Ground Forces to improve communication and cooperation between the two in battle. To this improvement combat experience in the Italian campaign, beginning in September 1943, made important contributions.

In the long run the development of doctrine regarding the employment of air power which came to a head in 1943 may prove to have been less important than the practical measures just mentioned. But it will be reviewed before these are described[6] because it reflects a clash of organizational interests--some temporary, some of larger bearing; and it conditioned, and therefore helps to explain, the course of action taken by the Army Ground Forces in more practical matters.

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5. The most comprehensive report on air-ground relationships in the North African campaign is that of Col Dexter, cited in n. 2 above. Others used are as follows: (1) Extracts from Obsn Rpts, NATO, for the period 3 Oct 42-21 Apr 43, with reference to aerial photography. 353/16 (Air-Gnd)(S). (2) Sec I, Extracts from Obsn Rpts, sub: Lack of Timely Close Combat Support in Critical Phases, based on statements by Lt Gen Omar N. Bradley, Maj Gen John P. Lucas, Maj Gen Terry Allen, Maj Gen Charles W. Ryder, the CG VI Corps, officers of the 26th Infantry, the 45th Division, and the G-3 Sec AFHQ, interviewed by the AGF Bd, NATO. 353/35 (Air-Gnd)(S). (3) Sec III, a (2), Report of Maj Gen Lloyd R. Fredendall, CG II Corps, 10 Mar 43. Copy in Incl 4, 353/16 (Air-Gnd) (S). (4) Tab 2, Statement of Maj Gen Lunsford E. Oliver, CG 5th Arm Div, 23 Apr 43, at Air-Gnd School Conf, Tenn Maneuver Area. 353/275 (Air-Gnd). (5) Statements of Col William B. Kern, CO 1st Bn, 6th Armd Inf, 1st Armd Div, in interview on 29 Apr 43. 353/14 (Air-Gnd)(C). (6) Memo of the AS/W for Gen Lear, 15 May 43. 353/283 (Air-Gnd). (7) Pars 2 and 14, Report of Maj Gen Walton H. Walker 12 Jun 43. 314.7 (AGF Hist). (8) Par 5a and 6, Report of AGF Observer Team No. 6, 3 Aug 43. Ibid. (9) Pars 4, 5, 6, and 23, Report of AGF Observer Team No. 3, 22 Aug 22. Ibid. (10) Sec D, par 2, "Air Support," cited in n. 1 (2) above. (11) Statement of Maj Gen Troy Middleton, CG 45th Inf Div, to AGF Bd, AFHQ-NATO, 1 Dec 43, in Report of AGF Bd, AFHQ- NATO, No. 86. 319.1/80 (NATO) (S).

6. See below, Chap VII, "Practical Steps Toward Air-Ground Cooperation."

FM 100-20 AND ITS IMPACT

On 21 July 1943 Field Manual 100-20, "Command and Employment of Air Power," was published. Departing from the matter-of-fact tone normal in Army Field Service Regulations, its introductory paragraphs declared in upper-case type: (1) that "LAND POWER AND AIR POWER ARE CO-EQUAL AND INTERDEPENDENT FORCES: NEITHER IS AN AUXILIARY OF THE OTHER"; (2) that "THE GAINING OF AIR SUPERIORITY IS THE FIRST REQUIREMENT FOR THE SUCCESS OF ANY MAJOR LAND OPERATION"; and (3) that to exploit its "INHERENT FLEXIBILITY," control of air power "MUST BE CENTRALIZED AND COMMAND MUST BE EXERCISED THROUGH THE AIR FORCE COMMANDER," subject only to the authority of the theater commander. The superior commander was forbidden to "ATTACH ARMY AIR FORCES TO UNITS OF ARMY GROUND FORCES . . . EXCEPT WHEN SUCH GROUND FORCE UNITS ARE OPERATING INDEPENDENTLY OR ARE ISOLATED BY DISTANCE OR LACK OF COMMUNICATION."

It was stated that normally the air force in a theater of operations would include a "tactical air force." as well as a "strategic air force." The tactical air force would be used on the basis of the following priorities: first priority, the gaining of "the necessary degree of air superiority"; second priority, "isolation of the battlefield"; third priority, attacks on ground targets "in the zone of contact." Third priority missions were carefully limited by statements of their relative cost and ineffectiveness, leading to the conclusion that "only at critical times are contact zone missions profitable."

The War Department published FM 100-20 without the concurrence of General McNair. This manual was known at the Pentagon--and viewed with dismay by the Ground Forces--as the Army Air Forces' "Declaration of Independence." It was also regarded by Headquarters, Army Ground Forces, as having rendered FM 31-35 obsolete, although it contained a reference to that manual.[7] But it lacked the completeness and detail necessary to provide a substitute.

The drive to obtain this high declaration of doctrine received its decisive impulse from General Montgomery's "Notes on High Command in War," to which General Marshall's attention was invited, on 18 April 1943, by the Assistant Secretary of War for Air, Mr. Lovett, as furnishing material for a new statement of "written doctrine." Immediately afterwards the Operations Division initiated action to have G-3 restate American air doctrine on the basis of the declarations which were later to be introduced into FM 100-20 in capital letters.[8] When the Air Support Board, which met in December 1942, had recommended changes in FM 31-35, General McNair had made the counterproposal that revision be suspended until further knowledge had been

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7. (1) Par 32, memo of Col Flannagan for CG AGF, Aug 44, sub: G-3 Summary of Air-Gnd Tng Ltrs and Memoranda, Apr 42-Aug 44, with Comments. Air Support Br, G-3 AGF, file 14/30. (2) FM 100-20, 21 Jul 43, par 5 f.

8. (1) Memo of AS/W for Air for CofS USA, 18 Apr 43, sub: Gen Montgomery's "Notes on High Command in War." (2) G-3 WD Memo WDGCT 384 (2-24-43) for ACofS OPD, 24 Apr 43, sub as in (1), requesting that G-3 be charged with revision of FM 31-35. (3) OPD memo 384 (29 Apr 43) for CofS USA, 29 Apr 43, sub as in (1), recommending that G-3 be given a mandate to deal with the larger question of the command and employment of all units in theaters. (4) WD D/F to CG AGF, 6 May 43, sub as in (1), enclosing copies of these memos for comment. All in 353/16 (Air-Gnd)(S).

obtained from field tests in training as well as from experience in combat. In reply, Maj. Gen. Idwal H. Edwards, then G-3, WDGS, had laid down the principle that "combat operations provide the best test of air support doctrines."[9] General Montgomery's experience with the British Eighth Army in the desert represented the first successful employment by the Allies of air power in support of ground forces of the offensive. Portions of his "Notes" were seized on as a conclusive expression of the principles underlying the success of air-ground cooperation in battle.

FM 100-20 faithfully mirrored General Montgomery's statement of principles. It did not, as was at once pointed out and later confirmed, faithfully reflect the application of those principles to the actual organization and use of tactical air power embodied in the plans and operations of the British Eighth Army at El Alamein and El Hamma. In both instances a definite allotment of air power with which to plan and execute a major operation had been placed at General Montgomery's disposal as the commander of an army.[10] A different and stricter application of the doctrines stated in FM 100-20 was embodied in the tactical air organization on the northern front in Tunisia, which produced results disappointing to American ground commanders.[11] The model presented by the Eighth Army--a tactical air force working in close cooperation with an army and allotting air to assist smaller units at critical points in accordance with the army plan--was that on which air-ground cooperation was in time worked out successfully, by the Fifth Army in Italy and by the Twelfth and Sixth Army Groups during the invasion of France in 1944.

Army Ground Forces took no exception to "certain generalized statements" in General Montgomery's "Notes." What it feared was that, converted into dogma, they would sanction "an inflexible system of centralized control of air forces in a theater." The nub of the AGF argument was that such rigid doctrines, designed to guarantee the freedom of air to exploit its flexibility and mass its power, would impair the capacity of the U.S. Army as a whole to mass its striking force, both ground and air, when and where needed, against an enemy who knew how to exploit that potentiality.[12] Behind this was the fear of ground commanders that, if air support was not subject to their control, air commanders bent on waging "air war" would never find that they had aviation available to support ground action--a fear that seemed to be justified by the

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9. (1) AGF memo for CofS USA, 10 Feb 43, sub: Report of Air Support Board. 353/190 (Air-Gnd). (2) Par 3, WD memo WDGCT 581 (10 Feb 43) for CG AGF, 7 Apr 43, sub: Air Support Board. In Air Support Br, G-3 AGF file 11, "Doctrine."

10. (1) Pars 2 and 6, AGF memo for CofS USA, 17 May 43, sub: Gen Montgomery's Notes on High Command in War. 353/16 (Air-Gnd)(S). (2) Pars 10, 13, and 67, Report of Col Dexter on Air-Ground Support in North Africa, cited in n. 2 above.

11. (1) Pars 14, 16, 17, 63-66, Report of Col Dexter, cited in n. 2 above. (2) This organization was the model regarding which Brig Gen Laurence S. Kuter, Deputy Comdr of the Northwest Africa Tactical Air Force, made a glowing report to AAF and AGF officers at the Pentagon on 25 May 43. Observer Reports in files of Air Support Br, G-3 AGF.

12. Pars 4 and 10 d, AGF memo for CofS USA, 17 May 43, sub: Gen. Montgomery's Notes on High Command in War. 353/16 (Air-Gnd)(S). This memorandum was signed by Gen Lear, Acting CG AGF, during Gen McNair's visit to Africa, but the draft was initialed by Gen McNair with an "O.K. by me."

initial combat experiences in Tunisia. American airmen, on the other hand, feared that ground commanders, given control of air units, would "dissipate air resources into small packets."[13] They believed that "if ground commanders had Air allocated to them and under their command they would soon get all their Air destroyed and have little to show for it; that the Air commanders can do better for the ground troops than the ground commander can do for himself." Alarmed by the demand that arose from ground commanders in Africa for the decentralization of air and the attachment of air units to ground units, they sought and obtained a prohibition of it. Two valid considerations might well have counselled patience. One was that American ground commanders, engaging in large-scale combat operations for the first time, showed a tendency to misuse not only air but all the new forms of mechanized support, including tank destroyers and tanks. This was a tendency which experience might reasonably be expected to correct. The other was the failure of the Air Forces to provide support, whether in the form of reconnaissance or combat missions, promptly. The practical way out of the deadlock of mutual distrust was to perfect cooperation and speed it up. The practical reason why ground commanders were asking for decentralization of control as a solution for their problems was that they could not get in time, if at all, air support to which they were entitled by existing statements of doctrine.[14]

FM 100-20 having been published without AGF concurrence, General McNair's line of action was to accept it as an order. There can be little doubt that the publication of FM 100-20 strengthened his belief that the root of the trouble was the indifference of the Air Staff to cooperation of air with ground forces.[15] A confirmation of this view reached Army Ground Forces on 15 May 1943, two days before its commentary on General Montgomery's "Notes" was sent to the War Department. This was a memorandum of the Assistant Secretary of War, Mr. McCloy, on his observations in Africa. Referring to the absence of support of ground forces by air, Mr. McCloy wrote:[16]

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13. (1) Phrase quoted from par 7 of Gen Montgomery's "Notes." Military Reports on the United Nations No 9, MIS, WD, 15 Aug 43. (2) The point of view of air commanders in North Africa is fairly and ably set forth in par 107 of Col Dexter's Report, cited in n. 2 above.

14. "Ground commanders are not desirous of having command of the Air. But their inability on the Tunisian Front to get air support by the request method has convinced them that there is no other recourse than to have specific air units allocated to them, and to have full command authority over such units." Par 154 d, Report of Col Dexter cited in n. 2 above.

15. "It is the opinion of this headquarters that call-type missions have not been successful in combat primarily because we have not had a properly trained air-ground team. Unless there is a desire to provide close air support and training and doctrine are directed along such lines, it is obvious that ineffective results will be obtained." Sec II, par 4 b, Comments on Suggestions in Incl No 1 to AAF memo, 24 Apr 43, Tab B of AGF ltr to CG AAF, 10 May 43, sub: Air-Ground Training and Cooperation. 353/5 (Air-Gnd)(S).

16. Memo of Mr. McCloy for Gen Lear, 15 May 43. 353/283 (Air-Gnd).

It is my firm belief that the Air Forces are not interested in this type of work, think it is unsound, and are very much concerned lest it result in control of Air units by ground forces. Their interest, enthusiasm and energy is directed to different fields.

He then proceeded to state a view the reasonableness of which was verified when actual cooperation of air with ground forces was tried in the invasion of France in 1944 and its fruits became manifest:[17]

> . . . what I cannot see is why we do not develop this auxiliary to the Infantry attack even if it is of lesser importance [than strategic bombing]. . . . It may be the wrong use of planes if you have to choose between the two but to say that air power is so impractical that it cannot be used for immediate help of the Infantry is nonsense and displays a failure to realize the Air's full possibilities. It is just as bad as was the tendency of the Ground Forces, some time ago, to confine air operations to such work.

REORGANIZATION OF AVIATION FOR GROUND COMBAT SUPPORT

During the course of 1943 the Army Air Forces, concurrently with its successful effort to obtain a restatement of air doctrine, effected a reorganization of air forces in the field which was justified at each step as being required by the new statement of doctrine. The step in reorganization that was fundamental, from the point of view of Army Ground Forces, was to put all aviation designed to cooperate with ground forces, in each theater, into a tactical air force and a troop carrier command. These two organizations, together with a strategic air force, an air defense command, an air service command and, possibly, a command controlling strategic reconnaissance, were to be normal components of the air force in each theater.

Each tactical air force was designed to be "co-equal to the headquarters of a Group of Armies." FM 100-20 emphasized the point that it was not to serve the ground forces only: "It is to serve the theater." It was to have assigned to it certain stable components, but in general it was to be a frame into which reconnaissance and combat aviation could be fitted as needed or available. The tactical air force was to operate through "tactical air divisions." These were now to take the place of the old air support commands, whose very name carried connotations abhorrent to the air high command. The tactical air division was designed to cooperate, through an adjacent forward echelon of its headquarters, with an army, to which it was declared "co-equal." Like the tactical air force, a tactical air division was to contain certain fixed components, notably an administrative organization, a signal battalion, and a tactical control group, to control all of its planes while in flight. But in general, like the tactical air force, it was designed as a frame for the administration and operation of aviation assigned to it by the tactical air force for a particular purpose.[18] No T/O&E for tactical air divisions was published. The corresponding organizations which emerged in theaters of operations were designated as tactical air commands.

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17. Ibid.

18. AAF ltr 20-1 to CGs and COs AAF, 15 Nov 43, sub: Orgn and Employment of the Elements of the Tactical Air Force, with incl, Rpt of Proceedings by the AAF Bd. 353/111 (Air-Gnd)(S).

In general this reorganization of American air forces, like that of the ground forces effected at the same time, was designed to increase flexibility of employment by a liberal application of the principle of pooling.[19] One striking difference was that in a theater air force no set team of combined arms comparable to the ground division was provided. Various types of aviation fighters, light, medium, and heavy bombers, reconnaissance planes, photo-reconnaissance planes, liaison planes, and troop carriers--could be shuffled in and out of the frames provided by the various forces and commands within the theater air force, as required by the plans of the theater commander and the air force commander, and in accordance with the availability of the types of aviation required. With this fluidity went a high concentration of authority at the top and a heavy and extensive machinery of overhead.

The internal reorganization effected by the Army Air Forces just summarized was going on in the theaters and in the Zone of Interior throughout 1943 and in the early months of 1944 and, announced as it was applied piecemeal, was confusing to such cooperating agencies as the Army Ground Forces, to which no definite picture of the outcome to be expected was presented. A "tactical air force" had first taken concrete form as one element of the Northwest Africa Air Force (NAAF), framed to control the air power used in the Tunisian campaign and commanded by Lt. Gen. Carl Spaatz. This tactical air force (NATAF) was represented by the air high command as expressing the joint experience of the Royal Air Force and the United States Army Air Forces in the Western Desert between El Alamein and the Mareth Line, and therefore as implementing the doctrine to be derived from combat experience regarding the proper use of air power in modern war.[20] The first official reference to a tactical air force appeared in paragraph 6 of FM 100-20 on 21 July 1943. On 28 August the War Department directed that the three air support commands in the United States be redesignated tactical air divisions.[21] The general plan of reorganization was outlined by Headquarters, Army Air Forces, for its own subordinate commands in a letter dated 15 November, a copy of which was obtained informally by Headquarters, Army Ground Forces.[22] In the theaters air support commands continued to be called by that name until, in pursuance of Change No. 2 to T/O 500-1, WD, dated 28 April 1944, the name was changed, not to tactical air division, but to tactical air command. Despite this official action, the Army Air Forces continued to call the Zone of Interior organizations tactical air divisions. Only in the late spring of 1944 can the reorganization of the Army Air Forces be said to have become effective.

REORGANIZATION OF AVIATION FOR GROUND INTELLIGENCE

The ground forces were most directly and materially affected by the reorganization of the aviation designed to provide them with intelligence. The value of aerial

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19. See "Organization and Training of New Ground Combat Elements," in Organization of Ground Combat Troops (Washington, 1947), pp 383 ff.

20. (1) The organization and its operation are described in pars 9-27, Report of Col Dexter on Air-Ground Support in North Africa, cited in n. 2 above. (2) Brig Gen L. S. Kuter, "Air-Ground Cooperation in North Africa," Air Force, July 1943, pp 4, 5, and 33.

21. WD ltr AG 322 (27 Aug 43) OB-I-AFRPG-M to CGs Third Air Force and DTC, 28 Aug 43, sub: Redesignation of I, II, and IV Air Spt Comds. 320.2/29 (AAF)(R).

22. AAF ltr 20-1 to CGs and COs AAF, 15 Nov 43, sub: Orgn and Employment of Elements of the Tactical Air Force. 353/111 (Air-Gnd)(S).

observation in extending the range of reconnaissance for ground forces had been established in World War I; it had then been the most important form of air support. Aerial observation as developed by 1942 had four missions: to adjust artillery fires and to provide photomaps, visual reconnaissance, and photographic reconnaissance. Under the program authorized in June 1942 the artillery obtained its own little "cubs" to observe and adjust its fires. But it remained dependent on armed high-performance airplanes that could live beyond the enemy's lines to observe and adjust the fires of the long-range batteries of corps and army artillery, and it still needed target intelligence obtainable from air photographs taken over the enemy's position.

The information needed which only the air forces could provide was obtained by the eyes of airborne observers and the lenses of airborne cameras. It broke down into three forms: visual observation, photomapping, and terrain photography. Air photographs for large area maps were taken by vertical cameras at high altitudes. Other photographs were needed to make map substitutes of terrain in the path of advancing ground forces, to pinpoint targets for attack, and to supplement visual intelligence regarding the strength and dispositions of the enemy. Photographs for these purposes were normally taken at low altitudes by vertical or oblique cameras. Verticals were needed to make mosaic strips, and obliques to pinpoint targets. Visual and photographic air reconnaissance was vital to all ground combat units. Air photographs of enemy artillery positions ("counterbattery photos") were particularly important for the artillery. It could be said with sobriety that "our position without air photos against the Germans who have them will be similar to a blind man fighting a man with keen eyes."[23]

The aviation which the Army Air Forces had originally designed to provide reconnaissance had been organized in "observation groups." These groups operated observation squadrons which were composite in type. Each squadron normally contained eighteen planes of suitable high-performance (fighters and bombers) and liaison types depending upon its particular mission. By FM 31-35 observation aviation, unlike other forms, was made organic in each air-support command, designed for cooperation with an army. One observation group consisting of four composite squadrons was, theoretically, allotted for each corps, one group of three squadrons for each theater headquarters. Under this organization each corps headquarters and each division could expect to have teamed with it one composite observation squadron. The organization was designed for decentralization "to permit each corps and division to plan the use of and call direct upon its supporting observation squadron for missions."[24]

In February 1943 General Spaatz, commanding the Northwest Africa Air Force, telegraphed that the observation group sent to him the 68th, had been unable to live at the front, that he had broken it up, and that the concept must be changed.[25] The fighter planes of the group were assigned to the 154th Observation Squadron, which was the only American reconnaissance unit thenceforth available in North Africa for use with United States ground forces. Between 18 February and 18 April 1943 this

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23. Report of Col John H. Hinds on Eighth Army Survey Demonstration at Cairo, 18-19 May 43. 353/23 (Air-Gnd)(S).

24. FM 31-35, pars 2 b, 51, 52.

25. Memo of CofS AGF for CG AGF, 28 Feb 43, sub: Observation Aviation. Copy in Air Support Br G-3 File No. 11.

squadron lost 10 planes, of which 2 were shot down by hostile aircraft, 3 by hostile ground fire, and 5 by the ground fire of American troops. While the Luftwaffe was still strong in the air over Tunisia it was deemed necessary to execute reconnaissance missions by "sweeps" under the protection of a dozen Spitfires.[26]

The Army Air Forces, reacting at once to General Spaatz's report sought its way to a solution of the problem through a series of changes which became a part of the reorganization of its forces described in the foregoing pages. Though of vital concern to the Army Ground Forces they were made without its concurrence. Photomapping was to be done as before by a Photo Reconnaissance Unit (PRU), which was normally to be a theater organization, or which might appear in an air force working with an army group. Air "observation" was henceforth to be called "tactical reconnaissance," to stimulate and signify greater aggressiveness in ranging for information. The organization of visual and close-in photo reconnaissance for ground units was changed radically. The old composite observation squadrons were replaced by tactical reconnaissance squadrons consisting only of high-speed fighters, eighteen in each squadron. A group of these squadrons was normally to be an element of each tactical air command. The old plan provided, basically, one composite squadron for each division, plus one for each corps; the new, one tactical reconnaissance squadron for each army, one for each corps, and one for each armored division. Forming an element of the tactical air command, the squadrons so provided performed the reconnaissance required by that command to meet its responsibilities for maintaining air supremacy, isolating the battlefield, and defending its area, as well as for close-in cooperation with the associated ground force, normally an army. To the headquarters of the tactical reconnaissance group were assigned a photographic laboratory capable of making a limited number of reproductions, and a team of air interpreters.[27]

Finally, equipment was changed. The bombers of the old observation squadrons were, theoretically, equipped with cameras capable of taking vertical photographs, the type most effective for ground use. The new squadrons were to consist only of high-powered, single-seater, fighter-type airplanes--some P-38's, the majority P-51's (Mustangs) when these became available. They were equipped at first only with oblique cameras. These planes were sent out on reconnaissance missions in pairs, one to observe and take pictures, the other to fly cover.

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26. (1) Pars 18, 35, 36, Report of Col Lexter cites in n. 2 above. (2) Extract from Report of Maj Gen John P. Lucas, NATO, 31 Mar-28 Apr 43. 353/16 (Air-Gnd)(S). (3) Par 4, WD memo WDGCT 320.2 Genl (4-21-43) for CG AGF, 16 June 43, sub: Redesignation, Reorganization, Reassignment Constitution and Activation of Certain AAF Units. 353/23 (Air-Gnd)(S).

27. (1) WD ltr AG 320.2 (4-1-43) OB-I-AFDPU-M, to CG AGF, 2 Apr 43, sub: Redesignation, Reorganization, Reassignment, Constitution, and Activation of Certain AAF Units. 320.2/33 (AAF)(R). (2) M/R of Lt Col Simenson, Air Supt Br, G-3 AGF, 30 Apr 43, sub: Conference on 29 Apr 43. Air Support Br, G-3 AGF file No 11. (3) WD memo 16 June 43, cited in n. 26 (3) above. (4) AAF ltr to CG AGF, 8 Jul 43, sub: Organization of AAF Reconnaissance and Photographic Aviation. 353/23 (Air-Gnd)(S). (5) AGF ltr to CG AAF, 30 Jul 43, sub as in (4). 353/23 (Air-Gnd)(S). (6) AAF requested permission to put its program into effect without waiting for concurrences and formal approval. AAF memo for CofS USA, 28 Jul 43, sub: Reconnaissance Program (including photographic). When this request was referred to the CG, AGF, he referred to his reply to the AAF ltr of 8 July (cited in (5) above) reaffirming his statements therein made. 353/23 (Air-Gnd)(S).

The AAF Board recommended that reconnaissance aviation be put on high priority for equipment and personnel. But no decentralization to ground units was to be countenanced, which meant no restraint on air commanders to deter them from using reconnaissance primarily for their own needs.[28]

These changes were viewed and judged at Headquarters, Army Ground Forces, in such light as was provided by FM 100-20, by such imperfect information regarding specific approved plans as could be obtained, and by the experience of the ground forces in training and combat. As the changes in its organization which the Army Air Forces was making emerged, they seemed to mean that air intelligence designed to meet the needs of ground forces was to be replaced by air intelligence for the ground forces which would be a by-product of that required for prosecution of war in the air. It was seen that in the new organization, where everything was designedly flexible, and the only reconnaissance unit earmarked to provide the ground with intelligence was composed of high-speed fighter-type planes, the intelligence requirements of ground forces were placed in competition with the intelligence requirements of the air forces, and, if the need arose, would be in competition with their combat requirements as well, since the reconnaissance planes were fighters. The difference of interest, as far as reconnaissance was concerned, did not assert itself in connection with large-scale photo-mapping. But it became acute as visual and photographic reconnaissance approached the zone of contact between the opposing ground forces. With this approach the interest of the air forces decreased, while the interest of ground commanders sharply increased and became focused on kinds of information which could be gained only by highly trained pilot-observers willing to fight for it over the enemy's positions. It was logical to give precedence to air requirements as long as the air forces were absorbed in missions given first and second priority in FM 100-20. The persisting difficulty was that American air forces were organized, equipped, and trained primarily for these first two missions.

The priority of air requirements was built into the equipment of the new reconnaissance squadron. The conditions clearly called for high speed planes. But the P-38's and P-51's of the new squadrons were single-seaters of the standard fighter type, so constructed that the pilot had no view of a considerable area directly under the plane. Maximum effectiveness required full attention for observing and, in a plane traveling between 300 and 400 miles an hour, the close-in tactical observation needed by ground units could be effected satisfactorily only by a highly trained pilot-observer.[29] Visual observation of the type needed by ground commanders therefore called for planes carrying an observer as well as a pilot, and modified to permit more downward vision. Again, whereas the old composite observation squadrons had included bombers equipped to take vertical photographs, P-51's initially were capable of taking only obliques, satisfactory for air war, but not for war on the ground which in addition required vertical photographs to pinpoint targets and produce overlapping low altitude reconnaissance strips. No specific units or equipment were provided to take the photographs for ground maps. Here again competition with air priorities was to be expected and was verified in combat, where the available mapping and photographic aviation was used largely for strategic photography. In the Tunisian campaign, up to

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28. (1) AAF ltr to CG AGF, 8 Jul 43, sub: Organization of AAF Reconnaissance and Photo Aviation, transmitting Report of AAF Board. (2) AGF M/S, G-3 to CofS, 13 Jul 43, sub as in (1). Both in 353/23 (Air Gnd)(S).

29. (1) Pars 40, 48, and 65, report of Col Dexter, cited in n. 2 above. In par 48 Col Dexter described the successful modification of a P-38 for observation purposes by Lt Col Dyas, CO of the 154th Obsn Sq, effected by removing all but two guns and installing windows and an observer's seat in the nose. (2) Par 2 b, Rpt of Maj Gen W. H. Walker, 12 Jun 43. 314.7 (AGF Hist).

28 April 1943, when no photomaps and very few photographs had been provided for ground operations, "hundreds of photographs of bombing actions" were found in the files of air headquarters, and "many excellent photographs" of successful bomb strikes were posted on their walls.[30]

As the outlines of the new picture transpired, General McNair, though gravely concerned, adhered strictly to the principle of command responsibility. His official reaction was expressed in two statements, dated 30 July and 6 October 1943. When presented in July with the proposals of the AAF Board regarding reconnaissance and photographic aviation, he expressed gratification that the Army Air Forces was making plans which might be construed as showing its awareness of the problem.[31] With regard to specific proposals, after remarking that the needs of the ground forces for reconnaissance must be well known to the Army Air Forces, he confined himself to noting those which the new plan seemed unlikely to satisfy, and concluded that, while organization should certainly provide for concentration and flexibility, "invariably centralized control by the tactical air force or by the air-force commander in the absence of a tactical air force may not always be the best set-up. Channels of operation may be so extensive and difficult as to impair the essential teamwork between ground forces and supporting air forces. The principles set forth in /the proposed general reorganization/ create the impression of concern for the unity of the air forces, and the precedence of their interests, rather than a determination to participate in and promote the success of the decisive ground action, particularly that of the Infantry."[32]

On 6 October, with the reports from the Sicilian campaign before him, General McNair again stated in a memorandum written and presented by himself to the Assistant Secretary of War that the ground forces had to date received little mapping or intelligence photographic support from the air either in combat or on maneuvers. He now definitely took issue with the doctrine which the air force seemed to be following in the matter of reconnaissance. "The assignment of third priority to combat support of ground forces," he wrote, "is sound." But he pointed out that, although FM 100-20 prescribed no priorities for intelligence support, "experience in the theaters, and the fighting type of equipment assigned intelligence and photographic units, indicate that priority for intelligence support, as for combat support, is third." "It is submitted," he continued, "that ground forces should invariably receive intelligence support when in contact and that, unlike the doctrine expressed in paragraph 9 f, FM 100-20, corps and even divisions should work directly with supporting intelligence aviation. Our II Corps in Sicily received no satisfactory support until this was done." Beyond this General McNair confined himself to repeating the characteristics

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30. Par 70, report of Col Dexter, cited in n. 2 above.

31. General McNair chose to assume that the action proposed was a response to the recommendation of AGF made on 23 March that the "organization, equipment and doctrine of observation aviation be reviewed, with particular emphasis on intelligence photographs." AGF memo for the CofS USA, 23 Mar 43, sub: Combined Air-Ground Training. 353/5 (Air-Gnd)(S).

32. AGF 1st ind, 30 Jul 43, to CG AAF, on AAF ltr to CG AGF, 8 Jul 43, sub: Organization of AAF Reconnaissance and Photographic Aviation. 353/23 (Air-Gnd)(S).

of air intelligence not present in the provisions made or planned by the Army Air Forces, namely, reconnaissance aviation equipped to take suitable close-in intelligence photography, air organization and equipment capable of providing close and continuous intelligence support of ground forces when in presence of or in contact with the enemy, and mapping squadrons more suitably equipped to produce the photomaps needed for ground operations. Specifically, he suggested that planes with lower performance characteristics than "those required for more distant missions" could provide the photography which the ground forces required, and stated definitely that the requirements of the ground forces called for vertical as well as oblique photographs.[33]

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33. Memo of Gen McNair for AS/W, 6 Oct 43, sub: Air Spt for Ground Forces. 353/33 (Air-Gnd)(S). Eventually the fighters used for ground reconnaissance were equipped with vertical cameras.

Chapter VI

ORGANIC GROUND FORCE AVIATION, JANUARY 1943 - JUNE 1944

The development of the Army Ground Forces' own aviation--the liaison planes organic in field artillery units--during the period extending through 1943 to D Day, was marked by a renewed effort of Army Ground Forces to expand such aviation to other arms than Field Artillery, and by another, and more formidable, attempt of the Army Air Forces to absorb it.

To understand the issues that arose during this period, the fact must be borne in mind that, although the program of organic aviation was initiated on 6 June 1942, it "came into production" only in 1943. The first pilot-observers trained at Fort Sill (eighteen in number) did not graduate until 18 September 1942.[1] A majority of the graduates from the early classes and all of the available planes except those needed at Fort Sill went overseas to initiate the equipping of units that took part in the invasion of North Africa.[2] The equipping of AGF units in training began in December 1942 and was not completed until November 1943. At that time theaters of operation, authorized a 10 percent overstrength in field artillery liaison pilots, still had 100 less than their allotment.[3] In short, only toward the end of 1943 was field artillery aviation built up to the strength necessary for a full test in combat.

Early in 1943, on the basis of an agreement reached in Assistant Secretary of War McCloy's office, the War Department ironed out the difficulties over personnel and training that had arisen between the Army Ground Forces and the Army Air Forces, and approved certain modifications in the organic aviation program which the Army Ground Forces had requested.[4] The most important of these was that the pilots were to be officers trained to adjust fires. The pilot-observer would be accompanied by a radio-mechanic who was to watch for hostile planes and transmit fire directions to the ground. In practice, the passenger was often another trained observer who assisted in adjusting

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1. AGF 1st ind to G-3 WDGS, 17 Mar 43, on WD memo to CGs AGF and AAF, 12 Feb 43, sub: Ln Pilots for FA. 353/262 (FA Air Obsn).

2. (1) AGF shipped 22 pilots and 10 mechanics to the United Kingdom. Ten of the pilots from the first class of 18 graduating from Fort Sill were ordered to a Port of Embarkation on 28 September 1942, and, on 17 October, 12 more pilots were ordered sent. AGF M/S, G-1 FA Br to G-3 AGF, 31 Dec 42, commenting on ETO ltr to CG AGF, 20 Nov 42, sub: Organic FA Air Obsn. 353/1 (FA Air Obsn)(S). (2) To complete the equipment and units in North Africa, Hq Fifth Army requested authority to set up a school for 200 pilots and 100 mechanics. Ltr Hq Fifth Army to C in C Allied Force, 12 Jan 43, referred by OPD to Hq AGF for comment. 353/8 (FA Air Obsn)(S).

3. AGF M/S, G-1 FA Br to G-3, 6 Nov 43, sub: FA Ln Pilots. 353/262 (FA Air Obsn).

4. (1) WD memo WDGCT 211.99 for CGs AGF and AAF, 12 Feb 43, sub: Ln Pilots for FA. 353/262 (FA Air Obsn). (2) T/O&Es reflecting the decisions reached, in particular the inclusion of two officer pilots in each FA battalion, were not published until 15 July 1943. (See T/O&E 6-26 as changed on that date for the organization of FA battalions in the infantry division.) As enough officers would not be available as pilots until 1 March 1944, the enlisted pilots already trained were either commissioned, if qualified, or carried as excess in grade until replaced. See AGF 2d ind to TAG, 23 Aug 43, on 30th Inf ltr to CG AGF, 16 Aug 43, sub: Surplus Staff Sgt Pilots in FA. 353/360 (FA Air Obsn).

fires.[5] The new system was opposed by the Air Forces and approved with reluctance by the War Department. One effect of it was to clinch the control of Army Ground Forces on the supply of pilots, which now was made its responsibility. Under the new arrangement the Army Air Forces trained AGF volunteers as liaison pilots at the AAF flying school, in a manner presently acknowledged by Army Ground Forces to be very satisfactory.[6] As far as practicable they were officers already branch-trained in Field Artillery. In any case, the Field Artillery School no longer had to prolong its courses to give its student-pilots basic military training. The Army Ground Forces was denied its request for authority to confer pilot ratings.[7]

PROPOSED EXTENSION OF ORGANIC GROUND FORCE AVIATION

As previously noted, Army Ground Forces had, in November 1942 at the suggestion of Mr. McCloy, proposed the extension of the observation aviation program to ground units other than those of the Field Artillery. This recommendation was referred to G-3 of the War Department who, after some delay, requested that Army Ground Forces submit specific plans for implementing the proposed extension.[8] Army Ground Forces responded on 20 February 1943 that it desired "to include organic liaison aviation in tank destroyer units and mechanized cavalry units, and to provide divisions with airplanes, in addition to artillery airplanes, for the use of the division commander and his staff, and to work with the division reconnaissance elements." About half of the planes and personnel requested were to be assigned organically to divisions, and the remainder to tank destroyer and mechanized cavalry forces.[9]

In March the War Department estimated that, to implement the proposed extension of organic aviation in ground force units, approximately 1,500 liaison-type planes would be required in addition to the 2,500 necessary for the existing field artillery program. Since AAF units required 1,500 such planes, and since the total number of liaison-type aircraft to be available by the end of 1943 would be only 4,000, it was difficult to see how the AGF proposal could be carried out.[10] Army Ground Forces nevertheless pressed for a decision on its proposal, which was finally turned down by the War

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5. (1) AGF memo for CofS USA, 8 Jan 43, sub: Obsn Pilots for FA. (2) WD memo WDGCT 353 (1-8-43) for CG AGF, 11 Jan 43, sub as in (1). (3) AGF memo for CofS USA, 16 Jan 43, sub as in (1). All in 353/216 (FA Air Obsn).

6. AGF memo for CofS USA, 27 Nov 43, sub: Ln Pilots for FA. 353/262 (FA Air Obsn).

7. However, ARs 95-15, 95-90, and 95-120 were revised to clarify authority and responsibility with regard to rating, flying status, and other matters connected with the training and control of organic field artillery observation. See WD memo WDGCT 320.2 Gen (10-17-42) for CG AGF, 13 Feb 43, sub: Organic Air Obsn for FA. 353/264 (FA Air Obsn).

8. (1) Memo of Gen McNair for CofS USA, 16 Nov 42, sub: Organic Air Obsn for Ground Units. 353/150 (FA Air Obsn). (2) WD memo WDGCT 320.2 Gen (11-16-42) for CG AGF, 6 Feb 43, sub as in (1). 353/150 (FA Air Obsn).

9. AGF memo for CofS USA, 20 Feb 43, sub: Organic Ln Aviation for Ground Force Units. 353/9 (FA Air Obsn)(S).

10. WD memo WDGCT (3-30-43) for CG AGF, sub: Ln Airplanes. 452.1/540 (Airplanes).

Department on 28 June after a prolonged delay.[11] General McNair, commenting on the War Department's decision, remarked in a note to Mr. McCloy: "Of course, as you know, the Air Forces have opposed organic aviation in the Ground Forces, and it now appears that the logical development of such a system is stopped."[12] By its decision, the War Department had stablized the organic ground force aviation program on a basis that was to remain virtually unchanged until the summer of 1945.

ORGANIC DIVISIONAL FLIGHTS PROPOSED AND REJECTED

During the summer of 1943 the stability of the organic aviation program was again threatened by a War Department proposal to change by centralizing the control of field artillery airplanes in division headquarters. The agitation for centralized control was supported by testimony from officers in combat that artillery planes were being used only incidentally to adjust artillery fire and chiefly to perform reconnaissance missions and to run errands for ground headquarters,[13] and also by the argument that centralization would provide a supervision of flying personnel and equipment that was greatly needed. Much was made of the failure to provide for adequate medical supervision of fliers and adequate enforcement of safety regulations, and emphasis was given, as it had been in the AAF proposal of 19 November 1942 to regain control of all "liaison" aviation to the advantages of economy of maintenance and tactical flexibility which would be gained by concentrating the planes on a single field near division headquarters.[14]

The crux of the argument was the need of ground commanders for more liaison planes.[15] The Army Air Forces had admitted its failure to supply the liaison planes

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11. (1) AGF memo for CofS USA, 4 May 43, sub: Organic Air Obsn for Ground Force Units. 353/9 (FA Air Obsn)(S). (2) WD memo WDGCT 320.2 Gen (11-16-42) for CG AGF, 28 Jun 43, sub: Organic Ln Aviation for Ground Force Units. (353/17 (FA Air Obsn)(S).

12. Memo of Gen McNair for AS/W, 5 Jul 43, sub: Present Status of Organic Ln Aviation of Ground Forces. 353/17 (FA Air Obsn)(S).

13. The WD's memo of 28 June 1943 (cited in n. 11 (2) above) stated that "in one theater, the artillery spotting required less than 3 percent of the aircraft in Organic Air Observation for Field Artillery." It presently transpired that this statement was based on a report of Brig Gen Laurence S. Kuter of the Air Corps. The WD G-3, to back it, later cited Maj Gen John P. Lucas' report on the North African theater, as stating: "The Grasshopper plane has proven its value for command and liaison purposes but has been used very seldom for the adjustment of fires." Par 2 a, WD memo WDGCT 452.1 (10 Jun 43) for Mr. McCloy, 2 Jul 43, sub: Ln Aviation. 353/342 (FA Air Obsn).

14. For the need of better supervision see the following: (1) AGF memo for CofS USA, 17 Nov 43, sub: Air Officers for FA Hq. 320.3/171 (FA). (2) WD memo WDGCT 452.1 (27 Nov 43) for CG AGF, 3 Dec 43, sub: FA Ln Arty. 353/35 (FA Air Obsn)(S).

15. (1) WD memo for Mr. McCloy, 2 Jul 43, cited in n. 13 above. (2) Memo of McNair for Mr. McCloy, 10 Jul 43, no sub. 353/342 (FA Air Obsn). (3) II Corps ltr to C in C NATOUSA, 10 May 43, sub: Organic Arty Obsn for Corps Hq. Sent to CG AGF by WD, 8 Jul 43. 353/18 (FA Air Obsn)(S).

provided for in Flight "C" of the old AAF observation squadron.[16] Aware that this squadron, having proved unworkable in combat, was likely to be disestablished, Army Ground Forces in February had asked that, in addition to artillery planes, division headquarters be provided with organic liaison planes, for the use of division commanders and to work with division reconnaissance elements--a request that was denied in June.[17] Meanwhile, in May 1943, the Army Air Forces proposed and the War Department authorized the organization of AAF liaison flights to work with ground forces, but as late as February 1944 no action by the Army Air Forces had been reported to the War Department. It is not surprising that during 1943 higher ground headquarters in the North African theater, left without liaison planes, borrowed those of the artillery, diverting them from their primary mission, in which their value was only beginning to become apparent.[18]

In the course of the argument over the question of centralizing the artillery planes of each division, the points made by General McNair in his resolute stand for having them remain organic in artillery units were as follows: (1) "The planes are right where they are needed, not back at some centralized field."[19] (2) "The present organization, unlike any other, insures satisfactory unit communications." (3) "By daily association, complete understanding between the pilots and other battalion officers is obtained.[20] Although he admitted that decentralization "renders control difficult," repeated efforts did not move him from his position that "the aircraft are where they are needed and the problem of communication becomes simple," and he insisted that "the Field Artillery organization has proven to be thoroughly sound and of the utmost benefit in combat."[21] As the year advanced he was able to clinch his points with testimony that the artillery cubs in combat were becoming increasingly important in their primary role. On 28 December, fortified by fresh evidence from the front, he wrote: "Air observation for the Field Artillery has reached a high degree of perfection in combat. Success in combat has been phenomenal, far exceeding expectations. Flying in

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16. AAF memo for CofS USA, 19 Nov 42, sub: Organic Ln Aviation for Ground Units. 353/150 (FA Air Obsn).

17. (1) Par 2, AGF memo for CofS USA, 20 Feb 43, sub: Organic Ln Avn for Ground Force Units. 353/9 (FA Air Obsn)(S). (2) WD memo WDGCT 320.2 Gen (11-16-42) for CG AGF, 28 Jun 43, sub as in (1). 353/17 (FA Air Obsn)(S).

18. Extracts from reports on the combat performance of FA liaison planes during 1943, forwarded by AGF 1st ind, 4 Jan 44, to Hq AAF, at the request of the ACofAS, Training. 353/100 (FA Air Obsn)(S).

19. Memo of Gen McNair for Mr. McCloy, 10 Jul 43, no sub. 353/342 (FA Air Obsn).

20. (1) The second and third quotations are taken from par 3, AGF 2d ind to CG R&SC, 5 Nov 43. 353/29 (FA Air Obsn)(S). (2) The points regarding the importance of habitual association between the pilot and the unit served, as well as that regarding immediate communication, were made as early as February 1943 in an AGF memo for CofS USA, 20 Feb 43, sub: Organic Avn for Ground Force Units, 353/9 (FA Air Obsn)(S). (3) An even stronger statement of the importance of habitual association made by AGF in January 1943, in disapproving the tendency to concentrate the planes of a division on a single field: ". . . it is felt imperative that the battalion pilots eat, sleep and work in such close proximity to the rest of the battalion that the plane becomes as much a part of the battalion as one of its trucks." AGF 1st ind to Comdt FAS, 29 Jan 43, on FAS ltr to CG AGF, 19 Jan 43, 353/19 (FA Air Obsn) (R).

21. Pars 4 and 7, AGF memo for CofS USA, 6 Oct 43, sub: Aviation for Ground Force Use. 353/29 (FA Air Obsn)(S).

action has been superb. A single fatality has been reported." In the special efforts of the Germans to knock out "cub" planes he found an indication of their deadly efficacy. These successes General McNair attributed to their "use with the Field Artillery battalion organically."[22]

Throughout the fall of 1943, G-3 of the War Department General Staff urged centralization of the Field Artillery planes in divisional flights. Within the Army Ground Forces, the Director of the Department of Air Training of the Field Artillery School favored the idea. In combat some division commanders had pooled all their organic planes under the control of division or of divisional artillery headquarters. Even Mr. McCloy, staunch friend of the Field Artillery, felt that there was "some justification of having them assigned organically to the division rather than to Field Artillery battalions."[23] In mid-November Headquarters, Army Ground Forces, was informed that it might soon expect a direct order to reorganize its planes in flights, without further chance to comment. It resisted the proposal strenuously. Its resistance was influenced by the fear, in spite of an assurance from G-3 to the contrary, that the adoption of the flight organization would open the way for the Army Air Forces to renew its drive to obtain control of the artillery planes.[24] This fear was colored by the fact that the Army Air Forces, in its recent reorganization, had provided for liaison squadrons whose flights could readily be substituted for flights organic in the division on the basis of one for each army. The AAF drive to accomplish this came into the open in January 1944.[25]

Headquarters, Army Ground Forces, in response to the pressure for reorganization of liaison planes into divisional flights, proposed to meet the need of higher ground headquarters for more liaison planes by incorporating additional AGF planes in corps, army, and theater headquarters. It proposed to meet the need for better supervision by

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22. Memo of Gen McNair for CofS USA, 28 Dec 43, sub: FA Ln Aviation. 353/35 (FA Air Obsn)(S).

23. (1) FAS ltr to CG AGF, 9 Oct 43, sub: Suggested Reorgn of Ln Aviation for Gnd Force Units. 353/29 (FA Air Obsn)(S). (2) Capt James Edmons, "Notes on Artillery Air Observation," Field Artillery Journal, 1943, XXXIII, 893-6. (3) As early as January 1943 Hq AGF had disapproved a Training Circular, prepared at Fort Sill, which countenanced the concentration of the planes of a division on one field to facilitate maintenance and "certain types of training." AGF 1st ind to Comdt FAS, 29 Jan 43. 353/19 (FA Air Obsn)(R). (4) Memo of Mr. McCloy for Gen McNair, 4 Jul 43. 353/342 (FA Air Obsn).

24. (1) M/S, G-3 to CofS AGF, 20 Dec 43. 353/35 (FA Air Obsn)(S). (2) The WD proposed organization by flights in memo WDGCT 452.1 (27 Nov 43) for the CG AGF, 3 Sec 43, sub: FA Liaison Avn. 353/35 (FA Air Obsn)(S). (3) For AGF action see the following: AGF memo for CofS USA, 6 Oct 43, sub: Aviation for Ground Force Use. 353/29 (FA Air Obsn)(S). AGF memo for Col Beckley, AGF representatives on WD Communications Coordination Committee, 8 Nov 43, sub: Messenger Aircraft. 353/29 (FA Air Obsn)(S). AGF memo for CofS USA, 30 Nov 43, sub: L-4 and L-5 Aircraft (Supplied to NATO). 353/20 (FA Air Obsn)(S). AGF memo for CofS USA, 28 Dec 43, sub: FA Ln Aviation. 353/35 (FA Air Obsn)(S).

25. (1) AAF ltr 20-1 to CGs and COs AAF, 15 Nov 43, sub: Orgn and Employment of the Elements of the Tactical Air Force, with attached charts. 353/111 (Air-Gnd)(S). (2) AAF memo for CofS USA, 29 Jan 44, sub: Ln Aircraft in the AGF. 353/102 (FA Air Obsn)(S).

including one pilot, in the grade of major, in the field artillery headquarters of all types of divisions, of corps, and of field artillery brigades and groups.[26]

On 4 January 1944 the War Department reached a decision. Declaring that although it still favored the organization of a single field artillery flight within each division, it deferred to General McNair's views. To obtain better supervision, it approved his proposal to add a field artillery liaison pilot, in the grade of major, to each headquarters and headquarters battery of division and corps artillery, and each field artillery group and brigade. It further recommended the addition of one to army headquarters, in a grade not higher than lieutenant colonel, who, besides exercising "supervisory functions within the army," would act as liaison officer with AAF agencies "in connection with organic air observation for Field Artillery." This addition was made. The War Department approved a training circular (No. 132, published 14 December 1943) which was prepared by Army Ground Forces to improve flying discipline, enforcement of safety regulations, and the use and maintenance of planes. Further to improve maintenance, the War Department directed the organization of an Air Depot, Army, to perform third echelon maintenance on liaison-type planes, and to act as the medium for providing air technical supplies. These depots were organized and equipped by the Army Air Forces and the arrangement worked well. Finally, to improve medical care of artillery pilots, the War Department placed them under the supervision of the flight surgeon at the nearest AAF station. With reference to the main problem, the need of ground headquarters for additional liaison planes, the War Department directed that they were to be supplied, not by an increase of those organic in ground forces, but by AAF liaison squadrons, which, it stated the Army Air Forces were prepared to ship to theaters on the basis of one to each army.[27]

THE PROBLEM OF A SUITABLE FIELD ARTILLERY AIRPLANE

The difficulties that arose between the Army Ground Forces and the Army Air Forces over the organization and control of liaison aviation in 1943 were complicated by the question of what type of plane was to be used by the Ground Forces. The plane used to adjust artillery fire in the 1941 maneuvers can be characterized as a field expedient. It was a "cub" (with a 65 h.p.engine), designed for civilian use, and procured directly from the producer, the Piper Corporation, on a loan basis. Its Army designation was L-4. The Army Air Forces adopted, as its liaison plane, the L-5, a Stinson-Vultee product with a much more powerful engine (180 h.p.). The War Department directive of 6 June 1942 stipulated that the Army Air Forces should supply the Army Ground Forces with "commercial low performance aircraft of the 'Piper' cub type." To take care of the rapid expansion of organic aviation for Field Artillery, in competition with other demands for lighter planes, other types than the L-4 having the same horsepower, namely, L-2's (Taylorcraft) and L-3's (Aeronca), were supplied to ground units in large quantities, together with as many L-4's as, in the opinion of the War Department, could

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26. (1) Par 3, AGF memo for CofS USA, 6 Oct 43, sub: Ln Aviation for Ground Force Use. 353/29 (FA Air Obsn)(S). (2) AGF memo for CofS USA, 17 Nov 43, sub: Air Officers for FA Hq. 320.3/171 (FA). (3) As early as May 1943 officers from the Department of Air Training, FAS, were detailed to AGF units in training to assist unit commanders with indoctrination and inspections. Hq AGF ltr to CGs, 25 May 43, sub: FA Air Officers. 353/309 (FA Air Obsn).

27. (1) WD memo WDGCT 360 (5 Sep 43) for CGs AAF and AGF, 31 Dec 43, sub: Ln Aviation for AGF Use. 353/45 (FA Air Obsn)(C). (2) WD memo WDGCT 452.1 (4 Jan 44) for CG AGF, 4 Jan 44, sub: Organic Air Obsn for FA. 353/403 (FA Air Obsn). In this file will be found the recommendations of AGF for the improvement of medical supervision of FA pilots, and the final action of the WD, which was to make it a responsibility of the Flight Surgeon of the nearest AAF unit.

be spared. The Army Ground Forces estimated in January that it would require, to the end of 1943, a total of 2,508 light planes.[28]

From the beginning the Army Ground Forces felt a decided preference for the L-4, and only a few of any other type were ever shipped to ground units overseas.[29] Strongly urged by the Field Artillery School, Headquarters, Army Ground Forces, recommended on 7 May 1943 that the L-4 be substituted for the L-2 as the standard type for Field Artillery, and that no more L-2's or L-3's be supplied after the current production scheduled was completed. The War Department did not approve, merely informing the Army Air Forces of the preference of Army Ground Forces.[30] Meanwhile, the L-2 had been producing calamitous results at Fort Sill. Up to 17 July 1943 six fliers were killed because the L-2 tended to "spin in" when maneuvered at the low altitudes at which field artillery observers had to fly, and the Commandant grounded all L-2's at the Field Artillery School. Notwithstanding this record, General McNair did not renew his request for L-4's, but laid the facts before the War Department General Staff and Mr. McCloy, recommending that the allotment of L-4's to AGF units be increased as rapidly as possible.[31]

Except for the shortage of L-4's, no difficulty arose regarding the equipment of the Field Artillery with planes, until the desire for a different type of plane began to be pressed by ground force commanders. As early as November 1942 the Commandant of the Field Artillery School invited attention to indications that the L-5, the liaison plane used by the Air Forces, might be preferable to the L-4. The Field Artillery School asked for, and obtained, some of these planes for testing, particularly with reference to the need of airborne divisions for an organic plane fast enough to keep up

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28. "The Joint Aircraft Committee originally desired all puddle-jumper production to be cut out, but when the requirements were stated, they appeared so great that it was decided to continue the scheduled production." It was estimated in January 1943 that there would be a maximum of 5,000 light planes to distribute during 1943. Other demands for light planes came from the British, the Office of Strategic Services, the State Department, the Office of the Coordinator of Inter-American Affairs, and from the Army Air Forces, which used light planes other than the L-5 for liaison and trip purposes in the United States. The requirements of AAF entered the picture at another angle because the bottleneck of production was the scarcity of materials used on constructing all types of planes, and the production of L-5's was given a higher priority than that of L-2's, L-3's, and L-4's. Minutes of the A-4 Meeting on Proposed Distribution of 1943 Production of Liaison Airplanes, 4 Jan 43. 452.1/45 (Airplanes)(C).

29. (1) Ibid. (2) Interview of Hist Off with Maj Adkission, FA Obsn off, Air Support Br, G-3 AGF, 8 Nov 44.

30. (1) AGF memo to CofS USA, 7 May 43, sub: Types of Airplanes for FA Use. 353/300 (FA Air Obsn). (2) FAS ltr to CG AGF, 29 Nov 42, sub: Exchange of Aircraft. 353/257 (FA Air Obsn). (3) FAS ltr to CG AGF, 8 Apr 43, sub: Types of Airplanes for FA Use. 353/25 (FA Air Obsn)(C). (4) WD memos to CG AGF and CG AAF, 5 Jun 43. 353/300 (FA Air Obsn).

31. (1) AGF M/S, G-3 to CofS, 15 Jul 43. 353/300 (FA Air Obsn). (2) Urgent telegram, FAS to CG R&C, [illegible] Jul 43. 353/25 (FA Air Obsn)(C). (3) Priority telegram, CG AGF to CG R&C, [illegible] Jul 43, ordering the resumption of training with L-2's, except "low and slow flying." 353/345 (FA Air Obsn). (4) AGF memos for G-3 and G-4 WDGS, CG AAF, and Mr. McCloy, 20 Jul 43, sub: Types of Airplanes for FA Use. 353/300 (FA Air Obsn).

with airborne movements. In the North African Theater of Operations, ground units in action began to ask for L-5's, having found that the L-4 did not have a high enough ceiling for use in mountainous terrain.[32] Undoubtedly the L-5 was more suitable for messenger and liaison service. But a shift to more powerful planes would threaten the stability, not only of the procurement program, but also of the training program at Fort Sill, since it was necessary to train pilots on the type of plane with which they would find units in the field equipped, and therefore it was desirable to have a single type used in the interest of shortening the course of instruction. Anxious about the opposition of the Army Air Forces to its program and the influences of the Air Forces with the War Department, Headquarters, Army Ground Forces, saw another issue involved in the question. As has been indicated, Army Ground Forces, in the summer and fall of 1943, was defending organic liaison aviation against criticism which was believed to be inspired by the Army Air Forces. It was felt at Headquarters, Army Ground Forces, that to recommend the adoption of the L-5, the plane with which the Army Air Forces was equipping its liaison squadrons, would play into the hands of the Army Air Forces by strengthening the argument for the consolidation of all liaison aviation under AAF control.[33] Another fact to be considered in this connection was that from the beginning the inexpensiveness of the equipment required had been emphasized in arguments for organic liaison planes. Expensive equipment would render the program more vulnerable to attack.[34]

Army Ground Forces stood by its request for L-4's, and this was the plane which the War Department presently approved as standard for organic Field Artillery observation.[35] Theater requests for the L-5 were disapproved by Headquarters, Army Ground Forces, on the ground that it required more room for take-off and was less maneuverable in achieving evasion. To meet the requests for L-5's from ground units in the North African Theater of Operations, it was pointed out that the L-5 had been used only in

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32. (1) Par 7, FAS ltr to CG R&SC, 29 Nov 43, sub: Exchange of Aircraft. 353/257 (FA Air Obsn). (2) Algiers to War, 2 Aug 43 (Radio file, AGF, CM-IN-1130; same to same, 16 Sep 43 (ibid, CM-IN-12612): paraphrased cable W2633, 16 Oct 43 (ibid, CM-IN-9746).

33. AGF M/S, G-3 to CG AGF, 18 Oct 43. 353/20 (FA Air Obsn)(S).

34. (1) Par b (2), Conclusions of CG 13th FA Brigade, on Report of Service Tests of Organic Air Observation, 1st ind of CG II Army Corps, 25 Apr 42, on GHQ ltr, 322.082/5(C)-H(28 Feb 42). Incl I, 353/1 (FA Air Obsn)(R). (2) Par 3 c, WD memo WDGCT 452.1 (29 Jan 44) for CofS USA, 7 Feb 44, sub: Aircraft in the Army Ground Forces. Economy is represented as one of the desirable features of the program. 353/102 (FA Air Obsn)(S).

35. (1) Par 6, AGF memo for CofS USA, 6 Oct 43, sub: Avn for Ground Forces Use. 353/29 (FA Air Obsn)(S). (2) On 14 Jul 43 AAF informed AGF that the Munitions Assignment Board had allocated all L-4 production for the rest of 1943 to AGF for FA units. AAF ltr to CG AGF, 14 Jul 43, sub: Asgmt of L-4 Type Airplanes from Production. 453.1/569 (Airplanes). (3) As the result of action initiated by G-3 WD, the Joint Aircraft Committee in 1943 (Case No. 200) allocated the entire production of L-4's to the ground forces. Par 3 b, WD memo WDGCT 452.1 (2 Nov 43) for ACofS, G-4 WD, 8 Nov 43, sub: L-4 and L-5 Aircraft (supplied to NATO). 353/20 (FA Air Obsn)(S). (4) In January 1944 the War Department was still unwilling to order the substitution of L-4's for L-2's and L-3's in the Army Ground Forces. Minutes of Conference in the WD 25 Jan 44, sub: FA Ln Type Planes. 353/101 (FA Air Obsn)(C). (5) By 31 October 1944 all but 67 of the 672 airplanes in AGF units were L-4's. AGF ltr to CG AAF, 19 Nov 44, sub: Status of Ln Aircraft in AGF. 452.1/121(R).

exceptionally rugged country, where normally a high-powered plane was to be preferred. It was recommended that forty L-5's be sent to NATO to meet the urgent requests of that theater.[36]

In 1943 another question of equipment arose from the desire to install additional instruments in the cub plane. The failure of the Army Air Forces to provide photographic reconnaissance for ground units fighting in the North African theater in 1943 led to the mounting of cameras in artillery cubs to make terrain photographs. The 1st Division found them "invaluable," and recommended that the T/BA of divisional artillery headquarters be amended to include cameras and developing facilities. Headquarters, NATOUSA, approved but, following the recommendation of the Seventh Army, proposed to the War Department that the equipment be given the division signal company. The Field Artillery Board had made a test of photographic equipment in its cub airplanes, and the Army Ground Forces, on receiving the theater request, recommended on 23 November 1943 that the equipment which the Board had found satisfactory be incorporated in the T/O&E's of field artillery headquarters and headquarters batteries.[37] The Army Air Forces nonconcurred, stating that photo-reconnaissance units were trained and equipped to meet the requirements of the infantry division as to time, quantity, and quality.[38] The War Department on 10 February 1944 accepted this view, adding that the new Army Air Forces liaison squadrons contained facilities of the kind requested and could be used to meet the need. The Army Ground Forces proposal was disapproved as representing a "trend toward the abandonment of the original concept of Artillery 'Air OP's' by expanding liaison aviation, complicating its equipment.[39]

RENEWED EFFORT OF THE ARMY AIR FORCES TO RECAPTURE ARTILLERY AVIATION, 1944

From July 1943 to January 1944 the Army Ground Forces had defended the organization of its artillery aviation against a strong effort to change it and was upheld by the action of the War Department on 4 January 1944. The belief at AGF headquarters that the active opposition of the Army Air Forces was behind that effort was confirmed on 29 January 1944 when General Arnold, in a personally signed memorandum for the Chief of Staff, made an all-out attack on organic field artillery air observation. He attacked it as over-extended, wasteful of resources, and unsound in principle. He renewed and elaborated the arguments previously advanced for the control of all liaison aviation by the Army Air Forces.[40]

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36. Par 2, AGF memo for CofS USA, 30 Nov 44, sub: L-4 and L-5 Aircraft. The War Department, nevertheless, refused the request of NATO, which renewed the request as "very urgent," by radio, Algiers to WAR, 24 Dec 43. Both in 353/20 (FA Air Obsn)(S).

37. AGF ltr to CG AAF, thru CG AGF, 23 Nov 43, sub: Photographic Equipment for Airplanes in FA. 320.3/160 (FA).

38. The review of the correspondence is based on file copy of AGF ltr to CSigO, thru CG AGF, 12 Dec 43, sub: Amendment of T/BA (TO&E) for FA Liaison Airplanes. 413.53/50.

39. WD memo WDGCT 319.1 (24 Mar 43) for CG AGF, 10 Feb 44, sub: Report of Test of Oblique Photography. 353/102 (FA Air Obsn)(S).

40. AAF memo for CofS USA, 29 Jan 44, sub: Ln Aircraft in the AGF, 353/102 (FA Air Obsn)(S).

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40. AAF memo for CofS USA, 29 Jan 44, sub: Ln Aircraft in the AGF, 353/102 (FA Air Obsn)(S).

General McNair replied:[41]

1. The present system of field artillery air observation was adopted by the War Department over the opposition of the Army Air Forces. The matter has been in controversy intermittently since then. . . .

2. The basic memorandum contains a number of debatable statements. However, the main issue really is satisfactory air observation for field artillery. The present system is outstandingly successful--one of the remarkable developments in connection with the effective artillery support which is being given the infantry in all theaters. On the other hand, field artillery air observation by the air forces has been unsatisfactory since the advent of military aviation. There is abundant reason to doubt that the results would be otherwise if this task were returned to the air forces now. Especially would it be hazardous to make so radical a change at this particular time. The cost of liaison aviation, regardless of who mans it, is microscopically small as compared with the cost of the air forces as a whole, and is hardly a material factor in the discussion.

3. It is recommended that there be no change in the present system of field artillery air observation.

General Arnold's memorandum of 29 January 1944 precipitated a final showdown on the organization, control, and equipment of liaison aviation, which was based on a review and recommendations made by G-3, War Department, on 7 February 1944. G-3 recommended that the policy of continuing the existing system of "Air OP's" for field artillery be reaffirmed, accepting as conclusive the contention of Army Ground Forces that organic assignment to field artillery units resulted in "an efficient team with a common purpose," the reports that it had produced "excellent results in battle," and the fact that it was desired, not only by General McNair but also, with one exception (South Pacific), by the theater commanders. G-3 feared that if artillery liaison was made a responsibility of the Army Air Forces, "it would be placed in low priority like reconnaissance." On the other hand, G-3 firmly opposed expansion of ground organic aviation. It opposed, as tending to expansion of the program, not only the mounting of cameras and other accessories in cub planes, but proposals to change the type of plane, which were attributed, in part at least, to the attempt in NATO to use the L-4 "to supply troops by air and otherwise overload it." G-3 recognized the fact that the needs of ground forces in combat for reconnaissance and photographic service had not been covered effectively. It also noted that the Air Forces had proposed, and had been authorized in May 1943, to organize one or more liaison flights. The Air Forces had also been directed to test such flights in maneuvers as a means of providing liaison service to AGF units, but had made no report of such a test. G-3 recommended, nevertheless, that the Army Air Forces remain responsible for providing "general liaison messenger and courier service" by means of liaison squadrons, which "are now being shipped overseas for this purpose." It hoped that when they arrived they would relieve the pressure that was diverting the cubs of the artillery from their primary mission.[42]

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41. Memo of Gen McNair for CofS USA, 16 Feb 44, sub: Ln Aircraft in the AGF. 353/102 (FA Air Obsn)(S).

42. WD memo WDGCT 452.1 (29 Jan 44, for CofS USA, 7 Feb 44, sub: Ln Aircraft in the AGF. 353/102 (FA Air Obsn)(S).

On 28 March General Arnold was informed of the rejection of his proposal. But he was notified that he might resubmit it if "an expanded program" should be adopted in the future. His responsibilities regarding the supply and maintenance of airplanes and equipment were "re-established," on the basis of War Department Circular No. 59, 2 March 1942 and the instructions regarding the organic aviation program contained in the initial War Department directive of 6 June 1942.[43]

The ground forces, accordingly, entered on their major effort, beginning with 6 June 1944, equipped for artillery observation and incidental liaison service with the L-4's in their artillery units as organized in 1943 and administratively strengthened in the spring of 1944, and dependent for liaison service on the squadrons of L-5's allocated by the Army Air Forces on the basis of one squadron (32 planes) for each field army.

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43. WD memo WDGCT 452.1 (28 Mar 44) for CG AAF, 28 Mar 44, sub: Ln Aircraft in the AGF. 353/102 (FA Air Obsn)(S). Par 4, regarding responsibilities for aviation equipment of ground units, was necessary because on 1 Mar 43 some of these had been transferred to the CG AGF. This action was directed in WD memo W700-5-43, 18 Jan 43, sub: Supply of Air Corps Equipt to AGF Units Within the Continental Limits of the U.S. and implemented by WD memo S700-4-43, 31 Jan 43, same sub. 475/46 (Air Corps).

Chapter VII

PRACTICAL STEPS TOWARD AIR-GROUND COOPERATION

In the critical period of approach to the great air-ground effort of the Army which was launched with the invasion of Normandy on 6 June 1944, the Army Air Forces and the Army Ground Forces had pulled apart. The gap between them had been widened by various developments, notably the failure of the air-ground training effort of the Army Ground Forces in 1942, the reaction of ground commanders to the deficiencies of air reconnaissance and direct support in Africa and Sicily, the declaration of FM 100-20, the reorganization of the Army Air Forces, the concentration of the Air Forces on high performance equipment, and its attempts to recapture organic field artillery air observation. On the other hand, substantial progress in methods of cooperation and mutual understanding was being made. It was growing out of the efforts of airmen and ground troops and their commanders working together in the field, at home and abroad. This was notably true in Italy, where effective air-ground cooperation developed through a practical approach to common problems. This was the approach on which General McNair had consistently insisted and it was beginning to pay dividends.

The practical problems of air-ground cooperation turned on relative speed of movement. The Army Air Forces, intent on distant objectives, concentrated on designing and procuring speedier, more powerful planes. The speed of airplanes made it extremely difficult for fliers to recognize either friendly ground troops or targets on the ground. Their speed made it difficult for troops on the ground to distinguish hostile from friendly planes in time to protect themselves by firing on the former and to avoid firing on the latter. Again, the speed of the plane, which gave aviation its unique strategic and tactical flexibility, made coordination with the movement of ground troops difficult and made communication between air and ground vitally important, not only as a means of avoiding errors but also of speeding up generally coordination of air and ground movements and increasing the mobility of ground forces.

RECOGNIZATION AND IDENTIFICATION

If air and ground units were to operate in the same area, mutual recognition and identification were obviously necessary to avoid mutual infliction of damage. If they were to work together on the offensive, means had to be perfected for the rapid communication of messages between them by signals or by radio. Mutual identification, as distinguished from visual recognition, required the use of signals, so that success in identification and cooperation both depended on the development of special techniques and equipment and on mastery of their employment by both air and ground personnel.

When the U.S. Army went into combat, both air and ground forces showed an alarming incapacity to recognize and identify each other. Reports of observers and participants throughout 1943 left no doubt that on the battlefields of Tunisia, Sicily, and Italy, American airmen and ground troops were repeatedly attacking each other blindly. There were two ways to restrict the damage: by improvement of training and of the means of mutual identification or by limiting contact. Both means were tried. The second had the grave disadvantage of still further contracting the range of familiarization and common experience.

General McNair called the attention of the War Department and General Arnold to the fact that U.S. airplanes were bombing American troops. But it was equally clear, as General McNair freely admitted, that U.S. ground troops were damaging American airplanes.[1]

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1. (1) Par 12 d, memo of Gen McNair for CofS USA, 23 Mar 43, sub: Combined Air-Gnd Training. 353/5 (Air-Gnd)(S). (2) Personal ltr of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd)(S)

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In the early stages of the North African campaign, the ground troops were frequently exposed to attack by German planes. Not unnaturally they developed "itchy fingers," and when an airplane suddenly flew over them or came at them out of the sun they fired. Experience in Africa showed that potshooting at planes with ground arms was surprisingly effective.[2] It heightened the self-confidence of ground troops--a most desirable consummation. But combined with inability to distinguish friend from foe, it put friendly planes in heightened danger. General Arnold was so exercised about the matter that on 2 June 1943 he made it the subject of a personal letter to General McNair. American troops, he wrote, were not learning recognition, and he expressed the wish that they should not only be trained in recognition and fire control, but should have instilled in them "the belief that the unknown plane is always one of ours." General McNair, acknowledging the facts as substantiated by the reports of ground observers, replied that adoption of General Arnold's proposal would be extremely hazardous unless overwhelming air superiority had been achieved, as it had not been in the earlier phases of the Tunisian campaign. He proposed as an alternative that "a rule be adopted and applied in training to the effect that troops will not fire on any aircraft unless it either attacks with bombs or gunfire or threatens such an attack, or is clearly recognized as hostile by silhouette or markings." He suggested on the other hand that U.S. planes be confined to flight on canalized routes and directed to avoid flying over friendly troops.[3] Both of these restrictive measures were directed by the War Department.[4] In addition the Army Air Forces put more easily recognized markings on its planes, as General McNair had suggested in his letter of 15 June.

Army Ground Forces attacked the problem of recognition and identification along two lines. It enforced training by applying to its own units tests which were devoted largely to these matters. It also sought, in the experience of its units in training and those in combat, a basis for improving means and techniques of mutual identification, with a view to the problems of effective cooperation as well as those of recognition. If cooperation, and not merely mutual avoidance, was to be achieved, means had to be developed by which air and ground forces could not only identify each other but also more promptly communicate to each other positions, desires, intentions, and findings. By means of the dual communication nets set up as standard by FM 31-35, ground and air commands could communicate plans, requests, and orders, and through the airdrome the air commander could talk by radio with planes in the air. Still lacking were reliable and adequate means of communication between planes in the air and ground units in the front line. The development of such means was rudimentary in 1943.

Under the AGF Training Directive effective 1 November 1942 all ground troops were taught what the principal types of U.S. and enemy planes looked like by means of photographs, silhouettes, film strips, models, and the descriptions and illustrations in the Training Bulletins of the Air-Ground Series prepared by the Infantry School. Such instruction was enforced by the AGF Air-Ground Tests, effective after 1 May 1943, two of which (I and III) were mainly concerned with recognition and identification. With the

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2. Report of Maj Gen Lloyd R. Fredendall (S), 10 Mar 43, sub: Notes on Recent Operations on the Tunisian Front. Copy in 353/16 (Air-Gnd)(S).

3. (1) Pers ltrs of Gen Arnold to Gen McNair, 2 Jun 43, and of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd)(S). (2) In May AGF requested AAF to adopt the last named measure. See AGF ltr to CG AAF, 25 May 43, sub: Manner of Flying Friendly Airplanes over Own Troops. 353/19 (Air-Gnd)(S).

4. WD memo WDGCT 452.1 (28 Aug 43) for CGs AGF, AAF, and ASF, 10 Sep 43, sub: Air-Gnd Training and Operations. 353/10 (Air-Gnd)(C).

tests were issued full instructions regarding existing means of identification and signalling and their employment, and a detailed model of Signal Operating Instructions. To judge by the high scores ground units made on the tests it would seem that ground troops and commanders learned what they were taught. But this was little more than a preparation for learning faster when they saw planes in the sky. Descriptions, silhouettes, and pictures could not teach them how a plane "sits" in the air or otherwise behaves in flight.[5] Pointing this out to General Arnold in June, General McNair suggested demonstration flights; and the Army Air Forces consequently organized and operated the "air circus" previously described, which stimulated interest and was believed to have improved training.[6] To give the troops more experience in seeing U.S. planes, it was further arranged that AAF planes on their own errands should be routed, as far as practicable, over troops in training.[7]

DEVELOPING MEANS OF COMMUNICATION

The visual signals whose use was prescribed in the AGF Air-Ground Tests, both for mutual identification and for combined air-ground action, were panels, lights, pyrotechnics, smoke, preconcerted arrangements of vehicles, and prearranged motions of planes in flight. It was believed that by the use of these, singly or in combination, on the basis of carefully prepared Signal Operating Instructions, front lines could be marked, air targets marked or indicated by ground units, and simple conventional messages exchanged. Examples would be such messages as "I am friendly," conveyed by pyrotechnics, lights, plane maneuvers, or smoke; or "enemy mortars 300 yards in this direction," conveyed by panels arranged to indicate direction and distance. Smoke, besides being used for signalling, was to be laid to mark front lines, and fired from grenade launchers, mortars, or artillery, to mark a panel display or indicate the direction of targets. White panels having been found to have limited visibility at high altitudes, fluorescent panels in white, cerise, and yellow were issued. Smoke was issued in five colors to provide a variety of signals and to contrast with battle smoke and terrain coloration.[8] In 1943 radar had begun to promise practical results in enabling pilots to plot locations on the ground, and on 15 April 1943 Army Ground Forces requested that units of existing equipment be made available to the Infantry Board and Armored Force Board for testing with that end in view.[9] By 1943 two-way talk between front-line units and planes in the air by radio was practicable, but communication by this means had not been established.

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5. This point was emphasized by Col H. V. Dexter, AGF special observer, in par 94 of his Report of Visit to the North African Theater of Operations, distributed at Hq AGF on 11 Jun 43. 319.1/21 (Foreign Obsvrs)(C).

6. (1) Pers ltr of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd)(S). (2) On the AGF Air-Ground Tests and the AAF "flying circus," see above, Chap IV.

7. AGF Weekly Directive No 23, 8 Jun 43.

8. Par 1, AGF 4th ind to CG AAF, 18 Apr 43, on AAF ltr to CG IV Air Support Command, 10 Feb 43, sub: Air-Gnd Communications. 353/13 (Air-Gnd)(S).

9. (1) AGF ltr to CG ASF, 15 Apr 43, sub: Use of "Eureka" and "Rebecca" in Air-Gnd Mutual Identification and Recognition. 353/7 (Air-Gnd)(S). (2) Gen McNair himself believed that "further developments in radar may furnish the answer to the entire problem." Pers ltr of Gen McNair to Gen Arnold, 15 Jun 43. 353/19 (Air-Gnd)(S).

Army Ground Forces hoped for enough combined air-ground action in training not only to train both ground troops and pilots in the use of existing means, but also to provide tests of these means with a view to improvement and the development of rules and procedures which the War Department could standardize for use in combat. With the same object it scrutinized the reports of its observers overseas and of ground commanders in Africa, Sicily and Italy.

All visual signals from ground to air, and particularly panels and markings on vehicles, were subject to the difficulty of being seen or read accurately from planes flying at high speeds. The Army Air Forces met the effort of the Army Ground Forces to develop such signals with apparent indifference. Army Ground Forces reported to the War Department that in the course on air support at the AAF School of Applied Tactics "ground signals were covered somewhat as follows: 'The Ground Forces use smoke, pyrotechnics, and panels. So far none of them work very well.'"[10] The reports of AGF units taking the air-ground tests made available a body of experience which was far from complete or conclusive because of the lack of adequate air support and delay in the issue of the latest signal equipment. But is was the most extensive and instructive that had been obtained. The experience of units in the Second Army and those under the Desert Training Center, where special tests in signalling were conducted in March 1943, were especially valuable.[11] At least this experience showed that, when the cooperation of sympathetic fliers was available, fluorescent panels and colored smoke had been used effectively, while available pyrotechnic signals were relatively ineffective; and the view of Headquarters, Army Ground Forces, was confirmed that if given a fair trial by both parties the methods in use could be developed with good results. Reports from overseas, except as they stressed the urgent and critical need for development, were less instructive because there was so little close-in cooperation between air and ground units in Tunisia, Sicily, and the first phases of the campaign in Italy.[12]

By the fall of 1943 Army Ground Forces was convinced that pyrotechnics and the maneuvering of planes were unsatisfactory as methods of signalling, but that panels and

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10. Par 15, AGF memo for CofS USA, 17 May 43, sub: Gen Montgomery's Notes on High Command in War. 353/16 (Air-Gnd)(S).

11. (1) For Second Army, see ltr of Maneuver Director, Second Army to CG AGF, 2 Jul 43, sub: Report of Air Support for Maneuvers. This was forwarded to the AAF with AGF ltr to CG AAF, 13 Jul 43, sub: Report of Air Support for Maneuvers of Second Army. 354.2/31 (Tenn '43)(R). (2) For DTC, see AAF ltr to CG IV Air Support Command, 10 Feb 43, with 6 inds, sub: Air-Ground Communications. 353/13 (Air-Gnd)(S).

12. (1) The most thorough and systematic report on the subject is that of Col H. V. Dexter, distributed at Hq AGF on 11 Jun 43, on operations in NATO, 18 Feb-26 Apr 43, Sec VI, pars 94-118. 319.1/21 (For Obsvrs)(C). (2) See also: Par a, Air, in Gen Fredendall's Notes on Recent Operations on the Tunisian Front, 10 Mar 43, in 314.7 (AGF Hist); notes on lecture of Gen Kuter, Dep Comdr, NATAF, 25 May 43, in Air Support Br, G-3 AGF, files; statements of Col Hamilton, 45th Inf Div, 22 Jul 43, in extra s from Obsvrs Rpts, in 319.1/90 (For Obsvrs)(S); statements of Gen Patton, Incl 1 to AGF ltr to CG AAF, 17 Aug 43, in 353/10 (Air-Gnd)(C); Hq Seventh Army's Notes on the Sicilian Campaign, 8 Oct 43, in 353/36 (Air-Gnd)(S); Radio, Caribbean Defense Command to CofS USA, 26 Oct 43, in 319.1/80 (For Obsvrs)(S); Radio, Algiers to WAR, 4 Nov 43, in CM-IN-2097; statement of Maj Gen Troy Middleton, CG 45th Inf Div, to AGF Bd, in Rpt No 86 of AGF Bd, NATO, 1 Dec 43, in 319.1 (NATO)(S); Report of Sig O, 25th Inf Div, on Guadalcanal (extract), Foreign Obsvrs Rpts, 10 Nov 43, in 353/36 (Air-Gnd)(S).

colored smoke could be used effectively, and that the development of smokes or fluorescent dust for airplane signals should be pressed.[13] On the basis of the data available by mid-October the War Department concluded that experimentation with signals in the field should continue with emphasis on "the use of bomb safety lines, phase lines and the employment of smoke and artillery fire"; it stated that panels might be used "under certain conditions," but that "the transmission of long messages by this means would be most difficult in view of the high speed of modern aircraft." It agreed with the Army Ground Forces that "development, production and distribution of more highly visible and more persistent air to ground (and ground to air) visual signals should be expedited."[14] The test and development of visual signals from aircraft had been referred to the AAF Board at Orlando. In December, at the suggestion of the Army Air Forces, an AGF officer was sent to Orlando to assist in coordinating the whole matter of air-ground visual communication for which the AAF Board had been made responsible.[15] By V-E Day no results had been achieved by the efforts of the Board.

The best means of direct communication between ground units and planes in the air was two-way talk by radio. Here the obstacles to cooperation were partly technical, partly organizational. The technical difficulty was to develop radio sets for air and ground units which would satisfy the primary requirements of each and which could at the same time intercommunicate. The organizational difficulty was the aversion of the Army Air Forces to having directions of any kind given to pilots except by air commanders. This meant, in practice, that all messages had to go through the communication and command nets which had been prescribed in FM 31-35 to preserve the principle of equality between air and ground.[16] One result was loss of time and flexibility in fast-moving and critical situations. The sluggish operation of the existing system in combat led to pressure from ground commanders for the assignment of air to their command. This in turn intensified the insistence of air on its autonomy.

One condition obviously necessary and precedent to getting quick reactions was to have forward ground elements equipped with radio sets through which they could communicate directly with supporting planes. Armored commanders, particularly sensitive to the demands of fast changing situations on the battlefield, were especially interested.

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13. (1) Pars 3 c and 4 d, AGF memo for CofS USA, 28 Sep 43, sub: Air-Gnd Training and Operations. 353/20 (Air-Gnd)(C). (2) Par 2, AGF Weekly Directive No 31, 3 Aug 43.

14. (1) Pars 3 b and c, WD memo WDGCT 452.1 (28 Aug 43) for CGs AGF and AAF, 16 Oct 43, sub: Air-Ground Training and Operations. 353/10 (Air-Gnd)(C). (2) Concentrated effort on the whole matter by the two commands was directed by WD memo WDGCT 452.1 (18 Nov 43) for CGs AGF and AAF, 18 Nov 43, sub: Air-Ground Training and Operations. 353/342 (Air-Gnd).

15. (1) AAF 2nd ind to CG AGF, 10 Dec 43, on ltr cited in n. 14 (2) above. 353/37 (Air-Gnd)(S). (2) For AAF directive to AAF Bd, 21 Dec 43, see 353/100 (Air-Gnd)(S).

16. Memo of Communications Coordination Committee for CG AGF, attn Col D. F. McBride, 19 Dec 43. 353/419 (Air-Gnd).

The technical problem was greatly complicated by the fact that in 1943, without previously notifying the Army Ground Forces,[17] the Army Air Forces equipped its planes with Very High Frequency (VHF) sets (SCR-542, etc.), which could not communicate directly with any of the sets that were standard for ground commands. Communication except through the air support commander and the airdrome was effectually blocked.

The impetus to finding a way through this barrier was given by a radiogram from Allied Force Headquarters, North African theater, on 31 January 1943, forwarding for action a suggestion of Maj. Gen. Ernest N. Harmon, commanding the 2d Armored Division.[18] General Harmon asked for an immediate solution of the problem of communication between support planes and forward armored elements. He urged that such units be provided with SCR-522 sets. American experience in North Africa had shown that when air support was available it was taking front-line units, using existing channels, approximately two hours to get it. There was reason to believe that if they were provided with VHF sets the time-lag could be cut "to a few minutes."[19] Army Ground Forces immediately had the Armored Force test the practicability of installing SCR-522 sets in medium tanks, with the object of using tanks thus equipped "in armored spearheads so that . . . personnel can call for prompt air support."[20] When the test showed that the SCR-522, primarily designed for aircraft, was, because of its fragility, far from ideal for the purpose but that installation of radio sets of the general type in tanks presented no problems, Operations Division, on the recommendation of Army Ground Forces, flew eighteen sets by plane to North Africa. Army Ground Forces suggested that to overcome the defect of SCR-522, namely, its "line-of-sight" characteristic, for the purpose in view, a plane could be put on air alert above threatened units to relay calls to supporting aviation.[21]

The air-ground communications authorized in FM 31-35 provided no radio sets farther forward than the air parties with divisions, or, in exceptional cases, with armored regiments. The actions just described precipitated the question of providing all forward ground elements with at least the physical means of communicating directly with cooperating planes. Army Air Forces, acting promptly, instructed the IV Air Support Command, operating in support of the Desert Training Center, to conduct tests of direct communication by radio, as well as by visual signals. Army Ground Forces fully concurred.[22] On 14 April G-4 of the War Department General Staff, acting on a report of the Army Communications Board, recommended that the SCR-522 be mounted in vehicles which would operate with all forward ground units and that Army Ground Forces provide

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17. AGF M/S, G-3 to G-4 and CofS, 6 May 43. 353/13 (Air-Gnd) (S).

18. Radio, Algiers to WAR (C), 31 Jan 43, sub: Air-Ground Communication. CM-IN-0007.

19. Memo of Col V.B.W. Wales for Chief of Reqts Sec, AGF, 12 Feb 43, no sub. 353/9 (Air-Gnd)(C).

20. AGF M/S, Reqts to Sig, 9 Feb 43. 353/7 (Air-Gnd)(C).

21. Armored Force ltr to CG AGF, 27 Feb 43, and AGF 1st and 2nd inds, 6 and 9 Mar 43, sub: Installation of Radio Set SCR-522 in Medium Tanks M3 and M4 and Half-Track M2. 353/7 (Air-Gnd)(C).

22. AAF ltr to CG IV Air Support Command, through channels, 10 Feb 43, and AGF 1st ind, 19 Feb 43, sub: Air-Ground Communications. 353/13 (Air-Gnd)(S).

in T/O&E's the vehicles and crews necessary to employ them.[23] Army Air Forces was willing to have the tests in the Desert Training Center extended to determine the desirability of having VHF radios provided for "commanders of all tactical armored units down to and including battalions, and commanders of all other tactical ground units down to and including regiments."[24]

All this initiative seemed surprising--and was most welcome, from the point of view of Headquarters, Army Ground Forces.[25] But General McNair hewed strictly to the principle that air-ground communication was the responsibility of the Army Air Forces, refusing to go along with the suggestion that the means be made organic in ground organization and equipment. The upshot of the matter was an AGF directive to the Commanding General of the Desert Training Center on 12 July to "conduct tests to determine the desirability of providing vehicular VHF and HF radios for commanders of all tactical armored units down to and including battalions, and for commanders of all other tactical ground units down to and including regiments, for air-ground communications." It was made clear that the equipment and operating personnel were to be additional to the system provided in FM 31-35. It was recommended that the tests be made during regularly scheduled maneuvers.[26]

The tests in the Desert Training Center were not run off until November because of delays in providing the necessary equipment, and because they could not be fitted sooner into DTC training and maneuver schedule.[27] They were made with the 9th Armored Division and the 76th and 81st Infantry Divisions. Tests had also been run in the meantime by the Cavalry Board, which reported: "All testing agencies reported SCR-542(VHF) technically satisfactory but too fragile in its present form," but pointed out that "vehicular VHF radio recently was developed for AAF." The several testing agencies disagreed as to the changes in organization required for employment of VHF radios on the ground. The conclusion at Headquarters, Army Ground Forces, was that ground-air radio equipment was "NOT to be included in T/O&E's for ground units." The action was based not only on the principle that air-ground communication was the responsibility of the Army Air Forces, but also on the fact that only airmen on the ground were in most cases qualified to talk intelligently to airmen in flight and vice versa. The technical findings obtained

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23. WD memo WDGDS 3124 for CG AGF, 14 Apr 43, sub: Installation of Radio Set SCR-522 in Medium Tanks M3 and M4 and Half Track M2. 353/13 (Air-Gnd)(S).

24. Par 2, AAF 5th ind, 27 Apr 43, on AAF ltr to CG IV Air Support Command, 10 Feb 43, sub: Air-Ground Communications. 353/13 (Air-Gnd)(S).

25. "This is all confusing, on one letter they [AAF] do not desire to operate with ground force units and in another they seem to consider it important." AGF M/S, G-3 to CofS, 11 May 43, proposing favorable indorsement of AAF ltr to CG IV Air Support Command, 5 May 43. 353/14 (Air-Gnd)(S).

26. AGF ltr to CG DTC, 12 Jul 43, sub: Test of VHF and HF Radios for Air-Ground Communications. 353/7 (Air-Gnd)(C).

27. (1) DTC TWX to CG AGF. 19 Aug 43, sub: Test of VHF and HF Radios for Air-Ground Communication. AGF-IN-1956. (2) AGF ltr to CG DTC, 27 Aug 43, sub as in (1). 353/7 (Air-Gnd)(C). (3) See also correspondence in 413.44/1541.

in the tests were passed on to the Combined Communications Board for action by the Army Air Forces, which the Board directed the headquarters of that command to take.[28]

SUMMARY OF PROGRESS IN THE ZONE OF INTERIOR

To sum up, the experience gained in combined training, supplemented by the tests mentioned, had sifted out colored smoke and fluorescent panels as the most effective visual means of air-ground communication and had been of definite value in showing how they could be used most effectively. Experience with air-ground communication in the theaters active in 1943 was so meager and inconclusive that without the body of information gained at home the War Department would have been still farther than it was actually from a solution of the practical problems involved in getting effective air-ground cooperation in battle. To this extent the AGF policy of pushing ahead with only reluctant support from the Army Air Forces had been justified. The tests at Fort Knox and Fort Riley and in the Desert Training Center had shown that it was practicable, with available radio sets, for airplanes and ground units to talk to each other at distances up to 130 miles.

No firm conclusions regarding air-ground communications had been reached, and at the year's end the War Department declared that it had established no policy with reference either to air-ground recognition and identification or to air-ground communication.[29] But valuable knowledge had been won and passed on to the responsible agency, the Army Air Forces, whose Board at Orlando, with the cooperation of a representative of the Army Ground Forces, had been directed to test and develop further the means available. The main problem left, on the practicable level, was to get an organization of air-ground cooperation in the zone of contact which would work quickly.

COOPERATION OF THE FIFTH ARMY AND XII AIR SUPPORT COMMAND IN ITALY

There was but little close teamwork between American air and ground units in the Mediterranean area during 1942 and during most of 1943. In what little there was, the organization set up under FM 31-35, with its parallel channels and complex machinery, worked so slowly as to render air support generally ineffective. Ground commanders in the Tunisian campaign were impressed by the fact that the Germans were getting support promptly while they were not. The reports from Sicily expressed the same strong

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28. Item (1), AGF M/S, G-3 to Reqts and CofS, 5 Dec 43, sub: Tests of VHF and HF Radios for Air-Ground Communications. (Tabs I and N covered by this M/S were not found.) 353/118 (Air-Gnd)(S).

29. WD memo for CG AGF (attn Col D. F. McBride), 19 Dec 43, sub: Air-Ground Policies. 353/419 (Air-Gnd).

dissatisfaction with the complication and delayed reactions of the existing system.[30] The first favorable report came after the Fifth Army went into Italy at Salerno in September 1943, when General Clark told Mr. McCloy that "he was getting a great deal of Air help on his immediate front in the way of close bombardment, but," he added, "the machinery for close support in critical situations has not yet been effectively or completely worked out."[31]

Ground commanders in combat, with the effectiveness of the infantry-artillery team in mind, generally desired to see the air support needed in a critical operation placed under control of the division commander.[32] That solution was barred by approved doctrine, and the bar was made more rigid by the principles stated in FM 100-20, as built into the highly centralized reorganization of the Air Forces that was being initiated in the latter half of 1943.

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30. The following comments represent the views of the ground commanders in Tunisia, Sicily, and Italy:

(1) "I believe that we will have to come to some simple system of requesting air support. The present system of going back through so many channels is wrong. We haven't time for it." (Col. William B. Kern, commanding an infantry battalion of the 1st Armored Division, 13 May 1943).

(2) "We can't get the stuff when it's needed and we're catching hell for it. By the time our request for air support goes through channels the target's gone or the Stukas have come instead." (Maj. Gen. Omar N. Bradley, Hq Fifth Army, 1 March 1943).

(3) "I noticed that, in action, when my tanks started rolling, or my artillery opened on some target of real importance to the Germans, the Stukas would be over in twenty minutes. . . . By contrast, our calls for airplane missions to meet a sudden combat development, if granted at all, got no real results for hours. . . . The system of calling through two or three different headquarters for air support simply will not give the support desired at the time desired. Adequate air support can only be obtained by direct call from the division to air. Any other system is too slow and will result in loss of opportunities. The greatest single aid to more effective use of armored formations would be the development of close air support, both by reconnaissance and by bombing. Failure of this air support presents the weakest link in our tactical team today." (Maj. Gen. Charles W. Ryder, commanding the 34th Infantry Division, Conversation 18-19 June 1943).

(4) "The delay between requesting a mission and receiving only the approval or disapproval of the request was excessive. When the time required to fly the mission was added to the original delay, the result was ineffective support." (Report from AFHQ, 2 July 1943).

(5) "Air missions took too long to accomplish even after the planes had been moved to Sicily. Authority to fly this mission could be obtained in about three hours whereas the mission itself took only 20 to 30 minutes." (Maj. Gen. John P. Lucas, commanding the VI Corps, 21 July 1943).

(6) "The air support has not worked satisfactorily. . . . At times it has been fairly prompt; at other times the time has been excessive. There is a great deal that must be worked out before we get what we want when we want it. The matter of who has the control, the matter of communication, and such things are still to be solved." (Air Support Liaison Officer, 3d Infantry Division, Sicily, 12 August 1943).

The second item is in 353/33 (Air-Gnd)(S); the fifth item, in 353/36 (Air-Gnd)(S); the others, in 319.1/80 (For Obsvrs)(S).

31. Memo of AS/W McCloy for Gen McNair, 23 Dec 43, sub: Air-Gnd Tng and Opns. 353/45 (Air-Gnd)(R).

32. (1) See excerpts from reports in 319.1/80 (For Obsvrs)(S), and in 353/36 (Air-Gnd)(S). (2) See also Report of Col Dexter, 11 June 43, in 319.1/21 (For Obsvrs)(C).

Such progress as was achieved during 1943 in combined training and methods of cooperation resulted largely from the efforts of interested air and ground commanders working together in the Zone of Interior, particularly in the Second Army and the IV Air Support Command. The next important step in bringing air and ground into a more effective relationship was likewise the outcome of a practical approach to common problems. It was initiated by the Fifth Army and the XII Air Support Command in Italy.

The system of coordination worked out by the Fifth Army and the XII Air Support Command during the months following the landing at Salerno was less a system than certain practical arrangements which gave expression to a mutual understanding and close working relationship between the two commands. The essential features of it were these: (1) the two commands placed their forward command posts within a few hundred yards of each other; (2) the Fifth Army assumed responsibility for collecting, evaluating, and coordinating the requests of its units for air support, for interpreting them to the air command and its agencies, and for informing its own units of the action taken by the air command and the results obtained. With the army evaluating all air support requests from its own units, the tendency of divisions or corps to dissipate air effort was disciplined by a ground commander, the commanding general of an army, and the air support command was asked to execute only missions which would further the main effort on the ground as planned by the army. The air support command, relieved of all responsibility for liaison or contact below army headquarters, could concentrate on rapid execution of the missions ordered. Brig. Gen. Gordon P. Saville, commanding the XII Air Support Command, gave his full support to the arrangement; indeed he seems to have suggested it. It was reported on 30 November 1943 that missions were never refused except on technical grounds; no mission had been refused on the ground that the objective to be attacked was not a good target--a far cry from the situation in Tunisia and Sicily. After being tried for seven months as an expedient, the system worked so well that it was heartily approved by the commander of the Twelfth Air Force and by the Deputy Theater Commander, Lt. Gen. Jacob L. Devers, as well as by the two commanders who had worked it out, and it was submitted by General Devers to the War Department on 3 May 1944 for authorization of the necessary changes of organization. Meanwhile the First Army Group, in the United Kindgom, preparing for the invasion of France, had studied it and adopted a somewhat similar plan.[33]

The working model from which the Fifth Army system was derived was that which General Montgomery and the RAF had developed in their drive across North Africa and which the Eighth Army was using in Italy. The statements of air doctrine which General Montgomery enunciated in his "Notes on High Command in War," the immediate inspiration

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33. The foregoing statements and the description that follows are based on the following: (1) AGF Obsvrs Bd, NATO, Report No A-87-2, 30 Nov 43, sub: Org and Functioning of Air Spt Control System Now Employed by Fifth Army. 353/111 (Air-Gnd)(S). (2) Report of Col Sheffield Edwards, ACofS, G-3 Air, to G-3 First U.S. Army Group, 18 Jan 44, sub: Rpt on Air-Gnd Cooperation in Italy. 353/111 (Air-Gnd)(S). (3) Fifth Army ltr to TAG, 10 Mar 44, sub: Org for Air Spt in Fifth Army, and inds as follows: 1st ind, CG XII Air Spt Comd, 10 Mar 44; 2d ind, CG Twelfth Air Force, 4 Apr 44; 3d ind, Hq AAF/MTO, 15 Apr 44; 4th ind, CG NATOUSA, 3 May 44. 353/132 (Air-Gnd)(S). (4) Fifth Army Memo No 7, 9 Mar 44. 353/132 (Air-Gnd)(S). (5) In the text the confusing terminology initially applied to the agencies of the Fifth Army system is standardized for for clearness of exposition.

of FM 100-20, purported to be a reflection of that same experience.[34] The statement of doctrine, therefore, which drove the United States air and ground forces further apart in 1943, and the practical devices which operated in 1944 to bring them into more effectual cooperation, were derived from the same source--in general, from British experience.

The Fifth Army plan was implemented by certain agencies not contemplated in FM 31-35. The most important of these were an air section in army headquarters under a G-3 Air, and ground liaison officers specially trained in air-ground cooperation who were sent from this section in two directions, forward to ground units on the line to assist in processing requests for air, and back to the airdromes of the supporting air units. The liaison agents of the army air section with forward ground elements took over the duties assigned to air parties in FM 31-35, and the army air section working with its opposite number in the air support command superseded the controls established in that manual.

Under this arrangement continuous attachment of air parties and controls to headquarters below army level became unnecessary. It was understood, however, that the facilities and personnel of the air headquarters were "available to corps and divisions, in an advisory capacity, on request through army headquarters."[35] Actually as closer relations became habitual, in critical actions representatives of the air commander went to the front with ground commanders to make spot decisions and exercise direct control of the air, and pilots visited the front on foot to prepare themselves for support missions.

Another deviation from FM 31-35 was the control of the radio communication net within the army. This was taken over from the air command; it was headed up into the army air section and was controlled and operated by the army--an arrangement which raised a troublesome issue in Washington. The army also provided radio communications with its liaison officers on the airdromes of the cooperating air units.

The vital feature of the system was the adjacent location of the interested sections of army and air headquarters and the constant exchange of information between them. Hardly less important were the ground liaison officers sent to supporting air units. They were missionaries of the physical association and close understanding established between the two headquarters in contact, representing--to use the words of the Fifth Army Training Memorandum dated 9 March 1944--the ideal of a "constant interchange of personnel between ground and air units in order that each could see how the other functioned." These ground liaison officers were kept informed of the army plan and the daily ground situation as well as of requests for support coming back from ground units; they kept a ground operations map and the bomb safety line posted in the air headquarters, assisted in briefing the pilots about to fly support missions, interrogated them when they came in, and saw to it that the information obtained and all other information of interest to units of the army which became available at air headquarters, including the results of air reconnaissance, got to the air section of the

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34. In the Royal Air Quarterly, Mar 44, General Montgomery stated that, since land and air forces must act as a unit, the two should be together in one headquarters, the army commander directing the military effort and the air commander with him applying air effort "in accordance with the combined plan."

35. (1) Par 3 a, Fifth Army ltr to TAG, 10 Mar 44, sub: Orgn for Air Spt in Fifth Army, with inds. (2) Par 3, Sec II, Fifth Army Tng Memo No 7, 9 Mar 44. Both in 353/132 (Air-Gnd)(S). (3) Par 9 b, Rpt of Col E. L. Johnson on Air-Gnd Cooperation, 1 May 1944. 314.7 (AGF Hist).

army and the units concerned. Experienced ground officers, living with the airmen continuously, had an opportunity to interest young airmen in the methods and needs of ground warfare. As a ground officer who had performed in the role with the British Eighth Army put it, one of his primary duties was to act as the "newspaper" of the ground forces at air headquarters.

Every evening at 1900 representatives of the army and air headquarters met in the G-3 army tent to agree on missions to be flown for the army the next day or in the near future. At a fixed hour before this meeting (1500) each division submitted to corps G-3 its request for scheduled missions; each corps in turn, weighing the various division requests against its own plans, prepared a corps program which was submitted to the army air section by 1600. Army G-3 then drew up, in conference with Air G-3, the army program of targets which the XII Air Support Command would be requested to attack. Normally present at the air-ground conference were G-3, G-2, the Field Artillery Officer, and G-3 Air of the Fifth Army, and A-3 and A-2 of the Air Support Command. G-3 presented the ground situation and the operational plans of the army, G-2 the enemy ground situation, and A-3 the situation and plans of the air support command. G-3 Air then presented the army's requests as scheduled and an agreement was reached, A-3 deciding which missions it would be practicable to fly. On the basis of the resulting schedule the air commander issued the necessary orders. It was found that these scheduled missions were about 90 percent of the total actually flown. The remainder were flown on the request of ground units confronting unanticipated needs for support in the course of the next day.[36] At the conference the air commander stated how much aviation would be available for such call-type missions. He might hold two or four squadrons on standby to meet such requests, or he could arrange to divert aviation already in flight on other missions to attack promising ground targets which suddenly developed in the course of the operation.

Call-type requests went back from front-line units to the army air section. They were monitored by the corps air section; if corps was silent, its consent was assumed. The request was reported at once by army to the ground liaison officers at airdromes, who began to dig out the information that would be needed to brief the pilots. If disapproved by army G-3, the requesting unit was notified immediately. If approved by G-3 and the air support officer, the order was issued, the pilots briefed by the air operations and ground liaison officers, and the ground unit notified through the army air section that the mission was on its way. About 50 percent of the call-type requests were being refused. Some 75 percent of those refused were disapproved by G-3 as not fitting in with army plans, the rest by the air support headquarters on technical grounds.

Another procedure to improve close-in air-ground teamwork adopted by the Fifth Army and the XII Air Support Command was the use of a forward controller, or "Rover Control"--better known as "Rover Joe"--a device which broke through the prohibition of talk between forward ground units and pilots in the air that had been imposed by the air command in Africa. At Troina in Sicily, the air commander had himself gone to the line of battle to talk his planes on to their targets. Under the Fifth Army system it was recognized practice for the air commander or his representative to do this whenever the

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36. (1) G-3 Air, Fifth Army, on 30 Nov 43 stated that 80 percent of the missions flown were [illegible]-scheduled. See n. 33 (1) above. (2) Col Edwards, on 18 Jan 44, gave the percentage of 90 used in the text. See n. 33 (2) above.

situation seemed to require it.[37]

The Fifth Army and the XII Air Support Command, in the rapid advance beyond Rome in June 1944, experimented with a further development of "Rover Joe." This was to associate with the air officer on the ground controllers in liaison planes to lead fighters to targets in the path of advancing troops, either by radio or, this failing, by visual control. An experiment was made on 28 June with the 1st Armored Division and a group of fighter planes. The controllers, who were also air officers, flew in four L-5's fitted with SCR-522, painted four different colors for identification, and designated "Horsefly Yellow," "Horsefly Blue," etc. The experiment, though not entirely successful, was regarded as having demonstrated the practicability of the method. A plan was made to test it immediately on a corps front, but their test had to be cancelled.[38] The Operations Division of the War Department published the results for the information of all concerned, announcing that the Army Air Forces was trying to overcome the difficulty of installing VHF radio sets in L-5's, and observing that the "Horsefly" could, if necessary, be used to indicate the bomb safety line by flying parallel to the front over the most advanced elements.[39]

Certain important steps were taken in the Fifth Army system toward a solution of the problem of air reconnaissance. Only two tactical reconnaissance squadrons, one American and the other British (to which a third, which was French, was added in May 1944), were put at the disposal of the Fifth Army, and the utmost had to be made of them.[40]

Requests for air reconnaissance originating in forward units went up through G-2 command channels, and if approved by corps G-2 might then go directly by wire laid from corps to tactical reconnaissance headquarters, whose commander would either refuse, or fly the mission, or, if in doubt, refer it to the XII Air Support Command for decision. A complete tie-in of reconnaissance with the army air section was recommended by the

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37. (1) Report of Col H.V. Dexter on Operations in NATO, 18 Feb-26 Apr, distributed at Hq AGF 11 Jun 43. 319.1 (For Obsvrs)(C). (2) Lt Col Benjamin E. Farver, "Air-Ground Cooperation of the Battlefields," Military Review, March 1944, pp 30-33. (3) For an example, in an attack by the 3d Division in which a hill on the left of the advance was neutralized by close-in air bombing, directed by a "Rover Control," see par 7 f, report cited in n. 33 (2) above. (4) The use of "Rover Joe" as finally systematized is described in Report No A-Misc-83, AGF Bd, MTO, submitted by Col Paul N. Starlings, 29 Oct 44, sub: Air-Ground Recognition. 314.7 (AGF Hist). (5) Operations Division Information Bulletin (OPDIB), Vol IV, No 1, Sec III, 29 Jan 43, sub: "Rover Joe" Control of Fighter Bombers. (6) AGF Bd, MTO, Report No A-315 (S), submitted by Col Starlings, 26 Feb 45, sub: Current Questions re Inf Opns. 314.7 (AGF Hist).

38. A full description of the plans and the test can be found in the Report of Col Eugene L. Harrison to CG IV Corps, 15 Aug 44, sub: Close Air Support of the 1st Armored Division, 26 June to 5 July 1944, transmitted as AGF Bd, MTO, Report No A-183, 19 Oct 44. (2) Supplementary information is contained in the statements of Lt Col Mark T. Martin, Jr, G-3 34th Inf Div, in Chap I, par j, Air-Ground Liaison, AGF Bd, MTO, Report No A-Misc-89, 34th Inf Div, sub: Lessons learned in combat 7-8 Nov 42-Sep 44. Both in 314.7 (AGF Hist).

39. OPDIB, Vol III, No 6, 16 Nov 44.

40. Maj James H. Quello, G-2 Seventh Army, "Tactical Reconnaissance in Italy," Military Review, December 1944, pp 18 ff.

Twelfth Air Force and by General Devers, in order to economize effort by placing at the disposal of corps G-2's information from other available air sources, such as fighter-bomber missions. This integration was later effected.[41]

The Fifth Army took its own measures to solve another basic problem in getting satisfactory air intelligence, namely, that of extracting from air photographs the kinds of intelligence which ground commanders needed. Interpreting aerial photographs for ground use was a problem in itself, made more difficult by the fact that the photographs which air reconnaissance took were designed primarily to serve air force needs.

The need for special training was recognized in 1942 when the Army Ground Forces began to train officers in the interpretation of aerial photographs. The difficulties attending their training will be noticed later. They were assigned to G-2 sections. There they awaited receipt of such photographs as the air force supplied, after initial interpretation had been given the photographs by air photo interpreters at air reconnaissance headquarters. The Fifth Army in this as in other air matters took positive action to get from air what ground units needed. An army photographic center was set up, of which the essentials were a team of army photo interpreters, facilities for reproducing photographs (including an engineer section), and a delivery service. The team of interpreters was located on the reconnaissance airfield, watched for the photographs that ground units could use, and gave these a hasty interpretation. Further interpretation, annotations, and breakdowns were made by the photo interpreters in the G-2 sections of corps and divisions.[42]

The introduction of ground liaison officers gave the army commander representatives at tactical reconnaissance headquarters to present and explain the needs of army units for intelligence and to see to it that all pertinent information went to the units needing it. The artillery had its own representatives at tactical reconnaissance headquarters. To improve dissemination all information obtained by tactical reconnaisance was broadcast from the tactical reconnaissance headquarters at half-hour intervals. The army air section listened in and if a target worth while appeared, initiated a request at once on G-3 for an attack as an army mission. In critical situations a short-cut might be available when the reconnaissance pilot could talk to a forward controller over a two-way VHF radio. The most serious problem was the time lag in distributing air photographs. In a moving situation the terrain reconnoitered was often overrun before the air photographs of it were distributed.[43]

One object of the system worked out by the Fifth Army and the XII Air Support Command was to speed up the reaction to requests for air support, and increased the interest of the air in cooperation. Given the doctrines of rigid separation stated in

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41. (1) Ibid. (2) Fifth Army ltr to TAG, 10 Mar 44, sub: Organization of Air Support in Fifth Army. With indorsements and inclosed Tng Memo No 9, 9 Mar 44. 353/122 (Air-Gnd)(S).

42. Par 14, Report of Col Sheffield Edwards to the ACofS, G-3 FUSAG, 18 Jan 44, sub: Report on Air-Ground Collaboration in Italy. 353/111 (Air-Gnd)(S).

43. (1) G-2, 34th Div, stated that "if we get requests for pinpoint photos in the Army one morning, they are usually received about 1500-1600 next afternoon." Interview quoted in AGF Bd, NATO, Report No A-87-2, 30 Nov 43. 353/111 (Air-Gnd)(S). (2) For later reports, indicating 24-hour service as normal, see statements of G-2, 34th Div, and G-3, 88th Div, in AGF Bd, MTO, Report No A-315, 26 Feb 43. 314.7 (AGF Hist).

FM 100-20 and the centralization of the army air forces, it was a compromise which presented the needs of the ground forces for air support at a level at which, and in a form in which, air commanders in at least one theater were willing to accept requests systematically and promptly. The bombing of friendly troops was not eliminated. At the end of November 1943 it was reported that so far in Italy, American troops had been bombed by U.S. air in only three instances. But this was before the bombings of friendly forces on the Cassino front, which caused much bitterness among ground troops and their leaders. Again, 1½ hours to deliver a call mission, while perhaps an improvement, was slow for an agency whose chief potentiality in supporting action was speed. Ground commanders chafed at having to put all their requests through army. Finally, the cooperation maintained by the elaborate system described remained a side issue even with the XII Air Support Command. Of its missions 85 percent were executed on the orders of higher air commanders, and only 15 percent to forward the plans of the Fifth Army.[44] Nevertheless, in March 1944 recognition of the system was urged on the War Department by General Devers as an "operational necessity." What seems chiefly to have been gained was that under the system adopted air and ground were attacking common problems with good will and interest instead of insisting on theories that tended to limit their cooperation.

AUTHORIZATION OF GROUND-TO-AIR LIAISON OFFICERS

In September 1943, Headquarters, Army Ground Forces, took measures looking toward the special training and employment of ground-to-air liaison officers. As early as March 1943 the Army Air Forces had expressed an interest in the unofficial use which had been made of such officers in combat to cut the time lag in air response to calls for support, and in July the AAF Board had recommended, G-3 concurring in principle, that they be regularly provided at the headquarters of reconnaissance units.[45] The War Department had encouraged and then, in FM 100-20, 21 July 1943, directed the exchange of liaison officers between gound and air forces.[46] The use of ground liaison officers with air units was tried by the Second Army in the Tennessee maneuvers of 1943 with such "gratifying" results that General Fredendall made a special report on them.[47] On 13 September 1943 Headquarters, Army Ground Forces, and Headquarters, Army Air Forces, reached a staff agreement on tentative plans for the training of such officers in an AAF school.[48]

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44. Par 7 a, AAFTC ltr to CG AGF, 13 Mar 44, sub: Report on Relationships and Procedures in Joint Air-Ground Operations in Italy. 353/125 (Air-Gnd)(S).

45. (1) Memo of Lt Col Flannagan for the ACofS, G-3 AGF, 1 Mar 43, sub: WD Conference on Air Spt. 353/4 (Air-Gnd)(S). (2) AGF M/S, G-3 to CofS AGF, 13 Jul 43, sub: Org of AAF Recon and Photo Aviation. 353/23 (Air-Gnd)(S).

46. (1) Par 7, WD memo WDGCT 580(3-2-43) for CGs AGF, AAF, and SOS, 2 Mar 43, sub: Combined Air-Gnd Tng. 353/267 (Air-Gnd). (2) FM 100-20, par 14 d.

47. Second Army ltr to CG AGF, 28 Dec 43, sub: Air-Gnd Liaison. Inclosed were reports made by the ground liaison officers during the maneuvers. 353/102 (Air-Gnd)(R).

48. (1) Par 1, AAF ltr to CG AGF, 13 Nov 43, sub: Air Ln Officers. 353/177 (AAF Schl). (2) The papers reflecting further action on the project are in 353/30 (Air-Gnd)(S).

General McNair did not give his approval until 2 December 1943, and then with reluctance. "I am wholly unwilling," he wrote, "to launch forth on an ambitious program of specialized air liaison officers when there is no tangible indication of anything much to liaison with." His opposition, in principle, to specialized training in schools entered into his reluctance. "I for one," he stated, "feel that the best school for them is to perform the duties actually." Less explicitly stated, but a factor continually present in his thought, was opposition to the further elaboration of overhead and the diversion from combat duty of high-grade officers, an asset in which the Army Air Forces was relatively much richer than the Army Ground Forces. He wished to see the proposed number of liaison officers cut down. "The (proposed) set up at air reconnaissance group headquarters looks like a young army. . . . If and when the air begins to snow us under with photographs and reconnaissance, it will be time to add personnel to meet the deluge. . . . Building up overhead is the best little thing we do." In general, he was unwilling to have ground-to-air liaison officers made organic in higher ground headquarters, preferring to see the experiment put initially on an experimental basis.[49] Headquarters, Army Air Forces, was pressing by telephone and letter to get the training of ground liaison officers under way. On 28 December 1943 the Army Ground Forces proposed that ground liaison officers be sent to air units on the following basis:

From Army:
- 1 to tactical air division headquarters
- 1 to each tactical reconnaissance group headquarters
- 1 to each tactical reconnaissance squadron
- 1 to each group of combat aviation

From Corps:
- 1 to tactical reconnaissance group headquarters
- 1 to each tactical reconnaissance squadron supporting the corps
- 1 to each group of combat aviation

Army Ground Forces made clear its unwillingness to see altered "in any way" the existing system of signal communication, which was, as noted above, and AAF responsibility. It recommended that a training circular on "Cooperation between Air and Ground Units," which concentrated on air reconnaissance and which General McNair had himself revised, be published.[50]

On 8 January 1944 the War Department approved as a minimum the allotment of ground liaison officers to air units proposed by Army Ground Forces, stated their duties, and sanctioned the arrangements made for their training by the Army Air Forces, with provision for meeting requests for them already submitted by theater commanders. The first class was to enter a school at Key Field, Miss., on 31 January.[51]

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49. AGF M/S, CG to G-3, 2 Dec 43, sub: Air Ln Officers from Ground Units. 353/30 (Air-Gnd)(S).

50. (1) AGF memo for CofS USA, 28 Dec 43, sub: Cooperation between Air and Ground Units. 353/30 (Air-Gnd)(S). (2) A copy of the proposed circular and also the M/S containing Gen McNair's revisions are in the same file.

51. (1) WD memo WDGCT 210 (8 Jan 44) for CGs AGF and AAF, 8 Jan 44, sub: Ground Ln Officers. 353/102 (Air-Gnd)(R). (2) AAF ltr to CG AGF, 12 Jan 44, sub: Ground Ln Officers. 352/108 (R).

In the action taken on 8 January no provision was made to train air officers for liaison service with ground units. On 18 January the Army Ground Forces proposed and on 18 February the War Department directed that the Army Air Forces send officers to Fort Benning to take a course designed for that purpose. This course was discontinued upon the graduation of the first class.[52]

From the foregoing it will be evident that the action taken in Washington did not sanction the Fifth Army-XII Air Support Command organization except to approve liaison from ground to air and provide the necessary training.

A party of experienced British Air Liaison Officers (the designation at first also used by the United States Army) was brought to the United States to assist in setting up the American experiment. In a conference at Headquarters, Army Ground Forces, on 3 January 1944, one of them remarked that the "ALO" had "an ambassador's job."[53] The conference brought into sharp relief a difference in basic assumptions between the British and American Armies which was pointed up by this remark. The British assumed that there was an "airman's world" and a "ground soldier's world," so different in outlook and so independent of each other that an exchange of diplomatic representatives was necessary. In formalizing the exchange of liaison officers the U.S. Army was for the first time recognizing development in its own airground relationships.

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52. (1) AGF memo for CofS USA, 18 Jan 44, sub: Ground Ln Officers. 353/104 (Air-Gnd)(S). (2) Papers regarding plans for the course are in 352/908 (Inf Sch). (3) WD memo for CGs AGF and AAF, 18 Feb 44, sub: Air Ln Officers. 352/120 (R). (4) WD memo WDGCT 210 (8 Jan 44) for CGs AAF and AGF, 18 May 44, sub: Air Ln Officers. 352/120 (R).

53. Notes of AGF Historical Officer on the conference. 314.7 (AGF Hist).

Chapter VIII

DEVELOPMENTS IN THE EUROPEAN AND PACIFIC THEATERS 1944-1945

AIR-GROUND COOPERATION IN ETO

The First Army Group in the United Kingdom, in preparing its plans for the invasion of France, studied the organization and procedure for air-ground coordination employed by the American Fifth and the British Eighth Armies in Italy.[1] The system adopted showed the influence of that worked out by the Fifth Army and the XII Air Support Command. It included adjacent headquarters for each army and its cooperating tactical air command, and a combined operations center which brought the air staff and the air officers of army (G-2 Air and G-3 Air) under the same roof. It included the consolidation of the requests of army units, for both combat and reconnaissance, by army, and the nightly conference between army and air staffs to agree on the schedule of missions to be flown the next day. It included ground liaison officers at airdromes. Instead of such officers with subordinate units, it established "G-3 Airs" with divisions, corps, and armies, and provided for forward controllers equipped with VHF radios--- device used intensively and with great success by armored units when the ground forces began to roll forward on 25 July.[2] As in the Fifth Army system, air pilots went forward as liaison officers to assist ground units on the line. The outstanding difference was that the system (as eventually followed in the Third and Ninth Armies as well as in the First) left the air forces responsible for communications between ground and air headquarters, except that requests of subordinate units for air missions might go up through corps to army over the ground telephone net. In general, army assumed less of the burden of cooperation than under the Fifth Army-XII Air Support Command system.

But cooperation by airplanes actually present was no longer lacking. With the invasion of Normandy and the drive across France, air-ground teamwork on the battlefield developed, under this system, with conspicuous and increasing success. In the early stages of the campaign ground commanders continued to request missions that air commanders regarded as unprofitable, and U.S. pilots continued to strafe and bomb American troops; ground troops, while recognizing gratefully the benefits of supremacy in the air and the damage being inflicted on the Germans, were nervous about friendly air operations, and ground commanders wished to fix very distant bomb lines.[3] But both sides learned rapidly. The last great blunder in the execution of a joint plan occurred

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1. Report of Col Sheffield Edwards to the AC/S G-3, FUSAG, 18 Jan 44, sub: Air-Ground Collaboration in Italy (Fifth and Eighth Armies). 353/111 (Air-Gnd) (S).

2. The First Army system is described by the G-3 Air of that army, Col E. L. Johnson, in his Air Support Report (S), 6 Aug 44. See also First U. S. Army, Report of Opns, 20 Oct 43-1 Aug 44 (C), pp 119-20, and Annexes (C), Vol II, pp 68-71.

3. (1) Rpt of Interview (S) with Lt Col P. J. Long, AG, OPD Observer as ALO at Hq VII Corps, 6 Jun-22 Jul 44. 314.7 (AGF Hist). (2) Obsr's Report (S) by Col Charles F. Howard, G-4 Section, Hq AGF. (3) Rpt (S) of Lt Col E. S. Hartshorn, 1 Aug 44, sub: Operations of the VII Corps in Normandy, 6 Jun-22 Jul 44. (4) AGF Bd, ETO Rpt No 6 C-157 (S), submitted by Col Charles H. Coates, 5 Aug 44, sub: Notes on Interviews with Various Infantry Comdrs in Normandy, France, 6 Jun-8 Jul 44. (5) Statement (S) of Lt Col W. W. Johnson, Hq AGF, observer with G-3, XIX Corps, at conference, Hq AGF, 7 Aug 44. (6) Hq Twelfth Army Group, Immediate Report No 65 (Combat Observations) (S), Report from CG, 2d Inf Div to CG, VIII Corps, 26 Sep 44, sub: Close Air Support of Gnd Forces around Brest. (7) AGF Bd, ETO, Report No 195 (R), sub: Lessons from Present Campaign, 4th Inf Div and 9th Inf Div. All in 314.7 (AGF Hist).

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on 25 July 1944 when part of the stupendous bombardment intended to blast a gap in the German front at Saint-Lô fell on the forward battalions of the 30th, 4th, and 9th Infantry Divisions behind the Saint-Lô-Periers road, although these elements had been pulled back 1200 yards from that road, a sharply defined terrain feature, additionally marked with colored smoke as the bomb line.[4] One of the assault battalions of the 9th Division was so hard hit that it had to be withdrawn and the division attack was delayed for over an hour. General McNair was killed in a forward position on the front of the 30th Division. But the spearheading infantry units went forward in spite of their losses and in spite of surprising resistance from the bomb-shaken Germans.[5] Armor rolled through the gap which they opened, and the rush of the ground forces through Brittany and across the face of France got under way.

During that great forward rush and continuing to the end of the Rhineland campaign, the tactical air commands, backed by the Ninth Air Force, put energy, ingenuity, and resources now amply provided, into the effort to make their cooperation with General Bradley's armies a success. With air present in sufficient abundance and variety, and with will to cooperate, U.S. airmen and ground troops learned how to work together, in the hard way, but with increasing skill and appreciation of each other's capabilities and limitations. They were together in force at last.

Existing methods of ground-to-air signalling now received the full test which had not been possible in combined air-ground training, and certain additional devices were tried with success, both to prevent the bombing and strafing of U.S. troops by friendly planes and to mark targets for pilots.[6] It was found that the fluorescent panels which

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4. (1) First U.S. Army, Report of Operations (C), pp 120-21. (2) Col E. L. Johnson, G-3 Air, First Army, Air Support Report (S), 6 Aug 44.

5. (1) Figures compiled by G-1 VII Corps, showed 114 killed and total casualties running over 600 from aerial bombs falling short during the first three days of the attack. Hq VII Corps, Operations Rpt. Operation "COBRA" (S), 24-31 Jul 44. Classified Records, Opns Br, AGO 307-11.4 (7484). (2) The 30th Division reported "64 killed, 374 wounded, 60 missing, and 164 cases of battle exhaustion as the result of bombing by friendly planes," on 25 July. G-3, 30th Inf Div After Action Rpt (S). Classified Records Opns Br, TAGO, 330-33.4 (5109)(S). (3) For the disruption of the 3d Bn, 47th Inf, 9th Div, and also for the strong resistance encountered notwithstanding the great bombing effort, see Hq 9th Inf Div Rpt of Opns (S), 1 Aug 44 (Classified Records, Opns Br, AGO 309-33.4 (5425)) and Hq VII Opns Report, Operation "COBRA" (S), cited above.

6. Here listed are the documents to which reference is made (by reference symbol) in the notes that follow (all in 314.7 AGF Hist file):

A. Incl #1 to Exhibit "A"--Comments from Comdg Officers, 8th Inf, 12th Inf, and 3d Bn 22d Inf on "Lessons from the Present Campaign," (S) 1 Jul 44, in AGF Bd, ETO, Report No C-195 (S).

B. Memo of Col Edwin L. Johnson, G-3 Air (S), First U.S. Army, 16 Jul 44, sub: Info Air-Gnd Joint Opns in AGF Bd, ETO, Rpt No C-Misc-19(S).

C. First U.S. Army, Rpt (C) of Opns (20 Oct 43-1 Aug 44).

D. Col E. L. Johnson, G-3 Air, First U.S. Army, Air Suppt Rpt (S), 6 Aug 44.

E. AGF Bd, ETO, Rpt No C-191 (S), 20 Aug 44, sub: Notes on Interviews with Various Comdrs in Normandy.

F. Hq Twelfth Army Grp, Immediate Report No 44(Combat Obsns)(S), 31 Aug 44, sub: Air-Gnd Operations in Attack on Brest.

G. Hq Twelfth Army Grp, Immediate Rpt No 65 (Combat Obsns)(S), 26 Sep 44, Rpt from CG, 2d Inf Div, Close Air Support of Gnd Forces around Brest.

the Army Ground Forces had developed and championed in spite of the objections of Headquarters, Army Air Forces, were visible and effective as a means of marking front lines and vehicles, provided ground troops were disciplined not to display them except in forward positions.[7] They were more effective than smoke from hand grenades. Colored grenade smoke brought down enemy fire on American positions; it was easily confused with incidental battle smoke, or it drifted on the wind, as at Saint-Lô, where the drift of the red smoke placed by U. S. artillery on the Saint-Lô-Periers road contributed to the mistaken bombing of the area north of that road. But colored smoke, laid on by artillery, was found to be the most effective means of marking close-in targets for air attack.[8] On 16 November 1944, when the heavy bombers of the Eighth Air Force were again brought into play, to smash opposition in the path of a concerted attack by the First and Ninth Armies, a line of barrage balloons (very low altitude) and, above these, bursts of red smoke from 90-mm AA guns, were employed to mark the bomb line, in addition to grouped fluorescent panels, and huge white panel markers pointing towards the target area, serving as navigational aids. The ground markers were obscured by a broken overcast, but the line of red bursts appeared above it and only a few bombs were dropped on American troops.[9]

Such precautions were of negative value and were reserved for rare occasions which required elaborate planning. The most important achievements were those attained in day-by-day cooperation. Remarkable results in tying together air and ground assault elements in rapid advances and critical attacks were obtained by extending the employment of air support officers as forward controllers, who talked pilots on to the target by VHF radio. During and after the breakthrough of U. S. armor at Saint-Lô, such controllers, located in a well-marked tank near the head of each armored column, achieved

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H. AGF Bd, ETO, Rpt No C-416 (S), 25 Nov 44, sub: Air Support (Brest) (1) Report of AGF Observer. (2) Rpt of 2d Inf Div.

I. Memo of Lt Col Roy C. Flannagan, Chief of Air Br, G-3, AGF for the ACofS, G-3, AGF (S), 19 Jan 45, sub: Rpt of Obsns in ETO, 10 Dec 44-10 Jan 45.

J. G-3 Air, 4th Inf Div to G-3 Air VII Corps (S), 1 Jul 44, sub: Air in Close Support of Inf, AGF Bd Rpt No C-195 (S).

K. AGF Bd, ETO, Rpt No C-157 (S), 5 Aug 44, sub: Notes on Interviews with Infantry Comdrs, 6 Jun-8 Jul 44.

L. Obsr's Rpt, ETO, 13 Aug-11 Oct 44 (S), dated 21 Oct 44, submitted by Lt Col M. O. Edwards, attached to 30th Inf Div.

M. Hq XVI Corps, Operations Memo No 4 (C), 15 Feb 45, sub: Air Cooperation.

7. (1) "Panels were considered most effective." Par 5 b, 12th Inf, ref "A." above. (2) Par 2 b, ref "B," above. "The practicability of the use of fluorescent panels by gnd trps to mark forwd positions was firmly established." Sec V, A7, Vol I, p 119, ref "C," above. (4) Par 3, Sec I, ref "D," above. (5) Par 1a (5) Maj Gen Charles H. Gerhardt, Comdg, 29th Inf Div Par 1 n Lt Col D. B. Goodwin, G-3, 4th Inf Div, ref "E," above. (6) Par 1 f, ref "F," above. (7) Par 8 b, ref "G," above. (8) "Panel marking has not been satisfactory in all cases." G-3 Air, 2d Inf Div par 3, ref "H," (1). (9) Par 3 g, ref "I."

8. The following references are to documents listed in note 6 above: (1) Par 2 f, ref "J." (2) Par 2 b ref "A." (3) Par 2 b, ref "B." (4) Sec V, A7, Vol I, pp 119-21 ref "C." (5) Par 1 ee, ref "K." (6) Par 2 a, ref "D." (7) Par 1 n (G-3, 4th Inf Div), ref "E." (8) Par 2 e, ref "F." (9) Par 3 (ASPO, 2d Inf Div), ref "H" (1); par 1 g (3), ref "H" (2). (10) Par 4 i (1) ref "L." (11) Par 2 j, ref "I." (12) Par 7 a, ref "M."

9. (1) Par 5, Hq ETO, AAA Notes No 7 (S), 5 Dec 44, sub: Visual Markers for Heavy Bombers. (2) Sec V (R), OPDIB, Vol IV, No 8, 23 Jun 45.

results that exceeded all expectations. During the breakthrough this system, supplemented by the resourcefulness of pilots picking up targets on their own initiative, "was responsible for the destruction of approximately 2,000 motor vehicles, 80 field artillery pieces, and upwards of 100 tanks in one week." After the sweep across France had been completed the commanding general of an armored division said: "The best tank destroyer we have is a P-47."[10]

The method became standing operating procedure in the advance of armored forces, and air officers, commonly pilots off duty, were provided for each combat command of an armored division. Controllers might assist a pilot to find a target for which he had been briefed, or they might direct him to targets of opportunity selected by the tank commander, since planes were now provided on air alert, four fighters, later more, flying cover in relays over each advancing column. If the controller had no targets, the pilots went ahead on "armed reconnaissance," searching out targets and reporting their strikes and finds back to the controller. This practice amounted to the attachment of air units to ground commands, except that the principle of independent command was preserved and air commanders could centralize their fighter aviation quickly to meet an enemy air threat if it developed. The old barriers were crumbling.[11]

Mutual confidence had built up to such a point that, in the sweep of the Third Army across France, General Patton turned over entirely to the XIX Tactical Air Command the task of watching and protecting the flank of his army along the Loire. "This," to quote the letter covering the report of the operation to the War Department, was what "the air-ground team theorists have been talking about."[12]

Not only in the advance of armored columns but also whenever a ground unit was given a critical assault mission it was normal for the air commander to allot the aviation regarded as necessary, directing it to check in with the forward controller. The controller gave it targets selected by the commander of the unit concerned. He would ask the artillery to mark the target with smoke if within range, as it often was, since experience had shown that, contrary to the doctrine previously insisted on by the Army Air Forces, air strikes could not uncommonly be used with profit on targets within the range of artillery. The artillery commander would also be requested to "black out" known antiaircraft positions in the vicinity of the target. The controller then talked the pilots on to the target and received and transmitted their immediate estimate of damage with other information they picked up if they proceeded to hunt targets of opportunity after completing their mission. Cases occurred in which the ground commander was himself able to talk to the pilots and was allowed to do so.[13]

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10. (1) Par 9, Sec V, A, ref "C," pp 120-21. (2) Par 2 c, Sec I, ref "D." (3) General Hickey quoted in AGF Bd, ETO, Report No C-487 (S), 30 Dec 44, sub: Armored Notes.

11. (1) Dr D. I. Briggs, Comments on Air Ground Cooperation (S); a vivid and circumstantial report based on interviews. (2) Hq Twelfth Army Gp, Immediate Report No 46 (S) 3 Sep 44 (personal interview with an ASPO). (3) Sec IV, sub: "Air Support of Armored Columns," OPDIB, Vol III, No 4, p 7. (4) Hq Twelfth Army Gp, Immediate Rpt No 38 (Combat Obsns) (S), Interview with Senior ASPO, IX TAC on Air Support of Ground Force Opns, Armored Units. (5) OPDIB, Vol III, No 8, Sec I (S), sub: Gnd-Air Teamwork in France, summarizing the report of the XIX TAC.

12. See item (5) in previous note.

13. (1) Par 5 b and d, item "B." (2) Par 2 a, and Notes to Accompany Figure I (f), (g), (k), and (1) (3), Item "D." (3) Par 2 d, e, g and h, Item F. (4) Par 4 i(1), item "L." (5) Item "H" (1) and (2), particularly par 1 g, item "H" (2). (6) Interview with G-3 Air, V Corps, 25 Dec 44, in appendix, Item "I."

As the result of better understanding, more precisely formulated requests, the use of controllers in direct communication with pilots, and on-the-job training, the old problem of time lag between request and air strike began to yield. At first 1½ to 2 hours between request and strike was normal, as in Italy. Later, in favorable situations, the reaction time was reduced to minutes.[14]

The Seventh Army, invading southern France in August and coming up against the lower end of the Siegfried Line, brought with it the Fifth Army system, including "Horsefly," that is to say, airborne controllers, who were used more freely in the Sixth Army Group than in the Twelfth. But, as was pointed out, the essential features of the two systems were the same, though devices differed.[15]

The primary organizational features were the close tie-in between army group and tactical air force, and between armies and tactical air commands, based on adjacent headquarters and liaison all down the line. The central tie-in was fundamental. However effective decentralization of aviation might be in critical situations, the great majority of air missions performed in close cooperation with ground units continued to be those planned jointly in the combined operations centers at army-tactical air force level. By this organization the flexibility of air so jealously watched by the Army Air Forces in statements of doctrine was safeguarded. What had been gained, along with mutual understanding, was the flexibility of combined action in critical situations which had been persistently sought by the Army Ground Forces.

It would be misleading to overemphasize the organization and techniques described in the foregoing pages in seeking to understand the improvement in the relations of U.S. air and ground forces which took place during the campaigns of France and the Rhineland. The basic fact is that the air commanders concerned were willing to support ground action; they had the necessary quantity of aviation, and devoted themselves to making cooperation work effectively. "Coordination between air and ground forces is best achieved by a mutual understanding of problems and capabilities," concluded the Commanding General of the Ninth Army, reporting lessons learned.[16] Both parties learned rapidly when they could learn by actual experience rather than by groping their way through theories and preconceptions. Evidence soon came in that pilots, as well as air commanders, were becoming keenly interested in working with troops on the ground. Air-ground teamwork in combat on the battlefields of ETO at last became a reality.[17] On

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14. (1) Par 10, d (3), Observer's Rpt on Operations of the VII Corps in Normandy 6 Jun-22 Jul 44 (S), 1 Aug 44. (2) Par 2, General Notes on Air Support by Combat Aviation and Interviews, p 5, appendix to item "I."

15. (1) G-3 Air, Twelfth Army Group. (2) G-3 Air, Sixth Army Group, pp 1 and 6, Interviews on Combat Aviation in appendix to item "I." (3) AGF Bd, ETO, Report No C-476 (S), 28 Dec 44, sub: Close Air-Gnd Support by Fighter Aircraft (VI Corps system).

16. Office of the CG, Ninth Army, 23 Jan 45, sub: Operations "Q"--a Study in Air Support. (S).

17. Quoted from par 1, General Notes on Combat Aviation in Appendix to item "I." For references to the interest of pilots, see (1) Par 4 f, Report of Lt Col E. S. Hartshorn (S), 1 Aug 44, sub: Employment of Field Artillery during the Invasion of Normandy: "The enthusiasm of the pilots for adjusting artillery is increasing." (2) Maj F. C. Landers, ASPO with 8th Inf Div, quoted in par 3, item "H" (1): "They [the pilots] are about as keenly interested as we are." (3) G-3 Air, Third Army, interview 27 Dec 44, reported in Appendix, item "I": "The pilots really fight." (4) G-3, Air, Twelfth Army Group, interview 11 Jan 45, reported (ibid): "Pilots are now visiting

his return to the United States in 1945 Maj. Gen. Elwood R. Quesada, commander of the Ninth Tactical Air Force, who was conspicuous for the energy and interest he put into making U.S. air and ground forces one team, was reported to have said of General Bradley that the one fault he could find with him was that he always thanked him for the help the U.S. air forces gave to his armies. That was our business, the air general said.[18] Time and growing mutual confidence were fortunately already blotting out, when this was said, impressions given only a year in the past when those responsible for training General Bradley's soldiers to fight were met with statements by their opposite numbers in the Army Air Forces in Washington that they did not wish the term "air-ground team" to be used, and that it was enough for ground troops to learn to recognize airplanes and mark their own positions clearly, so rarely would close-in cooperation, relegated to third priority by FM 100-20, come into play. The distance traversed can be measured by General Quesada's statement on 24 December 1944, when he said: "Close-in air-ground cooperation on the battlefield is the difficult thing, the vital thing, in training for combined operations--the other stuff is easy."[19] No better statement could be found of the position for which the Army Ground Forces had consistently contended throughout 1942 and 1943.

A survey and summary of air-ground progress in Europe was made at the end of 1944 by the Chief of the Air Branch of the G-3 Section, Headquarters, Army Ground Forces, after tour of air and ground headquarters on the Rhineland front.[20] He found general agreement that the adjustment of long-range artillery fire by high performance airplanes had been satisfactory. He found ground commanders agreed that close support by combat aviation had been excellent. The results of air reconnaissance for ground forces, whether visual or photographic, were found unsatisfactory. Also unsatisfactory were air reconnaissance and cooperation at night, whether to observe or harass movements of the enemy into line.

AIR RECONNAISSANCE, PHOTOGRAPHIC AND VISUAL

The procuring and distribution of large-area photomaps was no longer a problem. Supplied adequately even during the Sicilian campaign, they were supplied abundantly in Italy and adequately in ETO.[21] In the campaigns of Normandy, France, and the Rhineland, reconnaissance aviation was provided more generously, and the need of the ground forces for close-in vertical photographs was met.[22] A high value was attributed to the

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ground units extensively." (5) Par 3, Supplement No 3 (R), 30 Mar 45, to AGF ltr (R), 11 Jun 44, sub: Air-Gnd Battle Rpts: "Recently we have begun the practice of sending 30 or 40 medium bomber officers and enlisted crew members to various corps and divisions weekly."

18. Note to be supplied.

19. Interview of Lt Col Roy C. Flannagan with Maj Gen Quesada, reported in Appendix, item "I."

20. Item "I."

21. (1) Interviews with G-2's, Fifth Army and VI Corps, and with G-2 and CofS, 34th Inf Div, in AGF Bd, NATO. Rpt No 4-82-2 (S), 30 Nov 43. (2) Par 11, Report (S) of Col E. L. Johnson on Air-Gnd Cooperation, 15 May 44. (3) Par 5, Rpt (S) of Lt Col E. S. Hartshorn, 1 Aug 44, sub: Operations of VII Corps in Normandy, 6 Jun-22 Jul 44.

22. Interview with officers of G-2 Air Branch, Twelfth Army Gp, 18 Dec 44, Appendix to Memorandum (S) of Lt Col Roy C. Flannagan for the ACofS G-3, AGF, 19 Jan 45, sub: Report of Observations.

photographs obtained. A system of photo interpretation by ground interpreters similar to that of the Fifth Army was installed, and the improved training of these interpreters enabled them to get excellent results. The problem that persisted was getting air photographs to ground units in sufficient quantity and in time to be used.[23] It may be that ground commanders were less easily satisfied because they had acquired a better appreciation of the value of reconnaissance photography for exploring the terrain immediately ahead, as well as for supplementing their intelligence regarding the enemy. In any case their dissatisfaction was widespread and strongly expressed. Some observers laid the blame on the "cumbersome" machinery set up for processing requests.[24] The conclusion reached by the AGF air officer after his tour of the ETO front in December 1944 was that the delays producing the dissatisfaction were located in the air photographic laboratories, where "Air Force air photographs (for example, those used to assess bomb damage to distant targets) in every case have priority over air photos taken for ground units."[25] It is noteworthy that while ground commanders ceased to agitate for control of combat aviation, they continued to urge that tactical reconnaissance squadrons be regularly attached or assigned to corps.[26] The problems of physical separation and divergence of interest had still to be solved. In the field of tactical reconnaissance an effective air-ground team had not yet come into existence.

DEVELOPMENTS IN THE PACIFIC AND FAR EAST, 1943-45[27]

While these developments were taking place in Europe, collaboration between Allied air and ground forces, widely extended over the Pacific and the Far East, was producing

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23. (1) Par 19 a, Observer's Report (S) by Lt Col E. J. Leary, with 9th Inf Div, 12 Aug-10 Oct 44. (2) Par 4 c, AGF Bd, ETO, Rpt No C 598, (S) transmitting statement by the CG, 95th Inf Div, sub: Air-Gnd Coordination. (3) Interviews on Air Reconnaissance for Ground Units, in Appendix to memo (S) of Lt Col Roy C. Flannagan for the ACofS, G-3 AGF, 19 Jan 45, sub: Report of Observations.

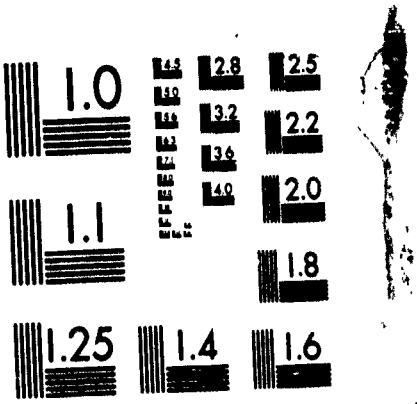
24. (1) Par 7, Report (S) of Col Alan L. Campbell, AGF Observer, 4 Aug 44, sub: The Invasion of Normandy. (2) "Failures now result from requests and instructions having to pass thru too many offices. Serious mistakes are made which could be avoided by closer contact between the pilot taking photographs and the unit requesting them." Pars 14 c and 51 b, memo (S) for the ACofS G-2, AGF, 18 Aug 44, sub: Report of Observations. (3) For description of system used in XIX Corps, AGF Bd, ETO, Rpt No C-158 (S), 8 Aug 44, sub: Statement of Lt Col S. J. Towne, AC, regarding Planning for Intelligence Missions.

25. P 2 a and par 5, incl 1 (S) Notes on Air Rcn for Gnd Units, memo (S) of Lt Col Roy C. Flannagan for G-3, AGF sub: Report of Observations. See also interviews appended thereto.

26. Note to be supplied.

27. This section is based in part on the following documents: (1) A comprehensive Report on Air Support in SWPA during the period 1 Nov 43 to 1 Feb 44, submitted to the CG AGF by Col H. V. Dexter, 10 Apr 44. 319.1/102 (Foreign Obsvr)(S). (2) Air cooperation in the landing at Arawe is described in AGF Bd, SWPA, Report No B-7 (C), sub: Air Support of Ground Troops Opns during and after the landing at Arawe, 11 Feb 44. (3) Special Report, sub: Developments of Close Support Technique in North Burma (R), 5 Sep 44. (File source to be found.) (4) Sixth Army ltr to CG AGF (AG 370.2-C), 20 March 45, sub: Air-Ground Cooperation.

Further documentation will be supplied when the study is revised and extended for publication in the Army Ground Forces subseries of The U.S. Army in World War II.



MICROCOPY RESOLUTION TEST CHART
NATIONAL BUREAU OF STANDARDS-1963-A

another body of experience by which theories could be tested. It did not produce, during 1943-44, changes in the system of air-ground cooperation such as were taking shape in Europe, although the closest possible integration of ground, air, and naval elements including naval air, was required in the movements from island to island with comparatively slender forces. In the Southwest Pacific area the Allied forces under General MacArthur were hopping along the northern coast of New Guinea toward the Philippines, after rolling the Japanese back to the eastern tip of New Britain. Reports from this theater indicated happy and effective relationships between Lt. Gen. George C. Kenney, the air commander, and Gen. Douglas A. MacArthur. Ground commanders found air support generous. Air commanders accepted targets normally regarded as unprofitable objects of air attack, as, for example, when as many as five squadrons were employed to attack the probable location of a Japanese platoon, well dispersed and dug in. On occasion a reconnaissance plane was used to lead bombers on to a target close to the front of ground troops and obstructing their advance. In the combined operations at Arawe, Cape Gloucester, and Saidor Army planes on air alert were directed to targets of opportunity by a forward controller at the elbow of the ground commander--a form of decentralization normally regarded with disfavor by the Army Air Forces. No part of the theater air force was specifically allotted to support of ground forces, but the use made by General Kenney of his resources gave the ring of true coin to his statement that "all the Air in the theater was available and ready for direct support of ground operations, if, when, and in such proportions as needed."

But the results of this air-ground relationship, so desirable and immediately effective, could not as yet be generalized. The conditions were too exceptional and transitory with reference to what was to come. As was noted by the special observer of the Army Ground Forces visiting the theater in the spring of 1944, one important factor in the happy relationship of ground and air was that in the Southwest Pacific theater there were no tempting targets for strategic bombing. Air superiority was readily achieved and maintained because Japanese air defense and air power were weak. Furthermore, ground targets were generally targets in which the air found its own interest and profit, namely, the obtaining and securing of more advanced air bases. On the other hand, ground movement was so slow that the problems of cooperation based on quick timing did not arise. For example, the communication of requests for air support required, on an average, from four to six hours. But this delay seldom hampered operations. The effectiveness of the British ground-to-air liaison in the Australian component of the theater air force was advertising the merits of that system, and its extension was recommended by the AGF observer. In general, neither the effectiveness of standard procedures nor the willingness of the air forces to cooperate were undergoing a serious test in the Southwest Pacific area. The most substantial gain was mutual good feeling and the latitude this gave for experimentation as the need arose.

In the China-Burma-India theater the conditions were similarly exceptional. But in Burma the course of the Allied advance down the Hukawng and Mogaung Valleys, and during the reduction of Myitkyina in 1944, demonstrated how effective close-in cooperation between ground forces and U.S. Army air could be made, even under most difficult conditions. With a will to cooperate and a practical spirit present on both sides, American air was completely integrated into the offensive, accurately striking through the natural camouflage of the jungle at targets such as artillery positions, dug-in machine guns, slit trenches, road blocks, and "anything else standing immediately in front of the advancing troops and blocking their way." When the Galahad Force (Merrill's Marauders) came in, this kind of support was given effectively to troops that were advancing in quick thrusts and encircling movements. Often spearing through the Japanese lines, they were supplied by air drop while waiting for the Chinese to move up in support, and protected by air strikes from Japanese attacking from all sides.

When the Myitkyina airfield was seized, while the town at a distance measurable in yards was still strongly held by the enemy, cooperation became even closer. The risk was taken of basing a dozen planes at once on the airdrome, while others were called in for support as needed. The pilots of the local planes were sometimes given targets within twenty-five yards of friendly troops and "never inflicted a single casualty on them." A company commander could request a mission and see it executed within 30 minutes (one bombing mission was completed in 10).

To attain such hand-in-glove cooperation, air and ground headquarters had felt their way forward together to find a basis for accurate briefing and effective communication. This had been found in an advance distribution to air and ground units of uniform sets of air photos, on a scale of 1 : 10,000, with a common reference grid system, covering probable fronts. These were supplemented with verticals taken from lower levels, and with obliques, when a reconnaissance squadron became available. With such aids a troop headquarters could refer to a minute point on any photo, "even down to a single tree." With the Galahad Force and at Myitkyina, air officers with forward units talked pilots on to their targets by VHF radio. During the advance down the valleys the planning and coordination of air missions was accomplished through air liaison officers on duty with G-2 and G-3 of the ground command. At Myitkyina A-2 and A-3 set up offices next to the ground headquarters on the airfield. Commanders on the line of contact telephoned their requests for support to G-3, who screened the requests and assigned priorities. In conference with A-2 and A-3 the suitability of targets was determined, the time-over-target of accepted missions set, and the ground commanders notified. It was the Fifth Army-XII Air Support Command system in miniature. Cooperation was producing similar expedients at opposite poles of the earth without benefit of standardized doctrine.

In the Pacific war amphibious operations developed the cooperation of army ground units with naval air. One outcome was the joint assault signal company, organized to provide and coordinate the communications used in getting ground forces ashore under naval air cover. Reports from the Pacific indicated great satisfaction with the close support provided by Navy and Marine aviation ashore. But the development of close-in cooperation between ground forces and Army air remained relatively immature through the period culminating in the surrender of Japan. A tactical air force was constituted, but no tactical air commands. The army which had had most experience in working with army air units was the Sixth. In March 1945 it had just received the T/O&E's for air-ground liaison sections published in January. Only fifteen officers with adequate training for duty as ground liaison officers had been available, and this number had been found insufficient to meet the demands of satisfactory air-ground cooperation during the Luzon campaign, but twelve more subsequently reported. When ground liaison officers were used on Leyte and Luzon, air and ground commanders had "enthusiastically commended" their services. In March 1945 the air parties prescribed by FM 31-35 were still being employed, down to divisions, and normally acted as air officers on the ground commander's staff. In the absence of a tactical air command they passed requests for air missions, "monitored" en route by higher ground echelons, directly to the air force unit charged with the execution of the requested mission. The communications system, which included the air force radio net prescribed by FM 31-35, had been found insufficient and slow, as elsewhere, and the lack of adequate communications for rapid action was "keenly felt." To speed up and direct more effectively the air reaction to requests, the practice of sending representatives of the air party in forward observation posts to coordinate air strikes was introduced by the Sixth Army on Luzon with good results. Panels, white phosphorous smoke, and colored smoke grenades to designate targets and mark friendly positions were being used in much the same ways as in Europe. The adjustment of artillery by high-performance airplanes had failed completely on Leyte because suitable planes were not provided, and numerous efforts to improve it had achieved no concrete results on Leyte or Luzon. The provision of air photos to ground units on request had been

attended by the same shortcomings in sufficiency and speed as in Europe.

To meet its needs for aviation, the Sixth Army was vigorously exploiting the capabilities of its field artillery liaison planes.

Chapter IX

ORGANIC GROUND AVIATION IN COMBAT

The progress of the war in 1944 left no shadow of doubt that the Field Artillery had come to regard its little grasshopper planes as indispensable.[1] The Germans acquired such a healthy respect for their ability to spot fires that the very presence of cubs in the air had a counterbattery effect, not only on their artillery, but on their antiaircraft fires. An observer in France with the 2d and 3d Armored Divisions reported that it was standing operating procedure to keep at least one artillery observer in the air during all daylight hours, since the sight of a cub was considered by the enemy as "a preamble to certain death."[2] The pilots were daring and resourceful. They were not supposed to fly over the enemy lines. As U.S. air forces gained supremacy, it became less dangerous to do so. But even when the enemy was in the air, they bored for information and went "where necessary to see what they have to see."[3] They could evade enemy fighters by maneuver at tree-top level and they became skilled in dodging flak. Their casualties from enemy action approximated those of field artillery observers on the ground.[4] When the Pozit fuse was introduced, the peril of their flights amid the

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1. For example, see the following: (1) Ltr (S) of Gen Hodge, CG Americal Div to Gen McNair, 3 Mar 44. 353.1/100 (FA)(S). (2) Rpt (S) of Col E. L. Johnson on Air-Gnd Cooperation in ETO and MTO, 15 May 44. (3) Par 5 (1), memo (S) of Col Edwin L. Johnson to AGF Bd, ETOUSA, 16 Jun 44, sub: Info regarding Air-Gnd Joint Opns. (4) "Their value to the FA is beyond estimate," par 4d, Rpt (S) of Lt Col E. S. Hartshorn to HQ AGF, 1 Aug 44, sub: Employment of FA during Invasion of Normandy. G-2 DD file. (5) "It has now become evident to the entire Army that the artillery-developed method of observation is so effective that it is virtually a necessity." Memo of Hq 36th Inf Div Arty for CG, 36th Inf Div, sub: "Transmittal of Hist Records and Hist of Orgn in Rpt (S) of AGF Bd, MTOUSA, No A-217-3, 10 Sep 44. (6) "Many high-ranking officers state that it is the greatest development of the war." Statement of Col B. Conn Anderson, FA, sub: Cub Plans, Rpt (S) of WD Observers Bd, ETO, 5 Oct 44. (7) "Almost 75 percent of our shooting is done by liaison planes." Statements of FA officer, AGF Observer's Rpt (S) on 80th Inf Div in France, 12 Aug-3 Oct 44. G-3 DD file. (8) "The cub airplane is indispensable for field artillery." Rpt of Col W. D. Brown, G-4 (C), to G-2 AGF, 10 Mar 45, sub: Rpt of Overseas Obsns. 319.1/14 (O'Seas Obsns)(C). (9) "Present employment and organization (of liaison type air in FA) has been eminently successful." Par 2a, Rpt (S) of Col John C. Bennett and Lt Col R. R. Williams to CG AAF, 1 Apr 44, sub: Employment of Ln Type Aircraft. 353/144 (FA Air Obsn)(S).

2. (1) Par 5 k (1), Rpt of Col E. L. Johnson, cited in n 1 (3) above. (2) Extract, S-3 Journal, 34th Inf Div in Lessons Learned in Combat 7-8 Nov 42-Sep 44. Rpt (C) of AGF Bd, MTO, No A-Misc-89. (3) AGF Obsvr's Rpt (S) cited in n 1 (7) above. (4) Par 4 g, Rpt of Lt Col L. C. Buchler covering the period 12 Aug-9 Oct 44, dated 22 Oct 44. Hist file.

3. (1) Par 4 d, Rpt (S) of Lt Col E. S. Hartshorn to CG AGF, 1 Aug 44, sub: Employment of FA during Invasion of Normandy. G-2, DD file. (2) Brig Gen Pierre Mallett, CG 85th Div Arty, Rpt (C) of AGF Bd, MTO, No A-291, 27 Feb 45, sub: FA. Ibid. (3) Par 2. Rpt (S) of Col B. Conn Anderson, FA, Rpt of WD Observers BD, ETO 4 Oct 44, sub: Cub Planes. (4) Rpt of Col Buchler cited in n 1 (4) above.

4. The Air Branch, G-3 AGF, estimated that the rate of loss from all causes was about 4 percent each month. Statement of Lt Col Roy C. Flannagan to AGF Hist Off, 12 Feb 45.

trajectories of American shells was greatly increased, and a system of warnings and air traffic regulations had to be adopted to minimize it.[5] Though hard worked and without the public prestige accorded to Army Air Forces pilots, they developed a high spirit.[6] Their spirit, their resourcefulness, and their daily identification with the life and interests of the ground forces gave them an immense popularity with the soldiers.

EXTENSION OF USE BY FIELD ARTILLERY

The uses to which the Field Artillery put its little planes were extended with experience. It was found that they could be employed effectively to control naval gunfire in landing operations.[7] The artillery commander of the Americal Division, by rigging an L-4 with a camera, developed a method of aerial survey which the division found invaluable in jungle terrain.[8] The method was authorized by the War Department in July 1944, under restrictive conditions and with equipment borrowed from the Air Forces.[9] Early in 1945 a method was developed for instantaneous location of targets on the maps of the artillery fire direction center by means of radar fixes on a liaison plane.[10] Reports of observers showed that, once it was found that the sight of artillery cubs in the air tended to silence enemy artillery and made spotting by daylight more difficult, it became common practice to send them up before dawn, in the dusk after sundown, and by moonlight, to spot fires. It was evident that their effectiveness would be still further increased if the pilots were trained and the grasshoppers equipped to fly by night.

USE OF CUB AIRPLANES FOR OTHER THAN FIELD ARTILLERY MISSIONS

The qualities that made ground liaison planes indispensable to the field artillery created a demand for them in the other ground arms. In the early days, in Tunisia, befor their utilization by the artillery had fully developed, they had been used freely by commanders as flying "jeeps," i.e., as courier and liaison planes. When the artillery learned to exploit them fully, this demand persisted, even after an Army Air Forces squadron of 32 L-5's had been put at the disposal of each army to meet it. Meanwhile, in the void left by the concentration of the thought and energy of the Army Air Forces on the destruction of enemy air power, strategic bombing, and the development of high-performance airplanes, an increasing variety of uses were found for the little airplanes which the ground forces had within reach. Every major type of ground combat unit, except antiaircraft, found a use for them and borrowed them when it could from the artillery

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5. These precautions are described in Sec I (S), OPDIB, IV, No 2, 25 Feb 45.

6. See, for example, Margaret Bourke-White, They Called It Purple Heart Valley.

7. (1) First Army, Operations memo No 17 (S), 3 May 44, sub: Use of AOP's in Amphibious Opns. 353/111 (FA Air Obsn)(S). (2) AGF ltr (C) to Sec, J Committee on New Weapons and Equipment, 18 Apr 45, sub: Brodie Suspension Landing Apparatus. 452.11/100 (C).

8. (1) Ltr (C) Hq Div Artillery, Americal Div, 26 Mar 44, sub: Controlled Mosaics by the Arty Ln Planes. 061/105 (C). (2) Personal ltr (C) of Gen Hodge, CG, Americal Div to Gen McNair, 31 Mar 44, sub: Effective Arty Fire in Jungle Warfare. 353.1/100 (FA)(S).

9. WD ltr (R) AG 062.3 (27 Jul 44) OB-S-C, 31 Jul 44, sub: Air Survey Methods. 061/124 (R).

10. OPDIB, IV, No 6, Sec III, 24 May 45, sub: Target Location by Radar Fires on Liaison Planes. 314.7 (AGF Hist).

to meet some vital need in battle. These uses suggested others to which, with modifications, they might advantageously be put.

As finally developed by need and employment in battle, the uses to which FA liaison planes were effectively put included courier and liaison service; reconnaissance both visual and photographic, not only by ground reconnaissance units (mechanized cavalry) but also by infantry, armor, tank destroyers and engineers; column control by swiftly advancing armor; emergency resupply, for which the cubs were admirably fitted by ability to land almost anywhere; speedy evacuation of the wounded from the front lines; and even close-in bombing.[11] They were further in demand for relaying communications between front-line ground troops and supporting fighters or bombers ("Horsefly") and for indicating targets to these. By 1945 it had been found that cubs could

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11. The best summary will be found in the rpts to AAF of the two observers it sent to ETO and MTO, dated 1 Apr 45, and transmitted to the CG, AGF by AAF ltrs, 14 Apr and 24 Apr, sub: Employment of Ln Type Airplane. 353/144 (FA Air Obsn)(S). A similar list of uses in Burma is given in USAF-I-B to WD, CM-IN-17298, 16 Mar 45, sub: Request that Ln Aircraft be Subject to Control Within the Ground Forces rather than the Division. 452.1/142 (R). For Leyte: OPDIB IV, No 6, 24 May 45, Sec II, sub: Special Uses of Ln Planes on Leyte. For references to other rpts and requests see Annex to this chapter. (Title of Annex: Reports and requests referring to use of ln planes by other Ground arms). (1) Ltr, CG, Div Arty, to CG, Americal Div 26 Mar 44, sub: Controlled Mosaics by the Arty Ln Planes (photo air survey, reconnaissance, supply, evacuation). 061/105 (C). (2) CG, 92d Inf Div to CG, Fourth Army, 31 Mar 44, sub: Air Photography by Arty Ln Planes (photo recn for engrs). 354.2/278 (La 144). (3) AGF Bd NATO Rpt (S) No 4-165, 5 Jul 45, sub: Armored Comd Matters (recn). G-2 DD file. (4) Ltr (S) Hq II Corps, 400.345 (C/S) to CG, AGF, 11 Jul 44, sub: Change in T/O&E of Recn Sq (recn genl). 353/130. (FA Air Obsn) (S). (5) Rpt (S) of Capt R. E. Van Zant, 1st Armd Div to CG Armd Center, 9 Aug 44, sub: Use of Light Plane (cub) in Conjunction with Tk Units (recn "Horsefly"). 353/130 (FA Air Obsn) (S). (6) Hq 36th Div Arty to CG to CG, 36 Inf Div, sub: Transmittal of Hist Records and Hist of Orgn, in AGF Bd, MTOUSA, Rpt (S) No A-217-3, 10 Sep 44 (non-arty, genl). G-2 DD file. (7) Ltr (S) Hq Armd Sch 334-GNRUG, 16 Sep 44, sub: Combat Rqts for Cub Planes in Armd Divs (recn, armd, TD, engrs; photo recn; camouflage check; column control. 353/130. (FA Air Obsn)(S). (8) Rpt of Col B Conn Anderson, WD Observers Bd, Rpt (S) No C-262, 5 Oct 44, sub: Cub Planes (recn). G-2 DD file. (9) AGF Bd, MTO, Rpt (S) No A-Misc-93, 8 Oct 44, sub: Combat Lessons, 1st Armd Div (recn & adjustment of tk fires). G-2 DD file. (10) Rpt (S) of Lt Col Michael Popowski, Jr. AGF observer with 81st Cav Recn Sq, 13 Oct 44 (recn). G-2 DD file. (11) Rpt (S) of Maj J. M. Kircheimer, AGF observer with 4th and 6th Armd Divs, 13 Oct 44 (recn). G-2 DD file. (12) Rpt (S) of Lt Col E. J. Leary, AGF observer with 9th Inf Div (recn). G-2 DD file. (13) ETO Observers Rpt (S) No C-Misc-28, sub: Interviews, Obsns, etc., Asst. CG, 83d Inf Div (recn) G-2 DD file. (14) Rpt (S) of Lt Col L. C. Buchler, AGF observer with 2d and 3d Armd Divs (recn). G-2 DD file. (15) AGF Bd MTO Rpt (S) No A-196, Incl 4, sub: FA (AOP) (evac, photo recn). (16) Extracts from observers rpts, Tab B, AGF memo (S) for CofS, USA, 28 Oct 44, sub: Organic Assignment of Aircraft Other Than to the Air Forces, (photo recn; genl purpose vehicles). 353/126 (FA Air Obsn) (S). (17) AGF Bd ETO, Rpt (S) No C-483, sub: Notes on 4th Cav Sp (recn). G-2 DD file. (18) 2d Ind, Prest FA Bd, 9 Feb 45, to AGF ltr (C), 30 Dec 44, sub: Photo Equipment for FA (air survey; photo recn). 319.1/112 (EUTO)(C). (19) Notes (S) of Col Dowd, Staff Air Off with Yoke Force and Chinese Expeditionary Force, Burma, for ACofAS, Plans, 25 Jan 45, sub: Ln Aircraft Opn in China (courier, liaison, resupply, evac, recn visual and photo, bombing). 353/140 (FA Air Obsn)(S). (20) AGF Bd MTOUSA, Rpt (S) No C-620, 7 Feb 45, sub: Combat and Staff Lessons, Seventh Army (recn, engrs). G-2 DD file. (21) Rpt (S) of Lt Col Edson Schull, AGF observer with 1st Armd Div,

be used for firing rockets, and they were being equipped and tested for this use.[12] These extensions of employment were accompanied by numerous requests from the field that liaison planes be made organic in other arms than artillery and also that the Piper cub be adapted to these uses or a more versatile liaison airplane be developed.

EFFORTS OF ARMY GROUND FORCES TO IMPROVE FIELD ARTILLERY AIR OBSERVATION

In its desire to meet these needs, Army Ground Forces was faced by two great difficulties. One was the position taken by G-3, War Department, that if the program of field artillery aviation was expanded beyond its stated missions, the Commanding General, Army Air Forces, would be at liberty to renew his demand that this aviation be transferred to his control.[13] The other difficulty was that the Army Air Forces, as a technical service, controlled the procurement, development, and issue of all air equipment--its own and that used by the ground forces. On 19 April 1944 this control was tightened by the War Department.[14] Even after the Army Air Forces withdrew its objections to aviation organic in ground forces, it was only natural that as a using arm it should give the right of way to projects connected in its primary mission and interest.

The general policy of the Army Air Forces of giving a low priority to the needs of ground troops previous to the invasion of Normandy and its repeated efforts to regain control of organic ground aviation had convinced Army Ground Forces that if any excuse were provided, the Air Forces would take advantage of the G-3 directive and renew these efforts.[15] Likewise the key officer on air-ground policy in G-3, Colonel Burwell, "stated repeatedly and emphatically" that if Army Ground Forces "attempted to expand the organic aviation program" the War Department would reopen the question of turning

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19 Feb 45 (rcn; staff vehicle). G-2 DD file. (22) AGF M/S (S) G-4 to C/S, based on rpts of 95th Inf Div and 11th A/B Div (Leyte) 19 Feb 45, sub: Air Supply and Evacuation by Ln Airplanes. 353/136 (FA Air Obsn)(S). (23) AGF Bd, ETO, Rpt (C) No C-685, 26 Feb 45, sub: Orgn of Cav Rcn Sqs (recn). G-2 DD file. (24) AGF Bd MTOUSA Rpt (S) No A-276, 1 Mar 45, sub: Armd Force (rcn). G-2 DD file. (25) Memo (S) of Gen Stilwell for Gen Marshall, 5 Mar 45, sub: Close-in Night Bombing by Ln Aircraft. 353/13A (FA Air Obsn) (S). (26) Memo (C) G-4, AGF to G-2 AGF, 10 Mar 45, sub: Rpt of O'Seas Obsns by Col W. D. Brown (photo rcn). 319.1/14 (O'Seas Obsns) (C). (27) CG, USAFFE, Manila to War, CM-IN-16939 (16 Mar 45) (rcn, traffic control, emergency resupply). 451.1/142 (R). (28) AGF Bd, ETO, Rpt (S), No C-767, 27 Mar 45, sub: Armd Notes (comd obsn). (29) AGF Bd ETO Rpt (S) No C-775, 28 Mar 45, sub: Mczd Cav Notes (rcn) G-2 DD file. (30) Rpt (S) on Luzon Opn by Col. I. W. Oseth, AGF Observer, 1 Apr 45 (inf recn and ln). G-2 DD file.

12. (1) AGF M/S G-3 to CofS, 9 Apr 45, sub: Rocket Firing Ln Planes. 353/139 (FA Air Obsn)(S). (2) AGF memo (S) for CofS, USA, (attn: NDD), 7 Jun 45, sub: Development of Rocket Firing Avn for Close Support of Gnd Combat Troops. 471.94/185 (S). (3) AGF M/S G-3 to RQ's, 10 Jul 45, sub: Ft Sill Ln Project--Ln Avn (Rpt of Tests). 353/134 (FA Air Obsn)(S).

13. Note to be supplied.

14. WD memo (S) WDGDS 11712A for CG's AGF and AAF, 19 Apr 44, sub: Ln Aircraft in the AGF. 353/109 (FA Air Obsn)(S).

15. (1) Opinion of Gen Lucas, 14 Apr 44, reported in AGF M/S, G-3 to CG, 18 Apr 44, where the issue was merely equipping L-4's with cameras for artillery air survey. 061/124 (R). (2) AGF M/S, G-3 for C/S 23 Oct 44 and Tab A, "Summary of WD Policy," reviewing "past bitter experiences." 353/126 (FA Air Obsn)(S).

all field artillery aviation back to Army Air Forces.[16] Army Ground Forces therefore proceeded with caution and embarrassment in its moves to satisfy the needs of the ground forces in combat for more and better organic aviation.

Army Ground Forces' first line of action was to seek improvements in the L-4 and extensions of its use within its field artillery role. It sought to obtain the installation of two-way radios in all L-4's.[17] In April 1944, the procurement of controllable pitch propellers for L-4's was sought and in the same month was directed.[18] In the landings at Salerno and Anzio, cubs had been launched from the decks of LST's and those that survived were effective in adjusting naval gunfire. To improve their employment in the early stages of ship-to-shore operations, Army Ground Forces, in April 1944, directed the Field Artillery School to test L-4's fitted with seaplane floats.[19] Meanwhile, Lt. James H. Brodie, of the Transportation Corps, had devised a shipboard tackle for launching and recovering light planes in amphibious operations.[20] Installed by the Navy on an LST, at Army request, the rig was service-tested in the amphibious training of the 97th Infantry Division at San Diego, Calif., in August 1944.[21] One was used, with an effectiveness that produced great enthusiasm, in the assault of the 77th Infantry Division on Ie Shima in April 1945 in the Okinawa campaign.[22]

As soon as the rig had come to its attention, more than a year before this (February 1944), Army Ground Forces saw that it might be developed for use on land as well as on ships and that artillery planes could be thereby liberated from dependence even on improvised landing strips--an advantage of particular importance in rough, wooded, or jungle terrain.[23] The Army Air Forces threw cold water on the proposal.[24]

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16. AGF M/S, G-3 to C/S, 23 Oct 44. 353/126 (FA Air Obsn)(S).

17. AGF ltr to CSigO, 27 Jul 44, sub: Radio Installations in FA Ln Aircraft. 452.1/113 (R).

18. AAF ltr to CG, ASF, 27 Apr 44, sub: Development of Controllable Pitch Propellers for L-4 Aircraft. 452.11/108.

19. AGF ltr to FAS, 7 Apr 44, sub: Seaplane Operations of FA Aircraft. 452.11/105.

20. A description of the Brodie devils was published in OPDIB II, Sec V (C), No 3, 10 Jun 44.

21. (1) AGF memo (C) for CofS, USA (attn: OPD), 15 Sep 44, sub: Brodie Landing Device on Navy LST. 452.11/102 (C). (2) For details of arrangements, correspondence in 353/112 (FA Air Obsn)(S).

22. Ltr (S) of Maj John C. Kriegsman, Air Officer, 77th Inf Div to Col Wolf, sub: Brodie Landing Device Instructional Teams. 353/142 (FA Air Obsn)(S).

23. AGF memo (S) for CG AGF, 6 Feb 44, sub: Suspension Landing Apparatus for Light Planes. 452.1/105 (S).

24. 2d ind, Hq AAF, 11 Feb 44, on ltr just cited. AAF recommended that the Brodie device be given no further consideration because of the difficulties of transportation, maintenance, and servicing in isolated localities.

But the OSS, with the backing of the New Developments Division of the War Department, took up the development and procurement of Brodie devices and the Materiel Command, Army Air Forces, cooperated. Army Ground Forces after repeated requests was finally able through an arrangement with OSS in October 1944 to get two sets for training purposes and for tests at Ft. Sill.[25] Requests for the device began to come in from theaters as soon as they were notified of its capabilities, and introductory teams were trained and sent out with the sets shipped out.[26]

These efforts did not raise the issue of "expansion," though they inevitably tended to render cub planes capable of wider usefulness. On the other hand, when Army Ground Forces faced the need for modifications in the L-4 to permit its use in aerial survey and for fire-spotting at night, it feared that that issue would be raised, and organic control would again be challenged. Even though the changes were needed to improve the cubs for their field artillery mission, they would turn them into heavier and more versatile planes, and bring them into rivalry with the L-5's of the Army Air Forces liaison squadrons. For example, aerial survey required the installation of equipment for flying by instrument. L-5's were either already equipped or could readily be equipped with cameras and to fly by instruments. It would almost certainly be argued that the L-5, already preferred by the Field Artillery in the Mediterranean Theater, should replace the L-4. It would be only a step from this to a renewal of pressure to substitute AAF squadrons of L-5's for organic aviation.

When the Americal Division recommended its method of aerial survey, using photographs taken from field artillery liaison planes, Army Ground Forces, believing that the method had been adequately field tested by the division, favored its application in the Pacific areas.[27] But two touchy issues were involved--the installation of cameras in cub planes, and the performance of aerial photography by a ground organization. Army Ground Forces had recently been rebuked by the War Department for its proposal to put cameras in L-4's as tending to overload them and divert them from their proper missions.[28] General McNair was anxious lest a new request for photographic equipment might provide War Department G-3 with a ground on which to invoke "the threat they used in returning to us the request of the Army Air Forces to take over artillery observation." Nevertheless, when his G-3 insisted, he went ahead with the request.[29]

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25. (1) 3d ind, Hq AGF, 14 Feb 44, to same. (2) AGF ltr (R) to FAG, 31 Oct 44, sub: Brodie Device. 452.11/105 (R). The request was made by AGF ltr (R) to CG ASF, 24 Jun 44, sub: Suspended Launching and Landing Apparatus (Brodie Design). 452.11/100 (R).

26. (1) AAF ltr (S) to AGF, 2 Sep 44, sub: Brodie Device for CBI Theater. 353/112 (FA Air Obsn)(S). (2) AGF ltr (R) to FAG, 31 Oct 44, sub: Brodie Device. 452.11/105 (R).

27. AGF memo (R) for CofS, USA, 1 Jun 44, sub: Air Survey Method. 061/124 (R).

28. WD memo (R) WDGCT 319.1 (24 Mar 43) for CG AGF, 10 Feb 44, sub: Rpt of Test of Oblique Photography. 353/102 (FA Air Obsn)(S).

29. AGF M/S, CG to G-3, initiated 11 Apr, sub: Air Survey Method. The words quoted are those of the CofS AGF, who was informed that WD G-3 would not invoke the threat. Gen McNair was still wary. See item dated 17 May.

He recommended (1 June 1944) that each division artillery headquarters in the Pacific area receive an augmentation of photographic equipment and technicians so that it could employ the method of aerial survey in jungle terrain.[30] The War Department met this proposal by reiterating the sole responsibility of the Army Air Forces for aerial photography. It would admit the need of ground units for the equipment recommended only "in isolated localities, such as the small islands of the Pacific," where it was impracticable for the Army Air Forces in the theater to meet it. In these cases, only by direction of the theater commander to his air commander and only on a temporary basis was the necessary photographic equipment and personnel to be loaned to accomplish the photography with organic field artillery liaison aircraft. At the same time all commanders were warned not to install cameras, except temporarily, in the existing L-4's.[31]

The measures approved by Army Ground Forces in order to train field artillery liaison pilots in night flying at Fort Sill threatened to raise the same issue. Trying to avoid radical changes in the L-4, Headquarters, Army Ground Forces, on the recommendation of the Field Artillery School, requested Army Service Forces (28 April 1944) to equip cubs used in training with running lights, L-4's so equipped having been used successfully at night at Fort Sill.[32] On 22 May War Department, G-3 vetoed the request. It ruled that liaison pilots could train for such flying only in planes equipped for flying on instruments, and that "the experience of the Army Air Forces in night flying must be utilized to the utmost."[33] The proposed operational course in night flying at the Field Artillery School, although agreed on at a conference in March which had included a representative of the Army Air Forces, was blocked.[34] Owing to a variety of adverse circumstances, such a course was not given at the Field Artillery School during the war.[35] Meanwhile field artillery liaison pilots, both candidates and graduates, received training in flying on instruments as part of the pilot training given them by the Army Air Forces.[36]

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30. AGF memo (R) for CofS USA, 1 Jun 44, sub: Air Survey Method. 061/124 (R).

31. The further development of the air survey method can be followed in 061 (R)(C) and (S).

32. (1) AGF ltr to CG AGF, 28 Apr 44, sub: Night Flying Equip for FA Ln Airplanes. 452.11/106. (2) Telg FAG to AGF, 26 May 44, sub: Use of L-4B . . . w/ Lights for Night Flying. 452.1/649.

33. WD memo (r) WDGCT 452.1 (24 Apr 44), 22 May 44, for CG AGF, sub: Night Flying Equipment. 452.11/101.

34. The conference, held on 17 March, and the conclusions reached are reported in FAG ltr GNRFT 352.11 to CG AGF, 23 Mar 44, sub: Revision of Courses of Instruction for FA Ln Pilot Trainees. 353/104 (FA Air Obsn)(?). The AGF ltr approving the course is dated 19 Apr 44; the AGF telg to FAG ordering suspension of the course, 22 May 44. Ibid.

35. (1) A night flying course at Ft Sill was authorized to begin 1 Jan 45 with borrowed L-5's. WD memo (S) WDGCT 211 (26 Jul 44) for CG AGF, 14 Dec 44, sub: Ln Pilots for FA. 353/127 (FA Air Obsn)(S). (2) It was suspended by AGF memo (S) for CofS USA, 29 Dec 44, sub: Ln Pilots for FA. Ibid.

36. The tng was given at Goodfellow Field and instituted 4 Sep 44. (1) WD memo (R) for CGAAF, 6 Jul 44, sub: Night Flying Tng for FA Ln Pilots. 452.11/101 (R). (2) WD memo (R) 452.1 (24 Apr 44) for CG AGF, 3 Aug 44, sub as above. 353/112 (FA Air Obsn)(R).

The effect at the front of all such training was restricted by the order prohibiting the flying of L-4's at night, since at the end of the war a great majority of field artillery observation planes were still L-4's.

EFFORTS TO OBTAIN A MORE SUITABLE AIRPLANE

By May 1944 evidence was piling up that the unimproved L-4 was not suitable for the purposes to which it was being put, or could be put, in combat by the Field Artillery, not to mention other ground arms. On 22 May, War Department G-3, in the directive by which it suspended night flying training at Fort Sill, instructed the Army Ground Forces to institute promptly an effort to obtain planes better suited for its purposes than the L-4. The choice of a model was limited to available types that could be manufactured readily, and was to include the L-5, the L-4F, which was one of the variants of the L-4 in use, and the J-5D, which was an improved model of the L-4 type constructed by the Piper Corporation (designated by the Army as the L-4X).[37]

This was authority for the Army Ground Forces to propose a more versatile plane. But in presenting the military characteristics of such a plane--the initial step, to which Army Ground Forces proceeded at once--it still seemed advisable to steer clear of anything that might be construed as "expansion." The covering memorandum (26 June 1944) referred only to the field artillery mission of the plane desired, specifically to its capacity for night flying.[38] Nevertheless, the characteristics included space for a litter and this meant also capacity to carry a light cargo.[39] The specifications submitted to General McNair by his G-3 on 31 May called for a plane 90 percent heavier than the L-4. General McNair expressed concern. "Pilots of course want something bigger, and faster than the L-4," he wrote, but "we have consistently opposed the L-5, feeling that in the general case so powerful a plane is unnecessary."[40] "Is not maintenance rather proportionate to weight, other things being equal?" he asked. He wanted to keep the light plane light and maneuverable and ready to take off and land with a strict minimum of ground preparation. To meet his wishes, the characteristics finally proposed were trimmed to fit the L-4X (J-5D). It was pointed out to General McNair that a larger plane was needed if only to provide enough cockpit room and weight-carrying capacity to permit the pilot and observer to wear winter clothing and carry parachutes. The L-4X would meet these requirements and at the same time provide better performance with added safety.[41] In the characteristics proposed the maximum weight (empty) was set at 1,200 pounds (L-4, 740 pounds; L-5, 1,472 pounds); the maximum speed, at 100 MPH (L-4, 87 MPH; L-5, 129 MPH); landing distance over a 50-foot obstacle, 700 feet (L-4, 465 feet; L-5, 951 feet).[42]

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37. WD memo (R) WDGCT 452.1 (24 Apr 44), 22 May 44, sub: Night Flying Equipment for FA Ln Airplanes. 452.11/101 (R), 353/451 (FA Air Obsn).

38. AGF memo (R) for the CofS, USA, 26 Jun 44, sub as above. 452.11/101 (R). See instructions of C/S, AGF to G-3 AGF, 1 Jun 44, on AGF M/S, G-3 to C/S, 31 May 44, sub as above, initiating the action. 452.11/101 (R).

39. Par 3, WD memo (R) 452.1 (24 Apr 44) for the CG AAF, 6 Jul 44, sub: FA Ln Aircraft. 452.11/101 (R).

40. AGF M/S, CG to CofS, 7 Jun 44, sub: Night Flying Equip for FA Ln Airplanes. 452.11/101 (R).

41. AGF M/S, G-3 to CofS, 23 Jun 44, sub and location as above.

42. Incl 1 to AGF memo (R) for the CofS, USA, 26 Jun 44, sub: Night Flying Equipment for FA Ln Airplanes. 452.11/101 (R).

The Army Air Forces, after putting "available models" through engineering and airworthiness tests [on 17-18 August 1944] reported that the L-5B (Vultee), 9-X (a Taylorcraft model), and the L-4X, in that order of priority, were the three types most likely to meet AGF characteristics.[43] One of each type was then sent to the Field Artillery School for tactical tests, which were not given until October, and which included an L-5X, an improved model of the standard Army Air Forces liaison plane, the L-5B. The Test Board concluded that the ambulance feature (which also permitted carrying a light cargo) impaired all the planes tested for field artillery use; that the L-5B was better for that use than the L-4X as tested; and that the L-4X, to be acceptable, would have to be redesigned. It recommended that the L-5X, with an L-5A frame, be adopted as standard for field artillery air observation "for the present" but recommended that a new airplane be designed.[44] Maj. Gen. Orlando Ward, Commandant of the Field Artillery School, expressed the opinion that while the L-5X would definitely "outperform the Cub as an artillery observation plane" and might be preferable at high altitude and mountainous terrain because of its superior performance, it had not been "designed primarily as a Field Artillery observation airplane." He therefore recommended that steps should be taken at once to develop such a plane.[45]

Notwithstanding these recommendations, Headquarters, Army Ground Forces, on 18 November 1944, recommended that the L-4X, modified, be adopted as the standard field artillery liaison airplane.[46] General Ward and the President of the Test Board, after the issues had been threshed out in conference at Headquarters, Army Ground Forces (27-28 October), concurred.[47]

This decision can be understood only in the light of a declaration of long-term policy made by the Army Air Forces on 10 October 1944,[48] a pronouncement of major importance which influenced the whole further course of development of organic aviation for ground forces. Briefly, the Army Air Forces, reversing itself, now gave its adherence to the principle of organic aviation. Far from staking a renewed claim for control of such aviation, it envisaged "a future . . . in which it might be as absurd to demand that all aircraft be organic only to an air force as that all boats, including crash boats and the like, be organic only in the Navy." It pointed out, with justification, that the AGF characteristics of a liaison plane for ground use, approved by G-3 War Department on 6 July 1944, would produce an airplane which, when developed, "will

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43. WD memo (R) WDGCT 452.1 (24 Aug 44) for CG, AGF, 25 Aug 44, sub: FA Ln Aircraft. 452.1/115 (R).

44. Report of Proceedings of Board of Officers, Ft Sill, 18 Oct 44, forwarded by FAG 3d ind, 20 Oct 44, on WD memo (R) 452.1 (24 Aug 44), 25 Aug 44, sub: FA Ln Aircraft. 452.1/122 (R).

45. FAS 3d ind, 20 Oct 44 and WD memo (R) 452.1 (24 Aug 44) 25 Aug 44, sub: FA Ln Aircraft 452.1/122 (R).

46. AGF memo (R) for CofS, USA, 18 Nov 44, sub: FA Ln Aircraft. 452.1/122 (R).

47. Their concurrence is reported in par 2 of the memo cited in the foregoing note. Other information from draft of same not used. Ibid.

48. AAF study submitted to WD G-3 & CofS, USA, signed by Lt Gen Barney Giles, Deputy Comdr, AAF, 10 Oct 44, sub: Organic Asgmt of Aircraft other than to the Air Forces, forwarded to CG AGF by WD G-3 D/F 11 Oct 44. 353/126 (FA Air Obsn)(S).

probably possess capabilities of employment exceeding those demanded only of an Air OP." It proposed that Army Ground Forces be "encouraged to make maximum use of the capabilities of the airplane assigned."

The recommendation of the Field Artillery Test Board and School had been based on the aptitude of the airplanes tested for a strictly field artillery role. The anxiety of Army Ground Forces regarding the attitude of Army Air Forces towards "expansion" having been relieved by the declaration of 10 October 1944, that headquarters decided to standardize on a plane which could also perform the other missions for which liaison planes were needed, and were being employed, by the ground forces in combat.[49]

Before taking up the efforts which the Army Ground Forces now made to extend the authorized employment of organic aviation, the course of further efforts to get a more suitable plane will be followed through to the end of the war

That course was far from clear and simple. The Army Air Forces, in its declaration of policy on 10 October 1944, had stated its view that "assignment [to the ground forces] of a type airplane whose performance approximates, but does not appreciably exceed, that of the L-5 would be justified." The Army Air Forces testing board had given top priority to the L-5B as the type of available plane most likely to meet AGF requirements, and the Field Artillery Board had found the L-5X (the L-5B somewhat modified) superior to the other types except for strictly field artillery use. From the point of view of Army Air Forces as the procurement agency, the L-5, its standard liaison plane, had the great advantage of being in production. The opinion of Army Air Forces as expressed in its statement of policy and quoted above was a broad hint of its preference for the L-5. Nevertheless Army Ground Forces decided in favor of standardization of the L-4X, modified to meet the deficiencies found in the tests at Fort Sill. It was preferred as having 300 pounds more payload capacity than the L-5, more cabin space for cargo and special equipment, slower landing speed (35 MPH as compared with 55 MPH), and as being lighter and cheaper.[50]

Pending procurement and issue of the L-4X (hereafter referred to as the L-14, its standard designation), Army Ground Forces recommended that replacements of L-4's be made from available L-5 types.[51]

Before making its decision on the L-14 Army Ground Forces had received (29 October 1944) the ruling of War Department G-3 on the AAF declaration of policy[52] and may have been influenced by it. G-3 stated that the policy proposed by the Army Air Forces was that which War Department G-3 had always followed. With reference to "maximum employment," it ruled only that "organic liaison as now authorized for field artillery units should not be restricted to the performance of a single type of mission, such as spotting artillery fire," but should include also "those liaison missions considered most important at any given time, by the division or corps commander." This was hardly

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49. See par 3 of draft memo cited in n. 46, above, for the considerations canvassed in reaching a decision.

50. AGF M/S G-3 to G-4, 10 Nov 44, sub: FA Ln Aircraft. 452.1/122 (R).

51. Par 3, AGF memo (R) for CofS, USA, 18 Nov 44, sub: FA Ln Aircraft. 452.1/122 (R).

52. WD memo (S) WDGCT 4521. (10 Oct 44) for CG's AGF and AAF, 29 Oct 44, sub: Organic Asgmt of Aircraft Other than the Air Forces. 353/130 (FA Air Obsn)(S).

encouragement to move to an all-purpose liaison plane. AGF settled on the L-4X, modified.

G-3, War Department, not satisfied with this proposal, promptly stated its opinion (in a memorandum to G-4) that an airplane of "the basic L-5 type" should be selected and modified.[53] G-4 decided to keep the L-4 in the picture, directing the Army Air Forces to conduct tests of this plane, with the modifications recommended by the Army Ground Forces, and also of the L-5X, which had performed so well in the Field Artillery Board tests, and come up with a recommendation. G-4 indicated that its favor had veered from preference for an L-5 type toward adopting the view of the Army Ground Forces that the modified L-4X was the best solution.[54] After a three-day conference which included representatives of the G-4, the Army Ground Forces, and the Army Air Forces, on 28 January 1945, the view was expressed that the situation regarding supply of Field Artillery liaison airplanes had become "both confused and critical," and an interim program was proposed. This embodied the recommendation that the L-4X be put into production as rapidly as practicable, and eventually replace all other models as the standard Field Artillery liaison airplane. In the interim, the Army Ground Forces was to be supplied with a number of L-4's and L-5's in a scheduled ratio. This program was approved with the proviso that the Army Air Forces was to improve the rear-seat visibility of L-5 type planes supplied to the Army Ground Forces.[55]

Meanwhile, on 8 January 1945, the Army Air Forces signified its approval of a list of "principal characteristics" for "ground force liaison airplanes," which did not differ materially from those proposed by Army Ground Forces on 6 July 1944.[56]

Dissatisfaction of the Field Artillery with the type of airplane being furnished to approximate these requirements now boiled up. Sharp objections came from the European theater.[57] They were at first concentrated on the "litter modification" as interfering with visibility. In April the theater sent a representative, Maj. D. L. Bristol, to Washington with a request that models of the L-14, on which the War Department had standardized, be sent to ETO for service test.[58] In conference with Major Bristol, Headquarters, Army Ground Forces, decided that for field artillery observation neither the L-14 nor any of the other planes approximated the military characteristics previously established as satisfactory. After a sharp discussion, Army Ground Forces struck out on a new line of policy by establishing a set of characteristics which would yield a light single-purpose airplane, designed exclusively for field artillery use, with detachable light armor, full panel flight instruments, two-place tandem seating, and maximum

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53. WD memo (S) WDGCT 452.1 (24 Aug 44), for ACofS G-4, 22 Nov 44, sub: FA Ln Aircraft. 452.1/142 (S).

54. WD D/F (S) WDGDS 5568 from G-4 to CG AAF, 28 Nov 44, sub: FA Ln Aircraft. Ibid. 452.1/142 (S).

55. (1) AAF D/F (C) to WD G-4, 29 Jan 45, FA Ln Aircraft. (2) WD D/F (S) WDGDS 8358 to CGs, AAF and AGF, 2 Feb 45, sub: FA Ln Aircraft. Both in 452.1/142 (S).

56. Incl 1, AGF ltr (C) to CG AAF, 18 May 45, sub: Improved FA Obsn Aircraft. 452.1/129 (C).

57. CM-IN-20571 (S) CG ETO to WD, 20 Jan 45, sub: Type of Liaison Airplane Preferred.

58. AGF ltr (R) to CG AAF, 11 Apr 45, sub: YL-14 Aircraft for Service Test. 452.1/144 (R).

all-round visibility.[59] This meant a break with the previous AGF policy of seeking one type of plane for all ground force purposes. It also involved an immediate risk as long as the number of planes available for ground use was limited, since the employment of organic planes was worldwide and the Pacific theaters, to which in April 1945 the main scene of action was about to shift, had not been consulted and might prefer a single versatile plane instead of two types. Although the risk was recognized, it was taken because the need for prompt action was regarded as too urgent to allow for the slow process of consulting theater commanders. The risk was covered to the extent of summoning to Washington the liaison plane expert of the Pacific Ocean area and including him in the conferences with representatives of the War Department, the Army Air Forces, and Major Bristol representing the ETO,[60] and of drafting a letter to theaters not consulted, explaining the decisions reached. It was understood that if a new Field Artillery observation plane was developed successfully, the L-14 would still be kept in use as a general-purpose plane for ground forces.[61]

All this remained in the future. At the end of the war in August the program of supply adopted in January was still in effect. Of the new liaison planes being supplied to ground forces, the great majority were still cubs (model L-4J); 25 a month were L-5's. It had been anticipated that L-14's would begin coming from the production lines in July, that 25 could be supplied in August, and an increasing number thereafter, up to the maximum of 175 additional planes required each month for ground force use.[62] But it was found that as the end of the war approached, the Piper Corporation was dragging its feet in the production of L-14's and AGF requested that production be stopped.[63]

EFFORTS TO EXTEND THE ROLE OF ORGANIC GROUND AVIATION

The troubled course of the efforts, just reviewed, of the Army Ground Forces to get a better light plane for ground use can be understood fully only if related to attendant efforts of Headquarters, Army Ground Forces, to obtain approval for a more extended use of ground aviation in response to demands from the front. In both courses of effort Army Ground Forces was pinned down by the restriction which the War Department G-3 had imposed as a condition of its support of General McNair against General Arnold's attempt to take over field artillery liaison aviation in January 1944. The close relation of the two objects has already become evident in connection with the action establishing military characteristics for an improved plane in the spring and summer of 1944. While emphasizing only the Field Artillery mission of such a plane, Army Ground Forces standardized on a plane, the L-14, which was found far from satisfactory by the Field Artillery, but it did so in order to provide one that was better suited than the L-4 for the various uses to which the L-4 was actually being put by the ground forces in combat.

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59. AGF ltr (C) to CG AAF, 18 May 45, sub: Improved FA Obsn Aircraft. 452.1/129 (C) and attached AGF M/S.

60. AGF M/S, G-3 to Rqts, 19 Apr 45, cited in preceding note. See also memo (S) of Maj Delbert L. Bristol for OPD, 31 May 45, sub: Report Concerning Development of Aircraft for FA Use. 353/147 (FA Air Obsn)(S).

61. Par 4, draft AGF ltr (C) to CGs, China Theater, India Burma Theater, Six, Eighth, and Tenth Armies, [May 1945], sub: Improved FA Obsn Airplane. 452.1/129 (C).

62. AGF memo (C) for CofS, USA, 30 Jan 45, sub: FA Ln Airplanes, 452.1/120 (C).

63. (1) Statement of Col B. Evans, Dev Sec, Hq AGF, to AGF Hist Off, Feb 45. (2) Par 4, AGF ltr (C) to CG AAF, 16 Aug 45, sub: Aircraft Rqts. 452.1/138 (C).

Even after the Army Air Forces declared in favor of encouraging the ground forces to "make maximum use of the capabilities of the type airplane assigned" (10 October 1944), Army Ground Forces proceeded with great caution. In its concurrence, on 28 October,[64] in the Army Air Forces declaration of policy, it stated as a fact that L-type aircraft had been used frequently, "in emergencies," "in all combat areas," "for air photo missions and as aerial general purpose vehicles." But, mindful of "past bitter experience,"[65] it again stressed the Field Artillery requirement, referring to this as "the dominant consideration." G-3, War Department, replied immediately and sharply that the policy of the War Department was unchanged.[66] Not until 5 January 1945 did Army Ground Forces put forward a proposal for an increase in ground liaison aviation, and then it was a very modest one.

This proposal was the result of a study that was initiated shortly after the Army Air Forces' declaration of policy had been received on 11 October. The uses to which the field artillery liaison planes were being put on all fronts and the requests for more light planes to meet these needs were restudied in a general headquarters discussion.[67] Information from theaters indicated that of all the ne ds, that of more light planes for reconnaissance was the most important. A "preponderance of experienced officers" in the headquarters were convinced that other needs were legitimate and even vital. But in consideration of the policy stated by the War Department and of the limited number of liaison-type planes prospectively available, it was reluctantly decided that the only practicable solution for the present was to go no further than to ask for the assignment of liaison planes to cavalry reconnaissance squadrons. Besides improving reconnaissance, this would have the effect of giving two additional planes to the armored division, which had only eight liaison planes, and which, because of its mobility, especially needed them. In accordance with the policy of asking for no changes in organization or equipment not supported by a firm request from a theater commander, the theaters were interrogated.[68] What was believed by Army Ground Forces to be desirable was finally trimmed down to the requirements stated by both the Commanding General, ETO, and the Commanding General, MTO. The request made on 5 January was simply that an air reconnaissance section similar to the Field Artillery air observation, viz., 2 planes, 2 pilots, 2 enlisted men, 2 trucks, and 3 radio sets, be added to each cavalry reconnaissance squadron, mechanized (T/O&E 2-26). It was pointed out that this change would add to the Troop Basis only 98 officers, 98 enlisted men, 98 planes, and 147 radio sets, and that, beginning in April 1945, the Army Air Forces would have available 10 L-5's a month, in addition to those required for Field Artillery, to meet the requirement.[69] A more moderate request could hardly have been made.

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64. AGF memo (S) for CofS, USA, 28 Oct 44, sub: Organic Asgmt of Aircraft Other than to the Air Forces. 353/126 (FA Air Obsn)(S). This was sent, for information, to the Asst Sec of War for Air, with whom the AAF memo of 10 Oct 44 had been coordinated.

65. AGF M/S, G-3 to C/G, 23 Oct 44. 353/126 (FA Air Obsn)(S).

66. WD memo (S) WDGCT 452.1 (10 Oct 44), 29 Oct 44, sub: Organic Asgmt of Aircraft Other than to the Air Forces. 353/130 (FA Air Obsn)(S).

67. The papers reflecting this discussion are in 353/130 (FA Air Obsn)(S) separate binder.

68. AGF memo (S) for CofS, USA, 20 Sep 44, sub: Ln Aircraft for Ground Rcn Units. 452.1/123 (S).

69. AGF memo (S) for CofS, USA, 5 Jan 45, sub: Ln Aircraft in the AGF. 353/130 (FA Air Obsn)(S).

War Department G-3 promptly rejected it, on the ground that not enough study had been given to the employment of the high-performance tactical reconnaissance aircraft of the Army Air Forces in ground reconnaissance missions, that the supply of L-5's was limited, and that maximum use was not being made of artillery planes and Army Air Forces squadrons for command and control purposes.[70]

The issue was thus made one of fact and of the good faith of the ground forces in executing War Department policies. In the use of AAF liaison squadrons to meet ground force needs, on which War Department G-3 insisted, another issue was actually involved, which had not yet been brought fully into the open.

The Army Air Forces had allotted one of these squadrons--each composed of 32 L-5's--to each Army, and they had been attached, so that they could be--as they actually were--sub-allotted to corps as required.[71] Planes in each of these squadrons were equipped, in 1944, with K-20 cameras, so that they could supplement the photographic work of the high performance tactical reconnaissance squadrons. L-5's from these AAF squadrons could be borrowed--and were in emergencies--to meet the need of ground units for planes capable of a better performance than L-4's. The question for the Army Ground Forces was whether these AAF liaison squadrons actually met ground requirements. Experience in combat showed that they did not, for reasons stated below. The issue was not merely one of good will on the part of the Army Air Forces or procuring, in sufficient quantity, a type of plane which the doctrine of the Army Air Forces and the pressure of rival demands relegated to a low priority. The basic issues were two: having the planes where needed when the need arose, and having them flown by pilots who understood the needs of the ground units with which they worked. These were the considerations that had won the day for organic assignment of cubs to the Field Artillery. The principal theater commanders emphasized them in their radiograms asking for organic reconnaissance planes.[72] The AAF liaison squadrons met neither requirement. Although the L-5's of these squadrons were light planes, the squadrons were based on the nearest AAF field which might be far from the scene of ground action. Their pilots, however cooperative, were enlisted men trained only to fly. The testimony of experience and combat authority were conclusive to the effect that the understanding of combat needs required for effective cooperation came only from training in the ground arms concerned and living with ground units in the field. The two observers whom the Army Air Forces sent to ETO and MTO in the early months of 1945 recognized this as a fact, recommending not only that ground liaison aviation be expanded and organically assigned but also that ground liaison pilots be trained in the ground arm which they were to serve.[73]

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70. WD memo (S) 452.1 (5 Jan 45) for CG AGF, 15 Jan 45, sub: Ln Type Aircraft. 353/140 (FA Air Obsn)(S).

71. (1) On 10 Feb 44 the WD stated that AAF liaison squadrons were being shipped to theaters "generally on the basis of 1 such squadron per army." WD memo (R) WDGCT 319.1 (24 Mar 43) for CG AGF, 10 Feb 44, sub: Rpt of Test Oblique Photography. 353/102 (FA Air Obsn)(S). (2) For examples of employment see memo (S) of Col E. L. Johnson, G-3, Air, First Army, 16 Jul 44, sub: Info regarding Air-Gnd St Opns. In AGF Bd, ETO, Rpt No C-Misc-19 (S). AGF G-2 DD file. Also par 8, Rpt (S) of Obsn of the Opn of Seventh Army in Southern France, 25 Oct 44, in Extracts--Reports from O'seas. 353/130 (FA Air Obsn)(S).

72. (1) ETO, CM-IN-9118 (S)(10 Oct 44); AFHQ, Caserta, CM-IN-13756(S)(14 Oct 44). 353/130 (FA Air Obsn)(S).

73. AAF ltrs (S) to CG AGF, 14 and 24 Apr, sub: Employment of Ln Type Aircraft. 353/144 (FA Air Obsn)(S).

REORGANIZATION OF AVIATION ORGANIC IN GROUND FORCES

Army Ground Forces, upon the rejection on 15 January 1945 by G-3, War Department of its recommendation that organic liaison aviation be extended to ground reconnaissance units, followed two lines of action. It proceeded, on the one hand, to build up a case for the extension of organic ground aviation based on evidence from sources in the theaters and on firm requests from theater commanders. On the other hand, it tested and developed further uses to which light planes had been put at the front, or to which they could be put.

To test and explore further uses to which light planes could be put to provide close support, the Army Ground Forces, on (3 March 1945) initiated an extensive experimental project at Fort Sill.[74] The AAF Liaison Officer at Headquarters, Army Ground Forces, Lt. Col. Hubbell F. Vincent, believing that the liaison type plane could be used as a bomber, to meet the need of ground units for close-in bombing at night, had made tests at Fort Sill in January 1945, and the conclusion was reached that the L-5 could bomb effectively with a bomb load of 500 pounds and more.[75] General Stilwell personally brought this possibility to General Marshall's attention on 5 March 1945 as "something which, if pushed energetically, would be a material contribution to shortening the war."[76] The AGF headquarters observers visiting ETO in the fall of 1944 and emphasized the fact that close-in reconnaissance at night was one of the critical needs of ground units which the Army Air Forces was not meeting, in spite of the great improvement in air-ground cooperation. If a liaison plane could find bombing targets at night, it could also search the roads behind the enemy lines at night for evidence of traffic. Furthermore, field artillery officers working with Navy smoke markers for use in amphibious exercises, had discovered the practicability of using the liaison plane as a moving platform from which to launch rockets.[77] This indicated that it might also be used as a flying mount for the new recoilless guns. With all these possibilities in view, the Fort Sill project was given a broad scope, with special emphasis on the use of liaison planes at night. Headquarters, Army Ground Forces, pressed and supported these experiments vigorously. In March, on the strength of a report of successful use of liaison planes by the 95th Infantry Division in Europe and the 11th Airborne Division on Leyte to drop supplies and evacuate wounded men in the Philippines, the Army Air Forces was requested to provide modification kits for installing racks for supplies, and the Field Artillery School was directed to conduct further tests to improve the technique of dropping supplies from light planes.[78] Meanwhile, Colonel Vincent went to ETO to work with the Ninth Air Force on tests of bombing from light planes at Chantilly, France.[79]

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74. AGF ltr (S) to CG, R&SC, 3 Mar 45, sub: Ft Sill Experimental Project--Liaison Aviation and accompanying papers, in which the course of the project can be followed. 353/134 (FA Air Obsn)(S).

75. Par 1, AGF M/S, G-3 (15) to G-2, G-4, Rqts. C/S, 27 Feb 45. 353/134 (FA Air Obsn)(S). A report of his tests was attached to the document cited above.

76. Memo (S) of General Stilwell for General Marshall, 5 Mar 45, sub: Close-in Night Bombing by Liaison Aircraft. 353/134 (FA Air Obsn)(S).

77. Par 2, AGF M/S (S), G-3 (15) to C/S, 9 Apr 45, sub: Rocket Firing from Liaison Planes. 353/139 (FA Air Obsn)(S).

78. AGF ltr (S) to Comdt FAS through CG, R&SC, 9 Mar 45, sub: Emergency Air Supply by FA Airplanes, and discussion in AGF M/S, G-4 to C/S 19 Feb 45, sub as above. 353/136 (FA Air Obsn)(S).

79. Par 3, AGF M/S cited in n. 77, above.

In April, the Navy conducted rocket-firing tests with L-5's at Quantico.[80] The AAF Board, in the same month, instituted its own tests of night bombing and night visual navigation with light planes and also of the employment of television sets in such planes as an aid to air observation.[81] By June tests of rocket firing had been so successful that Army Ground Forces urged the War Department to develop without delay the equipment, tactics, and technique of rocket-firing, close-support aviation.[82] The Field Artillery School reported the results of its night navigation and night gunnery tests in June. Action was instituted to implement and coordinate the results of all these efforts,[83] but too late for effect at the front before the termination of hostilities.

In the preparation of a case for expanding and extending organic ground aviation, the Army Ground Forces now found invaluable allies within the Army Air Forces. Early in 1945 the Army Air Forces sent two observers to ETO and MTO to make a thorough survey of all aspects of liaison aviation. They made reports forwarded to the Army Ground Forces on the 15 and 24 April which met the ground point of view in every particular. Headquarters, Army Air Forces, in spite of these reports, declared its adherence to the view that all liaison missions, except for field artillery, should be performed by AAF squadrons.[84] Army Ground Forces, nevertheless, decided, on the strength of the findings and recommendations of the AAF observers, to present a new request for the expansion of organic liaison aviation. On 24 May 1945 the acting Commanding General, Army Ground Forces, proposed that five light planes be added to the equipment of each infantry, airborne, armored, cavalry, and mountain division and renewed the recommendation that two be assigned to each separate cavalry reconnaissance squadron (mechanized). The recommendation was supported by firm requests from the theater commanders, plus a mass of testimony from the front regarding employment and need. In view of the expanding capabilities of the light plane which had been demonstrated by tests and battle utilization, it was recommended that additional AAF liaison squadrons be assigned to higher ground headquarters. It was pointed out that redeployment schedules would provide the planes and trained personnel necessary to implement the plan for war in the Pacific, and that, in any case, production facilities were available to meet any forseeable requirement.[85]

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80. Memo (S) of Lt Col Roy C. Flannagan for the ACofS, G-3 AGF, 16 Apr 45, sub: Tests of Rocket Firing, Television, and Ground Flares at Quantico, Va, 16 Apr 45. 353/139 (FA Air Obsn)(S).

81. (1) Par 4, AGF M/S, G-3 to Rgts 10 Jul 45, sub: Ft Sill Liaison Project .... (Rpt of Tests) (Complete ref fr file of Air-Spt Br, G-3) 353/134 (FA Air Obsn)(S). (2) AAF ltr (S) to CG AGF, 5 June 45, sub: Liaison Avtn Program 353/145 (FA Air Obsn)(S).

82. ACF memo (S) for CofS, USA, attn NDD, 7 Jun 45, sub: Development of Rocket-Firing Aviation for Close Suppt of Ground Combat Troops. 471.94/185 (S).

83. AGF ltrs (S) to CG AAF, 12 Aug 45, and to CG ASF, 14 Aug 45, sub: FAS Rpts of Test on Night Navigation and Night Gunnery. 353/134 (FA Air Obsn)(S).

84. Par 2, AAF ltr (S) to CG AGF, 14 Apr 45, sub: Employment of Type Aircraft. 353/140 (FA Air Obsn)(S).

85. AGF memo (S) for CofS USA, 24 May 45, sub: Liaison Type Aircraft, and accompanying papers. 353/140 (FA Air Obsn)(S).

Two weeks passed without a response.[86] It was then found that the recommendation was having a stormy course in the higher levels of the Air Staff, where a special board of three general officers was finally appointed to make a policy study. This board made an unfavorable recommendation, which War Department G-3 might be expected to follow.[87] On 27 June the Army Air Forces recommended to the War Department that organic aviation be "designed for and confined to the performance of the Air OP function for the Field Artillery," and that Army Air Forces perform all "liaison" missions.[88]

General Jacob L. Devers, who had assumed command of the Army Ground Forces on 23 July 45, now decided to take the case for organic ground aviation directly to the high command of the Army Air Forces. He emerged from a conversation with General Ira Eaker, Deputy Commander of the Army Air Forces, on 25 July with an agreement to give the ground forces all that the Army Ground Forces had asked and much more.[89]

The terms of the agreement were approved by War Department, G-3, on 9 August 1945 and sent to the Commanding General, Army Ground Forces, for implementation.[90] They provided for the organic assignment of six, instead of five, additional light planes, to each infantry, airborne, and mountain division, nine to each armored division, seven to each cavalry division, two to each cavalry squadron, separate tank battalion, and tank destroyer battalion, one to each separate engineer battalion, two to each cavalry group and tank destroyer group.[91] The airplanes were to be L-4's and L-5's, since more suitable types had not yet been produced.[92] The Army Air Forces also concurred in the request of the Army Ground Forces for more AAF liaison squadrons to meet the needs of theater or task force and army group headquarters.[93] On 14 August 1945 while the program was being set up the war came to an end.

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86. On 7 and 10 Jun 45 in memos (S) for CofS USA, thru CG AGF, sub-Liaison Type Aircraft, AGF requested information be furnished the CG USAFFE in reply to radiograms from him dated 27 May and 5 June. 353/140 (FA Air Obsn)(S).

87. (1) AGF M/S (S) Misc Div to G-3, 9 Jun 45, sub: Type Aircraft. (2) AGF M/S (S) 452.1 (S) (2 Jul 45) SNGCT-15 G-3 to C/S, 4 Jul 45, sub: Liaison Type Aircraft. 353/140 (FA Air Obsn)(S).

88. WD D/F (S) WDGCT 452.1 (5 Jan 45) AFCAS to G-3, 27 Jun 45, sub: Liaison Type Aircraft. 353/140 (FA Air Obsn)(S).

89. (1) Memo (S) of Gen Jacob L. Devers 400 (28 Jul 45) SNGCT-15, 28 Jul 45, sub: Reference our conversation on Liaison Type Aircraft Wednesday, 25 Jul 45, 353/140 (FA A Obsn)(S). (2) The formal AAF concurrence is on WDD/F (S) WDGCT 452.1 (5 June 45), sub: Liaison Type Aircraft. Comment No 2, 8 Aug 45. 353/140 (FA A Obsn)(S).

90. Comment 3, WD G-3 to G-4, to note, and CG AGF, for action, 9 Aug 45 on D/F cited in n. 3 (2).

91. This was the allotment as finally ironed out. See WD memo (S) 452.1 (5 Jun 45) for CGs AGF and AAF, 27 Sep 45, sub: Liaison Type Aircraft. 353/140 (FA Air Obsn ICS).

92. AGF memo (S) for CofS, (attn: G-4 Div), 29 Aug 45, sub: Aircraft Requirements. 452.1/140 (C).

93. In its memo of 24 May AGF had requested also an AAF Liaison squadron for each field corps. AAF asked that this request be reconsidered in the light of the decision to assign liaison airplanes organically to divisions. Par 1 b, D/F cited in note (S) p (41) above. AGF withdrew the request. Par b a, AGF M/S (S), Sec to CofS, 4 Sep 45, sub: Summary of Action on Organic Asgmt. of Liaison Planes. 353/140 (FA Air Obsn)(S).

Chapter X

AIR-GROUND DOCTRINE AND ORGANIZATION, 1944-45

As indicated above, 1944 was a period of flux and rapid development in the organization and procedures of air-ground cooperation. The command structure of the Army Air Forces was being reshaped. While the broad statements of FM 100-20 provided a frame within which methods of cooperation between ground forces and the new air commands could be devised, no guidance for the implementation of its principles existed except in FM 31-35, and the new methods being forged in combat were either not covered by that manual or departed from its prescriptions. For example, the employment of ground liaison officers was not covered in FM 31-35, and the system of cooperation worked out by the Fifth Army and the XII Air Support Command in Italy dropped the air parties prescribed by the manual, transferring from the air command to the army responsibility for communicating and coordinating requests for air support. At the same time, in the air forces as reorganized, the air support "controls" with corps and army prescribed by FM 31-35 disappeared and were absorbed into the tactical control group of the new tactical air divisions (later called commands).[1] When ETO set up the system to be used in the invasion of France, this differed, as noted above, from the NATO-Fifth Army system.[2] In the Southwest Pacific a third system was in effect. One result of this uncoordinated development was that when the Seventh Army and the Sixth Army Group went into France, bringing with them from the Mediterranean the Fifth Army system, armies fighting the Germans side by side on the Rhine in cooperation with the Ninth Tactical Air Force were following different methods.[3] In short, the United States Army went into its great final combined effort against the power of Germany without the guidance of an authoritative doctrine of air-ground cooperation.

Because it was training units for all theaters, the Army Ground Forces needed a standardized doctrine for training purposes.[4] The Commanding General, Army Ground Forces, in addition was jointly responsible with the Commanding General, Army Air Forces, for the development of air-ground doctrine. When ground liaison officers were introduced to implement the principle of liaison, Headquarters, Army Ground Forces, prepared a training circular on air-ground liaison, coordinating it with Headquarters, Army Air Forces.[5] This circular was not approved by G-3, War Department, which took

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1. For the form into which this finally developed, see Part III, WD Cir 30, 19 Jun 45, sub: Tactical Control Group.

2. See above, Chap VII, "Practical Steps toward Air-Ground Cooperation."

3. The CG AGF pointed out this danger as early as 23 Feb 44 in a memo for the CofS USA, sub: Organization and functioning of Air Support Control System now Employed by Fifth Army. 353/111 (Air-Gnd)(S).

4. In a review of air-ground training in 1943, G-3 AGF stated that the obstacles to training were the lack of suitable visual air-to-ground signals, the rotation of air crews in maneuvers, the lack of up-to-date training literature due to "confused status of air doctrine and organization." AGF M/S, G-3 to C/S, 24 Dec 43. 353/45 (Air-Gnd)(R).

5. (1) A copy of the proposed TC, sub: Cooperation between Air and Ground Units, is in 353/30 (Air-Gnd)(S). (2) The statement that it was written in Hq AGF and concurred in by Hq AAF is based on par 2 of a draft memo (not used) of CG AGF for CofS USA Oct (?) 44, sub: Air-Gnd Tng and Opns. 353/144 (Air-Gnd)(S).

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into its own hands the preparation of a fresh statement of doctrine, to be made within the terms of FM 100-20. The early months of 1944 passed, the date for the invasion of France approached, and no proposals regarding a circular or manual came from the War Department. Informed of the system which the Fifth Army was working out in collaboration with the XII Air Support Command, the Army Ground Forces inquired in February if the changes in doctrine required by that system were contemplated.[6] The question was important to the Army Ground Forces for a practical as well as a theoretical reason, since the new system required new tables of organization and equipment for corps and armies and therefore a change in the Troop Basis. In April 1944 War Department G-3 replied that it was engaged in preparing an over-all statement of doctrine which would be based on battle experience.[7]

On 19 April G-3, War Department, forwarded to Army Ground Forces for comment or concurrence a draft training circular entitled "Air-Ground Cooperation."[8] This consisted largely of a restatement of the generalities of FM 100-20, its applicatory sections failing to get down the questions, "what," "when," and "how," and being inadequate for guidance in operating the existing and developing agencies of air-ground cooperation.[9] Prepared under the direction of the air officer in the Training Branch and coordinated under the direction of G-3 War Department, it was believed at Headquarters, Army Ground Forces, to have been written by the Army Air Forces.[10] Like FM 100-20 it seemed to be aimed at limiting the obligations and exalting the prerogatives of the air forces with respect to the ground forces rather than at facilitating and implementing cooperation in battle. If illustration of this point is desired, it will be found in a comparison of the proposed circular with the broad but matter-of-fact Training Memorandum No. 7, issued by the Fifth Army on 9 March 1944, a document accepted by the Army Air Forces as entirely in harmony with FM 100-20.[11] One was theoretical work, marked by a preoccupation with questions of authority and jurisdiction, the other the work of air men and ground men cooperating to defeat the enemy in the field.

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6. AGF memo for CofS USA, 23 Feb 44, sub: Organization and Functioning of Air Support Control System now Employed in Fifth Army. 353/111 (Air-Gnd)(S).

7. WD memo WDGCT 452.1 (23 Feb 44) for CG AGF, 7 Apr 44, sub: Orgn and Functioning of Air Support Control System now Employed in Fifth Army. 353/125 (Air-Gnd)(S).

8. WDGS D/F 300.5 Cir (19 Apr 44) to CG AGF, 19 Apr 44. Ibid. There is no copy of the draft in this file, but one may be found in 353/132 (Air-Gnd)(S).

9. (1) For detailed AGF staff comment, see memo of Lt Col Roy C. Flannagan for Col James G. Burwell, air officer in Tng Branch, G-3 WD, 18 May 44, sub: TC upon Air-Ground Coop. Air Br, G-3 AGF, File No 11, "Doctrine."

10. (1) Par 3, WD memo (S) 452.1 for CofS USA (23 Feb 44), sub: Organization and Functioning of Air Support Control System now employed by Fifth Army. 353/125 (Air-Gnd)(S). (2) Par 1, item (1), AGF M/S, G-3 to CofS, 3 Jul 44, sub: Joint Air-Gnd Operations of Fifth Army and XII Tactical Air Division. 353/132 (Air-Gnd)(S). (3) Par 7 b, item (1), AGF M/S, G-3 to CofS, 17 Jul 44, sub and file as above.

11. Tng Memorandum No 7, 9 Mar 44, sub: Air Support of Gnd Opns. Cpy in 353/132 (Air-Gnd)(S).

Having received this draft, Army Ground Forces was in a dilemma.[12] The invasion of France was imminent. The war was entering "Phase 3," as defined by FM 100-20, when close-in cooperation would become of primary importance; ground and air forces at home and overseas needed adequate and authoritative guidance, the more so since the combined training of the units to be committed had been so meager. But the circular proposed by the War Department on 19 April indicated that doctrine issued by the War Department was likely to embody a restrictive interpretation of the improvements in cooperation which were growing out of combat experience. With the progress of the campaigns of Normandy and France, these improvements multiplied, as has been noted, with increasingly interested and effective cooperation between air and ground.

The course of action which the Army Ground Forces took was to ask the War Department for a decision on the changes in ground tables of organization and equipment and therefore in the Troop Basis required by the Fifth Army system which the proposed circular embodied. When this was withheld, it asked for delay in commenting on the proposed statements of doctrine until fuller information had been received from France.[13] Meanwhile it sought to expedite the reports of Col. Edwin L. Johnson whom Army Ground Forces had sent to the Mediterranean and European Theaters of Operation with a party of air officers in March as a special observer, and who had been retained in the European Theater of Operations as G-3 Air of the First Army.[14]

This action seems to have given War Department G-3 the impression that Army Ground Forces was stalling, and in several sharp memoranda that division intimated that Army Ground Forces was insincere in its declaration of compliance with War Department doctrine as stated in FM 100-20.[15] Army Ground Forces and G-3, War Department, entered an unhappy period of strained relations, as far as air-ground matters were concerned, just when the cooperation in those matters was entering a phase of unprecedented cordiality in the field.

On 7 April 1944 G-3, War Department, forwarded to the Commanding General of the Army Ground Forces for comment and recommendations the formal request of the Commanding General of the Mediterranean theater for approval of the Fifth Army system, together with the favorable comments of the Army Air Forces. Shortly afterward (19 April) it forwarded the proposed training circular.[16] It was known at Headquarters, Army Ground Forces, that the Fifth Army system had been working successfully and it was

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12. A full documentation of its position will be found in 353/125 and 353/132 (Air-Gnd)(S).

13. (1) AGF memo for CofS USA, 26 May 44, sub: Proposed Tng Cir on Air-Gnd Opns. 353/125 (Air-Gnd)(S). (2) AGF memo for CofS USA, 8 Jul 44, sub: Joint Air-Gnd Opns of Fifth Army and TAD. 353/132 (Air-Gnd)(S).

14. (1) AGF cable to CG USAF, ETO, 4 Jul 44. 353/132 (Air-Gnd)(S). (2) AAF ltr to CG AGF, 14 Mar 44, sub: Air-Gnd Coop. 353/106 (Air-Gnd)(C).

15. (1) WD memo WDGCT 452.1 (12 Jul 44) to CG AGF, 12 Jul 44, sub: Proper Use of Air Power. 353/114 (Air-Gnd)(C). (2) WD memo WDGCT 452.1 (18 Nov 43) for CofS AGF 16 Oct 44, sub: Air-Gnd Tng and Opns. 353/144 (Air-Gnd)(S).

16. (1) WD memo WDGCT 452.1 (23 Feb 44) for CG AGF, 7 Apr 44, sub: Orgn and Functioning of Air Support Control System now employed by the Fifth Army. 353/125 (Air-Gnd)(S). (2) WD D/F WDGCT 300.5 Cir (19 Apr 44), sub: Proposed TC on Air Gnd. 353/125 (Air-Gnd)(S).

regarded as better than the 1942 system, which had broken down "in contact with the enemy."[17] But, anxious lest the Army Ground Forces be required to provide from its existing resources the technical personnel and communications equipment needed, which were readily available to the Army Air Forces but not to the Army Ground Forces, it asked the War Department whether the means to effect the change-over would be made available to the Army Ground Forces.[18] G-3, War Department, made a noncommital reply to the question of new ground T/O&E's and a compensating adjustment in the Troop Basis.[19] When, on 8 July, the Army Ground Forces asked to be allowed to defer further comment on the changes proposed until Colonel Johnson's report from ETO could be received, G-3, War Department, peremptorily directed the Commanding General, Army Ground Forces, to submit his comments on the Fifth Army system and the proposed training circular.[20]

These comments were submitted on 20 July, a week after General McNair's departure for ETO, with the demur that they were made without benefit of the latest reports of experience in Normandy and France.[21]

Colonel Johnson's reports dated 16 July and 6 August 1944 and other reports from ETO were forwarded by Army Ground Forces to G-3, War Department.[22] In September the War Department authorized the preparation of T/O's for air-ground liaison sections in divisions, corps, and armies.[23] But in September 1944, no further proposals regarding doctrines having come from War Department, Army Ground Forces reiterated the need of the ground forces for a training circular.[24] G-3, War Department, replied in a

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17. Par 1 b, Tab III, sub: Discussion of G-3 Conclusions, in Staff Study. 353/125 (Air-Gnd)(S).

18. AGF memo for CofS USA, 26 May 44, sub: Proposed TC on Air-Gnd Opns. 353/125 (Air-Gnd)(S).

19. WD memo (S) WDGCT 425.1 (23 Feb 44) for CG AGF, 7 Jun 44, sub: Joint Air-Gnd Opns of the Fifth Army and XII TAD. 353/132 (Air-Gnd)(S).

20. WD memo WDGCT 452.1 (23 Feb 44) for CG AGF, 10 Jul 44, sub: Joint Air-Gnd Opns of Fifth Army and XII TAD. 353/132 (Air-Gnd)(S).

21. AGF memo for CofS USA, 20 Jul 44, sub as in n. 20. 353/132 (Air-Gnd)(S).

22. (1) Colonel Johnson made a preliminary report, dated 15 May 1944, on Air-Ground Cooperation as observed on his tour of MTO and ETO with three officers of the Army Air Staff. His other reports mentioned in the text were as follows: Memo of Col E. L. Johnson for AGF Board, Hq ETOUSA, 16 Jul 44, sub: Information regarding Air-Ground Joint Operations; Air Support Report, G-3 Air Section, Hq First U.S. Army, 6 Aug 44. 314.7 (AGF Hist)(S). (2) M/S, G-3 to CofS, 25 Oct 44. 353/144 (Air-Gnd)(S).

23. Action was at first limited to authorizing tables of organization, on the ground that equipment was available in the TAC Communication Squadrons (T/O&E Air, 1-547) already in the theaters. (1) WD memo (S) WDGCT 320.3 (31 Aug 44) for CG AGF, 30 Sep 44, sub: Air-Gnd Liaison System. 320.3/431 (S). (2) OPD to ETO, Con Zone, Radre CM-OUT-47125, 14 Oct 44. 353/116 (Air-Gnd)(C).

24. AGF memo (R) for CofS, USA, 18 Sep 44, sub: Air-Gnd Tng and Opns. 353/115 (Air-Gnd)(R).

memorandum which amounted to a lecture to Army Ground Forces on insubordination.[25]

Justifying at length its own course of action, G-3 declared that it had made publication of the circular, to be followed by the preparation of a more complete manual, a first priority project; it asked Army Ground Forces for reports from Normandy (reports which had already been communicated both officially and unofficially); and it informed Army Ground Forces that officers were being brought from ETO for a conference on the proposed revision of doctrine. These officers were air officers.[26] In January 1945, with the benefit of their comments and of informal comments of officers of the AGF staff, G-3, War Department, sent the long-awaited circular to Army Ground Forces.[27]

The subject given the new draft was "Air-Ground Liaison" and the practical character of that part of the text which was specifically applicable to this subject made it seem an improvement over previous efforts. But more than half of the draft was another elaboration of FM 100-20. The Army Ground Forces objected to this as making the circular unwieldy for use as a training guide. It also asked for the removal of the statement (in par 34) that "Combat experience in all theaters of operations has tested and proven the doctrine governing the command and employment of air power enunciated in FM 100-20." For the first time openly challenging that doctrine, it cited the recent Battle of the Bulge as indicating that

> some of the doctrine enunciated in FM 100-20 is open to question, for example:
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> (1) Paragraph 2, FM 100-20, states "The gaining of air superiority is the first requirement for the success of any major land operation." This doctrine is questionable since the German army, in recent major land operations, successfully demonstrated that a major land operation can be conducted without air superiority. In fact, it demonstrated that major land operations may be conducted successfully with greatly inferior air strength. It is admitted that air superiority is highly desirable.
>
> (2) Paragraph 16b (1), FM 100-20, states "Without this air supremacy the initiative passes to the enemy." This statement is open to serious question since the German Army with greatly inferior air power undoubtly seized the initiative in the recent Ardennes battle which began 16 December 1944.
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> There are other fundamental points in the doctrine as enunciated in FM 100-20, that are as questionable as the above. Therefore it is suggested that the first sentence of paragraph 34 be eliminated.[28]

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25. WD memo (C) WDGCT 452.1 (18 Nov 43) for CG AGF, 16 Oct 44, sub: Air-Gnd Tng and Opns. 353/144 (Air-Gnd)(S).

26. (1) Item (4), AGF M/S, G-3 to C/S, 8 Nov 44, sub: Air Gnd Tng and Opns. 353/144 (Air Gnd)(S). (2) Item (1) AGF M/S, G-3 to C/S, 25 Jan 45, sub: Air Gnd Tng. 353/119 (Air Gnd)(R).

27. (1) WD memo WDGCT 353 (17 Jan 45) for CGs AGF and AAF, 17 Jan 45, sub: Air-Ground Tng and Opns. 353/119 (Air-Gnd)(R). (2) Draft of the proposed training circular. AGF G-3, Air Branch, file.

28. Par 2, AGF memo (R) for CofS, USA, 30 Jan 45, sub: Air-Gnd Tng and Opns. 353/119 (Air-Gnd)(R). The paragraphs quoted were written by the CofS AGF. AGF M/S, C/S to G-3, 27 Jan 45, sub: Air-Gnd Ln. 353/119 (Air-Gnd)(R).

AIR-GROUND COOPERATION IN THE ZONE OF INTERIOR

In 1944 the Army Air Forces was reshuffling its units in the United States to bring them more nearly into accord with the command structure adopted in 1943. The changes in the field affecting the Army Ground Forces took place within the Third Air Force which was still charged with providing the aviation required for joint training. As early as August 1943 the three air support commands in the United States were redesignated "tactical air divisions,"[29] but not until a year later did they assume anything like the intended form (that of the tactical air "commands" in ETO). After 10 April 1944 the three tactical air divisions in the United States were headed up into a tactical air command--an organization for which no opposite number existed in the blueprints of reorganization or in the theaters. It was to serve as the AAF's "laboratory group for tactical research and experimentation" with reference to developing the "tactical air force concept."[30] Under this command was put all the aviation in the United States suitable for cooperation with the ground forces, and in October 1944 the Army Ground Forces was notified that it was to make requests for aviation to this command instead of the Third Air Force.[31] No tactical air force emerged, except in name, in the Zone of Interior. In December 1943 the Army Air Forces announced the creation of a Tactical Air Force and Joint Training Branch in the Office of the Assistant Chief of Staff Air Training, which "will serve your headquarters on all matters pertaining to tactical air divisions and joint air-ground training."[32]

THE PROBLEM OF ADEQUATE AVIATION FOR JOINT TRAINING

In spite of all the efforts made in 1943 to get enough aviation provided for realistic joint training, the reports of the maneuver directors at the end of the year showed that the old shortages persisted. In the last two phases of the fifth period of maneuvers in Louisiana (29 November 1943-24 January 1944), the only air units present were two tactical reconnaissance squadrons and one partially equipped photo-mapping squadron. In the corresponding period of the maneuvers in Tennessee (22 November 1943-17 January 1944), medium bombers were available and participated for exactly two days only."[33] In November the War Department notified the Army Ground Forces that an even greater shortage was to be expected as the Army Air Forces approached its authorized strength in units.[34] The Army Air Forces, on the plea of having to pool

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29. WD ltr AG 322 (27 Aug 43) OB-1-AFRPG-M to CGs Third Air Force and DTC, 28 Aug 43, sub: Redesignation of I, II, and IV Air Supt Comds.

30. Gen Council Min (S), 10 Apr 44. (2) For an effort to clarify the confusing evolution of the TAD's in the US, see History of the I Tactical Air Division 1 April 1944-1 January 1945, pp 7 ff. AAF Hist Sec files. (3) AAF ltr to CG, Third Air Force, 13 Jun 44, sub: Tactical Air Force. AAF Hist Sec files.

31. Par 3, Wkly directive, Hqs AGF, 10 Oct 44, sub: Responsibility for Joint Air-Gnd Tng.

32. AAF ltr to CG AGF, 18 Dec 43, sub: Establishment of Tactical Air Force and Joint Tng Branch. 320.2/756 (AAF).

33. (1) Ltr Hq Fourth Army to CG AGF, 31 Jan 44, sub: Report of Air Support, Third Army Maneuvers. 354.2/217 (La 44). (2) Par 3, 1st ind, 19 Mar 44, to AGF ltr, 9 Mar 44, sub: Report of Air Support for Maneuvers. 354.2/112.

34. WD memo WDGCT 353 DTC (1 Oct 43) for CG AGF, 19 Nov 43, sub: Combined Air Gnd Tng. 353/323 (Air Gnd).

its resources, obtained the release of the III Tactical Air Division from the control of C-AMA and the Army Ground Forces.[35] Then, joining the Army Service Forces in an attack on AGF control of the California-Arizona "theater of operations," it put forward proposals looking toward both a reduction and a more rational organization of the aviation to be provided for training with ground units. Declaring that it could provide enough aviation and overhead to operate in not more than two maneuver areas concurrently, the Army Air Forces proposed setting up two tactical air divisions for the purpose and recommended that all but two maneuver areas be closed.[36]

The War Department adopted the plan proposed by the Army Air Forces, with a few modifications. It went further in cutting out maneuver areas, ordering that all but the Louisiana area be closed by 30 June.[37] On the other hand it made an effort to insure that enough aviation of the right sort would be provided for joint training in that area, directing the Army Air Forces to set up two tactical air divisions for the purpose, and a third for other types of joint training. It even specified their initial composition by numbered units, requiring the Army Air Forces to justify any substitutions made later, and further directing that since the units prescribed were "the absolute minimum" required for "essential" training, they must be kept at full strength at all times in aircraft, personnel, and equipment.[38] Since aviation for training was still rationed, the War Department established priorities for its assignment, putting maneuvers first.[39]

This was the kind of vigorous intervention to carry out the approved program of air-ground training which the Army Ground Forces had long sought to obtain from the War Department. But as the situation developed in the course of 1944, very little air cooperation of the contemplated type resulted from it. The measures taken came too late. The new tactical air divisions were not organized before the closing of the Tennessee and California-Arizona Maneuver Areas, and in the March and April maneuvers in Tennessee and Louisiana the old shortcomings in air support persisted.[40] By 1 April the theaters were taking divisions and service units so fast that the Army

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35. WD ltr AG 332 (26 Nov 43) OB-S-Gngct-M, 28 Nov 43, sub: Asgmt of AAF Units at C-AMA 320.2/63 (NAF)(R).

36. AAF D/F 27 Dec 43, sub: Combined Air-Gnd Tng. 353/100 (Air-Gnd)(C).

37. WD memo WDGCT 354 (15 Jan 44) to CG AGF, 22 Jan 44, sub: Reduction of Manuever Areas. 354.2/105. The closing dates: Tennessee not later than 31 March; C-AMA, 15 April; West Virginia not later than 30 June, except for mountain training of one division.

38. WD memo for the CG AGF, 13 Feb 44, sub: Combined Air Gnd Tng, confirmed by WD memo for CGs AGF and AAF, 2 Mar 44, sub as above. 353/103 (Air Gnd)(C).

39. WD memo for CGs AGF and AAF, 12 Feb 44, sub: Combined Air-Gnd Tng. 353/103 (Air-Gnd)(C). Other priorities: (2) POM divisions; (3) Other divisions; (4) Schools.

40. AG memo for the AC/S, G-3 AGF, 6 Mar 44, sub: Combined WD-AAF-AGF Staff Trip for Obsn of Air-Gnd Tng. 353/413 (Air-Gnd). (2) WD memo WDGCT 319.1 (13 Apr) for CGs AGF and AAF, 13 Apr 44. Report of Inspection Trip to Observe Air-Gnd Tng. 353/121 (Air-Gnd)(S).

Ground Forces postponed maneuvers indefinitely even in the Louisiana area.[41] Arrangements were made to resume them in the fall. But another postponement was necessary and in September the area was closed.[42] The thirteen divisions remaining in the United States were now directed to go through maneuvers at their home stations, and these were to include one week of air-ground exercises in which each division would have the cooperation of a tactical air division, comprising approximately a hundred fighter and bombardment aircraft.[43] The resistance which the Germans built up on the Siegfried Line wrecked this plan. In October all further maneuvers for infantry divisions were cancelled.[44] Only a small percentage of divisions got the benefit of air-ground exercises with the new tactical air divisions.[45]

Meanwhile, in June, having been successful in getting its proposals regarding maneuver areas adopted, the Army Air Forces came forward with a plan to have all maneuvers conducted around air fields in Louisiana, on the basis of plans drawn up by a maneuver staff section in G-3, War Department, composed of an equal number of air and ground officers. This scheme was represented as in accord with the sacred text of FM 100-20.[46] Asked to comment, General McNair did so in a memorandum which he wrote two weeks before he was killed in Normandy.[47] "The proposal," he wrote, "is viewed unfavorably for the following reasons:

a. It involves complications, ritual, personnel, and effort which would not be justified by the practical results obtained.

b. The provisions of FM 100-20 are well understood and in general are concurred in. Their successful operation in overseas theaters is recognized. However, it is to be noted that the overseas force headquarters are established and

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41. AGF ltr to CG EDC 1 Apr 44, sub: Fourth Army Louisiana Maneuver No. 7. Indefinitely Postponed. 354.2/259 (La 44).

42. (1) AGF ltr to CGs 30 Jun 44, sub: Maneuvers-1944. 354.2/8 (R). (2) M/S, G-3 to CofS, 23 Aug 44. 354.2/8 (S). (3) Fourth Army ltr to CG AGF. 21 Sep 44, sub: Use of LAMA Off in Div Maneuvers. 354.2/12 (R). The order to close the area is not in the AGF Records.

43. (1) AGF ltr to CGs, 21 Sep 44, sub: Maneuvers for Divs at Home Stations. 354.2/105 (C) 121 Telephone conversation, Lt Col Roy C. Flannagan with G-4 AGF, S TAD's for Maneuvers. 353/459 (Air-Gnd)(S) AGF ltr to CGs, 27 Sep 44, sub: Air Participation in Maneuvers for Divs at Home Stations--1944. 354.2/107(C). (3) For the success of air-ground cooperation in the maneuver of the 13th Armored Division, supported by the II TAD, see reports attached to Fifteenth Army ltr to CG Fourth Army, 7 Oct 44, sub: Recommendations for conduct of Air-Gnd Maneuvers for Divisions at Home Stations. 353/468 (Air-Gnd.)

44. Par 3, AGF memo for the CofS, USA, 17 Oct 44, sub: Intelligence Specialist Teams for Maneuvers, 354.2/106 (C).

45. AGF ltr (draft) to CGs, (Sep 44), sub: Maneuvers for Divs at Home Stations. 354.2/105.

46. AAF memo for the CofS, USA, 30 Jun 44, sub: Joint Tng. 353/113 (Air-Gnd) (C).

47. Memo (C) of Gen McNair for the CofS USA, 12 Jul 44, sub: Joint Tng. 353/113 (Air-Gnd)(C).

operating in practically all important cases. (This statement is made, apparently, with reference to the implication that the new setup was necessary for the training of higher headquarters.) The training activities in this country are confined to comparatively small units which later will fight as elements of forces which already are operating overseas. In other words, complete fighting forces are not being developed and trained in this country--far from it.

c. Beginning with the 1941 large maneuvers, every effort has been made by this headquarters to introduce air operations in the most realistic possible fashion. It is believed that the air forces also have endeavored to utilize maneuvers both as a means of training their own forces and in order to assist the ground forces. The limiting factor through the years had been invariably the lack of air units with sufficient preliminary training to make air support feasible, realistic and of substantial training value. It is my understanding that the availability of air units is diminishing daily.

d. It would be intolerable to build maneuver plans around air fields which were located with no consideration whatever of tactical aspects. In order that such maneuvers may be effective in the training of divisions and smaller units, they must be free from all artificiality as to movement. It is this feature which has been the most valuable in maneuver training.

e. In the absence of unforeseen developments, the number of maneuvers still to be held is comparatively limited.

f. Experience in past maneuvers has shown that prior planning by representatives of the ground and air commanders has resulted in satisfactory cooperation within the limitations of the resources available. It cannot be seen wherein the proposed War Department agency would improve matters, and certainly it would complicate them.

The only apparent result of the proposal was that the War Department, on 29 July, directed each of the three commands to designate a general officer who was to participate with the maneuver director in planning the fall maneuvers in Louisiana.[48]

By the end of 1944, the condition of supply and demand as between air and ground had been reversed. With tactical aviation built up in the tactical air divisions, with experienced pilots returning from overseas, and with the last ground divisions being hurriedly prepared for deployment, the III Tactical Air Command had more aviation at its disposal than the AGF could utilize.[49] It was now the Army Ground Forces had to announce that operational commitments made it impracticable to provide more units for joint training. The best that could be done by the Army Ground Forces was to direct its commander that where liaison-type aircraft were being used in conducting tests, the high performance aircraft now available be requested and employed.[50]

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48. WD memo WDGCT 353 (20 Jun 44) for CGs AGF, AAF, and ASF, 29 Jul 44, sub: Joint Tng. 354.2/112 (La-44)(R).

49. Ltr of III TAC to CG AGF, 20 Dec 44, sub: Air-Gnd Tng. 353/481 (Air Gnd).

50. Wkly Dir AGF (R), 16 Jan 45, sub: Combined Air Gnd Tng. 330.5/3 (Wkly Dir AGF)(R).

JOINT EXERCISES WITH NAVY AVIATION

In the second half of 1944 AGF divisions engaged in training exercises with Navy aviation. In August the Commanding General of the 11th Armored Division, stationed at Camp Cooke, Calif., ran off the attack of a combat command on a fortified position with the support of aviation obtained from the Training Command of the Amphibious Forces, Pacific Fleet. He was enthusiastic about the prompt and willing cooperation received. He noted "the simplicity and efficacy" of the Navy system, by which "planes were maintained on station in the area," and the similarity of the signal procedures of ground and Navy.[51] Later the Navy approached the Army Ground Forces with regard to further cooperation,[52] and in December, Navy aviation took part in exercises with the 13th Airborne Division at Fort Bragg, the 71st Infantry Division at Fort Benning, and the 20th Armored Division at Camp Campbell. The amount of aviation provided was disappointing. The Navy originally indicated that as many as 2,000 planes might be available. Not more than 30 could be provided (for two of the exercises, only 24) and because of the distance from airfields, not more than 8 planes could be kept on station in the target area at one time.[53]

The Navy was known to be in favor of "liberalizing" policy on close-in cooperation for joint operations in the Pacific,[54] and the Army Air Forces watched the development of this accord between the Navy and the Army Ground Forces with a concern. The Army Air Forces was directed by the War Department to send observers to sit in on the planning and to observe the exercises, with particular regard to compliance with FM 100-20.[55] They found the Navy system of liaison and control inferior to theirs, felt that the AAF units should have participated, and recommended that all future exercises should be arranged by the War Department, include Army Air units, and be planned to develop an SOP for transition from Navy to Army air support in landing operations. The Army Ground Forces concurred in this last recommendation, recommending that procedures be tested as soon as units as large as divisions were available to the Army Ground Forces, and there the matter rested.[56]

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51. AGF memo for the CofS, USA, 8 Sep 44, sub: Report of Joint Army-Navy Exercises Held at Cp Cooke. 9 Aug 44. 353/456 (Air-Gnd).

52. (1) Gen Council Mins (S), 13 Nov 44. (2) AGF memo for the CofS, USA, 29 Dec 44, sub: Participation of Navy, Air in Gnd Force Exercises. 353.02/5. (AGF)(R).

53. (1) Memo of Lt Col Flannagan for the AC/S, G-3, AGF, 25 Nov 44, sub: Air-Gnd Tng with Naval Avtn. 353/475 (Air-Gnd). (2) Gen Council Mins (S), 13 Nov 44. (3) AGF ltr to CG, Second Army, 27 Dec 44, sub: Visit of Inspection to 13th AB Div, 20th Armd Div, and 71st Inf Div. 353.02/5. (AGF)(R).

54. AGF M/S, G-3 to CofS, 9 Nov 44, sub: Air-Gnd Doctrine. 353/468 (Air-Gnd.)

55. WD memo WDGCT 353920 (Nov 44) for the CG AAF, 30 Nov 44, sub: Joint Naval Avtn AGF Tng. 353/150 (Air-Gnd)(S).

56. (1) AAF memo for WD G-3, 23 Dec 44, sub: as above. (2) AGF memo for the CofS, USA 28 Jan 45, sub: as above. Both in 353/150 (Air-Gnd)(S).

The air-ground training program set up by the Army Ground Forces for 1944 was that which had been developed and approved in 1943. Its keystone continued to be the air-ground tests and the instruction of units preparatory to taking the tests. AGF service schools gave an officers' course in air-ground cooperation as part of their instruction in combined arms, and AGF schools, replacement training centers, and units were expected to witness the recognition and fire-power demonstrations given by the Army Air Forces. Divisions were to have air-ground exercises in the "D" series and in their maneuvers, preceded, as before, by a pre-maneuver air-ground school. Senior ground commanders and members of their staffs still took the course of indoctrination at the Air Forces School of Applied Tactics. Ground liaison officers received basic training at Key Field and, if practicable, later training on the job by performing their new function with tactical units in maneuvers. On 2 January maneuver directors were notified that emphasis was to be placed on thorough advance planning of air-ground exercises, in concert with the air commander, with particular attention to photomapping, and that emphasis on the still unsolved problems of air-ground visual communications was to be continued.[57] Army Ground Forces wished to complete the program by 31 August and declared that it could do so if cooperating aviation was not reduced further. The program was never completed.[58]

The restrictions imposed by the course of events as far as maneuvers are concerned have already been described. In January it was found that the Air Force recognition flights had lapsed, and arrangements had to be made to revive them. At that time sixteen divisions had still to witness this demonstration.[59]

In June the intensification of replacement training made it necessary to drop these demonstrations from the training requirements of the AGF replacement training centers.[60] In January 1944 the Army Air Forces sought permission to discontinue the fire-power demonstrations at the service schools.[61] The War Department met this request to the extent of putting the service schools on the lowest priority in requests for aviation. In June the Field Artillery School, because so few planes took part,

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57. AGF ltrs to Maneuver Directors, Second and Third Armies 2 Jan 44, sub: Rpt of Air Suppt of Maneuvers. 353/100 (Air-Gnd)(R) and 353/400 (Air-Gnd); same to CG CAMA, 2 Jan 44, sub: Air-Gnd Joint Tng. 353/40. (Air-Gnd).

58. (1) AGF memo (19 Nov 44) for CofS, USA, 14 Dec 44, sub: Combined Air-Gnd Tng. 353/29 (Air-Gnd)(C). (2) Par 5, AGF memo for the CofS, USA, 5 Feb 44, sub: Combined Air-Gnd Tng. 353/103 (Air-Gnd)(R).

59. (1) Ltr of 63d Inf Div, 17 Jan 44, sub: Demonstration Flight, with 4 inds. 353/423 (Air-Gnd). (2) AAF ltr to CG Third Air Force, 3 Feb 44. Instructional Flights and Demonstrations Directive Resumption in March. 353/105 (Air-Gnd)(S). (3) AGF ltr to CGs Second and Fourth Armies 19 Feb 44, sub: Demonstration Flight. (4) AGF ltr to CG R&SC, 7 Mar 44, sub as above. 353/423 (Air-Gnd).

60. R&SC ltr to CG AGF, 29 May 44, sub: as above, and AGF reply, 21 June 44. 370.27/324.

61. AAF memo for the CofS, USA, 15 Jan 44, sub: Combined Air-Gnd Training, and AGF reply 5 Feb 44, requesting continuation until 31 Aug 44. 353/103 (Air-Gnd)(R).

asked and was permitted to cancel the air-power demonstration as a separate exercise in its program.[62] The chances that a young ground officer would see the demonstration while in a school or later with his division in 1944-45 were slim.

IMPROVEMENTS IN JOINT TRAINING

In the air-ground training that could be given certain improvements were made. The assignment of ground liaison officers to divisions in training, while intended primarily to give the officer further training, had something of the effect obtained overseas in improving liaison.[63] Much thought and effort were given to exploiting air intelligence and the use of photomaps. On 11 June a revised directive on air-ground training, was issued incorporating reference to FM 100-20, the latest available training literature, reports from theaters, and references to all pertinent AGF directives.[64]

The framing of this directive, and the whole effort to improve training, was hampered by the lack of settled doctrine and a training literature derived therefrom, which resulted from the rapid evolution of close-in cooperation overseas and the refusal of the Army Ground Forces to accept the extreme interpretation which the Army Air Forces sought to place on the generalities of FM 100-20. The measure which the Army Ground Forces adopted to fill the gap was to publish to the field from time to time extracts from battle reports reflecting, for guidance, the methods of cooperation that were being found effectual in combat.[65] They were made a primary reference in the revised training directive and a required reference in all air-ground training directives of subordinate commands.[66] The equipment of the new tactical air divisions permitted a test of these methods. By the end of the year such exercises as could be held conformed closely to the system of practices that had grown up in ETO.[67] But it was necessary to warn commanders that when they arrived in that theater they would not

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62. FAS ltr to CG AGF, 7 Jun 44, sub: Air Power Demonstration. 370.7/323.

63. The first increment of graduates from the GLO Schs at Key Field were 12 ordered to report to the Maneuver Director, Fourth Army for TD on or about 4 Mar. AGF ltr to Maneuver Director, Fourth Army, 5 Mar 44, sub: Maneuver Tng of GLO's. 352.2/234 (La 44). GLO's were already being used in the Tennessee and Louisiana Maneuver Areas. See AGF memo for the A/CofS, G-3, sub: Combined WD AAF-AGF Staff Trip for Observation of Air-Ground Training. 353/413 (Air-Gnd). Also ltr Hq Second Army to CG AGF, 14 Apr 44, sub: Report of Air Support for Maneuvers. 354.2/272 (Tenn 44); Report of Air Support 6th Maneuver Period. 354.2/265 (La 44). Ltr III TAD to CG Third Air Force, 21 Feb 45, sub: Report of Visit with GLO's of 86th and 97th Inf Divs. 353/489 (Air-Gnd).

64. AGF ltr to CGs, 11 Jun 44, sub: Tng Directive Effective 1 Nov 44, with 1 incl: Air-Gnd Tng Program, w/ 2 incls. 353/52 (Tng Dir).

65. AGF ltr to CGs, 11 Jun 44, sub: Air-Ground Battle Reports. 319.1/122 (For Obsvrs)(R). Supplements were published 29 Sep 44, 21 Nov 44, and 30 March 1945.

66. AGF Wkly Dir No 30, 25 Jul 44.

67. Fifteenth Army ltr to CG, Fourth Army, 7 Oct 44, sub: Air Ground Maneuver Report, 13th Armd Div, Cp Bowie, Tex, 30 Sep to 5 Oct 44, with Incl 1, GLO Maneuver Report, 6 Oct 44.

find uniformity in the systems being followed in the Twelfth and the Sixth Army Groups.[68]

ORGANIZATION AND TRAINING FOR THE USE OF AERIAL PHOTOGRAPHY

In its air-ground training program for 1944 the Army Ground Forces made a special effort to get better results from aerial photography.

In 1942 the Army Ground Forces had adhered strictly to its principle of on-the-job training to give G-2 officers the skill required to interpret aerial photographs. This plan broke down for lack of air photographs to interpret. In November 1942 the necessity of special training was recognized and in February 1943 an initial group of twenty ground officers was sent to the Military Intelligence Training Center at Camp Ritchie to take a short course (of three weeks) in the subject.[69] The Army Ground Forces still counted on the subsequent field experience of these officers with their units to complete their training. But, as noted, this experience was hardly less meager in 1943 than it had been in 1942. Since air photographs taken on the spot were not supplied in air units, the Army Ground Forces furnished its units with contact prints obtained from theaters of operations. Another measure it took was to request the Military Intelligence Training Center to prepare instructional kits containing air photographs, which were lent to ground units as training aids.[70] Nevertheless G-2 officers arriving in theaters during 1943 were not competent to perform the necessary interpretation. The Fifth Army, when it began to go after its own interpretations at air reconnaissance headquarters in the fall of 1943, had to borrow British officers for the purpose.[71] In August 1943 ETO also reported a deficiency of competent interpreters.[72] Its requirement for more photo interpreters was added to that of the Fifth Army when the First Army Group, making ready for the invasion of France, included in its plans a setup for photo interpreters in each of its armies similar to that of the Fifth Army.

The systems which the armies in Europe were developing for the extraction of ground intelligence from air photographs required specialists, and more of them. G-2, Army Ground Forces, recommended that the need for specialization be recognized to the extent of including air photo interpreters in the T/O's of divisions and corps. General McNair, always reluctant to see overhead proliferate, did not adopt this proposal.[73]

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68. AGF ltr to CG Second Army, 27 Dec 44, sub: Visit of Inspection to 13th A/B Div 20th Armd Div and 71st Inf Div. 353.02/51 (AGF)(R).

69. (1) AGF ltr to TAG, 28 Nov 42, sub: Course at MITC, Cp Ritchie, Md. 352/18 (MIS). (2) AGF 2d ind to foregoing, 26 Dec 42. Ibid. (3) AGF ltr to TAG, 3 Mar 43, sub: Course at MITC, Cp Ritchie, Md. 352/26 (MIS).

70. AGF memo (S) for the CofS, USA, 16 Sep 43, sub: Photo Interpretation and Equip. 352/64 (Army Staff Colleges and Serv Schs)(S).

71. Rpt (S) of Col Sheffield Edwards to the A/CofS FUSAG, 18 Jan 44, sub: Rpt of Air-Ground Collaboration in Italy. 353/111 (Air-Gnd)(S).

72. AGF M/S (S), G-2 to G-3, 2 Sep 43, sub: Interpretation of Aerial Photographs. 353/64 (Army Staff Colleges and Serv Schs)(S).

73. Ibid.

Instead, on 16 September 1943, the Army Ground Forces sponsored the creation of a pool of officers trained as interpreters at Camp Ritchie, who, after a course of three or four months in the MITC would complete their training in theaters, where they could work under realistic conditions, then becoming available for theater assignments.[74] This plan for meeting the immediate emergency was authorized on 20 October 1943.

The situation at the beginning of 1944 required more interpreters and more thorough training. During 1943 the number of ground officers taking the three weeks' course at Camp Ritchie had been increased from twenty to fifty; during 1944 it was increased by successive increments to eighty.[75] In March 1944 the MITC was requested to introduce a three weeks' course for enlisted men, to man the photo interpreter teams which had been set up by the armies overseas.[76] The number taking this course was substantially increased during 1944. In May the courses for both officers and enlisted men were lengthened from three weeks to five in order to include exercises in the use of recent battlefield photography.[77]

During 1944 the Army Ground Forces made a vigorous effort to improve the training of its remaining units in the exploitation of air photography. It pressed for the provision by the Army Air Forces of adequate photo mapping and photo reconnaissance, and this was ordered by the War Department.[78] It pressed on its commanders the necessity for thorough pre-planning, in concert with the air commander, and was supported in this by a War Department letter, published 8 July 1944, in which service command staff

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74. (1) AGF memo (S) for the CofS USA, 16 Sep 43, sub: Photo-Interpretation and Equip. 352/64 (Army Staff Colleges and Serv Schs)(S). (2) TAG 1st ind on preceding, AG 062 (16 Sep 43) OB-S-B (S), 20 Oct 43. 353/64.

75. The number was increased from 20 to 50 per class on 24 June 1943. AGF ltr to CGs, 24 Jun 43, sub: Short Course in the Technique of Interpretation of Aerial Photographs. 352/35 (MIS). It was increased to 70 on 3 Feb 44, and finally to 80 per class on 16 Jun 44. AGF ltr to CGs, 7 Jul 44, sub: Offs Short Course in the Technique of Interpretation of Aerial Photographs. 352/126 (MIS).

76. AGF ltr (R) to CGs, 16 Mar 44, sub: Special Course of Instruction at Mil Int Tng Center, Cp Ritchie, Md. 352/122 (Army Serv and Techn Sch, Staff Colleges)(R).

77. (1) Officers course: AGF ltr to CGs, 16 Apr 44, sub: Short Course in the Technique of Interpretation of Air Photographs. 352/112 (MIS). (2) Enlisted Men's Course: AGF ltr to CGs, 30 May 44, sub: Enlisted Men's Short Course in the Technique of Interpretation of Air Photographs. 353/116 (MIS). (3) Originally the enlisted men's course was for personnel from division and corps G-2 sections. In May it was extended to include men from field artillery headquarters of divisions and corps and from the headquarters of field artillery brigades; in June, from the G-3 sections of division and corps headquarters. For details see AGF ltr to Comdt, FAS. 24 May 44, sub: Qualifications of Enl FA Interpreters of Air Photographs. 352/115 (MIS); AGF ltr to CGs, 24 Jun 44, sub: Enl Men's Short Course in Technique of Interpretation of Air Photographs. 352/122 (MIS); and AGF M/S, G-2 to GNHIS, 14 Aug 45, sub: PI Tng under AGF, 314.7. (AGF Hist.)

78. WD memo (C) WDGCT 353 (14 Jan 44) for CGs AGF and AAF, 2 Mar 44, sub: Combined Air Ground Tng. 353/103 (Air-Gnd)(C).

responsibilities in connection with aerial mapping and photography were clearly defined.[79] Army Ground Forces had a larger number of instructional kits prepared and arranged to have them issued to its units for retention if desired, and it insisted on their use.[80] It had the Military Intelligence Training Center prepare for issue to AGF units special lessons in the interpretation of battlefield photographs. In accordance with its wishes the courses in air photo interpretation at Camp Ritchie were made as practical and realistic as possible by the use of such photographs.[81] The necessity for teams of experts was recognized by providing for team training at Camp Ritchie, and by attaching photo interpreter teams to each of the divisions that maneuvered with air at their home stations in the last months of 1944.[82] The object of all these measures was to overcome one of the most serious and persistent defects of air ground cooperation in combat. They reflected a growing consciousness that if ground units were to obtain satisfactory air intelligence, visual or photographic, they must be prepared to go after it, providing their own interpreters of the data procured by air reconnaissance, as well as ground liaison officers at air reconnaissance headquarters.

AIR-GROUND TRAINING IN AGF SERVICE SCHOOLS

Air-Ground instruction in the AGF service schools had fallen into neglect during 1943-44 with the feeling that air had become an arm apart from the others. In December 1944 the schools were advised that overseas a battlefield cooperation between air and ground had developed "similar to infantry-artillery cooperation," and they were directed to bring their officer courses into line with it, integrating air-ground instruction thoroughly with other instruction in the combined arms.[83] The aviation now available

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79. (1) AGF ltrs (R) to Third and Fourth Armies and CG CAMA, 2 Jan 44, sub: Rpt of Air Support. 353/400 and 353/401 (Air-Gnd) and 353/100 (Air-Gnd)(R). (2) WD ltr (R) to CGs of Major Comds and Theaters, 8 Jul 44, sub: Comd Responsibilities for Maps and Photographs, implemented by AGF ltr to CGs, 22 Jul 44, sub: Map and Photographic Tng during Maneuvers. 354.2/9 (Manvrs 44)(R).

80. (1) Par 1 f, item (2) AAF M/S, G-2 to GNHIS, 14 Aug 45, sub: PI Tng under AGF. 314.7 (AGF). (2) Par 2, AGF Wkly Dir 32, 8 Aug 44, sub: Air Photograph Reading Instructional Kits.

81. (1) AGF ltr (R) to CGs, 15 Jan 44, sub: Distribution of Battlefield Aerial Photographs. 062/101 (R). (2) AGF M/S, G-2 to AG, 13 Jan 44, sub: Distribution of Battlefield Aerial Photographs. Ibid. (3) Par 4, AGF Wkly Dir 11, 13 Mar 45, sub: Battlefield Air Photographs. (4) AGF 1st and 5th inds to MITC ltr of 4 Apr 45, sub: Suggested Lesson in Photo Interpretation, 9 Apr and 10 May 45. 062/129 (R). (5) WD memo MID 920 for the CG AGF, 22 Sep 44, sub: Course of Instruction for AGF Photo Interpreters. 352/141 (MIS).

82. (1) AGF ltr to CGs, 12 Dec 44, sub: Enl Men's Short Course in Technique of Interpretation of Air Photographs. 352/156 (MIS). (2) AGF ltr (C) to CGs, Fourth Army and XIII Corps, 29 Sep 44, sub: Int Specialist Teams for Maneuvers. 354.2/106 (C).

83. (1) AGF M/S, G-3 to AG Misc, 7 Feb 45, sub: 353/118 (Air-Gnd)(C). (2) AGF ltr to ACG R&SC, 7 Feb 45, sub: as above Air-Ground Tng of Officers in AGF Schools. 353/118 (Air-Gnd)(R). (2) TCS ltr to CG R&SC, 10 Mar 45, sub: Revision of Off Courses, TCS, to Include Air-Gnd Training, 353.11/60 (Cav Sch).

for demonstrations brighten the prospect of making the instruction in both the schools and the replacement training centers realistic and effective.[84]

In June the Army Ground Forces submitted a revision of its air-ground training test designed to bring it into alignment with new developments. The Army Air Forces concurred in the revision proposed, but the War Department delayed approval, pending receipt of further battle experience, "especially that of the Fifth Army."[85] The old test, which by September had been applied to over 1,600 units,[86] continued in force.

OBSTACLES AND SHORTCOMINGS

The evidence indicates that the Army Air Forces continuing to regard the air-ground training program with disfavor as out of harmony with FM 100-20, sought to strengthen the control of the War Department and restrict the influence of the Army Ground Forces over it. In July 1944 the Army Ground Forces was sharply notified by G-3, War Department, that "reports from theaters indicate that the majority of our senior officers do not have a concept of the proper use of air power," and that "the training objective . . . has not been attained by means of current training programs and tests," and was directed to report the changes necessary to remedy the situation.[87] This reprimand came as a surprise in view of the commendation which the combined training program had received from the same source in October 1943. It seemed less formidable when the fact was established that the reports from overseas theaters of a majority of senior officers were reducible, in the concrete, to an oral report by a single staff officer to an air officer in the Training Branch of the War Department G-3 Division.[88] The rebuke came at the same time with the attempt of the Army Air Forces to take the control of maneuvers out of the hands of the Commanding General of the Army Ground Forces.

The Army Ground Forces was itself far from satisfied with the effect of joint training on its officers. The AGF staff observers of the joint Navy-AGF division exercises found that ground officers were indeed not familiar with AAF procedures and methods of control and communication in combined operations.[89] But it was hard to see how they could be familiar with them without having seen the Army Air Forces in action. The Army Ground Forces after reviewing the approved program replied to the War

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84. R&SC ltr to CGs RTCs, 26 Mar 45, sub: Air Missions Available to RTCs. 353/491 (Air-Gnd).

85. (1) AGF memo for CofS USA, 9 June 44, sub: Proposed changes in Air-Ground Training Tests. 353/110 (Air-Gnd)(C). (2) WD memo WDGCT 452.1 (28 Apr 43) for CG AGF, 27 Jun 44, sub: Air-Gnd Tng Tests. 353/430 (Air-Gnd). (3) Par 66 Incl to AGF M/S G-3 to C/S, 16 Sep 44, sub: Review of Air-Gnd Tng. 314.7 (AGD Hist).

86. To be supplied.

87. WD memo WDGCT 452.1 (12 Jul 44) for the CG AGF, 12 Jul 44, sub: Proper Use of Air Power. 353/1141 (Air-Gnd)(C).

88. AGF M/S, G-3 to CofS, 10 Jul 44, sub: Proper Use of Air Power. 353/114 (Air-Gnd)(C).

89. AGF ltr to CG Second Army, 27 Dec 44, sub: Visit of Inspection. 353.02/51 (AGF)(R).

Department memorandum cited above as follows:[90]

> Lack of sufficient cooperating aviation to assure realistic play of air power in maneuvers, and lack of adequate up-to-date field manuals upon air-ground cooperation have been serious handicaps to training.

In September, recounting the efforts of the Army Ground Forces to develop means of communication and air-ground doctrine since November 1943, the Army Ground Forces reached the following conclusions regarding air-ground training:[91]

> Training in close-in battlefield teamwork thus far unsatisfactory in the United States can be improved by the publication of approved doctrine, by active coordination of ground and air training effort, by provision of adequate aviation for joint training, and by provision whereby appropriate air units as well as ground units are tested for proficiency in air-ground training.

ADOPTION OF A STANDARD AIR-GROUND LIAISON SYSTEM

On 20 April 1945, three weeks before the surrender of Germany, the long-pending statement of the War Department on air-ground relations in the field was published as Training Circular No 17. Parts II and III of the draft, containing the lengthy elaborations of FM 100-20, were omitted. Also omitted was the assertion regarding the finality of that manual as a statement of doctrine.

Training Circular No 17 recognized the diversity of practices that had grown up in the theaters by describing a "standard" system. Its adoption was declared to be "desirable," if it was to be the basis of training in the Zone of Interior; but it was to be introduced into active theaters "only to the extent permitted by combat operations and special conditions existing therein.[92]

The standard system was virtually the Fifth Army system, except that the G-3's Air and G-2's Air of that system disappeared. The agency replacing them was to be an air-ground liaison section (AGLS) in the headquarters of each theater, army group, army corps and division. At theater, army group, and army headquarters, these sections were to include ground-liaison-officer teams. At army group and army headquarters they were to operate Air-Ground Information Centers (AGIC). As in all the systems that had developed in Europe, the close tie-up of army and TAC headquarter was the heart of the organization. As in the Fifth Army system, the radio net to provide for rapid communication between air-ground liaison sections, air-ground information centers, and the ground liaison officers at airdromes, was made a ground force responsibility. To operate this net, portions of the existing tactical air communications squadrons were to be borrowed from air; "at a date to be announced by the War Department," signal companies, air-ground liaison, army, would be provided. The air support parties prescribed FM 31-35, which had been kept alive in the First Army system in ETO, were not made a part of the standard system. Their mission of transmitting requests from forward ground units was transferred to the air-ground liaison sections.

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90. AGF memo for the CofS, USA, 26 Jul 44, sub: Proper Use of Air Power. 353/114 (Air-Gnd)(C).

91. AGF memo for the CofS USA, 18 Sep 44, sub: Air-Ground Tng and Opns. 353/115 (Air-Gnd)(R).

92. Par 10, TC No 17, WD 20 Apr 45.

Their advisory function was to be performed by rated pilots whom the tactical air command would send to corps and divisions as liaison officers if requested by the army commander. The "air support controls" of FM 31-35 were absorbed into the centralized "tactical control group" of the tactical air command, which might send a representative of this group ("forward controller") to work with any forward ground element. A final paragraph authorized the most effective means of cutting the time lag between request and execution which had developed in combat, namely, the placing of air units under immediate radio voice control of a forward controller, who might be "aboard a control vessel, in the air [Horsefly], in a tank, or near a command post or headquarters." This was to authorize air alert, for which the AGF had contended. But the device was to be used only in "critical situations." These were strictly defined and the terms of the definition failed to reflect the generosity with which air had come to the support of ground action on the battlefields of Europe. The paragraph seemed to be inspired by a still persisting tendency in the high air staff to restrict to a minimum the basis for close teamwork between ground and air forces. Nevertheless, and however grudgingly, the new circular gave War Department sanction to the genuine air-ground teams which had developed and become effective in the field.

Air-ground doctrine and procedure received further clarification and consolidation three months later in the long-awaited publication of a training circular on the organization and employment of the tactical air command.[93] In this training circular (No. 30), emphasis was on flexibility. The tactical air command was described as a flexible organization within a flexible air force (the tactical air force), both designed to permit the massing or distribution of the theater air force within the terms of a carefully elaborated and coordinated over-all plan. Since everything was to be kept as flexible as possible, it was necessary to emphasize repeatedly the importance of advance planning all down the line. On the other hand, the circular got down to detail in standardizing the organization, relationships, and procedures which had been found most effective in combat.

It was made clear that tactical air commands would normally consist chiefly of fighter units, of enough tactical and photo reconnaissance to meet air and ground needs, and of a centralized tactical control group, responsible for air defence as well as for directing air attacks. Light and medium bombardment aviation was not normally to be assigned, but was to be allocated to the tactical air command from the tactical air force as required by approved plans. In special situations, the heavy and medium bombardment aviation of the strategic air force might be employed in the tactical air command. The means of implementing and speeding up air-ground cooperation which had been developed in combat were fully described: the adjacent location of the forward echelon of the tactical air command headquarters and army headquarters, and the daily conference--in short, the close meshing of army and TAC headquarters, "armed reconnaissance," air alert, the forward controller, and the delegation to him of immediate voice control of air units in forward areas, when a critical situation required quick action. In the section on reconnaissance aviation, procedures for requesting reconnaissance, and air and ground force responsibilities for the production and dissemination of air photos were carefully defined, and methods of expediting interpretation and dissemination described. In regard to the adjustment of artillery fire, it was stated that this function "may be accomplished by tactical reconnaissance aviation," and that the liaison aircraft reconnaissance squadrons might perform "limited aerial survey for ground force artillery units." In general, the circular performed the valuable service of defining that "what, when, and how" of cooperation between U.S. air and ground forces that had been found practicable on the battlefield, within the limitations

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93. Tng Cir No 30, WD, 19 Jun 45.

and capabilities of their existing organization, equipment, and training.

Clear and authoritative guidance for unit training in air-ground cooperation had at last been provided by Circulars 17 and 30. It would have been valuable in the redeployment training of the units to be used in the Japanese war. But this training was cut short by accelerated redeployment and the surrender of Japan.