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U.S. Air Force Historical Study No. 94

# AIR FORCE PARTICIPATION IN JOINT AMPHIBIOUS TRAINING EXERCISES

## 1946 – 1950

USAF HISTORICAL DIVISION
RESEARCH STUDIES INSTITUTE
AIR UNIVERSITY
1954

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USAF HISTORICAL STUDIES: NO. 94

# AIR FORCE PARTICIPATION IN JOINT AMPHIBIOUS TRAINING EXERCISES, 1946 - 1950

USAF Historical Division
Research Studies Institute
Air University
December 1954

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# F O R E W O R D

During the period between the end of World War II and the beginning of the war in Korea, the Air Force, in conjunction with the Army, engaged in a series of joint training exercises. These exercises were examined in USAF Historical Study Number 80, Air Force Participation in Joint Army-Air Force Training Exercises, 1947-1950. Omitted from this monograph were the joint amphibious exercises also conducted in the period between the two wars, and it is these exercises that are the subject of the present study.

The treatment of the three major joint amphibious exercises held during these years is both narrative and analytical. It includes, for each of the exercises, an account of planning and operations, followed by an analysis of findings. Special emphasis is placed on findings of interest to the Air Force, and attention is focused on deficiencies and problems relative to planning; to logistics; to reconnaissance, fighter, bombardment, and airborne operations; and to communications and control.

In view of the significance of the problem of command relationships in amphibious operations, this subject is treated separately, in Chapter V of this study.

The study was written by Dr. Ralph D. Bald, Jr. of the USAF Historical Division, Research Studies Institute, Air University, Maxwell Air Force Base, Alabama.

Like other Historical Division studies, this history is subject to revision, and additional information or suggested corrections will be welcomed.

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Chapter I

EXERCISE MOUNTAIN GOAT

The first joint amphibious exercise held after the end of World War II was Exercise MOUNTAIN GOAT, conducted in California in November, 1946. Upon its reactivation in March, 1946, Sixth Army was designated as the Army Ground Forces agency to conduct amphibious training of Army units on the Pacific Coast. In June Tactical Air Command named Twelfth Air Force as its representative in this training program. Over-all coordination and control of the program was the province of the Amphibious Forces, Pacific Fleet. The culmination of this 1946 Pacific Coast amphibious training activity was a joint Army-Navy exercise given the code name MOUNTAIN GOAT.[1]

The joint Army-Navy mission for the 1946 training program, including Exercise MOUNTAIN GOAT itself, was to prepare individuals and units to carry out coordinated assault landing operations. The primary objective of Sixth Army was to bring one reinforced infantry division to the combat efficiency necessary for assault landing operations, and the secondary objective was to develop a policy applicable to Pacific Coast amphibious operations against a possible enemy.[2] Twelfth Air Force was given the missions of cooperating with Sixth Army in training of its troops and cooperating with the Navy in support of amphibious operations. While carrying out these missions, Twelfth Air Force expected to train its staff in the planning of joint amphibious operations, to test new equipment and new types of aircraft, and to develop new tactics and techniques.[3]



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Early planning for Exercise MOUNTAIN GOAT was confined to arrangements between Sixth Army and the Navy for amphibious training of the 2d Infantry Division, the major Army unit scheduled to take part in the exercise. It was not until May 1946, at a conference in San Francisco between General Joseph W. Stilwell, Sixth Army commander, Brig. Gen. John P. Doyle, commanding general, Twelfth Air Force, and representatives of the Navy, that Twelfth Air Force was injected into the planning for the exercise. At this conference General Doyle explained that Twelfth Air Force was prepared to assist Sixth Army in its training program, and it was decided that a hypothetical situation should be drawn up in order to provide the AAF with a logical target for the use of its land-based tactical aviation. At this time also Navy representatives discussed tentatively the amphibious lift requirements for the exercise.[4]

Planning progressed slowly in July, but it was speeded up by a series of conferences held in August. During the second week of July, Twelfth Air Force and Sixth Army staff officers conferred and reached a decision to employ skeleton defense forces, thus making the situation more realistic, particularly from the standpoint of providing effective training for reconnaissance units.[5] This meeting was followed during the first week in August by a conference between General Doyle and Vice Admiral Frederick C. Sherman, commander of the Fifth Fleet, aboard the Vicksburg at Coronado, near San Diego. This was the first high-level Air Forces-Navy conference; up to this time Exercise MOUNTAIN GOAT, which lacked any over-all directive from the Joint Chiefs of Staff, seems, like topsy, to have "just growed." In fact, it was at this conference that

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the Navy for the first time recognized that Twelfth Air Force wished to take part in the exercise. The Navy had conceived the exercise to be in the main a Fifth Fleet maneuver during which the amphibious landing of the 2d Infantry Division would be worked in. When Admiral Sherman learned that the AAF hoped to engage in the exercise, he stated that although he had authority to deal only with Sixth Army, he would ask his superior, Admiral John H. Towers, Commander in Chief, Pacific Fleet, for "permission for the Twelfth Air Force to participate."[6]

In an effort to clarify the role of Twelfth Air Force in the exercise General Doyle flew to Honolulu during the second week in August to confer with Admiral Towers. At a conference between these two commanders and spokesmen for Sixth Army, a joint Army-Navy-AAF plan of action was agreed upon, a plan which provided definitely for Twelfth Air Force to have a share in the exercise.

Off to a slow start, progress in planning was speeded up considerably during the third week of August when General Stilwell, Maj. Gen. Elwood R. Quesada, head of Tactical Air Command, and Rear Admiral A.D. Struble, commander Amphibious Forces, Pacific Fleet, met in San Francisco. Just prior to this conference some doubt as to the Navy's part in the exercise was created by a message from the Chief of Naval Operations stating that there would be no Fifth Fleet maneuver but that amphibious training of the 2d Infantry Division was to continue. The withdrawal of the Fifth Fleet left some uncertainty as to participation of naval air in the exercise. This situation was cleared up at this conference, when it was agreed that naval and Marine air would take part. The AAF commitment, the conferees

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decided, would consist of Twelfth Air Force units, reinforced by some Ninth Air Force units and by certain other Tactical Air Command units.

Also decided at this conference was the troublesome problem of who should have control of aircraft during the exercise. It was finally agreed that the Navy would control all aircraft in the objective area on D-day and that AAF would assume control in D plus 1 (later changed to give the Navy control on D-day and D plus 1, after which control would be assumed by the AAF).*[7]

Planning continued in September with a meeting at Coronado, California, between the Twelfth Air Force communications officer and representatives of Sixth Army, 2d Infantry Division, and the Navy to iron out matters concerning radio frequencies to be used during the exercise. On 7 October Maj. Gen. William D. Old, who had replaced General Doyle as commanding general of Twelfth Air Force, visited Headquarters, Sixth Army, at the Presidio of San Francisco, to confer on the establishment of an Aggressor air situation consistent with that contemplated by the Navy. This conference was followed by a meeting, held at the request of Sixth Army, between staff officers of Twelfth Air Force and representatives of the 2d Infantry Division. Here Twelfth Air Force staff officers--the A-2, the A-3 officer in charge of plans and training, the A-3, and the communications officer--conferred with 2d Division staff officers and worked out further details concerning the conduct of the exercise.[8]

To orient its personnel who were scheduled to take part in the exercise, Twelfth Air Force held three general briefings. On 30 October

* For further discussion of the problem of command and control see Chapter V.

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an over-all briefing was given by General Old and his staff to all commanders of participating units, with each staff officer outlining his phase of the operation. On 14 November all unit S-2 officers were filled in on intelligence matters; and the same day Twelfth Air Force A-2, A-3, and communications officers gave a general briefing to all operations officers and flight leaders.[9]

Exercise MOUNTAIN GOAT, as it evolved during the planning phase, was to consist of an amphibious assault on the beaches at Aliso Canyon, near Camp Pendleton, California,* followed by an overland attack across the southwestern corner of the Pendleton reservation. Troops of the 2d Infantry Division were to be put ashore by ships of Amphibious Forces, Pacific Fleet and were to be supported by Twelfth Air Force and naval and Marine air.

The principal Twelfth Air Force units slated to take part were the 1st Fighter Group, the 47th Bombardment Group (L) Night Attack, and the 12th Photo Reconnaissance Squadron. Ninth Air Force units attached to Twelfth Air Force for the exercise included the 20th Fighter Group, the 62d Troop Carrier Group, the 477th Composite Group,/ the 415th Night Fighter Squadron, the 161st Tactical Reconnaissance Squadron, the 72d Liaison Squadron, and the 502d Tactical Control Group.[10]

For the Army the major unit involved was the 2d Infantry Division, minus the 38th Regimental Combat Team. Among the supporting units, drawn from Sixth Army, were the 717th Tank Battalion, the 91st Chemical Mortar Battalion, and a number of special amphibious units--the 41st

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* See App. 1.

/ This group was composed of the 99th Fighter Squadron and the 617th Bombardment Squadron.

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Amphibious Tank Battalion, the 532d Engineer Boat and Shore Regiment (less its boat battalion), the 286th Joint Assault Signal Company, and the 15th Signal Detachment, Amphibious Flagship (Type A).[11]

To provide the amphibious lift for the 2d Division the Navy furnished nine APA's (attack transport); four AKA's (attack cargo ship); one LSD (landing ship, dock), carrying three LCT's (landing craft, tank); seven LST's (landing ship, tank); nine LSM's (landing ship, medium); and one AGC (amphibious force flagship).[12] For gunfire support the Navy assigned one heavy cruiser, one light cruiser, three destroyers, and four LSM (R)'s (landing ship, medium, rocket) controlled by one LC (FF) (landing craft, flotilla flagship).[13] Naval air consisted of Carrier Air Groups 5 and 50; Marine air included Marine Air Groups (MAG) 12 and 33. Each group was made up of two fighter squadrons, and MAG 33 had in addition a photographic squadron.[14]

Representing Aggressor air were MAG 31 and the AAF's 415th Night Fighter Squadron. Acting as the Aggressor ground force was the 1st Provisional Combat Group, composed of the 1259th Engineer Combat Battalion and the boat battalion of the 532d Engineer Boat and Shore Regiment.[15] No Aggressor naval forces were employed during the exercise.[16]

In the hypothetical situation constructed by the planners as a scenario for the play of the exercise it was assumed that early in 1946 a coalition of Aggressor nations had made surprise landings on the Pacific Coast of northern Mexico and had advanced into southwestern United States. The Aggressor advance into California and Arizona was checked in April, and he was then driven south along his entire front. In September he had succeeded in setting up defensive positions along

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the San Gabriel, San Bernardino, and San Jacinto Mountains, with the evident intention of holding Los Angeles and the southern California coastal plain.

Western Army Group, composed of Fifth and Sixth U.S. Armies and supported by Tactical Air Command and Fifth Fleet, was assigned the mission of recapturing United States territory held by the enemy and destroying Aggressor forces within its zone of action. As part of this over-all operation Sixth Army, in conjunction with Twelfth Air Force and Amphibious Forces, Pacific Fleet, was given the mission of recapturing Los Angeles and destroying Aggressor forces on the southern California coastal plain.

To accomplish this mission, Sixth Army planned to seize Los Angeles by envelopment from the east, to be carried out by VII Corps attacking in the general direction of San Bernardino and Lake Elsinore. This envelopment was to be assisted by an amphibious landing and a strong feint from the south, the purpose being to draw Aggressor reserves away from the main effort by VII Corps. The following code names were assigned to these operations: over-all Sixth Army effort--MOUNTAIN GOAT; eastern envelopment--THUNDERHEAD; southern feint--OILSKIN.

The objectives of OILSKIN--that part of MOUNTAIN GOAT which included the actual amphibious exercise--were 1) to make a surprise attack to cut Aggressor coastal lines of communication between Los Angeles and San Diego; 2) to make a feint overland attack in the direction of Oceanside-Lake Elsinore for the purpose of drawing Aggressor reserves to this area; and 3) in the event the Aggressor did not react as expected, to launch an overland attack east and north to assist Operation THUNDERHEAD.

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The amphibious assault was to be made by the 2d Infantry Division (less the 38th RCT) at the mouth of Aliso Canyon, near Camp Pendleton. The division was to land on D-day, seize the Camp Pendleton Airfield by D plus 1, and, depending on Aggressor reaction, was to advance inland in the direction of De Luz-Lake Elsinore.[17]

In the actual tactical exercise, action was to be restricted to the OILSKIN operation--the amphibious assault and the subsequent push to the northeast. Navy, Army, and AAF forces would take part in the amphibious phase, which was to continue through D plus 1 and was to be followed by three days of Army-AAF action against Aggressor ground and air forces. Airborne operations were also to be worked into the problem; paratroops (simulated by dummies) were to be dropped on D-day and D plus 3, and aerial resupply and glider landings and snatches were to be included on a small scale.[18]

For the amphibious phase, naval and ground units were to be organized as the Joint Expeditionary Forces (JEF). These forces were to be composed of Amphibious Group One and the landing force, the former to be made up of amphibious shipping and supporting warships and the latter to be composed of the ground troops making the assault. Twelfth Air Force and Carrier Division 17 would supply the air support for the landing.

Rear Admiral A.D. Struble, commander Amphibious Forces, Pacific Fleet, was to lead the JEF; Rear Admiral B.J. Rodgers, commander West Coast Training Group, was to head Amphibious Group One; and Maj. Gen. P.W. Kendall, 2d Infantry Division commander, was to command the landing

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force. Maj. Gen. W.D. Old, commander of Twelfth Air Force, was to head the AAF units; and naval and Marine air were to be assigned to Carrier Division 17, which was to be commanded by Captain Day.*

During the planning it was agreed that for the amphibious phase the commander, JEF would exercise over-all command. Under him, the commander, Amphibious Group One would be in direct command of the landing force during the afloat phase and until the landing force was established ashore. Once it was established ashore, the landing force would revert to command of Sixth Army.[19] All air in the objective area during the amphibious phase would come under the control of the commander, JEF. After command was passed ashore, all air would be controlled by Twelfth Air Force.[20] It was decided also that control of air would be transferred from the Navy to Twelfth Air Force at the same time that command of the landing force passed from the commander, JEF to the commanding general, Sixth Army.[21] The commander, JEF was to determine when the amphibious phase ended; however, for planning purposes the end of this phase was set at 0001 hours on D plus 2.[22]

D-day for Exercise MOUNTAIN GOAT was set at 25 November. Prior to the start of the maneuver, individuals and units slated to participate engaged in extensive amphibious training. For the AAF this training began in August, when Twelfth Air Force ordered eight officers to attend air support schools held in August and September at Fort Ord and at Coronado Amphibious Training Base. These officers were to function on the Joint

* See App. 2.



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Assault Signal Company (JASCO) air liaison teams attached to the 2d Infantry Division during the amphibious phase of the exercise.*[23] These officers would, in effect, act as forward air controllers during the exercise. Special JASCO training was needed because of differences between the AF and Navy systems of requesting air support.*

Training for Sixth Army units was conducted by the Troop Training Unit of the Amphibious Training Command, Amphibious Forces, Pacific Fleet. Indoctrination of selected Sixth Army personnel in the general concepts and doctrine of joint amphibious operations was given at Coronado during the period 29 July-30 September. From 1-31 October the 2d Infantry Division engaged in intensive basic amphibious training at Fort Lewis, Washington, the division's home station. Specialized amphibious instruction for the division included shore party training, given at Fort Emory, California, from 2-27 September, and amphibious reconnaissance training conducted at San Diego during the last two weeks of October.[24]

The first two weeks of November saw the movement of the participants to the exercise area in southern California. Twelfth Air Force units and attached Ninth Air Force units moved to their maneuver bases by means of their organic transportation or by airlift provided by the 62d Troop Carrier Group. However, some heavy equipment of the 502d Tactical Control Group was transported by rail. The movement began on 1 November, and by

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* An Army unit attached to an amphibious assault division, the JASCO had the mission of 1) providing parties to request and control air support and to advise infantry commanders in the use of supporting aircraft, 2) providing means for control and direction of supporting naval gunfire, 3) furnishing teams for beach communications. The air support request and control function was performed by the JASCO's air liaison parties or teams. The Army JASCO was generally similar to the Marine Assault Signal Company (ASCO). Both came into being in the Pacific during the later stages of World War II.

* See below, pp. 16-19.

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the 15th all units were in place--the 1st Fighter Group at El Centro Naval Auxiliary Air Station, the 477th Composite Group at Blythe Army Air Field, and the 12th Photo Reconnaissance Squadron and the 161st Tactical Reconnaissance Squadron at San Bernardino Army Air Field. All other AAF units, with the exception of the 502d Tactical Control Group, which operated from Aliso Canyon* in the maneuver area, were based at March Field./25

Naval vessels of Amphibious Group One left Coronado on 30 October, and upon their arrival at Fort Lewis, Washington, on 4 November began loading the 2d Division for its move to the exercise.// Embarkation was completed on 11 November; the convoy sailed on the following day and arrived in the exercise area on 15 November, the same day that Twelfth Air Force units completed their move.[26]

After the arrival of all units in the exercise area, joint training was conducted at San Clemente Island, about 65 miles southwest of the maneuver site at Aliso Canyon. The San Clemente operations were not a part of Exercise MOUNTAIN GOAT but were designed to give the 2d Division three practice landings before the tactical problem began at Aliso Canyon. The island had been used by the Navy as a live-ammunition range during

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* See App. 1.

/ AAF units were equipped with the following numbers and types of aircraft:

| | |
|---|---|
| 1st Fighter Group | 60 P-80's |
| 20th Fighter Group | 60 P-51's |
| 477th Composite Group | 15 B-25's; 20 P-47's |
| 12th Photo Reconnaissance Squadron | 17 FP-80's |
| 161st Tactical Reconnaissance Squadron | 6 FP-51's |
| 47th Bombardment Group (L) Night Attack | 48 A-26's |
| 62d Troop Carrier Group | 27 C-47's |
| 415th Night Fighter Squadron | 12 P-61's |
| 72d Liaison Squadron | 12 A-5's |

// Actual loading took place at Olympia, near Fort Lewis.

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World War II; thus it was possible for aircraft and warships to support the landings with live bombs and ammunition. Prior to the landings aircraft of the 1st and 20th Fighter Groups, 47th Bombardment Group, and 477th Composite Group flew familiarization flights and practice missions.

During these practice landings, held on 21, 22, and 24 November, these units engaged in pre-H-hour bombing, strafing, and rocket firing. Navy and Marine air also supported the landings, and all air was controlled by the Navy's Tactical Air Control Squadron One aboard the AGC Mt. McKinley. Unfortunately, low cloud cover over San Clemente seriously curtailed air operations, and a number of strikes had to be canceled.[27]

Exercise MOUNTAIN GOAT got underway at 0830 on 25 November. After air strikes and naval gunfire had softened up the beaches and after a paratroop drop (simulated by dropping dummies), assault elements of the 2d Infantry Division began their attack on the Aggressor-held mainland at Aliso Canyon. The division's 9th RCT went ashore in a column of battalions on Green Beach, and its 23d RCT landed with two battalions abreast on the adjacent Red Beach.[28] There was little difficulty getting ashore since the Aggressor planned for only a light defense of the beaches, pinning its hopes on a counterattack to be made later by mobile reserves. Beach defenses were manned by the Aggressor 17th RCT (actually the 1259th Engineer Combat Battalion), and the 127th RCT (actually the boat battalion of the 532d Engineer Boat and Shore Regiment) was held as a reserve force for the counterattack. These units were under the direction of the

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Aggressor 1st Provisional Combat Group.*[29]

By 1700 hours on D-day the two RCT's had overrun the Aggressor main line of resistance and advanced to a point about three and one-half miles inland.† A similar gain on D plus 1 gave the attackers possession of the Camp Pendleton Airfield, one of the main objectives of the landing; and by nightfall of D plus 2 the northern approaches to the airfield were seized. On the following day the Aggressor reacted with a sharp counter-attack which drove the 2d Division back about one mile all along the front. On D plus 4 the division launched its final drive; ground lost the previous day was speedily retaken, and by 1200 hours, when the exercise was concluded, the attacking forces had penetrated to a point less than a mile from the northern limits of the maneuver area.‡[30]

During the amphibious phase, which continued through D plus 1, 2d Division operations weresupported by naval gunfire and rocket fire. Fire-support ships and craft were divided into three units--one heavy cruiser and two destroyers in direct support of the 23d RCT on the right and one light cruiser and one destroyer in direct support of the 9th RCT on the left, with the cruisers furnishing deep support and the destroyers close support. Four LSM (R)'s provided close-support rocket fire for the division as requested.[31]

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* Aggressor artillery and heavy equipment were represented by flash simulators and pneumatic dummies; battle noises were produced by mobile loudspeakers. The play of the exercise was controlled by umpires, using a flag system.

† The advance was halted at 1700 hours because of the ruling that except for patrol activity there would be no night action during the exercise.

‡ See App. 1.

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Throughout the exercise, units of Twelfth Air Force played an important role, engaging in a wide variety of tactical air activities. First in point of time were the missions flown by the 12th Photo Reconnaissance Squadron and the 161st Tactical Reconnaissance Squadron. On D minus 45, these squadrons began weekly reconnaissance flights over the objective area, and on D minus 30 the frequency of these flights was increased to two per week. After D minus 14, missions were flown as requested by the commander of the 2d Division, the purpose being to observe and photograph the location of Aggressor installations and equipment and to spot troop concentrations and movement of enemy armor and personnel along the roads leading to the Aliso Canyon area.[32] Included during this latter period were missions flown on D minus 1 and D-day to secure low-vertical and oblique photos of the maneuver area and of the Oceanside coastal area, showing in detail any last minute changes in Aggressor beach defenses and in dispositions farther inland.[33] While the 2d Division was in Fort Lewis, reconnaissance reports and photos were delivered directly to division headquarters. While the division was afloat, reports and photos were delivered to the commander, JEF, who turned them over to the division.[34]

Included in the concept of the exercise were small scale airborne operations. At H-hour minus 10 minutes on D-day, 27 C-47's of the 62d Troop Carrier Group dropped a paratroop battalion (simulated by dropping two dummies per aircraft) on the Camp Pendleton Airfield, about 5½ miles inland from the beaches. On the following day, at 1200 hours, the group executed a glider drop of four gliders on the field used by 2d Division

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liaison planes. Simulating the evacuation of wounded, two of these gliders were snatched from the field by C-47's at 1530 on D plus 1 and the other two at 0900 on D plus 2. Included also in the exercise were another dummy paratroop drop at 0830 on D plus 3 on the Pendleton Airfield* and a supply drop from a nine-ship formation on a drop zone marked with panels by the 2d Division.[35]

Although actual fighter operations did not begin until D-day, it was assumed that prior to the landings fighters had carried out an extensive air superiority and interdiction program, the plan being to isolate the assault area without revealing the exact location of the attack. During the exercise itself the 1st and 20th Fighter Groups and the 99th Fighter Squadron flew 16 counter-air sorties, 27 interdiction sorties, and 288 close-support sorties. Fighter aircraft delivered counter-air strikes against Aggressor air installations, interdicted rail and highway transportation lines, and supported the amphibious landings with attacks against beach defenses. As the battle moved inland, fighters struck at Aggressor gun positions and strong points in the path of the attacking infantry. In addition, fighters maintained a continual patrol over the beaches and furnished cover for troop carrier and bomber operations.[36]

Working along with the fighters, A-26's of the 47th Bombardment Group and B-25's of the 617th Bombardment Squadron hit enemy airfields and lines of communication, attacked enemy beach positions just before H-hour, and assisted the advance of the ground troops inland with strikes at enemy defensive positions. Altogether, bomber aircraft flew 95

* This drop was a part of the Aggressor counterattack.

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counter-air sorties, 174 interdiction sorties, and 188 close-support sorties during the course of the exercise.[37] Although the 47th Bombardment Group was a night attack unit, no night missions were flown. Such missions were eliminated because of a lack of radar control facilities and because there was no night ground action except for patrol activity.

To provide realistic bombing training, provision had been made for bombers and fighters to drop 100-pound practice bombs on ranges near El Centro, west of Aliso Canyon, just before proceeding on their missions in the exercise area. An exception was the 1st Fighter Group. Just before the maneuver AAF had informed the group that its P-80's were to carry no external load whatsoever, except for wing tanks.[38]

Acting as Aggressor air were the AAF's 415th Night Fighter Squadron, equipped with P-61's, and MAG 31, flying F7F's. Aggressor air did not operate as an organic part of the defending forces, and it had no over-all commander; 415th Night Fighter Squadron operations were directed by Twelfth Air Force, and those of MAG 31 were controlled by Carrier Division 17. Seemingly, Aggressor air was used merely as a training aid, to add realism to the exercise. Just before and just after H-hour, strikes were made against landing craft; and as the fighting continued ashore, 2d Division personnel, tanks, motor transport, and gun positions were also attacked. The destruction of Twelfth Air Force's tactical air control center (TACC) on D plus 3 was probably the outstanding success scored by Aggressor aircraft.[39]

As was indicated earlier, the Navy controlled all aircraft in the objective area during the amphibious phase. Control was exercised by Tactical Air Control Squadron One aboard the amphibious force flagship

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Mt. McKinley.* The central point for aircraft control was the joint operations room, which corresponded generally to the joint operations center established later ashore. In addition to the aircraft control facilities the joint operations room contained a fire support coordination center (FSCC) and a naval gunfire coordination center. Requests for close-support strikes came from tactical air control parties (TACP) ashore over the tactical air request (TAR) net to the joint operations room. They were then relayed by the TAR net controller to the FSCC; here they were processed by the Army G-2 officer and then turned over to the naval gunfire coordination officer. Requests were next passed on to the Navy air coordination officer for final approval. If he gave his approval, missions were given to the tactical air direction (TAD) net controller, who controlled the aircraft during the strike. A tactical air coordinator (airborne), flying over the target area and working in conjunction with the TAD net controller and TACP's, led the aircraft in to their targets.[40]

For close-support missions there were three VHF TAD nets--one for Navy, one for Marine, and one for AAF aircraft; these nets were controlled by Navy, Marine, and AAF controllers respectively, working under the Navy air coordination officer. All aircraft--Navy, Marine, and AAF--on combat air patrol were controlled over one net--the fighter air direction net.[41]

The Navy system of control obtained on D-day and until 1700 hours on D plus 1, when control passed to Twelfth Air Force ashore. Beginning on D plus 2, and continuing through the balance of the maneuver, control was carried out according to orthodox AAF procedures. Each day a Twelfth

* The Mt. McKinley carried all the communications equipment, including radar and VHF and HF radios, necessary to control aircraft, surface craft, and naval gunfire during the amphibious assault.

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Air Force-Sixth Army conference was held to decide the strength of each day's air effort in the Aliso Canyon area. Detailed plans for this effort were worked out at a conference held at 2000 hours each day at the joint operation center (JOC) in Aliso Canyon. The following day, when these pre-planned missions were ordered out, they were controlled by a tactical air control center (TACC). Actual direction of strikes was handled by a tactical air direction center (TADC); if the TADC desired on-the-spot direction, control was passed to a TACP, and the forward air controller would talk the aircraft in to the target.[42]

It was intended that when the AAF assumed control, call missions would be requested not by the TACP's, as was the case when the Navy was in control, but through the facilities of the Army air-ground operations system. Requests for air strikes were to go up through the Army chain of command to the JOC over communications provided by the Army signal company air-ground liaison. However, because of communications difficulties and Sixth Army's lack of understanding of the workings of the air-ground operations system, the machinery for requesting immediate strikes was a hodgepodge of improvisation that bore little resemblence to standard procedure.*

During the amphibious phase coordination of all supporting fires--air, artillery, and naval gunfire--was accomplished on the Mt. McKinley by the naval gunfire coordination officer and the air coordination officer, assisted by the FSCC. After control was passed ashore, coordination was handled by the 2d Division FSCC.[43]

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* For full discussion of this problem see below, pp. 27-30.

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AAF control and warning facilities for the exercise were provided by the 502d Tactical Control Group. This group established and operated a TACC adjacent to the JOC in Aliso Canyon; two LADS's near Oceanside, just south of the maneuver area; and a three-station direction finding net, with stations located at Camp Pendleton, Mount Palomar, and Santiago Peak.[44] Landline and radio communications linking Twelfth Air Force advance headquarters, the JOC, and the tactical units were manned chiefly by personnel drawn from Ninth Air Force. A few others were taken from the 1st Fighter Group, the 12th Photo Reconnaissance Squadron, the 477th Composite Group, and the March Field Base Unit. Telephone and teletype systems at Twelfth Air Force advance headquarters were operated by Sixth Army. These various arrangements were necessary because no signal battalion, separate, Tactical Air Command was assigned to the exercise and because Twelfth Air Force had no organic communications units or personnel, except for one communications chief assigned to its communication section.[45]

In assessing the over-all results of Exercise MOUNTAIN GOAT, Twelfth Air Force indicated that its staff officers and the participating units had benefited greatly from the maneuver. The staff training gained in the exercise was particularly valuable since no one officer in Twelfth Air Force headquarters was familiar with all aspects of an amphibious operation, and only one officer had had any experience at all in planning such operations.[46] Participating units also gained valuable experience. Those crew members who were combat veterans were able to brush up on skills acquired during the war, and those who had never been in action were given the opportunity to perform under simulated combat conditions. Of particular importance was the provision, seldom made during maneuvers,

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for fighter pilots and bomber crews to drop live bombs and ammunition. All in all, Twelfth Air Force judged the exercise well worth the time, effort, and money expended.[47]

Similar satisfaction was expressed by Sixth Army and by the Navy. The Sixth Army commander, General Mays, was of the opinion that the exercise had made the best possible use of the training areas, equipment, and forces available.[48] Speaking at the critique, Admiral Struble, commander Amphibious Forces, Pacific Fleet, praised the work of all the participants and expressed the view that Exercise MOUNTAIN GOAT had set a pattern for future peace-time amphibious training exercises. The admiral laid special stress on the "splendid Air Support performance" of the AAF, Navy, and Marine air units, and he pointed out that this performance was achieved without a single casualty.[49]

To assess the results of this exercise it is necessary to go beyond these general comments and to examine in some detail the lessons learned, the mistakes that were made, and the suggestions that were offered for the correction of deficiencies. In this connection it is proposed first to discuss planning shortcomings and then to analyze findings relative to reconnaissance, troop carrier, fighter, and bomber operations and to communications.

Following the exercise it was generally agreed that the major difficulty affecting planning was the absence of any broad directive from the Joint Chiefs of Staff. Initial planning was decentralized to the commanders of Sixth Army and Amphibious Forces, Pacific Fleet, and was later expanded to include Twelfth Air Force. Lacking an over-all directive,

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each service arrived at its own concept of the maneuver, and a concept acceptable to all had to be worked out during time-consuming conferences.[50] General Old, the Twelfth Air Force commander, observed that because there was no top-level directive, planning was confused, and lacked real purpose from May until October, a period during which there was doubt as to whether the exercise would be held and as to who would participate.[51] Furthermore, Army, Navy, and AAF responsibilities were not clearly outlined, and until the last minute certain AAF commands were kept in the dark as to their role in the exercise.

Confusion in high-level planning was especially harmful to Air Force logistic planning. Air Materiel Command (AMC), for example, had no concrete information on the maneuver until 14 October, when the Twelfth Air Force project officer for the exercise flew to Wright Field and personally briefed AMC's commanding general and outlined Twelfth Air Force requirements. Haphazard planning contributed directly to the only serious Twelfth Air Force logistic deficiency of the exercise--the late arrival of communications equipment. Because of uncertainty as to plans, Tactical Air Command was unable to assign a supply priority to Twelfth Air Force until 17 October, only a little more than a month before D-day (25 November). As a consequence, communications equipment was late in arriving. It was not until 11 November that the first shipment was received at March Field. Equipment had to be rushed to the maneuver area in its original crates, without an acceptance check at March Field. Such a check would very likely have prevented several of the equipment failures that occurred during the exercise.[52]

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The first tactical operations conducted by Twelfth Air Force units during Exercise MOUNTAIN GOAT were those flown by the 12th Photo Reconnaissance Squadron and the 161st Tactical Reconnaissance Squadron. The photo and visual reconnaissance missions flown by these units, beginning on D minus 45 and continuing throughout the exercise, were uniformly satisfactory. The Aggressor build-up prior to D-day was kept under close surveillance, and during the actual problem in Aliso Canyon low-level photography and observation provided vital information for the ground commander and in addition furnished 75 percent of the targets selected for air strikes.[53]

Exercise MOUNTAIN GOAT was also an important test for reconnaissance personnel and equipment. For experienced pilots the exercise was something in the nature of a refresher course, and for the inexperienced it provided valuable practical training. For the FP-80, the reconnaissance version of the P-80 jet, it was the first test under simulated combat conditions.*

All in all, the reconnaissance units were well pleased with the results of the maneuver. However, the 161st Tactical Reconnaissance Squadron felt that the inadequate maps used in the exercise were a serious handicap. The only gridded maps available to the squadron were 1:25,000 scale--a scale too large to be used comfortably in the FP-80 cockpit. In the relatively small maneuver area, it was believed, maps of a scale 1:62,500 would have been much more satisfactory.[54]

Although the 161st Tactical Reconnaissance Squadron was well satisfied with the air-ground communications set-up for the exercise, a contrary

* For an evaluation of jet aircraft performance in the exercise see below, pp. 33-35.

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view was voiced by General Old at the exercise critique. General Old stated that because of failure to provide a separate air-ground communication channel for reporting the results of AAF reconnaissance, the 2d Division commander did not receive promptly the information gained on these missions.[55] This problem was particularly serious on D-day and D plus 1, while the Navy was in control of air. On D-day the VHF frequencies on the control ship were so jammed by reconnaissance reports from AAF aircraft that the Navy directed that all reconnaissance would be handled by Navy aircraft, which were equipped with more VHF channels.* Unfortunately, Navy air reconnaissance extended only a few miles inland from the beachhead; the 2d Division commander was thus deprived of all deep reconnaissance information on D-day and D plus 1, while at the same time the air commander was deprived of much profitable target information.[56]

Airborne operations, which included paratroop drops on D-day and D plus 3 and a resupply drop on D plus 3, were well executed; timing was good, and in each case the drop zone was hit accurately.

The most serious criticism that can be leveled at airborne operations in this exercise is that they were almost completely lacking in realism. No airborne troops were assigned to the maneuver, and troop carrier aircraft dropped dummies rather than paratroops. Moreover, the drops were not worked in logically with the amphibious assault and the ground advance. All drops were made on the Pendleton airstrip to facilitate the recovery of parachutes, with the tactical situation a secondary consideration.

* Navy aircraft had 10-channel VHF equipment; for the AAF only the P-40's, P-61's, and A-26's had as many as 6 channels; its other aircraft, as a rule, had only 4.

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The resupply drop on D plus 3 was particularly unrealistic. On D plus 3 there were no isolated troops in need of supplies; by this time the 2d Division had advanced beyond the Pendleton airstrip and their supply lines were intact. It appears that any additional supplies scheduled to be delivered by air would more logically have been airlanded at the Pendleton strip rather than dropped. To Twelfth Air Force it seemed that although this drop was planned to demonstrate the troop carrier role in resupply, it was done at the expense of violating sound tactical procedure. Twelfth Air Force observed further that at least some of this lack of realism could have been avoided by sending airborne advisers to 2d Division headquarters and Twelfth Air Force headquarters to assist in planning the airborne operations.[57]

Fighter and fighter-bomber activity represented the major Air Force contribution to Exercise MOUNTAIN GOAT. These operations, in contrast with airborne operations, were well conceived, realistically planned, and conducted according to sound operational procedures. Tactical formation flying, dive-bombing, and strafing were generally carried out with skill and precision. Participation in the exercise was a valuable experience for the fighter units involved. The 1st Fighter Group, for example, reported that the exercise gave the group a great deal of practice in formation flying; that it brought home to pilots who had had little previous practical experience the importance of air discipline, both in flying and in radio-telephone procedure; and that the unit benefited greatly from training received in controlled intercept missions and controlled pin-point target strikes.[58]

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Most of the adverse criticism directed at the performance of fighters and fighter-bombers stemmed from the artificialities and simulations that are perhaps of necessity found in any training exercise. The assumption that the attackers had air superiority, coupled with the lack of actual opposition by Aggressor aircraft and antiaircraft artillery, apparently prompted friendly aircraft to use tactics that would probably have proved fatal under battle conditions. Pilots frequently made low-level flights at reduced speeds, showing a complete disregard for Aggressor simulated antiaircraft fire. It was noted also that flight leaders, while in flight, changed their bomb loads (simulated) to suit the particular target being attacked.[59]

According to Twelfth Air Force, unnecessarily strict safety regulations governing air-to-air combat made this aspect of the exercise unrealistic. The imposition of a 500-yard safety limit for breaking off interceptions tended to encourage sloppy tactics, and the precision necessary to make a kill was often lacking. It was felt that a 200 to 300-yard safety limit would have largely corrected this situation.[60] A similar conclusion was reached by the chief air umpire, who pointed out that the large safety margin for break-off made it difficult to determine the results of air battles. He believed that attacks should be pressed until they are at least within range of the weapons employed. Attacks would thus be more closely coordinated, and evasive tactics would be more pronounced; by more nearly approximating actual warfare, better training would be provided for pilots and crews.[61]

Bombardment operations during Exercise MOUNTAIN GOAT appear to have been quite satisfactory. The only deviation from the normal employment

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of bombardment aircraft was the use, on D plus 3, of the 47th Bombardment Group's A-26's as fighters in close-support missions. On D plus 3 the P-51's of the 20th Fighter Group had been grounded for replacement of fuel selector valves, and the A-26's carried out close-support call missions in their place. Control was maintained and missions were directed in the same manner as for a flight of four fighter aircraft. Although the A-26 pilots had had no previous training in this work, the results were considered excellent. Flights were brought in promptly, targets were located accurately, and strikes were executed with efficiency and precision. It was pointed out that if these A-26's had been equipped with gun noses, mounting fourteen 50-caliber machine guns, and had carried 5" HVAR rockets, a terrific amount of fire power would have been available to the assault forces. If there had been strong enemy air opposition and well-organized antiaircraft defenses, however, the A-26's, being slower and less maneuverable than fighters, would likely have sustained heavy losses.[62]

In discussing its role in the exercise, the 47th Bombardment Group stressed the need for greater emphasis on evading enemy antiaircraft fire. Simulated antiaircraft gun positions, plotted by the A-2, Twelfth Air Force, were posted on the group's flak map and were considered well placed around targets and important land marks. These positions were considered in selecting routes for all missions. However, pilots frequently did not take proper evasive action. It was recommended that in future exercises umpires be placed at all simulated antiaircraft positions to evaluate the percentage of losses due to failure to take such action. Also noted was the tendency on the part of navigators and bombardiers to

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use large towns, airfields, and important built-up landmarks for navigational and bombing reference points. In combat such structures and installations would likely be heavily defended by antiaircraft weapons, making their use as reference points, if approached too closely, extremely hazardous.[63]

Probably the outstanding deficiencies in Exercise MOUNTAIN GOAT lay in the field of communications. In general, the AAF communications for control of air strikes were very effective; the Twelfth Air Force report on the exercise makes reference to the excellent high frequency radio contact between the TACC, the TADC, and the TACP's.[64] However, in the matter of communications for the requesting of air strikes there was much error and confusion. While control was afloat and the Navy system for requesting strikes was in effect,* there was little difficulty; and on one occasion a strike was made only four and one-half minutes after the request was initiated.[65] But when control passed to Twelfth Air Force ashore, there were signs of serious deficiencies in communications and procedures for requesting air support.

Most of the trouble in this regard stemmed from the failure of Sixth Army to provide a signal company, air-ground liaison. According to normal AAF procedure, requests for air strike came through ground channels by means of facilities furnished by this company. In this exercise, while the Navy was in control of air, requests for air strikes came through air channels from the TACP's to the control ship over a tactical air request

* See above, pp. 16-17.

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net, in accordance with standard naval procedure. After Twelfth Air Force assumed control, the TACP's, in accordance with AAF doctrine, were to have been responsible for control only, and all requests were to have come through ground force channels.

These channels would normally have been provided by a signal company, air-ground liaison. Since none was assigned to the exercise, the only facilities for requesting strikes were the regular command channels from battalion to regiment, to division, and finally to the air-ground operations section of the JOC. These channels, at least up through division, were usually crowded with their regular traffic; and it was decided, under these circumstances, to have the TACP's continue requesting air strikes. However, no separate radio channel was provided, and requests had to be made over the same channel the TACP's were using for control. The use of the same frequency for both air-request and air-control traffic caused a great deal of delay and confusion, and it was not until D plus 3 that an additional frequency was assigned.[66]

The Twelfth Air Force report for the exercise sheds further light on this matter. This report states that communications within the ground force air-ground operations system was one of the major problems of the exercise. Initially, Sixth Army was under the impression that it was the responsibility of Twelfth Air Force to set up air-request communications to the G-2 Air and G-3 Air at the JOC. At a joint conference Sixth Army finally conceded that the ground forces should provide these communications. However, only one HF radio frequency and one land-line telephone between the 2d Division

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CP and the JOC were furnished, and one officer was assigned to the JOC to function as both G-2 Air and G-3 Air.[67]

The Twelfth Air Force report noted also that the 2d Division did not provide separate air-request communications facilities; requests had to come up through regular operational and administrative circuits. Lacking separate facilities, the air-ground operations system communications were continually close to breakdown. In one case, for example, a TACP was caught attempting to "steal" aircraft. An MGT commander, instead of sending his request through ground channels to division, instructed the TACP to contact a flight of aircraft directly. When asked for an explanation, this officer stated that the regular communications to division were overloaded and that the TACP was the only other means of getting his request through.[68]

This expedient, it should be noted, was contrary to AAF standard procedure. Basically, the use of this expedient and the circumstances that prompted it reflected a lack of understanding by the ground forces of the functions of the signal company air-ground liaison and of the vital necessity for a rapid flow of information to and from the G-3 Air at the JOC over the separate ground force channels furnished by this company. It was difficult, said Twelfth Air Force, to make the lower ground force units understand the necessity for filtering their air requests through their own higher levels of command. When requests were sent direct, through the TACP's, there was no opportunity for ground commanders at various echelons to supervise the requests or, if need be,

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to veto them. There was no means, for example, whereby the division commander could select for forwarding to the JOC those requests that were most urgent from the standpoint of the over-all ground situation.

Unfortunately, the confusion resulting from the absence of a signal company air-ground liaison makes it difficult to use the experience of this exercise to compare the effectiveness of Navy and AAF systems of requesting air support. According to Twelfth Air Force the Navy system, which used TACP's to request strikes over a tactical air request net direct to the control ship, worked "very satisfactorily." Because of the difficulties outlined above, the AAF system of using ground force channels for forwarding requests did not receive a fair test. Speaking at the critique, General Old, the Twelfth Air Force commander, claimed that "the consensus of opinion in this exercise" seemed to favor the use of ground force channels for requests whether control was afloat or ashore, but he offered no evidence to support this claim.[69] Both systems, Navy and AAF, were battle tested in World War II and both proved effective. The use of ground force channels, the AAF believed, gave the ground commanders better selection of, and control over, requests. The Navy, on the other hand, claimed that when air channels were used, requests got through faster than they did in the AAF system and that the ground commanders, whose representatives monitored the air request net and could veto requests, still had sufficient control over them.

Second only to air-request machinery as a communications deficiency of this exercise was the lack of proper radar coverage. Initial siting

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of radar sites was poor, and no low-level coverage of the battle area could be obtained. Even after the sets were sited closer to the maneuver area, the nature of the terrain precluded satisfactory low-level coverage. The result was that warning of enemy aircraft had to come from visual observation of the area from the TACC. Under these circumstances there was a definite need for ground observer teams operating under the TADC; however, because of lack of personnel and equipment, these teams had to be omitted. Also a result of poor low-level radar coverage was the failure of the TACC to run a sufficient number of ground-controlled interception missions against Aggressor aircraft.[70]

Other communications problems arose as a result of differences between Navy and AAF equipment. When crystals for AAF frequencies were furnished the Navy by Twelfth Air Force, it was discovered that the crystals could not be used because the Navy sets operated on a different harmonic. As a consequence, there was much last-minute juggling of equipment before joint communications would function properly.[71]

Many of the communications shortcomings of Exercise MOUNTAIN GOAT could have been avoided by careful joint planning. At the critique General Old laid special emphasis on this point. It was his opinion that early in the exercise communications were no better than they had been "for the last 20 years." Despite all the radio equipment available, he said, there were still serious failures during the first three days, failures that were finally corrected by improvisation. Many of these difficulties could have been prevented by proper planning; however, only one communications conference was held; the only decision reached here

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was to call another conference, and this conference was never held.[72] Similarly, Commander J. F. Horse, of Amphibious Group One, also speaking at the critique, observed that preliminary planning was seriously handicapped by lack of joint communication conferences.[73] And the Twelfth Air Force communications report concluded caustically that early joint communications conferences should have been held so that each participating unit could have built its operating procedures on facts and not on guesswork.[74]

General Old stated further at the critique that there was no "recent" joint communications SOP based on lessons learned in World War II. Twelfth Air Force, he said, was to be guided in these matters by Navy publications, but despite repeated requests for these documents they were never furnished.[75]

Better coordination and planning could not, of course, have prevented all communications deficiencies. They could not, for example, have eliminated the problems presented by differences between AAF and Navy radio equipment. The obvious solution was that AAF and Navy radio sets and their component parts, as well as other similar equipment, be made interchangeable. General Old was thinking along these lines when he said at the critique that "we must, at once, standardize our communication equipment." In this connection Twelfth Air Force suggested that a joint Army-Navy test and procurement authority be created for the purpose of standardizing Army and Navy communications equipment. Such an authority could also reduce the number of sets and thus lighten the procurement load and the supply problems of the two services.[77]

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Besides revealing numerous shortcomings in planning, in tactical air operations, and in communications and control, Exercise MOUNTAIN GOAT served as a testing ground for the AAF's new jet aircraft--the P-80 and its reconnaissance version, the FP-80. Since this was the first use of jet aircraft in a maneuver, the AAF watched their performance with particular interest. Originally it had been planned to test the capabilities of the P-80 in a number of different roles--as a fighter at long and at short ranges, as an escort aircraft, as an interceptor, and as a dive bomber. Strafing and rocket-firing missions were also contemplated. Just before the start of the exercise a technical order prohibited the use of bombs and rockets by the P-80's, and dive bombing and rocket firing had to be simulated. The small size of the maneuver area also precluded extremely long-range missions.[78]

Testing of the P-80 began during the rehearsals held at San Clemente Island and continued during the Aliso Canyon exercise. At San Clemente actual and simulated strafing missions and high-cover missions were conducted, and during the exercise itself P-80's flew pre-planned and call missions simulating strafing and dive bombing. Of special interest was the performance of the P-80 at different altitudes and ranges. Equipped with wing tanks, 1st Fighter Group P-80's, based at El Centro Naval Auxiliary Air Station, approximately 160 miles from San Clemente, were able to remain over the island for about one hour when flying at an altitude of about 20,000 feet. At Aliso Canyon, which is about 100 miles from El Centro, they were moved down to about 10,000 feet and were able to stay on station for one hour and 15 minutes. Since, for safety reasons,

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aircraft were required to have at least 20 gallons of fuel in their tanks when they landed at El Centro, it was believed that under combat conditions these times could have been lengthened.[79]

Based on the experience of this exercise, the following conclusions were reached concerning the performance of the F-80:

1) The aircraft's limited endurance at low altitude seriously handicapped search for and attacks on targets of opportunity.

2) The high speed and wide radius of turn of the aircraft made it difficult for the pilot to locate small targets by use of a coordinate map.

3) To lessen the time needed to locate targets, missions should be pre-planned and should be directed against easily identifiable targets.

4) The aircraft's ability to make high-speed attacks adds an element of surprise that is a distinct asset.[80]

Because of poor low-altitude radar coverage, no positive conclusions could be drawn concerning radar-controlled interceptions. It was felt that additional tests would be needed to determine the F-80's effectiveness in this kind of work.

Exercise MOUNTAIN GOAT was also a proving ground for the FP-80. So far as the 12th Photo Reconnaissance Squadron was concerned, the exercise had shown the FP-80 to be ideally suited for aerial photography.[81] This aircraft also flew low-level visual reconnaissance missions, but there was conflicting testimony concerning its suitability for this type of mission. The 161st Tactical Reconnaissance Squadron claimed that for visual reconnaissance its FP-51's were superior to the FP-80's since

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in order to do effective visual reconnaissance work the latter aircraft had to be slowed down so much that it lost its advantage of speed.[82] In rebuttal the 12th Photo Reconnaissance Squadron asserted that the exercise had proven the FP-80 to be "more than suitable" for such missions. As for the problem of speed the squadron took the position that if an enemy were using jet interceptors, it would be impractical to use a relatively slow reconnaissance aircraft such as the FP-51. It was recognized that tactical reconnaissance is made more difficult as the speed of the aircraft increases; but the answer, according to the 12th Squadron, lay not in using a slower aircraft that might fall prey to enemy jets but in thorough training of pilots for high-speed low-level reconnaissance.[83]

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## Chapter II

## EXERCISE SEMINOLE

Within a few weeks of the conclusion of Exercise MOUNTAIN GOAT, the armed forces began laying the groundwork for Exercise SEMINOLE. Under the auspices of Fourth Army; Amphibious Force, Atlantic Fleet; and Twelfth Air Force, SEMINOLE was held in November 1 47 near Panama City, Florida. Since it was the first joint exercises staged after the National Security Act of 1947 (unification act), SEMINOLE had as its primary objective the testing of high-level inter-service planning under the new National Military Establishment.[1]

The specific training missions to be achieved were: 1) to prepare individuals and units of the Army, Navy, and Air Force for the conduct of landing operations, 2) to maintain the art of high-level planning for amphibious operations, and 3) to develop the technique of loading and landing armored forces and heavy equipment.[2]

Exercise SEMINOLE had its inception on 6 February 1947, when Army Ground Forces (AGF) directed Fourth Army to hold a training exercise involving an amphibious landing on the Texas coast by elements of the 2d Armored Division. It was anticipated that the AAF would also take part, and the commanding general, Fourth Army was designated as the AGF representative to coordinate with AAF and Navy commanders in conducting the exercise. Detailed plans were to be worked out in joint Army-Navy-AAF conferences.[3]

Concrete planning began at a conference between the commanders of



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AGF, Atlantic Fleet, and Tactical Air Command, held on 19 May at headquarters AGF. At this time it was decided that the Fourth Army commander would be designated theater commander (Gulf Theater of Operations) for the exercise, that the commander, Amphibious Force, Atlantic Fleet would head the joint expeditionary force, and that the commander of Twelfth Air Force would command the tactical air force.

The most troublesome problem facing the planners at this stage was the choice of a suitable maneuver area. AGF had conceived the exercise as involving a landing, followed by a maneuver forward from the beachhead. For this reason the Matagorda Bay area, northeast of Corpus Christi, Texas, was selected. However, the Navy strongly disapproved this site; and since there was no other area along the Texas coast suitable for a maneuver inland, General Devers, the AGF commander, stated that the exercise would consist simply of an amphibious landing and that the inland maneuver would be omitted. The High Island area, east of Galveston, was suggested as the best available location, but it was decided to postpone a definite decision until a reconnaissance of this and other possible sites could be made.

At the 19 May conference it was also agreed that a joint planning committee for the exercise would assemble at Fourth Army headquarters, Fort Sam Houston, Texas, early in July.[4]

In the meantime, the services continued to seek a solution to the problem of selecting a suitable landing site. Based on the results of a reconnaissance made early in June, representatives of Amphibious Force, Atlantic Fleet; Fourth Army; IAC; and Twelfth Air Force, meeting at Fort

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Sam Houston on 13 June, determined that there was no satisfactory beach west of Panama City, Florida. It was then planned to investigate the problem at a joint conference to be held at Fort Sam Houston on 8 July.[5]

It was this conference that opened the offical joint planning for Exercise SQUEEZE. Spokesmen for AGF; Fourth Army; 2d Armored Division; Amphibious Force, Atlantic Fleet; TAC; and Twelfth Air Force reached agreement on the mission of the Gulf Sector of Operations and of subordinate echelons, on the command structure, and on preliminary plans for conduct of the exercise.[6] The preliminary air plan agreed upon called for the AAF to provide one squadron of P-80's, two flights of FP-80's, and one squadron of A-26's, while the Navy was to commit one squadron of fighters and the Marines one squadron of fighter bombers. A wide variety of missions were contemplated for these units--air defense, counter air, interdiction, close support, and reconnaissance.[7]

At this conference the problem of who should control air was also settled. It was decided that the Navy and the AAF would be in control for equal periods of time; the commander, Joint Expeditionary Force (JEF) would control air operations in the objective area on D-day and on D plus 1; control would be exercised by the Twelfth Air Force commander ashore on D plus 2 and on D plus 3, the last day of the maneuver.[8]

Still unsettled was the problem of finding a site for the exercise. However, during this conference the coastline between Fort Walton, near Eglin Field, Florida, and St. Joseph Bay, just south of Panama City, Florida, was chosen as the tentative landing area.

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Preliminary arrangements for the maneuver Aggressor were worked out at a one time held at Fort Sam Houston on 29-30 July. Here representatives of the three services decided that Aggressor air would consist of one squadron of P-51's, that the Aggressor naval force would be made up of six submarines and five destroyers (simulated), and that the Aggressor ground force would be composed of an infantry company, an engineer camouflage company, and a sonic unit.[9]

The Navy part of the over-all plan--the operation directive of the JLF commander--was presented, discussed, and agreed upon at a conference between the principal commanders on 7 August aboard the Taconic at Norfolk, Virginia. The meeting was brief, and after this conference no major changes in the over-all planning were necessary.[10]

At this time another effort was made to solve the problem of finding a suitable location for the exercise. The conferees tentatively selected beaches on the Choctawhatchee Peninsula, near Eglin Field, and decided to send an LST to reconnoiter these and alternate beaches east of the peninsula. On 25 August word was received that maneuver rights on the property adjacent to the Choctawhatchee beaches had been denied by the owners, and it was discovered also, by the LST, that these beaches were unsuitable for landing ships. On 3 September the LST reported that Blue Beach, an alternate beach southeast of Panama City and fronting on Tyndall Field, was satisfactory from a naval standpoint.* After the Army gave its approval and the Air Force indicated that it would grant maneuver rights, the Blue Beach area was finally selected as the locale for the exercise.[11]

*See App. 3.

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During July and early August it was found that the absence of Air Force and Navy representatives between conferences hampered the smoothness of the planning. As a solution to this problem a joint planning staff, manned by representatives from the three services, was established at Gulf Theater of Operations (GTO) headquarters, Fort Sam Houston.[12] It was this joint staff that handled detailed planning still remaining after the last major joint meeting--the 7 August conference.

Early in September the Twelfth Air Force member of the joint planning staff was recalled to Twelfth Air Force headquarters at March Field, California, so that he could prepare the Twelfth Air Force directive for subordinate units. This directive was issued on 25 September; and it set forth the Twelfth Air Force mission, named the participating air units, and outlined the movement plan and the responsibilities of the staff and special staff sections of Twelfth Air Force.[13] By 30 September, Twelfth Air Force planning had progressed to the point where it was able to publish, in field order form, its operational plan for the exercise. Besides the basic field order the plan included intelligence and signal annexes and the detailed plan for the employment of air units.[14]

As it was worked out by the planners, the organizational structure for SEMINOLE vested over-all command in the GTO commander. Responsibility for the amphibious assault was placed in the hands of the JLF commander. At the same level of command were the commander, expeditionary troops (over-all ground commander) and the tactical air commander (over-all air commander). However, during the amphibious phase all operations in the objective area were to be placed under the JLF commander, a Navy officer.* Control of

*See App. 4.

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all air--Air Force, Navy, and Marine--would be exercised by him through his tactical air commander(Navy). At 1600 hours on D plus 1 command of ground operations would pass to the commander, expeditionary troops; and control of air would pass to the tactical air commander (Twelfth Air Force commander).[15]

General Thomas T. Handy commanded the GTO, Rear Admiral Ralph O. Davis headed the JAI, Maj. Gen. James G. Christiansen led the expeditionary troops, and Brig. Gen. Glenn O. Barcus commanded tactical air. At the time of the exercise Genral Handy was Fourth Army commander; Admiral Davis was the commander Amphibious Force, Atlantic Fleet; General Christiansen was the commanding general of the 2d Armored Division; and General Barcus was Twelfth Air Force commander.

Twelfth Air Force units engaged in the exercise were the 71st Fighter Squadron (JP), the 84th Bombardment Squadron, two flights from the 12th Reconnaissance Squadron Photo (JP), and elements of the 506th Tactical Control Group. From Ninth Air Force, but under operational control of Twelfth Air Force for the period of the exercise, were the 77th Fighter Squadron and elements of the 502d Tactical Control Group, with the 77th Squadron playing the part of Aggressor air.[16]

The major Army unit assigned to the exercise was Combat Command A (CCA) of the 2d Armored Division. The principal units of CCA included the 41st Armored Infantry Battalion, the 14th Armored Field Artillery Battalion, and the 66th Tank Battalion. Composing the Aggressor ground force were Company C of the 53d Infantry Battalion, the 301st Camouflage Company, and the 23d Signal Company, Special (Sonic Unit). The total number of Army troops engaged was 3,865.[17]

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Naval forces employed by the JEF to transport men and equipment making the landing included one AKA (attack transport), one AKA (attack cargo ship), one LSM (landing ship, medium), two LSD's (landing ship, dock), seven LST's (landing ship, tank), and six LCT's(landing craft, tank). The actual landings were made chiefly by LCVP's (landing craft, vehicle-personnel) embarked from larger transports and cargo vessels. Fire-support ships--battleships, cruisers, and destroyers--were simulated by two LSM(R)'s (landing ship, medium, rocket), one APD (high speed transport), and one LC (FF) (landing craft, flotilla flagship).[18] Also included among the naval vessels were two AGC's (amphibious force flagship). The Laconic was the flagship of the JEF commander, and the Mt. Olympus was the flagship of the commander, attack force armored. Naval and Marine air was composed of the Navy's Battle Carrier Group Three (CVBG-3) and Marine Air Group Fourteen (MAG-14).[19]

Exercise SEMINOLE was preceded by a unit training period. For Air Force units this training included--besides routine training in such specialities as dive bombing, level bombing, and photo reconnaissance work--instruction in methods of air control, both afloat and ashore. Indoctrination in Navy control procedures was given by a Navy air team which visited each Air Force unit scheduled to take part in the exercise. Just before the exercise the 502d Tactical Control Group gave these units a special briefing on Air Force control procedures. At this time the air plan was also discussed, and special emphasis was placed on arrangements for passing control from afloat to ashore.[20]

Pre-exercise training also included a briefing of 2d Armored Division staff officers on various aspects of tactical air operations. Because

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they were relatively inexperienced in such matters, special instruction was requested. Early in August a Twelfth Air Force team, consisting of an A-3 representative and an experienced communications and radar officer, visited Camp Hood to orient the 2d Division staff. This team emphasized especially command relationships for air ground operations and explained charts depicting lines of communication, radar coverage, and control procedures. This presentation was followed by an open discussion which was particularly helpful to those officers scheduled for G-2 Air and G-3 Air duty in the JOC.[21]

Amphibious training for 2d Division units was conducted during the period 15 September-20 October. Training at Camp Hood, the division's home station, was given by a team from the Troop Training Unit, Amphibious Force, Atlantic Fleet. Key individuals were sent to the Amphibious Training School, Atlantic Fleet, at Little Creek, Virginia, for specialized training in intelligence, communications, and naval gunfire support. On 15-16 October, in a rehearsal for the landing, all units of CCA took part in a day-landing exercise under conditions which were made to resemble as nearly as possible the exercise itself.[22]

Pre-exercise training was completed on 20 October, when the staff of the exercise director* held a command post exercise (CPX) to test plans for the exercise. Representatives from all three services took part, and the exercise was played through from start to finish. The CPX furnished training in staff procedure and helped to coordinate plans for air and naval gunfire support of the ground troops.[23]

With D-day for the exercise set at 2 November, Air Force units moved

*General Christiansen, expeditionary troops commander, also functioned as director of the exercise. [redacted]

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to their maneuver bases during the latter part of October. The 71st Fighter Squadron and the 12th Reconnaissance Squadron Photo were based at Eglin Field, and the 34th Bombardment Squadron was based at Maxwell Field, Alabama. The 77th Fighter Squadron (Aggressor air) operated from its home station--Shaw Field, South Carolina. The 71st Squadron was equipped with P-80A's and P-80B's, the 12th Squadron with FP-80A's, the 34th Squadron with A-26C's, and the 77th Squadron with P-51's.[24]

Although they were presumed to be operating from carriers, as a carrier air force, Navy and Marine air units--VFC-3 and VAG-14--were actually based at Pensacola Naval Air Station.[25] The carrier air force was equipped with F4U's (Chance-Vought Corsair fighters) and AD's (Douglas Skyraider attack aircraft).[26]

To inject realism into the exercise, the planners constructed a mythical situation which served as a background for the play of the problem. It was assumed that on 1 August 1947 Aggressor forces, after gaining naval control of the North Atlantic and air superiority along the Atlantic Coast south of Charleston, South Carolina, had made amphibious and airborne landings at Savannah, Georgia, and Jacksonville, Florida. A rapid advance inland followed, and by 1 October the invaders had reached a line running generally northeast from Fort Walton, on the Gulf coast of Florida, to Charleston. Pushing south, they had cut the Florida peninsula at a line extending generally northeast from Crystal Bay on the west coast to St. Augustine on the east coast. During October, United States forces halted the Aggressor advance, regained some ground, and set the stage for a large scale offensive to expel the enemy from the United States.[27]

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In the plan devised by the GTO commander and given the code name HEI DAY, Twelfth Army Group, about 1 November, was to launch an offensive to the southeast, while at approximately the same time it would make an amphibious assault against the Aggressor left flank in Florida. HEI DAY was composed of two parts--APACHE, the main overland drive, and SEMINOLE, the amphibious attack. APACHE would begin after the success of SEMINOLE was assured.[28]

According to the HEI DAY plan, SEMINOLE was to be a joint amphibious operation involving a landing in the vicinity of Panama City, Florida. The Joint Expeditionary Force (Task Force Choctaw) was given the two-fold mission of seizing Panama City as a port for further operations and of training Aggressor reserves from the front of the Twelfth Army Group. After these aims were achieved, Task Force Choctaw was to prepare to continue the offensive northeast, thus assisting Twelfth Army Group in executing plan APACHE.[29]

It was within this framework that Exercise SEMINOLE was actually played. It was planned that the amphibious attack would be made by a Joint Expeditionary Force (JEF). Within this force the assaulting troops were organized as landing forces, and the naval vessels carrying them to the objective area and putting them ashore were organized as attack forces. Two landing forces and two attack forces were to be employed. The D-day assault was to be made by a landing force infantry, to be put ashore by an attack force infantry. On D plus 1 a landing force armored would be landed by an attack force armored on the beaches secured by the landing force infantry on the previous day. Important simulations were to be made; the

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D-day assault was to be carried out not by actual infantry but by the simulated 186th Division. The D plus 1 landing was to be conducted by actual troops--CCA of the 2d Armored Division.*

Late in October the JAF loaded personnel and equipment of the ground units at San Jacinto Ordnance Depot, near Houston, Texas; and on 30 and 31 October this force sailed in two convoys from Galveston. The first convoy consisted of the attack force infantry, carrying the landing force infantry, composed of the 186th Infantry Division (simulated). On D-day, 2 November, at 0900 hours, the attack force put the landing force ashore on Blue Beach, immediately south of St. Andrew Sound, about 17 miles south of Panama City. Although the infantry division was simulated, token forces, made up largely of reconnaissance troops and carried in LCVP's, actually went ashore, thus representing the landing force assault. A shore party, composed of the Army's 73d Engineer Combat Battalion (less Companies A and B), and a beach party, made up chiefly of the Navy's 105th Naval Construction Battalion, landed at 1000 hours and began marking the beaches and installing pontoon causeways in preparation for the landing of the landing force armored on the following day.[30]

On 31 October a second convoy, made up of the attack force armored with the landing force armored (CCA) aboard, sailed from Galveston for the exercise area. The landing force armored was scheduled to land at 0900 on D plus 1 on the beaches seized on D-day by the landing force infantry. It had been hoped that a dry landing could be made, using the pontoon causeways installed on D-day. However, the combination of low tide and previously undetected sandbars made it impossible for the LST's

*See App. 4.

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to reach the causeways. At about 1100 hours, after two hours of futile efforts to marry the ships with the causeways, the landing force armored began wet landings through the surf. Before dark the major combat units of CCA were ashore, with the remainder of the command landing on D plus 2.[31]

Immediately after landing, CCA moved into assembly areas, established local security, and prepared plans for a break-out from the beach area in the direction of Panama City. On D plus 3 (5 November) CCA issued its orders for the break-out, and at 1630 on the same day Exercise SHILOH was terminated. CCA re-embarked over the beach on 6-8 November; debarkation at San Jacinto Ordnance Depot was completed on 11 November, and on 15 November, after a three-day tactical march, the command reached its home station, Camp Hood.

To return to the exercise itself, it should be pointed out that there were no actual troop maneuvers by CCA. Blue Beach was suitable for landing operations, but the terrain inland would not allow maneuver by armored forces. The only maneuvering in Exercise SHILOH was the simulated action of the 186th Division. Virtually all air strikes and naval gunfire missions were performed in support of this division rather than in support of the actual unit engaged--CCA. Since during the problem the latter did not maneuver but merely moved into assembly areas behind the front lines, it had little or no need for fire support.[32]

Except for patrol action there was no actual contact between friendly and Aggressor ground units. The Aggressor force (about 150 men) was used to provide training in combat intelligence, naval gunfire support, close air support, and aerial reconnaissance. This was done chiefly by setting [redacted]

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up pneumatic replicas of Aggressor weapons and vehicles. It was this pneumatic equipment, representing chiefly Aggressor field and antiaircraft artillery, tanks, and trucks, that supplied targets for air reconnaissance, air strikes, and naval gunfire. Although no live ammunition was used, these activities were actually carried on during the exercise. In addition, Aggressor air flew actual missions against the J.F.[33]

In the course of the exercise Air Force units engaged in fighter, bomber, and reconnaissance operations. First in point of time were the actions of the 12th Reconnaissance Squadron Photo. Before 10 October, the date the squadron began operating in the maneuver area, a number of missions were flown to assist the planning of the exercise. Area mosaics of three locations near Panama City were flown for Fourth Army to help in the selection of a suitable landing place. For this same purpose the squadron took photos of several spots on the Gulf coast to determine water depths at these locations. For Twelfth Air Force the squadron photographed Aggressor airfields and rail and highway bridges over rivers running north and south in Aggressor-held territory. Special emphasis was placed on securing photos of the Chattahoochee and Apalachicola River bridges between Columbia, Alabama, and Apalachicola, Florida,* since these rivers marked the proposed line for the interdiction of Aggressor movement into the objective area. Twelfth Air Force used these photos for planning, for preparing target folders, and for actual operations during the exercise.[34]

*See App. 3.

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From 10 October until D-day the squadron took photos of actual Aggressor troop movements and gun emplacements. To lend realism to these missions, pneumatic dummies were used extensively. The locations of these dummies were shifted each day to indicate changing Aggressor dispositions.[35] Four prints and one negative of each photo were delivered to Fourth Army, and three prints and one negative were sent to the Navy. These photos were used by all three services for photo interpretation training.[36]

Daily, from D-day through D plus 2, the squadron's RF-80's photographed Aggressor airfields west of a north-south line running through Foultrie, Georgia, and took low oblique photos of bridges over the Chattahoochee and Apalachicola Rivers. Targets of opportunity were also photographed. Visual reconnaissance, from D-day through D plus 3, included coverage of Aggressor rail and highway movements, troop concentrations, supply dumps, and antiaircraft defenses within a 100 mile radius of Panama City.[37] During the period 10 October-5 November the squadron flew 47 photo reconnaissance and 26 visual reconnaissance missions, and its photo lab processed 4, 633 negatives and made 14,500 prints.[38]

Bombardment operations consisted of air superiority, interdiction, and close-support missions flown by the A-26's of the 644th Bombardment Squadron. It was assumed that air superiority had been achieved by friendly air prior to the amphibious landing. Because of this assumption only a few Aggressor airfields were considered to be serviceable when bomber operations began. Air superiority missions by the A-26's were therefore limited to a few strikes, flown from D minus 5 through D minus

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1, on those airfields still in operation. From D minus h through D minus 1 the bombers carried out an interdiction program, cutting Aggressor lines of communication over the Apalachicola and Chattahoochee Rivers. For close support of the D-day assault it had been planned that just before L-hour the A-26's, working in conjunction with fighters, would strike at Aggressor beach defenses; however, because of bad weather the mission had to be canceled. On the afternoon of D-day and on D plus 1 the bombers again took up interdiction work, attacking supply dumps and communications lines undergoing repair by the enemy. Pre-planned close-support missions were run on D plus 2 and D plus 3, when the A-26's made parafrag, strafing, and rocket-firing attacks on defense positions holding up the ground advance. Altogether the 8th Squadron flew 1h missions and 137 sorties during the course of the exercise.[39]

For the 71st Fighter Squadron Exercise SC IRON LAD got underway on D minus 3, when its F-80's flew escort missions for the A-26's. Fighter operations continued on D minus 2 and D minus 1 with interdiction attacks on road and highway bridges. During the period D-day-D plus 3, fighter activity consisted chiefly of combat air patrol (CAP) and air support group missions. To establish and maintain local air superiority and to furnish air defense, a CAP was kept on station over the beachhead from 0700 to 1630 hours daily. Four 71st Squadron F-80's flew CAP from 0700 to 0900 hours each day; for the rest of the day CAP was flown by four F4U's from either CVEG-3 or MAG-1h.[40]

Close support for the invading forces was provided chiefly by air support groups consisting of Navy, Marine, and Air Force fighter and fighter-bomber aircraft. These support groups were held at orbit points

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over the objective area, and flights were called in to strike at specific ground targets. Close-support missions were also flown by aircraft on ground alert. All such missions were flown by USAF's 71st Fighter Squadron. All told, this squadron's P-80's flew 43 missions and 149 sorties during SHINGLE. 41

Acting as Aggressor air, the 77th Fighter Squadron, equipped with P-51's, flew dive-bombing, rocket-firing, and strafing missions directed against shipping and against ground targets during the land battle.[42] From D-day through D plus 3 the 77th Squadron took part in eight missions; two missions and eight sorties were flown each day.[43]

The communications facilities used to control the Air Force effort in SHINGLE consisted of wire communications and HF and VHF radio circuits. Wire communications included teletype circuits between the JCC, located near the beachhead, and the tactical air units at Eglin and Maxwell Fields. Direct HF radio circuits were operated between the JCC and the air units, including Aggressor air at Shaw Field. An additional HF circuit linked the JCC with the naval control ship Taconic. VHF radio service, providing two direct voice circuits, was established between the JCC and the tactical air direction center (TADC).[44]

The tactical air control system, which began operating when control of air was passed from the Navy afloat to Twelfth Air Force ashore, consisted of a TADC, equipped with an AN/TPS-1B radar set, and two TACP's, equipped with AN/VRC-1 radios. Also included was a three-station direction-finding system.[45] These facilities were set up and operated by the 502d Tactical Control Group, augmented by elements of the 506th Tactical Control Group.

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On D-day and D plus 1 control of all air in the objective area was in the hands of the commander, JAF, a naval officer, who exercised this control through the facilities provided by the Navy's Tactical Air Control Squadron Two aboard the control ship Taconic. Orthodox Navy procedures for requesting and controlling air strikes were followed. TACP's, during this period, acted as requesting, as well as controlling, agencies. Ground requests for air strike were forwarded by the TACP's over a tactical air request net direct to the joint operations room in the Taconic. If approved, the mission was coordinated with other supporting fires and ordered out. The attacking aircraft were controlled over a tactical air direction net by the tactical air director, who passed control on to a TACP on the ground or, more commonly, to a tactical air coordinator (airborne) for close-in control in the target area.[46]

After 1630 on D plus 1, when control was passed ashore, standard Air Force procedures governed. Requests for air support were forwarded through ground force channels to the JOC, located near the beach and adjacent to the headquarters of the ground commander. If the request was approved, the mission was coordinated with other fires--artillery and naval gunfire--at the Army's fire support coordination center nearby. Control of the strike was passed from the combat operations section of the JOC to the TADC, which in turn passed control to a TACP or to a tactical air coordinator (airborne) for on-the-spot direction of the attack.*[47]

The chief difference between the Navy and the Air Force systems was that the Navy used the TACP's to request as well as to control air strikes,

*Ordinarily, control would pass from the JOC to a tactical air control center (TACC) and thence to a TADC; however, no TACC was used in SEMINOLE.

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while under Air Force procedure requests came up through ground force channels, and the TACP's were merely a control agency.* It should also be noted that the Navy made more extensive use of the tactical air coordinator (airborne) than did the Air Force.

In examining the results of Exercise SWIFTOLE attention will be focused first on pre-exercise planning and then on landings relative to the exercise itself. Planning for SWIFTOLE appears to have been considerably more efficient than was the planning for [redacted] The chief reason for the improvement was the relatively early formation of a joint planning staff at theater headquarters. With Twelfth Air Force located on the West Coast; Amphibious Force, Atlantic Fleet, on the East Coast; and Fourth Army at Fort Sam Houston, Texas, the establishment of a central planning headquarters (at Fort Sam Houston) resulted in a definite saving in time and effort and in better coordination between the services.

Nevertheless, there were certain shortcomings in the planning for the exercise. Tactical Air Command (TAC) complained that it was not asked to participate from the very beginning of the planning. The inclusion of the Air Force in the maneuver, TAC claimed, was due chiefly to TAC's insistance that the Air Force be given a place. Thus, said TAC, Air Force participation came as an afterthought; TAC did not take part from the beginning and did not share in the preliminary planning, which was done by the other services.[48]

There were also other planning difficulties. Although there were mitigating circumstances, the long delay in selecting a site for the

*For a discussion of this difference between the two systems see above, pp.16-18.

†See above, pp.20-21. [redacted]

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landing complicated somewhat the preparations for the maneuver. Because of this delay decisions as to the location of air bases and communications installations were held up longer than was desirable. It is apparent also that the joint planning staff that functioned so well was in some degree hampered by its small size. Each service was represented by only one officer, and time was lost that could have been saved by assigning more officers to this staff. For example, in September, when Twelfth Air Force recalled its representative to assist in Twelfth Air Force planning, the joint staff had to function without an Air Force member, with both the joint staff and Twelfth Air Force suffering as a consequence. Twelfth Air Force believed that in future exercises better planning would result if the Air Force had a larger staff at theater level—a staff that would include an A-2, A-3, and A-4, and also a communications officer.[49]

The most significant findings stemming from the exercise itself were those pertaining to reconnaissance and fighter operations and to communications and control. The participants were especially critical of the results of the reconnaissance effort. The 13th Reconnaissance Squadron felt that except for daily coverage of certain railroads and bridges, pinpoint photography had been neglected. The XF-13 was especially well suited for this type of work, and more of these missions should have been assigned. It was found also that at scales of less than 1:6,000 for vertical photos the speed of the XF-13 could not be used if the necessary overlap between pictures was to be obtained. This situation was due to the three-second winding time required by the cameras then in use.[50] It was this difficulty that may explain the Navy's complaint that the Air Commander never received complete photo coverage of the exercise area at the desired scale of 1:5,000, a scale the Navy considered essential for detailed photo interpretation.[51]

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In contrast with the outmoded cameras used for large-scale vertical photos, the 12-inch forward oblique camera installed in the TP-80's was found to be highly effective. Specially designed to take pictures at low altitudes and high speeds, the camera proved well suited for use by jet aircraft.[52]

Criticism by the 12th Squadron included also comments on the handling of visual reconnaissance missions. The squadron believed that too many such missions were requested, that reporting instructions were too vague, and that too few definite targets were assigned. In the latter regard there were several instances when aircraft flew missions lasting one and one-half hours and were given only one target or none at all, whereas 15 to 20 targets would have been appropriate. In addition it was found that because of poor radio communications with ground controllers, the results of visual reconnaissance could not be reported immediately and had to be sent in by teletype in the form of a summary at the end of the day's operations. This procedure greatly reduced the value of the reconnaissance missions, particularly if the targets were moving ones.[53]

Despite these criticisms it was felt that the exercise afforded valuable experience to the 12th Squadron, the majority of whose personnel had had previous to SAGEBRUSH only a limited knowledge of reconnaissance operations.[54] However, the exercise would have been even more beneficial had the squadron's resources been used more fully. It was estimated that with the personnel and equipment available this unit, after 29 October (D minus 4), could have about doubled the number of missions flown.[55]

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Finally, there was criticism also of the inability of the 12th Squadron, early in the exercise, to furnish sufficient numbers of photos to the using units. The number of prints requested by the Army and Navy exceeded the capacity of the squadron's photo lab. Only one print could be provided to each of the three services, and there were none available for lower tactical units.[56]

Air Force fighter operations, aside from those of Aggressor air, were carried out by the 71st Fighter Squadron. Since it was equipped with jet aircraft, still a relatively new weapon, its performance in SHINDIG was a matter of special interest. Although this squadron's P-80's carried out all assignments successfully, this success was due more to the artificialities and simulations of the exercise than to the sound employment of the aircraft. Indeed, the 71st Squadron went so far as to claim that if its P-80's had been used in combat as they were in SHINDIG they would not have been able to do the job.[57]

As was pointed out earlier,* fighter missions were of two principal types--combat air patrol (CAP) and air support group. Most of the difficulties lay in the use of the P-80 for the latter type mission. The P-80 proved well suited for CAP missions. The purpose of CAP is to maintain local air superiority and to prevent surprise attacks by enemy air. For such missions a high speed aircraft is required, armed with machine guns or automatic cannon; and the characteristics of the P-80 made it ideal for this task. It was found also that by using external wing tanks the aircraft could meet the time-on-station requirements set

*See above, pp. 50-51 .

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forth in Navy and Air Force schedules.[58]

For air support group (close-support) missions it was quite a different story. To be effective in this type of work aircraft should carry, in addition to their machine guns, rockets and bombs--preferably both, but at least one or the other. When SYMBOL was held, the P-80 had no rocket-launching equipment, but it could be armed with bombs. However, when carrying bombs, the P-80 was limited to its internal fuel load only, since the wing tanks hung from the same racks as the bombs. As a result the aircraft's range or time-on-station was quite limited. When flying air support group missions, particularly those that were call missions, aircraft had to circle on station for a considerable period, and without its external fuel tanks the P-80 was severely handicapped. The chief criticism of fighter operations in this exercise was that both the Air Force and the Navy, in their scheduling of P-80's for air support group work, failed to take these factors into consideration.[59]

Certainly, its experience in SYMBOL did not shake the 71st Squadron's faith in the P-80. On the contrary, it believed that if certain changes were made in control procedures and scheduling, the P-80 would prove as capable as any other aircraft. Specifically, the squadron recommended that P-80's to be used for support missions be kept on the ground on call instead of circling on station as was the case in SYMBOL.* According to this plan, one P-80, equipped with wing tanks and preferably from a tactical reconnaissance unit, would be stationed over the target area to act as an air coordinator. When a mission was to be

*Actually some P-80 missions were flown from ground alert. See above, p. 51.

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flown, the F-80's on stand-by would be scrambled and headed toward the area. Immediately after the stand-by aircraft were notified, the tactical air controller at the control center would begin briefing the air coordinator, who would then be ready to direct the strike when the aircraft arrived in the target area.

In SHINGLE, aircraft circling at orbit points wasted much time and fuel while waiting for air coordinators to locate targets. In the system proposed by the 71st Squadron this time could be used by the F-80's to scramble and proceed to the target area. When they arrived, the air coordinator would already have the target located and could lead them to it immediately. After expending their armament, the aircraft would then return to their base and within an hour after leaving the target could be ready for another mission. It was felt that such a system would solve the fuel problem for the F-80's and would be just as effective as that used in SHINGLE.[60]

The use of P-80's for tactical air coordinator missions also brought a special comment from the 71st Squadron. It was found that the use of the F-80's presented no problem since the success of this kind of mission seemed to depend not upon the type of aircraft but upon the ability of the man in the cockpit. However, for very close support work, where lines are fluid and precise identification is vital, it was believed that a two-place aircraft would be more suitable. The squadron also emphasized the need for training of personnel to act as air coordinators and the need too for the development of standing operating procedures.[61]

In addition to CAP and air support group missions, the F-80's were

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used to escort A-26's. Results were very satisfactory. Contributing to the success of these missions was the relatively high speed of the A-26, which was considerably faster than most conventional types and could thus be more easily escorted by the high-speed jets. It should be pointed out that there were no actual attacks by enemy fighters. Original plans called for attacks by Aggressor F-51's against the escorted A-26's. Unfortunately, bad weather forced the cancellation of these missions and prevented a more valid test of the escort capability of the F-80.[62]

Bombardment operations in SWAMP OAK were carried out without special incident. Only 14 missions were flown by the A-26's; one of these was a familiarization flight and two others were turned back by bad weather. Exercise reports make no mention of deficiencies or findings relative to bombardment action.

In Exercise MOUNTAIN GOAT, and in virtually all the joint Army-Air Force exercises conducted between World War II and the Korean war, a major portion of the deficiencies lay in the areas of communications and control.[63] Such was also the case in SWAMP OAK. The picture is not all black; but there were, none the less, a wide range of difficulties and problems.

Radio communications linking the JOC with the air units, with the control ship Taconic, and with the TADC were generally satisfactory. The HF voice circuits connecting the JOC with the air units worked well except for a short period when interference made a change of frequency necessary. The HF circuit between the JOC and the Taconic worked perfectly throughout the exercise on the originally assigned frequency. VHF radio communications between the JOC and the TADC were also effective, particularly

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the voice circuits. However, maintaining the AN/TCC-1 teletype carrier equipment between these two installations proved troublesome. Replacement parts for this equipment were not available, and the personnel operating it lacked sufficient experience.[64]

Less effective than the radio communications were the wire and teletype communications between the JOC and the air units. Since no commercial circuits in the area were available for lease, a great deal of coordination was needed to establish direct wire and teletype facilities. Eight different organizations and units were involved in furnishing direct wire circuits,* and only four of them were under the direct control of Twelfth Air Force. The result was that the set-up was loose, and difficult to control. On the credit side it should be noted that the JOC was never without direct communication, either wire or radio, to any of the tactical air units.[65]

A number of communications shortcomings and problems plagued the operation of the tactical air control system. Much of the difficulty resulted from the fact that Twelfth Air Force was deficient in manned communications and control units. To meet its commitments for the exercise, Twelfth Air Force had to borrow elements of the 502d Tactical Control Group and 934th Signal Battalion from Ninth Air Force. Having to work with borrowed units seriously handicapped Twelfth Air Force in planning and in training and hence in conducting the exercise itself.[66]

Even with the help of attached units Twelfth Air Force was unable to furnish one of the key facilities of the tactical air control system-- the

*Twelfth Air Force; Fourth Army; Tyndall, Eglin, and Maxwell Fields; the 502d and 506th Tactical Control Groups; and the 934th Signal Battalion.

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tactical air control center (TACC). This gap in the system had a number of important consequences. Although a TADC was provided, the absence of a TACC made close control of air strikes difficult. It also contributed to the unsatisfactory results obtained in radar-controlled interception of Aggressor aircraft.[67] Because of the lack of full radar coverage, most of the Aggressor missions reached the beach area without being detected.[63]

The absence of a TACC was also directly related to the most serious breakdown of communications to occur during the exercise. On the morning of D plus 2, after control of air had passed from the Navy to Twelfth Air Force ashore, a failure of VHF ground-to-air communications equipment at the TADC made it necessary to return control to the Navy. This failure occurred as a result of heavy rains that waterlogged communications cables. Control was passed very smoothly back to the Navy's Tactical Air Control Squadron Two, which exercised it for a short period until the TADC was back in operation. Actually, this change in control caused no delay and was even valuable from a training standpoint. It was a situation that might have arisen in combat, and showed the ease with which control could be passed back and forth in an emergency. Although in reporting the incident the other services were quite charitable to the Air Force,[69] the breakdown of its control machinery was naturally rather embarrassing. If there had been a TACC in operation, it could have taken over in place of the TADC, and it would have been unnecessary to return control to the Navy.

There was also a considerable lack of realism in locating the TADC in this exercise. This installation was not embarked with the attack force and was not moved ashore over the beach. Rather, it was set up ashore prior to the landing, and it was assumed that it came ashore at a logical

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time during the assault. Moreover, it was located about six miles behind the Aggressor front lines, from which position it directed strikes against Aggressor targets. The very shallow beachhead area and the need for proper siting of radar equipment may have made this necessary. It is likely also that the time element prevented the landing and setting up of Air Force control installations tactically and in readiness to assume control at 1630 on D plus 1, when control was passed ashore. Nevertheless, it is unfortunate that some more realistic plan for positioning the TAFC was not devised.[70]

There was a lack of realism also in the use of tactical air control parties (TACP) in this exercise. Since there was no actual ground maneuver, all missions controlled by the TACP's were "canned" missions. The need for air strikes did not arise spontaneously as an actual ground situation developed. The ground phase of [redacted] was in effect a command post exercise (CPX), with staff officers conducting a map maneuver by the mythical 166th Infantry Division. The purpose of the CPX was to create on paper a logical ground situation for air and naval gunfire support missions, which were actually carried out. Thus all air strikes--even call missions--were worked out in advance, or "canned," and were flown in support of a ground unit that existed only on the situation maps at the command posts.

Under these conditions the TACP's received only limited training. They worked with no actual ground units. Targets in the form of pneumatic dummies and flash simulators were provided by the Aggressor force. But in the absence of friendly ground troops, these targets had to be marked

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by the TACP's. Since all missions were "canned," the TACP's were notified of a strike well in advance and would move, evidently non-tactically, to the target and mark it with smoke grenades. They would then vector the attacking aircraft on to the target. This arrangement afforded reasonably good training for air crews, but it did not provide realistic training for the TACP's.[71]

Taking into account these artificialities, the TACP's performed effectively. However, the different roles assigned these parties by the Air Force and the Navy was a matter of concern to the ground force participants. When the Navy controlled air operations, the TACP's acted as both a requesting and a controlling agency. After control passed to the Air Force ashore, they functioned in the latter capacity only, with requests going up through ground force channels. When the Navy was in control, the ground forces had little to do with the machinery for forwarding requests, which went through air channels to the control ship. However, when the Air Force took over, the ground forces had to have ready the partner complex request facilities that are normally set up by the Army's signal company, air-ground liaison. Of the three services it was the Army that had to make the biggest readjustment involved in the change over from one system to the other in the middle of the exercise. Both Fourth Army and the 2d Armored Division felt that the use of the two systems in a single exercise or operation created unnecessary confusion; and without stating a preference for either one system or the other, both recommended that the Navy and the Air Force work out a standardized procedure governing the use of TACP's. Uniformity in this regard, they believed, would simplify air support of the ground forces.[72]

To the Army's credit it can be said that a major deficiency of Exercise [redacted]

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COMBAT CREW--failure to provide a signal company, air-ground liaison--was not repeated in SEMINOLE. Such a company was assigned and did function. The establishment of air-request communications was, of course, a relatively simple matter in SEMINOLE because of the fact that there was no ground maneuver. Thus the system was not as thoroughly tested as it would have been if all the ground echelons normally served by the requests stem had actually existed. Nevertheless, the fact that the Army did use this important organization represented an improvement.

All in all, Exercise SEMINOLE can be commended for the opportunity it furnished for cooperative effort by the three services. It was especially valuable also for the experience it gave in joint planning and in high-level staff work. From the standpoint of the operating units the results were somewhat less favorable. Undoubtedly, the Navy and the 2d Armored Division benefited from the training received in the complex operation of loading and landing armored forces. However, the artificialities surrounding operations ashore made it impossible to provide sound, practical training for tactical units. The 2d Armored Divsion did not maneuver at all, and Twelfth Air Force flew missions in support of a ground unit that did not actually exist. Extensive simulations made it possible to play the air-ground phase of the problem, but full training in this regard could not be realized. Underlying this whole problem was the small size of the exercise area. It is regrettable that the services did not find a maneuver site suitable for realistic action--a site that would have provided elbow room for an actual ground attack inland from the beaches.

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Chapter III

[redacted]--PLANS AND PREPARATIONS

After SHINGLE over two years elapsed before the three services again held a joint amphibious exercise.[1] Mid-war through 1949 the Joint Chiefs of Staff (JCS) informed the Army, Navy, and Air Force that they were to execute a joint amphibious exercise in the Puerto Rican area during the period January-March 1950.[2] The purpose, as outlined by the JCS in a memorandum dated 14 July 1949, was fourfold. The exercise was intended to a) provide training for personnel and units in the planning and execution of joint operations, b) examine the validity of current techniques and procedures for joint operations and gather data concerning the principles governing a joint airborne-amphibious operation, c) test the capabilities of new items of equipment, and d) provide training for the defense forces of the Caribbean Command.[1]

The 14 July JCS memorandum, besides stating the purpose of the exercise, outlined in general terms the concept of the exercise, the participating forces, and the command structure. It was specified that a joint task force would execute an airborne-amphibious assault on Army-held Vieques Island, just east of Puerto Rico, in order to secure a major base for strategic air operations. This joint task force was to consist of an infantry division, airborne forces, naval vessels and naval air units, and USAF air units. Air Force air would include a tactical air

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[1] In October-November 1949 a major amphibious exercise, bearing the code name LEI, was conducted in Hawaii by units of the Sixth Army and the Pacific Fleet; but there was no Air Force participation.

[2] The exercise was later given the code name TRAY, a word derived from the phrase "Puerto Rican Exercise."



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force, two fighter wings, a troop carrier wing, two reconnaissance squadrons, a liaison squadron, and elements of a tactical control group.[2]

The Chief of Naval Operations was designated as executive agent of the JCS for carrying out the operation; the Commander in Chief, Atlantic was named maneuver commander; and it was prescribed that the commander of the joint task force would be an officer named by the Department of the Army. This officer would exercise command not directly but through the commanders of the ground, sea, and air components of the joint task force.[3]

On 5 August the Department of the Army named Lt. Gen. John C. Hodge as commander of the joint task force, and later that month Maj. Gen. Percy W. Clarkson was designated as Army component commander. On 17 September the Navy assigned Rear Admiral Donald B. Beary to be head of navy component commander, and two days later the Air Force named Lt. Gen. Ralph F. Stearley to command the Air Force component.[4] The maneuver commander was Admiral H.K. Hewitt, Commander in Chief, Atlantic (CINCLANT). Upon his retirement on 1 February 1950, this post was assumed by his successor as CINCLANT, Admiral W.M. Fechteler.[5]

For the planning and execution of the exercise the JCS directed the commander JT. (Inv.) to organize a joint staff.[6] Joint planning began on 27 September, when the deputy chiefs of staff for the Army, Navy, and Air Force reported to General Hodge at V Corps headquarters, Fort Dix,

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[1]This force was officially titled Joint Task Force (Invasion). Hereafter it will be referred to as JTF (Inv.).

[2]At this time General Hodge was Commanding General, V Corps; General Clarkson was Commanding General, 3d Infantry Division; Admiral Beary was Commander, Amphibious Force, Atlantic Fleet; and General Stearley was the commander of the Fourteenth Air Force.

[3]Joint planning also involved naval and air maneuver commanders. However, since the JTF (Inv.) was the top echelon responsible for actual operational planning, emphasis is placed on joint planning at that level. The maneuver commander supervised and directed JTF (Inv.) planning by issuing maneuver control orders which served as a guide to the more detailed planning by the JTF (Inv.) staff.

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orth Carolina. The joint staff was quickly organized, and early in October it began the work of preparing Dur (Inv.) [illegible] control order 1-49 and operation plan 1-49.*

Before these could be drawn up, it was necessary to arrive at some conclusion regarding the size and structure of the invasion force. At his first meeting with the deputy chiefs of staff, on 27 September, General Wedemeyer, after first stating in general terms his concept of the operation, directed the deputies to prepare and submit a recommended command organization. On 3 October, the naval component commander, Admiral Fechteler, called on General Wedemeyer and presented a series of studies of the organizations used in World War II amphibious operations. After considering these studies in the light of what was known about requirements for the exercise, the deputy chiefs of staff recommended an organizational structure which they considered to be roughly comparable to that used at Leyte and Lingayen, in the Philippines campaign. As adapted for readiness, this organization would place the component commanders directly under the commander Dur (Inv.) and would provide for the establishment under the naval component commander of a joint assault force to carry out the actual landing operation.†

This organization was approved by General Wedemeyer, and the way was cleared for the joint staff to prepare control order 1-49 and operation plan 1-49. These were drawn up during October, and on 2 November they were submitted in draft form to the component commanders for study and

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*The control order was to set forth the non-tactical, and the operation plan the tactical, aspects of the exercise.

†Actually this organization more nearly resembled the organization used at Okinawa than the one used at Leyte and Lingayen.

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corment. The principal features bodied in these drafts were the organization of the JAF (Inv.), the tasks of the component commanders, and the establishment of the joint assault force.*[7]

The component commanders were requested to attend a conference at Fort Bragg on 10 November to discuss these drafts. At this meeting the drafts were discussed and approved in general. However, Brig. Gen. W.R. Wolfinbarger,[4] who attended the conference in place of the Air Force component commander, General Stearley, expressed disagreement with the proposed command structure as it pertained to control of air. In this command structure all Air Force aircraft, including troop carriers, were placed under the operational control of the commander, JAF (Inv.) during the assault phase. As a counter to this proposal General Wolfinbarger presented a plan that gave operational control of all Air Force air to the commander of the Air Force component of the JTF (Inv.) rather than to the JAF (Inv.) commander. The two proposals were discussed, and General Hodge directed the component commanders to work out a mutually satisfactory command set-up and to submit it to him for approval by November 16.[8]

To resolve this problem a conference attended by the Army and Navy component commanders and the deputy commander, Air Force component was held on 15 November aboard the USS Taconic at Norfolk. After a long discussion the command relationships and organization of forces as finally set forth in control order 1-49 and operation plan 1-10 were approved and submitted to General Hodge. With a few minor exceptions the command

*This force was titled the Joint Assault Force (Invasion), and it will be referred to hereafter as the JAF (Inv.).

[4]General Wolfinbarger was deputy commander of Fourteenth Air Force. For this exercise he was deputy commander of the Air Force component.

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structure was basically the same as that presented to the component commanders on 3 November, with control of Air Force participating the assault troops remaining under the JTF (Inv.).[9]

With the thorny command problem settled, work on control order 1-49 and operational plan 1-49 was soon completed. General Wolfe gave his final approval, and late in November they were forwarded to the maneuver commander. They were then distributed, as drafts, for planning purposes only, to the component commanders and to the JTF (Inv.) commander.[#] In December the annexes and appendices to these plans were prepared and distributed, and by early January control order 1-49 and operation plan 1-49, in their complete and final form, were in the hands of the component commanders.[10]

Concurrently with planning at the JTF (Inv.) level, plans were being prepared by the JTF (Inv.), which was scheduled to make the actual airborne-amphibious assault on Vieques Island. Two days after the 15 November conference, which settled the command problem, Admiral Wright asked the Army component commander to designate a commander, assault troops and requested the Air Force component commander to name a commander, tactical air (Air Force). General Ellison, who was the Army component commander, was named to the former post and General Wolfinberger to the latter. Command of the airborne assault force, which was to make an airborne attack just prior to the amphibious assault, went to Colonel ... Fenton, commander of the 316th Troop Carrier Group.[11]

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[9] For a fuller discussion of this problem see Chapter V. See also App. 6.

[#] Admiral Wright, the naval component commander, also filled the post of JTF (Inv.) commander. In October 1942, Admiral Wright, then a captain, accompanied Maj. Gen. Mark Clark on his famous submarine mission to North Africa.

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The most important joint conference at JAF (Inv.) level was that held at Fort Benning, Georgia, on 22 November, with the three component commanders and members of their staffs attending. At this time the general troop scheme of maneuver was approved, and the command structure for the JA (Inv.) and arrangements for coordinating planning were explained and agreed upon. There were also preliminary discussions of gunfire and air support, employment of the airborne force, and the effect of the scheme of maneuver on such matters as loading of ships and the ship-to-shore movement.[12]

This conference paved the way for the preparation of JAI (Inv.) operation order 2-50. The first draft of this order was distributed on 25 November for comment and concurrent planning. Based on comments received, on further planning and conferences, and on JAF (Inv.) draft plans, the second draft of operation order 2-50 was issued on 10 December. The final draft was completed on 15 January; however, certain annexes were added later, and some changes, notably a prohibition against the simulated use of atomic weapons, were made as late as the middle of February.[13]

Some of the most complex planning at JA (Inv.) level was the planning required to assure complete integration of naval and Air Force air plans. Beginning early in December a series of joint conferences was held, with representatives of all interested Army, Navy, and Air Force commanders attending, to work out the detailed coordination of air action for the assault on Vicques Island, including air defense, close-support, and troop carrier operations. At these meetings the planners worked out the allocation of aircraft for the various tasks and formulated a single integrated schedule of air missions for naval and Air Force air. This schedule was

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incorporated into JCS (Inv.) operation plan 2-50 and Air Force Forces (AF ) operation plan 1-50.*[14]

Responsibility for carrying out the Air Force portion of the JCS directive or subsequently was assigned to Continental Air Command (ConAC). In arranging for Air Force participation in the exercise ConAC appointed General Stearley as AF commander (Air Force component commander) and made available to his headquarters, Fourteenth Air Force as the agency to carry out Air Force administrative and logistical responsibilities, and Tactical Air Force (Provisional) to conduct the operations of Air Force units.[15]

Much of the Air Force administrative and logistical planning was done by the Troop Movements Section, Fourteenth Air Force.[16] Air Force operational planning was carried out by AF headquarters, which was composed chiefly of the staff of Tactical Air Force (Provisional), Tactical Air Command's field operational headquarters. AF planning centered around preparation of its operation plan 1-50. Work began on 2 November upon receipt of ConAC's directive for the exercise; and on 15 December the first draft, except for the administrative annex, which was added later, was submitted to General Wolfinbarger for approval. Twenty-four copies of the draft were mailed to staff agencies for final coordination and comment, and on 31 December it was distributed to the participating units. These units had the opportunity of discussing the plan and giving recommendations at a briefing held at Camp MacKall, North Carolina, on 10 January.[17]

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*During the exercise the Air Force component of AF (Inv.) was designated Air Force Forces.

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While the various components of the JTF (Inv.) were preparing plans for the assault on Vieques Island, the Caribbean Command was busily planning to defend it. The JCS memorandum of 14 July, which initiated JTF, charged the Commander in Chief, Caribbean with organizing a defense force to oppose the invasion. Exercising overall command of this force was Vice Adm. Jules F.H. Harris, USN, Commander in Chief, Caribbean. Under him the Army component was led by Maj. Gen. Guy S. Porter, commander, U.S. Army, Caribbean. The ground defense of Vieques was conducted by an Army Ground Defense Force, which was a part of the Army component and was commanded by Brig. Gen. Edwin D. Sibert, commander, U.S. Army Troops, Antilles. The Navy component was headed by Rear Admiral D.C. Corbey, commander, Caribbean Sea Frontier; and Brig. Gen. Robert Walsh, commander, Caribbean Air Command, was in charge of the Air Force component. Since Defense Force Air was made up almost entirely of Navy and Marine units, air operations was placed under the control of the Navy component. The role of the Air Force component (Caribbean Air Command) was limited to furnishing logistical support and performing certain escort and rescue functions.[18]

Defense Force planning was simplified by the fact that the Caribbean Sea Frontier and Air Army organized as a unified command. General Harris had a joint staff; and he exercised command through Vice Admiral Corbey, and General Walsh, commanders respectively of U.S. Army Caribbean, Caribbean Sea Frontier, and Caribbean Air Command, the only commands and organizations that were a part of the Defense Force for PORTREX.

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planning for the exercise could be carried on as a normal staff operation of Headquarters, Caribbean Command.

The first draft of the defense commander's operation plan was completed on 30 September and distributed as a guide for planning by subordinate headquarters. The final plan (Defense Commander's Operation Plan 10-49) was completed on 14 December and was approved by the maneuver commander on the 23d. Certain annexes, however, were completed later--in January and February.[19]

The major Air Force units scheduled to take part in exercise IVORY were the 20th and 31st Fighter-Bomber Groups, the 161st Tactical Reconnaissance Squadron (Photo Jet), the 162d Tactical Reconnaissance Squadron (Night Photo), the 316th Troop Carrier Group, and the 502d Tactical Control Group. Also included were the 933d Signal Battalion, a provisional liaison squadron, and one company of the 701st Engineer Aviation Battalion.[20]

The principal Army units assigned to the exercise were the 3d Infantry Division* and the 1st Battalion of the 82d Airborne Division's 505th Airborne Infantry Regiment. Included also were the 2d Engineer Special Brigade, the reconnaissance company of the 2d Marine Division, and some 35 Army medical, service, and supply units.[21]

The Navy component was comprised of vessels and aircraft of the Atlantic Fleet, augmented by amphibious shipping drawn from the Pacific Fleet. Combatant vessels included 7 aircraft carriers,† 1 battleship,

*Committed to the exercise from the 3d Division were the 7th Infantry Regiment (less one battalion), the 30th Infantry Regiment (less one company), the 1st Battalion of the 15th Infantry Regiment, most of Division artillery, and the Division's heavy tank battalion.

†This total was composed of one CVB (large carrier), two CVL's (small carriers), two CV's (carriers), and two CVE's (escort carriers).

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2 heavy cruisers, 35 destroyers, and 4 submarines. Among the amphibious vessels were 3 AGC's (amphibious force flagship), 4 AKA's (attack cargo ship), 8 APA's (attack transport), 3 APD's (high speed transport) 3 LSD's (landing ship, dock) 12 LST's (landing ship, tank), 4 LSM's (landing ship, medium), and 4 LSR's (landing ship, rocket).[22]

Navy carrier-based air consisted of two composite squadrons (VC-23 on the CVL Kirdoro and VC-24 on the CVL Palau); three carrier air groups (CVG-17 on the CVB Franklin D. Roosevelt, CVG-1 on the CV Philippine Sea, and CVG-7 on the CV Leyte); one fighter squadron (VF-32 on the CVL Wright), and one attack squadron (VC-35, also on the Wright). Carrier based also were two Marine fighter squadrons (VMF-211 and VMF-212 on the CVL Saipan).[23] The Navy had, in addition, for antisubmarine operations, three patrol squadrons (VP-8, VP-21, and VP-45) two composite squadrons (VC-32 and VC-33), and two airship patrol squadrons (ZPL-1 and ZPL-2). All of these units were land based.[24]

For the ground defense of Vieques Island the Defense Force had available two battalions of the 65th Infantry Regiment, one battalion of the 33d Infantry Regiment, a provisional light tank battalion drawn from the 14th Reconnaissance Battalion, the 904th Field Artillery Battalion, and two batteries of antiaircraft artillery.[25] With the exception of the battalions from the 65th Infantry, normally stationed in the Canal Zone, these units were part of the U.S. Army forces regularly based in Puerto Rico.

Air defense and air support of the Defense Force were provided by Marine Air Group Fifteen, with the 198th Fighter Squadron of the Puerto Rican Air National Guard attached, and five Navy patrol squadrons (VP's 3, 23, 24, 34, and 49). Completing the Defense Force was a group of 11 submarines from Submarine Squadron Four.[26]

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With the exception of the 316th Troop Carrier Group all Air Force tactical air units were based at Morey AFB, situated in the northeastern tip of Puerto Rico. The first unit to arrive was the 162d Tactical Reconnaissance Squadron, which reached Morey in time to fly in pre-invasion photo reconnaissance missions on 23 January. The advance headquarters opened at Morey on 12 February, and all air units were in place by the 21st. The 20th and 31st Fighter-Bomber Groups and the 161st Tactical Reconnaissance Squadron flew to Puerto Rico by way of Idlewild International Airport and the Navy airfield at Isaac Rodriguez, Cuba;[1] the 162d Tactical Reconnaissance Squadron moved via MacDill AFB, Tampa, Florida, and Isaac Rodriguez. The latter route was also used in the airlift of the ground echelons of these various units to Puerto Rico, a job that was carried out largely by Military Air Transport Service C-54's. Until just before D-Day the 316th Troop Carrier Group was based at Isaac Rodriguez. The group left its home station at Smyrna AFB, Tennessee, on 26 February, picked up the airborne battalion at Pope AFB, near Fort Bragg, and lifted it by way of MacDill AFB to Isaac Rodriguez. The move was completed on 28 February, and the 316th Group remained at the Cuban base until 7 March (D minus 1), when the airborne troops were lifted to Ramey.[2][27]

Elements of the 502d Tactical Control Group left Myrtle Beach to provide control facilities at Ramey were transported by water and by air. Radio equipment and personnel sailed from Norfolk, Virginia, on 9 January, and by the 16th these installations were ready to operate at Ramey. Personnel

[1] Idlewild Field is a part of the Naval Air Station, Guantanamo Bay, Cuba.

[2] Over a period of time these Air Force units were equipped with the following numbers and types of aircraft:

| | |
|---|---|
| 20th Fighter-Bomber Group | 50 P-47D's |
| 31st Fighter-Bomber Group | 50 P-51D's |
| 161st Tactical Reconnaissance Squadron | 6 RF-51D's |
| 162d Tactical Reconnaissance Squadron | 6 F-6C's |
| 316th Troop Carrier Group | 43 C-82's |

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and equipment for a TACC were airlifted to Ramey during the first part of February and were operational by the 22d of that month. Sailing with the invasion forces late in February were equipment and personnel for similar control facilities to be set up on Vieques Island shortly after the assault.[28]

Exercise POMTREX was preceded by a training period. During this phase the Army and Navy concentrated on amphibious training for the 3d Division and other Army units of the JTF (Inv.). From 9 January to 18 February these units were trained at the Naval Amphibious Base, Little Creek, Virginia. Between 10 and 20 February, as the troops completed their training, they were moved to Norfolk, where they embarked for POMTREX. On 23-24 February, prior to the actual sortie for the objective area, the JTF (Inv.) held a full-scale invasion rehearsal over the beaches at Camp Pendleton, Virginia.*[29]

Meanwhile, the Air Force component of the JTF (Inv.) was also engaged in preliminary training. Special emphasis was placed on instruction for joint operations center (JOC) personnel. For orientation a command post exercise (CPX) was held on 17-18 January at Pope AFB; and a second CPX, based on a situation comparable to POMTREX, was conducted a month later at Ramey AFB. In addition, Air Force officers were given special training in Navy control procedures. Late in January, at Little Creek, Virginia, the Navy's Tactical Air Control Squadron Four briefed key officers of the 20th and 31st Fighter-Bomber Groups in Navy procedures for controlling close air support. All Air Force and Navy control personnel scheduled to

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* At this rehearsal no Air Force support aircraft took part, and the airborne assault force had only a token representation.

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sail with the invasion force were given special instruction at Norfolk during the month of February. All three Navy control ships took part, and Navy air defense and air-support control methods were practiced.[30]

Most of the pre-exercise training of Air Force tactical air units took place after they reached Ramey AFB. For the 20th and 31st Fighter-Bomber Groups this training included familiarization flights, practice intercept missions, and dive-bombing and rocket-firing missions flown with live bombs and ammunition against the impact area on Goat Island, about 20 miles from Ramey. The 161st and 162d Tactical Reconnaissance Squadrons also made orientation flights from Ramey and, in addition, engaged in practice photo missions. During the airlift of airborne troops from Pope AFB to Leeward Point, Cuba, staging base for the airborne force, the 316th Troop Carrier Group engaged in formation flying, practiced slow-ups, and made simulated paradrops. At Leeward Point similar training was conducted during the period immediately preceding D-day.[31]

To prepare for their role in PORTREX, elements of the 502d Tactical Control Group slated to land on Vieques made a practice landing on 31 January in an area adjacent to Pope AFB. This exercise was followed by a CPX held in conjunction with JOC personnel and simulating conditions that were expected to prevail in PORTREX after control of air was passed to the Air Force ashore. Elements of the group scheduled to furnish control facilities at Ramey received pre-exercise training there late in January, training that included operation of TACC's, TADC's, and direction-finding stations.[32]

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In working out a mythical situation for Exercise PORTREX, the planners departed somewhat from the concept that governed Exercises MOUNTAIN GOAT and SEMINOLE. In these two exercises, it will be recalled, United States forces were assigned the mission of expelling an aggressor that had invaded continental United States, and the amphibious operations were flanking or diversionary moves calculated to assist or speed up that mission. For PORTREX it was assumed that the Aggressor had overrun the western land mass of Eurasia and parts of the northern and northwestern coasts of Africa. He had then withdrawn from the coastal area, leaving occupation forces to guard against possible United States' reaction. The PORTREX operation was to consist of an invasion of Aggressor-held territory by United States forces. The point of attack was to be Vieques Island, and it was assumed that this island was actually a peninsula extending out from the western coast of Africa. The amphibious attack was not, as in MOUNTAIN GOAT and SEMINOLE, a feint or a flanking move incidental to a larger operation; rather, this attack was the opening phase of a large-scale invasion. The amphibious assault was to be followed by a drive inland intended to secure the Vieques "peninsula" as a major base for strategic air operations against the enemy.[33]

It was further assumed that the Aggressor held, in addition to Vieques, the eastern part of Puerto Rico and the islands of Bermuda, Culebra, and St. Croix. For defense of these holdings it was estimated that the Aggressor was employing one infantry division and that one of its regiments, reinforced with artillery and armor, was occupying Vieques. Aggressor naval strength in surface vessels was limited to a few partol

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ships; however, he was known to have a powerful submarine force in the Atlantic, and it was believed that he was operating them from advance bases in Bermuda and at San Juan and Roosevelt Roads in Puerto Rico. San Juan and Roosevelt Roads, it was also believed, were being used as bases for Aggressor aircraft, including jets; and Bermuda was thought to be an Aggressor base for long-range patrol aircraft.*[34]

To carry out the attack on Vieques, it was planned that ground, naval, and air forces, organized as a joint task force (invasion)--the JTF (Inv.), would leave continental United States late in February, 1950 and would make the assault early in March. The actual attack was to be made by a joint assault force (invasion)--the JAF (Inv.), a component of the JTF (Inv.). The Navy's contribution to this assault force was to consist of an objective area screen, an advance and support force, a reconnaissance and antisubmarine warfare group, a hunter-killer force, a logistical support group, support carriers, and an attack force, carrying the Army amphibious troops that would make the D-day landings. The JAF (Inv.) was to include also an airborne assault force, made up of Air Force troop carrier aircraft and the airborne troops who were to jump on Vieques just prior to the amphibious attack. In addition to the troop carrier effort, Air Force support of the JAF (Inv.) was to consist of reconnaissance, fighter, and fighter-bomber operations to be conducted by the Air Force Forces (AFF) from Ramey AFB.[35]

Before the arrival of the JAF (Inv.) in the objective area, on D minus 4, all air operations in that area were to be controlled by the AFF at Ramey. From D minus 4 until D-day, control was to be vested in

*It was these Aggressor land, sea, and air forces that composed the Defense Force organized to oppose the invasion. See above, pp. 72-74.

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the commander of the Navy advance and support force, and on D-day control was to pass to the commander, JAF (Inv.). After a lodgment on Vieques had been secured, control of all air was to pass to the commander, AFF ashore.[36] At about the same time, responsibility for ground operations was to pass from the commander JAF (Inv.) to the commander of the Army forces. This passing of control was to mark the end of operations conducted under the JAF (Inv.); all subsequent operations were to be carried out by the Army, Navy, and Air Force component commanders functioning directly under the commander, JTF (Inv.).[37]

D-day for Exercise PORTREX was 8 March, but the exercise actually got under way on 25 February, when the invasion force began its sortie from Norfolk. The amphibious attack force, with the amphibious troops embarked, sailed in two convoys. The slow convoy left on 25 February and the fast convoy on 2 March. Sailing also on 25 February were the striking and covering force, the hunter-killer force, and the advance and support force. The advance and support force reached the objective area* at dawn on D minus 4, and the slow and fast convoys arrived in the early morning hours of D-day.[38]

The passage of the invasion fleet from Norfolk to Vieques was made tactically, and during the entire voyage the invasion force was harried by Aggressor submarines and aircraft. Aggressor submarines were waiting off Norfolk on 25 February, and they made persistent attacks on the invasion convoys all along the route to Vieques. Convoy anti-submarine warfare (ASW) protection was furnished by the hunter-killer

*This area was described by a circle of 40 miles radius with its center at Point Conejo, Vieques Island.

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force, made up of the escort carriers Mindoro and Palau and two squadrons of destroyers. Long-range ASW coverage was provided by Norfolk-based Navy patrol aircraft and airships, operating out to a point about 650 miles from Norfolk, and by Ramey-based Navy patrol aircraft, operating out to a point about 350 miles from Ramey. The fact that approximately 50 surface ships and some 43 submarines were considered to have been either sunk or put out of action during the transit to Vieques indicates the intensity of the action.*39

While the battle against submarines was in progress, the invasion force was also under attack by Aggressor patrol planes operating from Elizabeth City, North Carolina; Roosevelt Roads and San Juan Harbor, Puerto Rico; and Bermuda and by fighter aircraft, including F9F Grumman Panther jets, working out of Roosevelt Roads. Protection against these attacks was furnished by combat air patrols (CAP) flown from the light carriers Wright and Saipan, from the carriers Philippine Sea and Leyte, and from the large carrier Franklin D. Roosevelt. As the convoys reached the Vieques area, CAP's were also put up by AFF at Ramey.40

Operations in the objective area began on D minus 7. From that day through D minus 5 these operations were carried out by the AFF at Ramey. Attacks were made against the Aggressor base at Roosevelt Roads; CAP was maintained over Ramey; and dive-bombing and rocketry missions were

*For training purposes, surface ships and submarines declared out of action or sunk were allowed to continue in the problem, an arrangement that explains how the Aggressor force of 11 submarines could sustain 43 losses.

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flown against the Aggressor on Vieques Island.* On D minus 4 it was assumed that air superiority in the objective area had been achieved. On that same day the Navy advance and support froce arrived off Vieques, and softening-up operations begun by the AFF were intensified by the addition of carrier air and naval gunfire. Up through D minus 1 these forces, working under the operational control of the commander, advance and support force, continued to prepare the landing area for the amphibious-airborne assault.[41]

Operations on D-day (8 March) began at 0800, when 27 C-82's of the 316th Troop Carrier Group dropped the 1st Battalion, 504th Airborne Infantry Regiment (approximately 800 men) on a drop zone located near the Vieques airstrip, about one mile inland from Red Beach./ Airborne artillery was dropped 15 minutes later by a second serial, composed of six C-82's.[42]

Originally it had been planned that the amphibious assault by the 3d Infantry Division would follow one hour after the initial airborne landing. It had been planned also that the main effort would be made by the 30th Regimental Combat Team (RCT) on the left at Red Beach and by the 7th RCT on the right at Blue Beach. The 1st Battalion, 15th Infantry was scheduled to execute a feint off White Beach, to the east of Blue Beach, after which it was to land on order on either Red or Blue Beach. Two important changes were made in these plans. Because of high

*Many of these latter missions were flown with live ammunition against targets in the impact area on the eastern end of the island. For FORTREX the island was divided into three sections. The western end was considered neutral territory; the central portion contained the actual maneuver area; and the eastern part was the impact area for live firing directed at targets simulating Aggressor defenses.

/See App. 5.

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winds and heavy swells, H-hour, originally set at 0900, was delayed until 0930. Secondly, a combination of circumstances led to a change in landing plans. The attacks on Red and Blue Beaches were to be made as planned. However, these beaches were known to be heavily defended, and on D minus 1 plans were modified to provide for an additional landing east of Blue Beach on Yellow Beach, where the defenses were believed to be weak. This assault was to be carried out at H-hour plus 60 minutes by the 1st Battalion, 15th Infantry after its feint off White Beach.[43]

The D-day landings took place substantially as called for by the revised plans. Initially the assaults on Red and Blue Beaches had very rough going in the face of sturdily constructed beach barriers, and it was several hours before these defenses could be breached and the drive inland proceed. On the other hand the hastily improvised landing at Yellow Beach, on the Aggressor left flank, was extremely successful. Complete surprise was achieved; troops of the 15th Infantry advanced rapidly some 4,000-5,000 yards and were finally halted not by the defenders but by the umpires.[44]

Operations by the airborne battalion were hampered considerably by the change in H-hour from 0900 to 0930 and by the delay at the beach barriers. Because of these factors the battalion had to fight alone longer than had been anticipated, and it was not until 1025 hours that contact was made with the 30th RCT, attacking north from Red Beach. Also contributing to the delay in linking up the airborne and amphibious troops were the high actual jump casualties sustained by the paratroops,

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and an Aggressor counterattack, carefully prepared and rehearsed and supported by 11 tanks, which hit the airborne battalion less than 30 minutes after the drop and inflicted heavy losses.*45

Following the delays and difficulties of D-day morning the attack inland made slow but steady progress. By nightfall the 7th RCT, on the right, had reached a point about one and one-half miles inland from Blue Beach, and the 30th RCT had made a similar gain on the left, to the north of Red Beach. Comparable gains were made all along the line on D plus 1. On D plus 2, however, the attackers were held to advances averaging less than one-half mile. The outstanding feature of this day's operations was an exceptionally well-executed Aggressor tank raid, carried out late in the afternoon, which broke through to the landing force command post and service installations on the beaches before being repulsed. To give Army troops a much needed rest, an armistice was declared at 1700 hours on D plus 2. Early in the morning on D plus 3 (11 March), action was resumed; and by 0900 hours, when Exercise PORTREX ended, the invading force had pushed the enemy into a pocket in the northwest corner of the maneuver area.46

Although air operations in the objective area did not begin until D minus 7, Air Force action carried out in connection with the exercise began long before that date. Beginning on 23 January and continuing through 23 February RB-26's of the 162d Tactical Reconnaissance Squadron took photos of the eastern half of Vieques Island.† These photos kept

*For further comment on the airborne operation see below, pp.171-8.

†According to original plans, RF-80's of the 161st Tactical Reconnaissance Squadron were also to take pre-exercise photos, concentrating on obliques of the beaches and shore line. However, because of a lack of JP-1 fuel at Ramey the squadron's arrival there was delayed, and these photos were taken instead by the RB-26's.

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the invasion commander abreast of aggressor activities and furnished information for target lists. On D minus 7 (1 March) the RB-26's were joined by RF-80's of the 161st Tactical Reconnaissance Squadron; and from that date until the conclusion of the exercise, missions were flown almost daily in support of the invasion force.

Especially important were the vertical photos of the entire objective area, taken chiefly by the RB-26's, and the high and low obliques of the shore line and beaches, taken principally by the RF-80's. Also included were damage-assessment missions flown over aggressor bases at Roosevelt Roads and Culebra Island, dicing runs over the landing beaches and drop zone, and the taking of slow motion moving pictures of the beaches. Altogether, the 162d Squadron, from 23 January on, flew 162 sorties. Among these were several night photo sorties; these were actually flown, but because the RB-26's were not equipped with precision radar (AN/APQ-2), the taking of photos had to be simulated. From D minus 7 until D plus 3 the 161st Squadron's RF-80's flew 94 sorties, over half of which were visual reconnaissance sorties.[47]

The printing of aerial photos during the exercise itself was carried out by a photo lab set up at Ramey by the 162d Squadron and manned by technicians from the 162d and 161st Squadrons. Much of the pre-exercise photography, however, was flown from Ramey to Shaw AFB, where it was processed by the 161st Squadron. It was then sent to Pope AFB for distribution. Prior to the exercise also, the 363d Reconnaissance Technical Squadron, at Langley AFB, produced prints (1:5,000 scale obliques) from photos of the eastern half of Vieques Island taken by the Navy in 1949. In all, the Air Force processed over 89,000 prints in connection with the exercise.[48]

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Delivery of prints to the invasion fleet began on D minus 5. At that time the 162d Tactical Reconnaissance Squadron dropped a film cannister near the Eldorado, flagship of the commander, advance and support force, as it was passing through Mona Passage, between San Domingo and Puerto Rico. Similar drops to the Navy continued up through D plus 1, and on D plus 2 prints were dropped near the JOC on Vieques Island.[49]

Air Force Forces (AFF) fighter operations were conducted from Ramey by the 20th Fighter-Bomber Group and a detachment of F4U night fighters from the Navy's Composite Squadron Four (VC-4). On D minus 11 the AFF day fighter effort had been dealt a serious blow when all 50 of the 31st Fighter-Bomber Group's F84E's, representing half of the AFF day fighter strength, were grounded because of bearing failure. These aircraft remained grounded for the duration of the exercise, and thus the entire burden of fighter operations except for night missions flown by VC-4, fell to the 20th Group.[50]

From D minus 7, when air operations in the objective area began, until D-day the group concentrated on air superiority and air defense missions and on strikes against ground targets on Vieques. During the period D minus 7-D minus 4, while the battle for air superiority was being waged, the F-84's struck hard at the Aggressor base at Roosevelt Roads. From D minus 7 until D-day the AFF maintained a 24-hour CAP over Ramey, with the 20th Group handling this task during daylight hours and VC-4 taking it over at night. On D-day and D plus one, CAP was flown only at night. Other pre-D-day action by the 20th Group included softening-up strikes against Vieques Island and CAP missions covering the invasion fleet during its transit through the narrow waters of Mona Passage.

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The group also flew escort for the 316th Troop Carrier Group when it moved the airborne troops from Leeward Point to Ramey on D minus 1. Escort was provided from a point about 75 miles out from Ramey.[51]

From D-day to the end of the exercise the AFF placed its fighter effort mainly on ground targets in the maneuver area. Operations on D-day were somewhat restricted because of bad weather, and attacks against Vieques were limited to 20 rocketry and bombing sorties. Double that number were flown on the morning of D plus 1, when 20th Group F-84's supported the ground troops with attacks on enemy troop concentrations, tanks, pillboxes, machine gun emplacements, observation posts, and vehicles. Outstanding on D plus 2 was a 32-plane attack which helped break up the Aggressor tank raid that had carried through to the invasion force's rear areas.* On the morning of D plus 3 the 20th Group, in a maximum effort to assist the ground forces in their final assault, flew 31 close-support sorties within a period of 25 minutes.[52]

Other fighter missions included escort of troop carrier aircraft during the D-day airborne assault, and strikes at Roosevelt Roads on D-day and D plus one. The D plus 1 mission was particularly successful; F-84's, returning to Ramey from Vieques, destroyed 5 Aggressor aircraft in the air over Roosevelt Roads and 21 on the ground, including 7 F9F Panther jets.[53] Altogether, the 20th Group flew 743 sorties during the exercise. The Navy's VC-4 carried out 104 sorties while furnishing night air defense of Ramey and the objective area.[54]

AFF control and communications facilities were provided by the 502d Tactical Control Group and the 934th Signal Battalion. Since the AFF operated first from Ramey and later from Vieques Island, the 502d Tactical Control Group was required to establish control facilities at both locations.

*See above, p. 84.

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A TACC, a TADC, and a direction-finding station were set up at Ramey, and a lightweight radar station was placed in operation at Losey Field, in south central Puerto Rico, to furnish early warning. These installations were operational by 22 February and were used to control AFF operations at Ramey until control was passed ashore on Vieques on the afternoon of D plus 2.[55]

Control ashore was exercised by means of a TACC and a TADC. Equipment and personnel for these installations were transported to Vieques by the invasion force and were assault landed over Red Beach on D-day and D plus 1. Because of the short duration of the exercise and because of the time required to set up this equipment, it was moved non-tactically, with umpire escort, from the beach to its final locations. For operations on Vieques the 502d Group also provided a light-weight radar for early-warning purposes and two tactical air control parties to work with the ground forces.[56]

Fixed communications facilities for the AFF in PORTREX were installed and operated by the 934th Signal Battalion. Like the 502d Tactical Control Group this unit was called on to establish facilities at Ramey and also on Vieques Island. For AFF headquarters at Ramey a detachment from the battalion provided radio, telephone, teletype, and radio-teletype facilities, and communications center and cryptographic service. A second detachment landed on Vieques on D-day and furnished similar facilities and services for AFF headquarters there. A third detachment, drawn from the 2d Radio Relay Squadron and attached to the 934th Signal Battalion for the exercise, supplied communications for the Aggressor force and for the umpires. This detachment also provided radio circuits linking the

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AFF at Vieques and Ramey.[57]

Over-all control of air in the objective area changed hands three times during Exercise PORTREX. From D minus 7 through D minus 5, control was exercised by AFF advance headquarters at Ramey. On D minus 4, control was passed to the commander of the Navy advance and support force aboard the AGC Eldorado. Early on the morning of D-day the commander, JAF (Inv.), on the AGC Taconic, assumed control and exercised it until the afternoon of D plus 2. At this time control passed ashore on Vieques Island to the AFF commander, who retained it until the conclusion of the exercise on D plus 3.[58]

The passing of control ashore on D plus 2 was a gradual process. At 1330 hours the commander, tactical air (USAF)* assumed over-all control of air operations but requested the Navy to retain control of air defense and close-support air until his superior, the AEF commander, was ready to assume control of these functions. Control of air defense passed ashore to the commander, AFF at 1440 hours, and at 1600 hours he took control of close-support air.[59]

While the Navy was in control of air operations, the requesting and controlling of call missions was handled in accordance with standard Navy procedure. Army requests for air strikes were forwarded by tactical air control parties (TACP)/ over a tactical air request net directly to a Navy tactical air control center (TACC) aboard a control ship (AGC). If the strike was approved, coordination with supporting fires--artillery

* Tactical air (USAF), under General Wolfinbarger, was the operational headquarters for AFF, commanded by General Stearley.

/ The TACP's that functioned during the afloat phase were supplied by the Air and Naval Gunfire Liaison Company (ANGLICO) of the Fleet Marine Force. The functions of the ANGLICO were generally similar to those of the joint assault signal company (JASCO) employed by the Army in Exercise MOUNTAIN GOAT. See above, p. 10.

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Chapter IV

EXERCISE FORTLEX--FINDINGS

The major findings and problems relative to Air Force participation in Exercise FORTLEX were those pertaining to planning; to reconnaissance, airborne, and fighter operations; and to communications. With regard to planning, difficulties were encountered in joint planning at JTF (Inv.) and JAG (Inv.) levels and in Air Force planning by Tactical Air Force (Provisional). The discussion of Exercise MOUNTAIN GOAT and SWIFTOLD brought out the importance of establishing a joint planning staff.* Such a staff was formed for SWIFTOLD, and a joint staff was also set up in FORTLEX under the JTF (Inv.) commander at Fort Bragg, North Carolina. But the FORTLEX staff was severely hampered during the crucial early weeks of the planning phase by a shortage of officers to man the various staff sections. Although personnel needs were known late in September, it was mid-November before all sections were filled. During this period, planning was actually carried on, as an additional duty, by the staff sections of Headquarters, V Corps rather than by the staff sections of JTF (Inv.) and was thus largely unilateral rather than joint.[1]

The Air Force in particular was slow in furnishing officers for the JTF (Inv.) staff. This delay resulted from the fact that a number of the officers concerned were engaged in the operation of Tactical Air Command's Air Indoctrination Course II, held in September and October at Eglin AFB, Florida. A serious consequence of this situation was that the Air Force was not able to present its views on various important issues, such as the command structure for the exercise, until the final coordinating conferences were held.[2]

*See above, pp. 20-21, 53-54.

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and naval gunfire--was worked out in the fire support coordination center (FSCC), and the mission was ordered out. Control was exercised by the TACC or a Navy tactical air direction center (TADC), also aboard an AGC, over a tactical air direction net; and close-in control in the target area was handled by an airborne tactical air coordinator. Close-support aircraft, Air Force and Navy, were organized as support groups, which were held at orbit points off Vieques Island on air alert until called upon by the TADC to attack specific ground targets. Air Force support-group leaders acted as tactical air coordinators for their groups. For the Navy strike groups, the usual practice was to assign two aircraft to act as coordinators for all strike groups on a given mission.[60]

After the AFF assumed control of air operations, Air Force procedures governed the requesting and controlling of close-support missions. The ground forces forwarded requests over 3d Division artillery channels to the division FSCC. From the FSCC they were passed, by means of communications provided by the Army's 20th Signal Company, Air-Ground Liaison and the Air Force's 934th Signal Battalion,* to the JOC. If the mission was approved, coordination with artillery and naval gunfire was effected in the FSCC; and control was passed first to the TACC, then to the TADC, and finally to a TACP, which talked the aircraft onto the target.[61]

In any amphibious operation air defense is extremely important, and in Exercise PORTREX a major part of the air effort was devoted to this task. From D minus 7 through D minus 5 air defense operations in the objective area were controlled by tha AFF advance headquarters at Ramey through its TACC and TADC. The commander, advance and support force

*Normally, these communications are furnished by the Army. In this exercise the Army signal company set up the radio communications from the FSCC to the JOC, and the Air Force signal battalion installed the telephone circuits.

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exercised control during the period D minus 4-D minus 1 through his TACC on the Eldorado and through the control facilities at Ramey. When the commander, JAF (Inv.) assumed control of air operations on D-day, the objective area was divided into two 180-degree sectors for air defense purposes. In the western sector, control was handled by a TADC aboard the Eldorado, and in the eastern sector it was exercised by a TADC on the Mt. Olympus. Over-all control and coordination were performed through a TACC on the Taconic, flagship of the JAF (Inv.) commander. When control of air defense was passed ashore on D plus 2, the Air Force Forces' TACC replaced the TACC on the Taconic and controlled and coordinated air defense activity through Air Force facilities on Vieques Island and at Ramey and through Navy TADC's afloat.[62]

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In addition, Air Force personnel problems adversely affected planning by the J-5 Section (Communications) of the JTF (Inv.) staff. Just at the climax of the planning phase, the senior Air Force officer assigned to the section was directed to report for separation from the service (because of reduction in force), and a second Air Force officer was about ready to submit his application for retirement from the service. Not only did this situation hamper planning but it also meant that the experience gained by these officers would be lost to the Air Force.[3]

A further criticism of JTF (Inv.) planning can be made on the grounds that the composition of the joint staff was heavily weighted in favor of the Army. The Joint Chiefs of Staff directive for the exercise called for the formation of a joint staff, with "membership approximately divided in number and rank among the three participating services."[4] Despite this injunction 30 of the 44 officers in the five joint staff sections (J-1 through J-5) were drawn from the Army. The remaining 14 positions were evenly divided between the Navy and the Air Force. Although the Navy had only seven officers on the joint staff, one of the seven headed the important J-3 section. The remaining four sections were headed by Army officers. Thus the Air Force had only limited membership on the joint staff-7 officers out of a total of 44--and held none of the key staff positions.[5]

It is likely that the small Air Force representation resulted from the delay in sending officers to Fort Bragg for duty on the joint staff. Failure to secure any of the top staff jobs seems to have resulted partly from this delay and partly from the failure, when officers were assigned,



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to send officers of sufficient rank. The senior officer in each staff section was designated section chief. These posts went to three Army colonels (J-1, J-4, and J-5), to one Navy captain (J-3), and to one Army lieutenant colonel (J-2). Since the Air Force assigned no full colonels for staff duty and since its representative in the J-2 section was only a major, it was outranked in every section and was shut out of the top staff positions.

Although a joint staff was established for JTF (Inv.) planning, no such staff was organized for planning at the JAF (Inv.) level, where much of the detailed planning for POINTBLANK was handled. At this level, planning was unilateral, except for periodic joint conferences called to resolve major questions and differences. Since the planning staffs of the three services were widely separated geographically, this method was time-consuming and inefficient. Moreover, many staff officers working on plans for POINTBLANK were at the same time performing other administrative and operational duties. Planning at JAF (Inv.) level would have been much more effective if a joint staff had been formed or if the separate planning staffs of all of the services had been divorced from other duties and assembled at one headquarters. In advocating this latter arrangement, Admiral Wright, JAF (Inv.) commander, aptly remarked that although major problems could be settled by conferences, "only day by day discussions at all staff levels will produce the complete unity of purpose and integration of plans that a joint operation requires."[6]

The Air Force faced a somewhat similar difficulty in its own planning for POINTBLANK. Unfortunately, Air Force planning could not be carried out by one headquarters. Tactical Air Force (Provisional) [TAF (Prov.)] was

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merely an operational headquarters, and it had no tactical units. When it engaged in training exercises, it had to depend, for administrative and logistical support, on the numbered air force in the area in which it was operating. In the case of FORTALX this air force was the Fourteenth. Most of the administrative and logistical planning was done by the Deputy for Materiel Section of Fourteenth Air Force, at Robins AFB, Georgia. The distance between Robins and Pope AFB, North Carolina, headquarters of TAF (Prov.), caused delay and made it difficult to coordinate operational, administrative, and logistical plans.[7] It seems quite apparent that if TAF (Prov.) had had its own tactical units, with complete administrative and logistical control over them, if it had had, in other words, the resources to conduct the exercise under its own control, planning would have been immensely simplified.

The late entry of TAF (Prov.) into the planning phase of FORTALX was another hinderance to smooth and orderly Air Force planning. Because of its participation in Air Indoctrination Course II, planning by TAF (Prov.) was well behind that of the Army and Navy. To make up the time lost, TAF (Prov.) had to work under constant pressure. In preparing the final plan there was no time to publish an initial draft and then to issue the final plan, incorporating corrections. Instead, the final plan, constructed hurriedly and under pressure, was published first, and a series of corrections had to be added later.[8]

Tactical operation by the Air Force Forces (AFF) began with pre-exercise photo reconnaissance by the 162d Tactical Reconnaissance Squadron. The squadron turned in an outstanding performance during this period.

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Photo coverage of the eastern half of Vieques was considered excellent by the invasion commander, and the chief air umpire judged all sorties to be 100 percent effective. Despite the great distances between using units, distribution of prints by the Air Force was also creditably performed.[9]

In the pre-exercise phase and during the exercise itself, up until D-day, the photography furnished by the AFF enabled the invasion force to keep close track of the build-up of Aggressor defenses on Vieques Island. Of particular value in this connection were the photos showing the formidable defenses erected at Red and Blue Beaches and the extremely weak defenses at Yellow Beach. It was this information that led directly to the last-minute decision to make what proved to be a highly successful assault on Yellow Beach.* This incident clearly demonstrated the importance of photo coverage in an amphibious operation.[10]

Despite this favorable beginning, later reconnaissance operations and the reconnaissance effort in general were marked by a number of serious deficiencies. From D-day through D plus 2, while control of air operations was afloat, the value of Air Force photography was greatly reduced by the delay in delivering prints to the Navy. After the photo missions were flown, the exposed film had to be returned to Ramey AFB for printing. The prints were then delivered by dropping film canisters near the attack force commander's flagship. The whole procedure consumed from 8 to 10 hours, and the photos generally arrived too late to be of value, except for damage assessment and for study of changes well forward of the

*See above, pp. 82-83 .

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front lines. Usually the area of immediate interest had been overrun by the time prints were received by the attack force commander. To shorten the time-lag, it was recommended that photo planes, immediately after the mission was completed, drop the exposed film to the attack force flagship, where they would be developed and printed. By using this plan, employed successfully in World War II, it was believed that film could be ready for interpretation within one hour after a mission was flown, instead of the six or eight hours required in FORTEX.[11]

During the period D-day--D plus 2 there was also a falling-off in the quality of the photos taken by the Air Force. According to the attack force commander approximately 50 percent of the negatives of photos taken on D-day and later were underexposed, a condition he attributed to cloud cover and haze present over Iwo Jima Island when the missions were flown.[12] The 16ist Tactical Reconnaissance Squadron report indicates, however, that this poor photography may not have been entirely the result of bad weather conditions. This squadron was quite emphatic in its claim that the period D minus 4--D plus 2, when air operations were under Navy control, was characterized by improper handling of the reconnaissance effort. The squadron pointed out that the Navy controller "invariably" requested photography from the AF-30's flying a reconnaissance mission each morning from 0630 to 0730 hours. These requests were made in spite of the fact that there was insufficient light for photography at that time of day. The report calls these missions "failures,"[13] and it is likely that some of the underexposed negatives attributed by the attack force commander to bad weather were the result of unrealistic demands made by the Navy for early morning photography.

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Another complaint was that although visual reconnaissance is extremely important during a rapidly changing ground situation, far too little of it was called for while air operations were under Navy control. On many occasions 161st Squadron RF-80's waiting at an orbit point for a visual reconnaissance assignment orbited for their entire on-station period and were never called in on a target. In some instances when targets were assigned they were called in to the fighters only 5 or 10 minutes before their scheduled departure from the orbit point, and the missions could not be completed because of low fuel supply. The experience of the 161st Squadron was evidence of the need for better mission-planning and aircraft control techniques aimed at the elimination of wasteful orbiting by aircraft waiting for target assignments. Improvement in this record was felt to be especially important because of the jet aircraft's high rate of fuel consumption. Reconnaissance in joint operations would be more effective, the 161st Squadron also believed, if qualified Air Force representatives were made available at all levels where control was to be exercised to assist and advise on reconnaissance matters.[14]

Other shortcomings in reconnaissance operations were laid at the door of AFF Headquarters. When operations in the objective area began on Dramus 7, reconnaissance pilots were instructed in squadron briefings that when flying photo missions they should take all necessary evasive action and simul te combat tactics as much as possible. Naturally, photography taken under these conditions was of poorer quality than that taken in the non-tactical pre-exercise period. The reason for this drop in quality was explained to AFF Headquarters, but the upshot of the matter was that the 161st Squadron was requested to concentrate more on securing

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good photos than on following sound combat tactics. Therefore, on many missions aircraft were required to fly over a well-defended target several times at low altitude and low airspeed. If these missions had been attempted in combat, prohibitive losses would almost certainly have resulted. The 165st Squadron stressed the requirement for realism in reconnaissance training and added the truism that "there is little value in the reconnaissance mission which never returns."[15]

Exercise FOLLOW also revealed certain deficiencies in reconnaissance equipment. Because of the slow exposure interval on cameras used by the RF-80's, large-scale photography had to be flown at dangerously low air speeds. What was needed was a camera capable of much faster exposure intervals to conform with the high speed of jet reconnaissance aircraft. There were deficiencies also in night photo equipment. Because of lack of precision radar (AN/APQ-2), the RB-26's of the 162d Reconnaissance, Squadron, a night photo unit, could not operate in any actual night photo work. All such missions had to be simulated, and valuable training and experience was thus lost. In addition, this squadron was required to take motion picture and oblique photos despite the fact that its aircraft were equipped only for vertical photography. The poor results obtained reflected unfavorably on the squadron, and the missions were of only limited training value.[16]

Probably the most serious criticism of Air Force reconnaissance came from the Army Forces. In its final report on FOLLOW the Army Forces declared that after D minus 2 it had to abandon tactical air photography as a source of intelligence information because the battle area was too small to allow for proper exploitation of this medium by high-speed reconnaissance

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aircraft. In their place the Army Forces recommended the use of ground force organic light aviation (liaison type aircraft) for aerial observation, claiming that such aircraft would be "considerably better" than high-speed Air Force aircraft for discovery of enemy armor, truck columns, and troop movements close to friendly front lines. The report further claimed that the use of high-speed tactical aircraft for such purposes produced inaccurate information and that such information would have been even more unreliable if the aircraft had not had the well-defined northern coastline of Vieques Island to guide on.[17]

A sharp rejoinder to this point of view came from the JTF (Inv.) commander, General Hodge, an Army officer. Commenting on the Army Forces report, General Hodge first stated that the belief that the battle area was too shallow for operations by high-speed photo aircraft was not a sufficient reason for abandoning aerial photos as a source of intelligence information. In the second place, General Hodge strongly rejected the suggestion that Army organic light aviation take over aerial observation. In a passage that conforms so closely to Air Force doctrine that it might have come from an Air Force officer, General Hodge declared that:[18]

> The statement that light aircraft would provide a better platform than fast, armed, reconnaissance aircraft for aerial observation lacks proper consideration of enemy capabilities. There is no doubt that light aircraft contribute much intelligence information on activity and targets close behind the enemy lines. This, however, only touches on the broad requirement for aerial observation deep in enemy territory, which is accomplished by tactical air reconnaissance aircraft.
>
> The statement that aerial observation accomplished by tactical air was inaccurate and was dependent on well-defined terrain is not an acceptable conclusion. The problem of accurately locating enemy strong points, etc., is similar for an aerial observer whether in a slow or fast aircraft.

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Aerial reconnaissance deep behind enemy lines can be consistently accomplished only in a fast, well-armed aircraft, capable of defending itself and was done with great success in World War II.

In Exercise FORTUX itself there was considerable proof of the soundness of General Hodges's position. The 161st Tactical Reconnaissance Squadron found that even its relatively high-speed RF-80's were too slow to carry out their mission. The squadron discovered that the RF-80 was "hopelessly outclassed" by the P9P Thunderjet used by the Aggressor. In five missions flown during the first four days of the exercise, the RF-80's were attacked by P9P's, and six RF-80's were shot down. Such losses are to be expected when reconnaissance aircraft are unarmed, and slower than enemy fighters. Losses can be lowered if air superiority has been attained or if reconnaissance aircraft are escorted by fighters. Unfortunately, these circumstances do not always obtain; reconnaissance is required regardless of who has air superiority, and fighters are not usually available for escort. The answer lay, in the opinion of the 161st Squadron, in the development of a reconnaissance aircraft faster than enemy fighters and armed to defend itself if surprised and attacked at low altitude.[19]

The results of airborne operations in FORTUX present a contrasting picture of high success and dismal failure. Most of the success lay with the troop carrier effort, and most of the failure must be charged to the airborne landings and subsequent ground operations by airborne troops. Considered purely as a troop carrier operation, the D-day assault was generally excellent. According to the chief air umpire,* Lt. Gen. Ira C. Eaker (the

*The chief air umpire was Maj. Gen. Paul L. Williams. General Williams was exceedingly well-qualified to pass judgment on troop carrier operations, having commanded the troop carrier forces in every major airborne operation conducted in Europe during World War II.

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drop was made within two minutes of the scheduled J-hour), air discipline, formations, flight path over the ground, and slow-up for drop were, for the 27-plane infantry serial, nearly perfect. Paratroop "stick" exits were prompt and orderly and 90 percent of the troops landed within the drop zone (DZ). In this the major drop of the exercise, no inherent weaknesses were noted in any of the operational techniques used by the 316th Troop Carrier Group, and the chief air umpire was much impressed with its high degree of effectiveness.[20] Admiral Wright, the JAF(Inv.) commander, also praised the 316th Group for the precision with which it dropped the airborne assault troops,[21] and the chief ground umpire noted especially the superior navigation and the compact and excellently-spaced formation of the infantry serial.[22]

Up to this point only one hitch had developed in what was otherwise an unusually smooth operation. The chief ground umpire credited antiaircraft artillery with shooting down 6 loaded C-82's out of the 27 aircraft in the infantry serial, and 6 more were judged destroyed after they had dropped their paratroops. The six-plane artillery serial, which followed 15 minutes after the infantry serial, was charged by the chief ground umpire with the loss to antiaircraft fire of one C-82 before, and one after, the drop. Casualties for the two serials were set at 150 men.[23] The chief air umpire reported that in the whole operation nine C-82's were destroyed by antiaircraft fire, but he gave no breakdown by serial.[24] In any event, losses were severe; and if the chief ground umpire's figures are accepted, it is apparent that the first serial was especially hard hit.

These losses to the infantry serial were a portent of more serious trouble to follow. The drop by the artillery serial was only 20 percent

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effective. Part of the artillery and howitzers landed approximately 600 yards northwest of the DZ and in the midst of an Aggressor tank attack being directed at the paratroops from the first serial. This poor performance was attributed to faulty navigation, to a higher than normal drop altitude, and to winds that had increased from 8 knots during the infantry drop to 12 knots during the artillery drop.[25]

What transpired on the ground, from the time the troops from the infantry serial landed, is a story of misfortune and near disaster. To begin with, actual jump casualties were unusually high. Out of a total of 844 parachutists, 65 were so seriously injured as to require hospitalization, and 22 others had to be treated at the battalion aid station. The high percentage of casualties was attributed to the hard and irregular surface of the DZ; to surface obstacles, such as rocks and logs, especially in the drop area of the artillery troops; to thermal down-draft over the DZ; and to ground wind gusts and moderately high wind velocity.[26]

To the shock of the initial contact with the hard ground of Vieques Island soon was added the even rougher shock of contact with its defenders. The defence force commander had accurately foreseen the time, place, and size of the air drop; and when it took place as anticipated, he swiftly put into action a carefully prepared and rehearsed counterattack plan, combining the use of infantry, artillery, and tanks. Within 30 minutes after the first paratroops landed, the defence force had inflicted approximately 50 percent casualties. The loss of the airborne battalion's S-1, S-2 and S-3 officers, who were jump casualties, and the inaccurate drop of the artillery serial added to the confusion. Another complicating factor was the decision, made after the troop carriers were airborne, to

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delay H-hour for the amphibious assault one-half hour,* a situation which increased by one-half hour the time the airborne troops had to fight alone.

The upshot of the matter was that the assigned mission of the airborne battalion combat team--the seizure of hill mass 105, a group of interconnected hills rising 90 meters above the DZ--could not be accomplished. A combination of circumstances--losses to antiaircraft fire, the poor drop of the artillery aerial, jump casualties, strong enemy ground reaction, and the delay of the amphibious assault--doomed the operation to failure.[27]

The cause of much of the difficulty surrounding this operation was the condition and location of the DZ selected for the landing. Perhaps almost any DZ in the maneuver area would have contained natural obstacles that would have caused casualties, but it does appear that a sounder tactical location might have been chosen. Field Manual 71-30, Employment of Airborne Forces, which was in effect at the time of REFLEX, specifies that landing areas should be so close to the objective that the airborne troops can achieve surprise but that the area should, if possible, be beyond the range of enemy small arms fire. Actually, however, the airborne battalion dropped directly on the Aggressor outpost line of resistance and within small arms fire of the main line of resistance. The manual states also that the landing area should provide cover and concealment and that it should be selected so as to allow troops to take advantage of dominant terrain, covered routes of approach

*See above, pp. 82-83.

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to the objective, important road nets, and terrain favorable for defense against armored attack. However, among these specifications only the road net was present in the DZ selected for FORTRESS.[28]

It seems quite obvious then that the FORTRESS DZ was not an ideal one. In the exercise reports there is a great deal of comment on this point, but as to whether the planners could have chosen a better location there is considerable disagreement. The main argument given for the choice of this particular DZ was that given by Admiral Wright--that the terrain features and small size of the maneuver area made it necessary to select a DZ near the beach.[29] General Williams, the chief air umpire, also indicated that the small maneuver area was a factor, stating that this DZ was selected, in part "to reserve the limited maneuver area for subsequent post-D-day operations."[30]

On the other side of the picture, however, the chief ground umpire, in a long and detailed discussion of the airborne operation, was sharply critical of the DZ selected. Although he went one to cite safety precautions as a factor influencing the DZ choice, his criticisms strongly suggests that a more suitable area might have been found.[31] Fletcher Pratt, a prominent military analyst, writing in Harper's Magazine, stated flatly that although the paratroops themselves wanted to land in hill country well behind the beachhead, where they could disrupt enemy communications and where there was good ground for the landing, this spot was not chosen because it would have been out of sight of the bleachers where spectators and observers were seated. Instead, Pratt went on, the troopers came down on stony ground and in the midst of a complex of impressive defenses that in a real war would have wiped them out. "Publicity stunts,"

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said Pratt, "seldom err."[32]

The judgment of popular writers who do not have access to all the facts must, of course, be viewed with extreme caution. However, that there is a kernel of truth in Pratt's charge is indicated by General Williams' statement that one of the factors within this DZ the most appropriate one was that it was suitable "for spectator observation purposes."[33]

Further evidence that a better DZ could have been chosen is implied in General Williams' comment that the airborne and troop carrier commanders and staffs had little if any voice in the selection of the landing area and in his statement that the large number of jump injuries emphasized the need for establishing a definite procedure for selecting a DZ.[34] Such observations would have little meaning if because of the limited Vercouver area the planners had had no choice as to the location of the DZ, and it appears likely that more thought had been given to the airborne phase of the problem, a better spot for the landing could have been found.

Failure of the airborne operation after the drop can, in part, be traced to certain deficiencies in liaison and planning. Throughout the planning period for [redacted] the airborne battalion combat team (BCT) was engaged in full-time 82d Airborne Division training, and from 10-13 February the battalion was busy taking part in an Army Field Forces (AFF) test. Battalion staff officers were so busy with these other activities, particularly the AFF test, that proper liaison was not established with the 3d Infantry Division and with the 316th Troop Carrier Group.[35]

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Liaison between the airborne TCT and the 3d Division, which was scheduled to make the amphibious assault, was especially poor. The TCT commander made one visit to 3d Division headquarters, and the 82d Airborne Division sent a liaison officer there. However, this officer was not from the same regiment as the TCT, and he acted more as an airborne advisor to the division staff than as a liaison officer. Lack of effective liaison prevented the flow of intelligence information from 3d Division G-2 to the TCT. Up-to-the-minute intelligence on Aggressor strength and dispositions on and around the DZ was especially vital; but between 28 February, when Hq. TCT left Fort Bragg, and D-day it received no information of this type.[36]

Preoccupation of TCT staff officers with other training commitments also interfered with TCT planning for the exercise, much of which had to be carried on at night and on Sundays. These conditions made careful planning difficult and led to certain important weaknesses in the airborne plan. For example, the TCT operation order omitted any reference to the expected time and place of the link-up of the airborne force with 3d Division amphibious assault troops. This information was also left out of the assault troops' operation order. These omissions, coupled with the unexpected postponement of H-hour, which delayed the junction of the two forces, contributed importantly to the poor showing made by the airborne force. TCT-3d Division planning also failed to make proper arrangements for resupply of the airborne force. The airborne troops were dependent on the 3d Division for replenishment of their supplies, but because of poor planning and coordination there was no resupply of vital water and ammunition until D plus 1.[37]

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It is evident also that more care should have been taken to insure effective close air and naval gunfire support of the airborne troops. Marine ANGLICO parties and Air Force TACP's are important links in the machinery for requesting and controlling this support. ANGLICO parties and an Air Force TACP were attached to the airborne BCT, but they did not jump with it. Rather, they traveled to Vieques Island by ship, and the join-up with the airborne force on the DZ was carried out non-tactically. This arrangement was, of course, unrealistic; and it is noteworthy also that these parties had little opportunity to work with the BCT prior to the actual operation. Such joint training was limited to a short period of ANGLICO--BCT training at Fort Pierce. Better air and naval gunfire support would have resulted if TACP and ANGLICO personnel had jumped with the airborne force. Moreover, these teams should have been attached to the BCT during the planning phase to assist in the preparation of fire-support plans and to train with the airborne troops so that techniques and SOP's could have been developed and rehearsed.[30]

Summing up, it should be stressed that the purely troop carrier aspect of the airborne assault was by and large expertly handled. It was marred only by losses to antiaircraft fire, which can be attributed in part to the heavily-defended DZ, a DZ not of troop carrier choosing, and by the inaccurate drop of the artillery battalion. With these exceptions it was a superior Air Force performance, one that stood out in shining contrast to the near debacle that followed on the ground.

The most significant findings relative to fighter operations in FORTHAW are those that pertain to close support. Air superiority and

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interdiction missions were carried out with "considerable imagination and skill,"[39] and these aspects of FORTREX tactical air operations would seem to require no special attention here. However, in the case of close support of the assault landing and of the subsequent battle ashore the exercise revealed certain weaknesses and gave rise to certain misunderstandings meriting discussion and analysis.

Paradoxically, the direct close support of the D-day assault landing is notable because of its absence. In many of the World War II amphibious operations, and particularly in those carried out in the Central Pacific, bombing and strafing attacks on the beaches directly preceded the assault landings. Strafing usually began a few minutes before the assault troops reached the beach and continued right up to the time they touched shore. This important aspect of close air support was omitted from FORTREX.

In FORTREX there appears to have been a certain amount of misunderstanding concerning this point. The chief air umpire stated in his report that integrated air and naval gunfire preparation began at H-hour minus 150 minutes and continued throughout the landing of the first amphibious wave.[40] Air strikes, it is true, were conducted just before the assault, against targets inland; but no attacks were flown against beach defenses. The omission of so vital a means of close support at a critical juncture of the assault was not the result of error or oversight; it was deliberate. The decision to eliminate beach strikes was made by Admiral Wright, commander, JAT(Inv.), and General Clarkson, commander, assault troops, in consultation with their air advisers. Several factors

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influenced this decision. Prominent among these was the proximity of the airborne DZ to the beaches. It was believed that personnel and aircraft employed in the airborne operation that preceded the amphibious assault might be endangered by air strikes in the beach area. Aside from this consideration, it was apparent that both forms of attack--air and naval gunfire--could not be conducted against the beaches simultaneously. Attention was given, therefore, to such matters as the weight of pedal that could be delivered by each form of attack, the relative accuracy of each, and the ability for sustained action. Naval gunfire, it was determined, had the edge in these matters; and this conclusion, coupled with the fact that DZ and beaches were in close proximity, led to the decision to rely on naval gunfire rather than air.[41]

During the ground battle that followed the beach assault, close support was generally effective; the various control units functioned well, and coordination and accuracy of strikes improved as the exercise progressed. Although the over-all results were good, there were a number of important shortcomings. The average time from request to delivery of close-support strikes was 25 minutes, a figure that was considered excessive. Lack of training in air support and overloading of the tactical air direction net when it controlled two or more missions simultaneously tended to lengthen the interval between request and delivery. Much of the difficulty, however, can be traced to poor target designation and identification. In the main, poor identification by pilots stemmed from failure of the ground forces to mark or designate targets. A number of the standard methods of

[41] Most close-support missions were flown by support group aircraft called in from orbit points near the battle area. Thus aircraft were airborne and comparatively near their targets when requests were made.

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designation were marked. The front lines were not marked by panels; no arrows were used to point out targets; and there was no provision for designating targets with white shells fired by artillery. Because of these circumstances close-support aircraft frequently had trouble picking out targets and had to be re-briefed by control parties, a time-consuming process. This situation worked a particular hardship on jet aircraft, which because of their high rate of fuel consumption were limited in the time they could remain on station.[43]

The performance of Air Force TACP's also left much to be desired. Actually these TACP's saw only limited action in FLINTLOCK since, except for one part, that formed with the airborne TCT, they functioned only after control was passed ashore, late in the exercise, on the afternoon of D plus 2. Late that afternoon and until 0900 hours on D plus 3, when the exercise was concluded, a few pre-planned missions were controlled by Air Force TACP's, but only one immediate request mission was scheduled for Air Force TACP control, and before its execution that mission had to be reassigned to a Marine [illegible] TACP. Limited use of Air Force control parties, at least on D plus 2, was due to the fact that these parties were late in joining the ground units they were to support. These TACP's had moved to Vieques Island with the invasion convoy, but their join-up with the ground units, except in the case of the TACP attached to the airborne troops, was delayed until D plus 2. A [illegible] TACP's, on the other hand, had been present with the 3d Division units they supported for several weeks prior to D-day, and they were highly praised by the Army for their performance in this exercise. Similar praise was not forthcoming in the case of the Air Force TACP's, and it was largely their tardy

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link-up with Army units that prevented them from appearing in a more favorable light.[44]

Close support during IOTHAL also gave rise to a certain amount of controversy concerning tactical air doctrine. In his final report the JTF (Inv.) commander's J-3 officer, a Navy captain, argued that control of air operations should be partly decentralized below the field army--tactical air force level. This officer took the position that "for the purpose of detailed operations of fighter units with lower Army units, it is imperative that the power of decision as to the employment of particular squadrons or flights be decentralized to the headquarters of the unit being supported." Lower ground commanders, he went on, should be permitted "to make immediate decisions as to the most effective employment of aircraft available to them without recourse to a high level staff for approval."[45]

In reality, Air Force doctrine and control procedures do provide for a certain amount of such decentralization. When aircraft are on air alert or where there is an allocation of aircraft to a particular part of the battle area, lower ground commanders can exercise a degree of control. They can, for example, select the targets for these aircraft without first being required to secure high-level approval. The J-3 officer seems to have overlooked this prerogative of lower ground commanders, while at the same time he appears to have advocated giving such commanders an increased degree of authority over all tactical air used in their support. From the Air Force point of view it would seem that the recommendation made by this officer, if followed, might well lead to a chipping away of centralized control by the tactical air force commander. Moreover, the

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field army commander would likely lose a measure of control over requests for air strikes. Too much decentralization in these matters could prevent these commanders from using air flexibly and en masse throughout the tactical air force-field army area of operations.

One outcome was the proposal by the Army Forces commander, General Clarkson, that a flight of close-support aircraft be made available to each assault battalion.[46] The answer to this suggestion, and a sound one from the Air Force standpoint, came from the Army--from Clarkson's superior, the JTF (Inv.) commander, General Wedge. Striking at the heart of the matter, Wedge pointed out that the fulfillment of this recommendation would require a great number of aircraft and that "the greater need for employment of this valuable striking power for destruction of targets selected at division level and higher, plus the flexibility desired for mass employment on key targets, must receive first priority and cannot be against a 'piece-meal' assignment."[47]

Communications--an important key to success in combat--were only indifferently effective in Exercise [redacted]. Radio communications were plagued by an old nemesis--overcrowding of frequencies. There was far too much traffic on all the tactical control frequencies, and radios were almost constantly jammed with calls. To add to the confusion, Aggressor aircraft used some of the same frequencies being used by friendly forces. Many of the radio call signs were needlessly long and cumbersome. For example, on [redacted] mission was given the call sign "Graphic One-Zero-One-Alias-X-Ray," a collection of words that was hard to remember and difficult to say over the air, particularly in an emergency. Other control would

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have resulted if within the limitations of aircraft radio equipment each tactical air unit and each control agency in the objective area had been allotted a separate frequency and if each squadron had been assigned a simple, one-syllable or two-syllable call sign, with a mission number designated each day by the JOC.[48]

It was noted by the commander, AIB (Inv.) that radio communications used by combat air patrol (CAP) were also overloaded. Only three fighter air defense (FAD) nets were available, one each for the eastern and western air defense sectors and one for over-all control. Many interceptions were missed because of cluttered FAD nets. The limitations of aircraft radio equipment--USAF aircraft, for example, could operate on only two FAD nets--prevented the assignment of additional channels, and it was recommended that an air-ground radio be procured that would allow for at least nine FAD channels.[49]

The most serious deficiency in radio communications, according to the AIT, was the failure to establish reliable contact between the AIT at Ramey AFB and naval surface units in the objective area. When the Air Force's 934th Signal Battalion landed on Vieques, it used the same frequencies and was located, of course, in the same general area as the naval units, yet it had no trouble communicating with Ramey. This seemed to indicate that the difficulty lay with the type of equipment or antennas used aboard the navy vessels.[50]

To radio communications deficiencies can be added those in the field of radar. The siting, range, and coverage of early-warning radar on Vieques Island and at Ramey Field, Puerto Rico, were satisfactory. However, insufficient early-warning radar was provided for defense of Ramey.

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This coverage was limited to that furnished by the lightweight set at Loisy, which could cover only a small segment of the approaches to Ramey. It was evidently planned that some coverage could be given by the TADC at Ramey, but this installation could not function properly as an early-warning station because it was located at the target it was defending. In FORTREX an extremely high proportion of the air effort had to be expended on air defense. This protection was provided largely by aircraft on air alert. The establishment of more early-warning radar stations would have lessened the need for this uneconomical means of air defense.[51]

In addition to the difficulties experienced with early-warning radar, it was found that the TADC radar (AN/CPS-5), used for fighter control on Vieques Island, was not well-sited; and it was discovered also that all the Air Force radar sets used in FORTREX had a great deal of trouble tracking jets, especially in flights of less than four aircraft. In this latter regard the Navy had a similar problem; shipborne radars frequently could obtain no recognizable "pips" on F-84's even when these aircraft were operating at 18,000 feet, considerably below their most economical altitude.[52] From the experience of FORTREX it seemed obvious that there was a pressing need for the development of new radar equipment for land and sea control and detection of jet aircraft.

The shortcomings of radar equipment in FORTREX extended also to equipment used in ground-controlled interception. Here, the chief offender was the AN/APN-19 radar beacon, an identification device installed in the F-84's. The inadequacy of this set prevented the 20th Fighter-Bomber Group from making any successful interceptions during pre-exercise practice missions, and at no time during the exercise was radar-controlled

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interception effective. The difficulty lay partly in the AN/APN-19 itself. These beacons were installed hastily just prior to the 20th Group's departure for the exercise, and there was no time for proper testing. During the exercise the beacons worked only intermittently and could not be relied on for radar control. To further complicate matters, the 20th Group, at one point in the exercise, received faulty information as to the frequencies being used by the ground radar at the TADC, and as a result the AN/APN-19's were tuned to the wrong frequency. Part of the trouble, too, was that the TADC ground radar did not function properly and could not pick up the AN/APN-19 beacon. And still another cause of failure was the lack of knowledge of F-84 capabilities and limitations on the part of ground-radar control personnel.[53]

Important also in Exercise FORTRAN were certain Air Force logistic problems. Here, the major difficulty was the split in responsibility for logistic planning between the Deputy for Materiel, Fourteenth Air Force and the Deputy for Materiel, Tactical Air Force (Provisional) [TAF (Prov)].* This arrangement was not conducive to efficient staff planning. The distance separating these two agencies made the exchange of essential information difficult, and the divided responsibility for planning resulted in duplication of effort during the preliminary and advanced planning phases of the exercise. The division of logistic responsibility between TAF (Prov.) and Fourteenth Air Force also violated the principle that logistic planning for support of an operation in the field is an inherent and essential function of the tactical commander and his staff. Moreover, split responsibility denies to the tactical commander a single and direct

* See above, pp. 94-95.

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channel for reporting his decisions affecting logistic support and leaves him with no assurance that logistic plans will be adequate for the accomplishment of his mission in the field.[54]

It should be pointed out that this problem stemmed from the fundamental weakness of the organization for tactical air that obtained from late in 1948 until midway through 1950. TAF (Prov.) was without operational units of its own; for field exercises units were normally attached to it, and for logistic support it was completely dependent on the numbered air forces. TAF (Prov.) lacked even a deputy for materiel section. For FAMTAX this section had to be improvised; a provisional deputy for materiel section was formed in November, 1949 and was manned with communication personnel largely inexperienced in logistic matters.[55] All in all, this was hardly a satisfactory arrangement for logistic planning.

Fortunately, the structural weaknesses of the logistic organization did not result in any major Air Force logistic failure during the operational phase of FAMTAX. There were, however, certain logistic problems that merit attention. On the eve of the operational phase, all of the 31st Fighter-Bomber Group's F-84E's were grounded because of blowing trouble. This meant that the 20th Fighter-Bomber Group, the only other Air Force fighter-bomber unit engaged, had to take up the slack. As a consequence of this additional flying, 20th Group aircraft had to be kept more than normal out of commission both for maintenance and parts. Because of the long supply lines to the zone of interior, new replacement engines did not arrive at Furstenfeldbruck AB until the exercise was almost over, and the long delay resulted in a major reduction in the operational efficiency of the group. Of course, the grounding of 31st Group aircraft could not have

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[illegible] Korcelan, but the 20th Group felt that if there had been more "anticipation" on supply of important items such as radars, the Group could have made a better showing.[56]

A little more "anticipating" might also have prevented another important logistical weakness--the loading and landing of 502d Tactical Control Group personnel and equipment that went ashore on Vieques Island. Personnel and equipment for the TACC, AMTC, light-weight radar station, and TACP's were loaded aboard eight different ships of the invasion convoy. There was nothing even closely resembling combat loading for tactical control units, and as a result there was considerable delay in moving these units ashore. Equipment was widely scattered, and equipment required first for the TACC and AMTC was unloaded last. Personnel needed for setting up certain installations were not on the same ships as their equipment, while TACP's were separated from their ground units and could not join them until the maneuver was virtually over. The first 17 TACP's ashore carried no water supply and had to borrow from an infantry unit. There was also a failure to waterproof equipment. As a consequence, moisture in a 600-volt cable shorted out the AMTC's AN/CPS-4 radar set, and many man-hours had to be spent tracing the short circuit.[57]

Taken in sum, these shortcomings reflected the uncertainty, confusion, and delay that characterized logistic planning for JCAMEX. AIF (Prov.) noted that completion of the logistic annex to AIF operations plan 1-50 was impeded by constant changes in strength of personnel and in vehicular requirements--changes that involved reconstitution of logistic data. This annex, first published on 15 December 1949, was already out of date by 20 December; and it was not until 4 January 1950, approximately

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a month before D-day, that the final version was circulated.[53]

These changes, not all of which were of Air Force making, were particularly harmful to the orderly waterlift of Air Force units. TAF (Prov.) reported that a number of deletions and additions in the Air Force mission for the exercise caused changes in the number of personnel and amount of equipment to be waterlifted. And the chief naval umpire noted that many units requested that changes be made in loading and unloading plans after they had been agreed on by responsible staff echelons.[59] These matters are, of course, of joint interest and concern; and they call for early and coordinated joint logistic planning. To fix final responsibility for these difficulties on any one of the services would be unfair, for all were in some degree at fault. But the experience of [redacted] does illustrate the need, particularly in the field of logistics, for more foresight and care in the preparation of plans and for closer liaison among the services.

From the foregoing analysis it is apparent that Exercise [redacted] revealed a wide variety of Air Force deficiencies and weaknesses. The same was undoubtedly true for the Army and Navy components. However, this should not obscure the fact that by and large this exercise was the most successful of the joint amphibious exercises considered in this study. On the whole, [redacted] was far superior to [redacted] as a training device. The principal reason for this superiority was the strength, organization, and esprit de corps of the Aggressor force. The strong, skillful, and determined opposition provided by this force added greatly to the realism of the exercise and made possible a close approach to conditions of actual combat.

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During operations at sea and during the fighting ashore the Aggressor performance was especially effective. In [redacted] and 32 [redacted] there was no actual Aggressor naval action against the friendly forces. In [redacted] the movement of the invasion convoys to Vieques Island was opposed by a powerful Aggressor submarine force and by large numbers of patrol aircraft, and heavy losses were sustained by both sides.

Particularly effective was the work done by Aggressor submarines. About 50 surface vessels were sunk or put out of action during the voyage to Vieques; and in the space of 60 minutes on the morning of D-day, Aggressor submarines sank an amphibious force flagship, an attack transport, and an oiler and put out of action a light cruiser, an oiler, and a minesweeper. In addition, the battleship Missouri took two torpedo hits, which inflicted 20 percent damage.[60]

It was the opinion of the Aggressor commander that the high number of sinkings by his submarines and aircraft might well have aborted the invasion.[61] The Navy admitted the seriousness of these losses, but it did not consider the total losses or the exercise to have been prohibitive. With regard to submarine operations the Navy pointed out that almost as many submarines as surface vessels were sunk or put out of action. Observers and newspaper reporters, the Navy claimed, tended to stress surface vessel losses and to ignore submarine losses. Actually, according to the Navy, the ratio of losses during the movement to Vieques (50 surface vessels to 13 submarines) was an indication of progress in the anti-submarine warfare field.[62] Regardless of which estimate--that of the Aggressor commander or that of the Navy--was correct, there can be no doubt that the battle at sea was marked by stout and resourceful action by the Aggressor forces.

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Although the Air Force turned in its customary performance during the battle at sea, the high point of the entire exercise was the conduct of the ground defense of Vieques Island. On the ground the opponents in FORTEX were much more evenly matched than they were in the other exercises. In [illegible] the opposition ashore was furnished by a small number of engineer troops, who made extensive use of pyrotechnic devices and explosives. In [illegible] there was no actual ground maneuver, and extensive simulations were necessary. The ground opposition in FORTEX, on the other hand, consisted of three battalions of infantry, one tank battalion, a field artillery battalion, and two battalions of antiaircraft artillery. Heavy weapons were used only for purposes of deception, as they would be in combat; and no fire cover was allotted to any weapon not physically present.[63]

To defend the island, the Aggressor forces constructed powerful and elaborate beach fortifications. A Life magazine story on FORTEX made reference to "devilish beach obstacles" and quoted a naval officer as saying that "Iwo Jima would have been a safe place on D-day. Nobody would have got near it."[64] Fletcher Pratt, in Harper's Magazine, claimed that the obstacles built by the Aggressor forces demonstrated that "the Japanese type of defensive engineering, which made such formidable nests of barrack and fire, has been developed far beyond that it was in Japanese hands." Pratt stated also that although the umpires believed the landing force would have been cut to pieces trying to breach those defenses, they ruled that about half the obstacles were blown up by naval gunfire, the reason for the ruling being that they "had to ascribe the dream to something or call off the war."[65]

These popular accounts are a mixture of truth and exaggeration. The

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official reports of the exercise offer ample evidence of the potency of the defenses erected on Vieques. But certainly the Navy did not feel that they were impregnable. The Navy took these strong defenses into account when they prepared their fire plans, and fires were increased for the express purpose of neutralizing the beach fortifications. The invasion force J-3, a Navy officer, believed that strong as these defenses were, the tremendous amount of naval gunfire employed in softening-up operations would, in large part, have destroyed them. Lack of understanding by all the services of the full power of naval gunfire, he said, made it difficult to obtain proper assessments of damage. Similarly, Admiral Wright, the JAF (Inv.) commander, attributed much of the trouble at the beach barriers to the umpires' "completely unrealistic" damage assessments.[66]

Because all gunfire was simulated, there can be no final answer to this dispute between the Navy and the umpires. But that the defenses were exceptionally strong is hardly open to controversy. Maj. Gen. Ray L. Porter, commander of the Army component of the Defense Force, stated at the critique that the defenders of Vieques had constructed the most extensive and most realistic defensive works ever built by American troops in a training exercise.[67]

Throughout the fighting ashore the defense was conducted with great skill and imagination. Speaking at the critique, Lt. Gen. LeRoy P. Hunt, USMC, the chief umpire, paid Brig. Gen. Edwin L. Sibert, commander of the Army defense task force, an unusual tribute. General Hunt called the job done by General Sibert, who was directly responsible for the ground defense of Vieques, "the finest piece of peace-time training I have seen in my entire career."[68] Even in a critique that was high praise indeed, and the

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record on the exercise indicates that it was well-deserved by General Shepherd and by those who led.

In the air also the defending forces furnished very stubborn opposition. Navy patrol aircraft effectively carried out the important task of tracking and attacking invasion convoys en route to Vieques. In the objective area Marine Air Group Fifteen (MAG-15) did an outstanding job. With 24 F4U's, 12 F7F's, and 16 F-47's,[3] MAG-15 was potent enough to furnish extremely vigorous opposition for the Air Force and Navy air operating with the invasion force. The aircraft air umpire was especially high in his praise of the record made by this unit. Particularly notable was the success it enjoyed in interception operations. Out of a total of 20 strikes by invasion air against MAG-15's base at Ponce with loads, 20 were intercepted.[69]

This performance, it should be added, stands out sharply when compared to the difficulties that plagued invasion air in conducting similar operations. As has been indicated, interception of Aggressor aircraft by Air Force and Navy air was hampered by deficiencies in radar equipment and by the inexperience of personnel.[4] MAG-15, on the other hand, reported that its radar units functioned almost perfectly. This success was attributed to the efficiency of Marine Ground Control Intercept Squadron Seven and to "fine maintenance of radar equipment."[70]

MAG-15 also performed creditably during the closing battle for air superiority in the objective area. This struggle was won by invasion air by D plus 4, and the Aggressor air capability was further reduced after that date, by umpire action, to insure a high degree of air superiority

[3] The F-47's were from the Puerto Rican Air National Guard's 198th Fighter Squadron, which was attached to MAG-15 for the exercise.

[4] See above, pp. 114-16.

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for the attackers on D-day. The decision to grant air superiority to the invaders on D minus 4 was based on their initial numerical superiority and on losses inflicted on the Aggressor during the period D minus 7-D minus 4, but the later reduction in Aggressor strength was evidently an arbitrary action by the umpires.[71]

Within the limitations imposed by these circumstances, 44-15 continued to offer stern resistance throughout the balance of the maneuver. Indeed, this unit was still full of fight after the exercise, when it prepared its final report. 44-15 was unhappy, and almost bitter, about losing the air "war." The unit felt that the umpires' method for determining losses was "unfair and unreasonable" and that it neglected to take into account such factors as surprise, direction and altitude of attack, and failure to take defensive action. The group claimed also that umpire regulations overemphasized numerical superiority, that they stressed quantity and underestimated the value of quality. Because of the regulations, said 44-15, "our aircraft suffered losses which nullified the excellent work of the Ground Control Intercept Squadron, the capabilities of our aircraft, and the aggressiveness of our pilots."[72]

This blast may indicate merely that 44-15 was a poor loser, reacting like the ball player who blames his troubles on the umpire. But taking a more charitable view, it should be recognized that the hard loser is often a hard loser because he is a fighter and that the man or unit that hates to lose often refuses to be beaten. Usually, training exercises are so rigidly controlled, so cut and dried, that the rivalry and competition that broad morale and esprit de corps are lost somewhere in the shuffle. 44-15's attitude may have been unsportsmanlike, and certainly its report ignored

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the fact that normally the weather rules worked an equal disadvantage on both sides, but in another sense this attitude was a healthy one. It seems to have stemmed from the high morale and determination to win that was characteristic not only of this unit but of the entire Aggressor force. These qualities, taken in conjunction with the high degree of technical proficiency this force displayed, contributed greatly to the success of Exercise RED FLAG.

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Chapter V

THE PROBLEM OF COMMAND IN JOINT AMPHIBIOUS OPERATIONS

This study has thus far only touched on what is perhaps the most significant problem relating to the conduct of joint amphibious operations--the problem of command. In general, the joint amphibious exercises considered in this study were carried out in an atmosphere of harmony and cooperation, and no claim is made that inter-service differences jeopardized the success of any of these undertakings. Nevertheless, there is evidence that during the planning phase of each of the exercises there was a fundamental disagreement between the Air Force and the Navy over the matter of command relationships as they pertained to control of air.[1] In each instance an agreement was reached on command structure, but from the Air Force point of view these exercises produced nothing approaching a sound solution to the problem.

Despite the concerted effort of the Joint Amphibious Board, which has been wrestling with this matter since 1951, it remains unsolved. It is believed that a discussion of command relationships as they were worked out in these exercises may shed some light on this complex and continuing problem.

The controversy between the Navy and the Air Force over command stems from certain basic doctrinal differences. According to Navy doctrine an amphibious operation is carried out by an amphibious task force or, if forces of two or more services participate, by a joint amphibious task



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force. The Navy holds that the commander of this force is always a Navy officer. It should be pointed out also that the Navy joint amphibious task force is not ordinarily organized in accordance with the principles of unified command. Under a unified command structure the over-all commander exercises command through the commanders of the Army, Navy, and Air Force components of the joint force, and he normally does not command his own service component. A Navy joint amphibious task force commander may, however, and often does, also command the Navy component. Since the Navy joint amphibious task force is not usually under unified command, its commander is allowed considerable latitude in exercising direct control not only over the Navy component but over all components of his command.

As it pertains to air, the Navy joint amphibious task force concept places control of all air (Navy, Marine, and Air Force) in the objective area during an amphibious operation under the joint amphibious task force commander--a Navy officer. This officer exercises over-all control through his tactical air commander (Navy), a staff officer. Usually the actual amphibious assault is carried out by a naval attack force (or forces), consisting chiefly of assault shipping and fire-support vessels. Embarked on the assault shipping of the attack force is a landing force, composed of the amphibious troops that make the assault. Command at this level is normally vested in the attack force commander, a naval officer. It is important to note that although responsibility for over-all control and coordination of air operations remains with the joint amphibious task force commander, he may--and usually does--allocate to the attack force

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commander control of air in the landing area of the attack force. If more than one attack force is employed, each attack force commander exercises control in his area of responsibility. In other words, control of air may be apportioned to the commanders of subordinate task organizations of the joint amphibious task force. It is significant also that when the amphibious troops commander establishes control facilities ashore, control of air is passed to him by the joint amphibious task force commander. Thus, according to Navy doctrine, control of air passes from a surface commander afloat to a surface commander ashore.

The crux of the Navy position relative to control of air in an amphibious operation is that air power is subordinate to surface power. Air power has no special or independent status; it is merely one of several supporting weapons made available to the surface commander and controlled by him. As was pointed out above, the Navy does not believe in unified command at the joint amphibious task force level, but it does believe very strongly that there should be unity of command, that the joint amphibious task force commander, and subordinate surface commanders within their zones of responsibility, should have direct control of all supporting weapons, including air. At each level of command there is complete integration of air power with surface power (sea and ground) under a single surface commander, an arrangement the Navy has called the "sine qua non of successful amphibious assault operations."[2]

This summary of Navy doctrine has been drawn chiefly from two Navy manuals on amphibious operations--United States Fleets (USF), 6, Amphibious

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Warfare Instructions, published in 1946, and NWP 66, Tactical and Operational Instructions, Amphibious Forces, published in 1947.* The doctrine set forth in these manuals was derived largely from the Navy's World War II experience in the Central Pacific, and it was this doctrine that governed the command structure for the amphibious phase of each of the exercises considered in this study.

The writer who for the period of these exercises (1946-1950) attempts to outline the Air Force position on command in joint amphibious operations is handicapped by the absence at that time of an Air Force manual or even of any official Air Force stand on this subject. It is evident, however, that Navy doctrine ran counter to certain well-established Air Force precepts developed as a result of World War II experience. Field Manual 100-20, "Command and Employment of Air Power," published in 1943, and Field Manual 31-35, "Air-Ground Operations," first issued in 1942 and revised in 1946, stressed the concept that air power is not subservient but is coequal with land power. In addition, Field Manual 100-20 stated that to exploit the inherent flexibility of air power and to facilitate its employment en masse, "control must be centralized and command must be exercised through the air force commander." Both manuals were concerned chiefly with air-ground relationships in the land battle, but it it important to note that the basic principles they enumerated also governed, as a general rule, the amphibious operations conducted in

* These manuals have been superseded by Naval Warfare Publications (NWP) 22, Amphibious Operations, published on 2 January 1953. The latter manual does not alter the basic doctrine contained in NWP's 6 and 66. NWP 22 does substitute the term joint amphibious task force for the term joint expeditionary force found in the earlier manuals. Both terms were in use during the period of this study, but the more recent designation is being used in this discussion.

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Europe and in the Mediterranean during World War II. Air's coequal status, the centralization of control, and the exercise of control through the air commander in those theaters furnished a firm basis for Air Force opposition to Navy doctrine.

It was not until September 1953 that the Air Force finally produced a manual on amphibious operations.* Prior to that time, and of course during the period of this study (1946-1950), there was no authoritative Air Force stand on this subject, a fact that makes it impossible to state flatly what the Air Force position was relative to the various aspects of Navy doctrine outlined above. Nevertheless, using the World War II experience in Europe and the Mediterranean and manuals 100-20 and 31-35 as a basis, Air Force officers who were forced to come to grips with this problem could and did oppose certain principles espoused by the Navy. It will presently be shown that in the case of joint amphibious exercises this opposition was largely ineffective, but it is important to consider what was at least the tentative Air Force position during the period when these exercises were being conducted.

The key principle in this Air Force position was that air power must not be subordinated to surface power, either naval or land. Because of this conviction the Air Force stressed the necessity for unified command in amphibious operations. A joint task force/ commander, the Air Force believed, could be selected from any of the three services.

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* Air Force Manual 1-5, "Air Operations in Conjunction with Amphibious Operations" (1 September 1953). This manual was later revised slightly and declassified. The later version bears the date 1 April 1954. See App. 7.

/ Generally, during the period of this study, the Air Force used the term "joint task force" in place of the term "joint amphibious task force" used by the Navy. See below, p. 133n.

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This officer would command the service components (Army, Navy, and Air Force) not directly but through the respective component commanders. Thus the joint task force commander would not be in direct control of air. All air--Air Force, Navy, and Marine--would be placed under the air component commander, who would be coequal with the surface component commanders. In contrast with Navy doctrine there would be no transfer of control from one surface commander afloat to another surface commander ashore. Under the unified over-all commander, control of air would be centralized in one man--the air component commander--who would exercise control from start to finish of the operation.[3]

In accordance with basic Air Force concepts regarding the command and employment of air power, such an arrangement, the Air Force believed, would preserve the coequal status of air; by providing for centralized control in the hands of the air commander it would make possible maximum flexibility and economy in the use of air, and it would facilitate the rapid concentration or massing of all air striking power against a specific target. This arrangement would eliminate certain key features of Navy doctrine which the Air Force believed militated against these basic principles--direct control of air by a Navy joint amphibious task force commander, parceling out of control to subordinate attack force commanders, and passing of control from one surface commander to another surface commander during the progress of an operation.

From the foregoing analysis it is quite apparent that the Navy and the Air Force, during the years 1946-1950, were in fundamental disagreement over command relationships for amphibious operations, and it was these divergent views that underlay the controversy over command in the joint

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amphibious training exercises held during these years. So far as the exercises themselves were concerned, this dispute appears to have flared up only briefly during the planning. Agreement was reached without bitterness or recrimination; and in each case, once the command problem was settled, relationships between the two services, throughout the exercise, were friendly and harmonious. It is believed, nevertheless, that the serious and still unresolved differences between the Air Force and the Navy over this matter make an examination of the command structures that governed these exercises desirable and necessary. The approach here will be to analyze the command structure for each exercise against the background of doctrinal differences outlined above; to indicate the extent to which Air Force doctrine was violated; and where this was the case, to present some observations as to why the Air Force accepted a command structure that ran counter to its views.

In each of the exercises considered in this study--[redacted], SWIMMER, and [redacted]--the command relationships as they pertained to control of air during the amphibious phase followed Navy rather than Air Force doctrine. For each exercise a joint amphibious task force structure was established; and in each case, so far as control of air during the assault phase was concerned, the joint amphibious task force commander, in accordance with Navy doctrine, controlled all air in the objective area. With respect to control of air the joint amphibious task force commander was not a unified commander; control was exercised not through the air component commander but by the joint amphibious task force commander through his tactical air commander (Navy) afloat.

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In Exercise MOUNTAIN GOAT control of air during the amphibious phase was exercised by Rear Admiral A. D. Struble, the Joint Expeditionary Forces (joint amphibious task force) commander, through the commander, Tactical Air Control Squadron One, who was the tactical air commander (Navy).[4] A similar arrangement for control of air obtained in Exercise SEMINOLE. Control during the assault phase was carried out by Rear Admiral R. O. Davis, commander of the Joint Expeditionary Force (joint amphibious task force) "through his tactical air commander (Navy) afloat."[5] The command structure for PORTREX, as it pertained to air, was somewhat more complex. The Joint Task Force (Invasion), a unified force under an Army commander, conducted the over-all operation. Within this joint task force a joint amphibious task force--the Joint Assault Force (Invasion)--was formed to carry out the amphibious attack.* Rear Admiral Jerauld Wright, the Joint Assault Force (Invasion) commander, controlled all air in the objective area during the amphibious phase. Control was exercised through Admiral Wright's tactical air commander (Navy), Rear Admiral R. E. Blick.[6]

* It should be noted that for most of the period of this study (1946-1950) the terms "joint task force" and "joint amphibious task force" were used to describe the same organization--the task organization formed to carry out an amphibious assault. In Exercise MOUNTAIN GOAT and SEMINOLE, for example, this was the only organization involved; and during this early period these terms could be and were used interchangeably. (See Air University, Air Command and Staff School booklet titled "Joint Procedures for Tactical Control of Aircraft in Joint Amphibious Operations," printed 13 Feb. 1947; reprinted 27 Oct. 1947 and 15 Mar. 1948.) For Exercise PORTREX (1950), however, these terms describe separate organizations; the "joint task force" was the over-all command, and the "joint amphibious task force" was the subordinate echelon which made the amphibious assault. Before PORTREX, when only one organization was involved and air forces were assigned to it, the Air Force position was that this organization should be set up as a unified command, regardless of the term used to describe it. Since PORTREX the Air Force has taken the position that when a "joint task force," or "joint force" as it is now called, is established, it will include air forces and must therefore be a unified command. However, the Air Force believes that the subordinate echelon--the "joint amphibious task force"--need not be a unified command, since according to present Air Force doctrine air forces are not assigned to the "joint amphibious task force," which is considered to be purely a surface force. Current Air Force doctrine holds that air forces may operate in conjunction with but not as part of a "joint amphibious task force." (See Appendix 7 for a more detailed explanation of present Air Force doctrine for amphibious operations.)

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In none of these exercises were air operations in the objective area during the amphibious assault controlled through an air component commander, as called for in Air Force doctrine. Control was enforced by a joint amphibious task force commander through a Navy air officer on his staff--the tactical air commander (Navy)--rather than through an air component commander on a coequal footing with the naval and ground component commanders. In each of those exercises there was an air component commander, but he did not control air in the objective area during the amphibious assault phase. Air force air, like Navy and Marine air, was considered to be just one of the supporting weapons made available to the surface (Navy) commander, and it was completely subordinated to him during assault operations.

In two of the three exercises there was also a certain amount of decentralization or parceling out of control of air while it was in Navy hands. In Exercise MOUNTAIN GOAT, although over-all direction was vested in the Joint Expeditionary Forces commander, it appears that actual control in the assault area was delegated by him to the attack force commander. Control was not exercised from the Joint Expeditionary Forces' flagship, the Eldorado; it was carried out aboard the Lt. McKinley, flagship of the commander, Amphibious Group One, who was the naval attack force commander. The Navy's Tactical Air Control Squadron One, which controlled all aircraft in the objective area during the afloat phase, was located not aboard the Eldorado, but on the Lt. McKinley, where, it may be presumed, the squadron was directly subject to the authority of the attack force commander. A further indication that the attack force commander was in actual control is the fact that it was this officer,

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and not the Joint Expeditionary Forces commander, who was explicitly charged with responsibility for air defense during the amphibious assault.[7]

In Exercise SEALORDS, on the other hand, it seems clear that control of air was retained by the Joint Expeditionary Force commander. Control was exercised by Tactical Air Control Squadron Two, aboard the expeditionary force flagship, the Taconic. The attack force commander, on the Lt. Olympus, was given control of the entire ship-to-shore movement, but his orders expressly stated that this control did not include control of air and naval gunfire support.[8]

There can be no doubt, however, that in Exercise PORTEX control of air operations in close support of the landing was delegated by the Joint Assault Force (Invasion) commander to the attack force commander. Air defense control was retained by the Joint Assault Force (Invasion) commander, aboard his flagship the Taconic; but his operation order specifically states that "Prior to H-Hour on D-Day the control of air in direct support of the Amphibious Landing and of troops ashore, will be passed to Commander Amphibious Attack Force . . . in Lt. Olympus."[9] Beginning on D-day and continuing until late on D plus 2, the direction of the photo reconnaissance effort was also vested in the attack force commander.[10]

In LCOTLL GOLF and PORTEX, then, it is evident that while the Navy was in control of air, control was to a certain extent decentralized. It is true that the joint amphibious task force commander retained overall control, but control of certain air operations was apportioned to subordinate surface commanders within the joint amphibious task force.

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This practice was contrary to Air Force doctrine, for from the Air Force point of view it represented a parceling out of control. Such an arrangement was in accord with the Navy principle of integrating control of all supporting arms at each level of command; on the other hand, this procedure ran counter to the Air Force tenent that control of all air should at all times be integrated or centralized in the air component commander.

Inconsistent with Air Force doctrine also, in all of these exercises, was the passing of control of air from one service to another while operations were in progress. This passing of control was the natural result of awarding control of air to the Navy during the amphibious phase. Actually what was done during the planning phase of each of these exercises was to effect a sort of compromise, giving control to the Navy during the amphibious phase and to the Air Force during the ground phase that followed. The passing of control from one service to the other during the progress of the operation was the inevitable consequence of this compromise.

Such passing of control violated the Air Force principle that control should remain in the hands of one commander--the air commander--from beginning to end of an operation. Control throughout by the air commander, according to Air Force thinking, gives to air operations a smoothness and continuity that are lacking when control must be passed back and forth between the services. Certainly, these training exercises lacked continuity of control. In Exercise MOUNTAIN GOAT control was passed only once--from the Navy commander afloat to the AAF commander ashore on D plus 1.[11] Control was passed from one service to the other on two occasions during Exercise SHARPSHOOTER. In the first instance the passing

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of control was simulated. It was assumed that from the time the attack force left San Jacinto Ordnance Depot, Texas, on D minus 5, until it reached a point 20 miles off Galveston, control of all aircraft was vested in the Air Force commander. It was further assumed that when the convoy reached that point, on D minus 2, control was passed to the Joint Expeditionary Force commander.[12] Control was retained by him until 1630 hours on D plus 1, when it was actually passed to the Air Force commander ashore.[13]

In FORTREX control of air changed hands three times; twice it was passed back and forth between the services, and once it was passed from one Navy commander to another. From D minus 7, when air operations in the objective area began, until D minus 4, control was exercised by the Air Force commander. On D minus 4 he passed control to the commander of the Navy advance and support force. This officer controlled air until D-day, when he passed control to the Joint Assault Force (Invasion) commander, also a Navy officer, who continued in control until the afternoon of D plus 2. At this time the third change in control took place--the passing of control from the Joint Assault Force (Invasion) commander to the Air Force commander ashore.[14]

Needless to say, if Air Force doctrine had prevailed and all air from start to finish had been controlled by the air component commander, this break in the continuity of control in all of these exercises would not have been necessary.

As was pointed out above, this passing of control was the result of a compromise during the planning phase of each of these exercises, a compromise which divided control between the two services. But a com-

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the progress of an operation.

The question that naturally arises is why the Air Force accepted a command structure for these exercises consistent with Navy doctrine but inconsistent with its own. From the foregoing summary it might appear that the Air Force officers who took part in the joint planning conferences that dealt with this problem simply surrendered to the Navy. Unfortunately the reports of these exercises omit the details of this controversy, but there is some evidence to support the view that Air Force commanders and staff officers directly responsible for the planning were not guilty of outright capitulation.

The command structure for each of these exercises was to some extent dictated by agreements or stipulations that were made prior to the time the Air Force entered the planning. Exercise MOUNTAIN GOAT was a part of the Army Ground Forces (AGF) 1946 amphibious training program, and before the planning conferences that determined the command structure were held, there was an agreement between the Navy and AGF that Navy Central Pacific doctrine, as set forth in Navy manual Ops C, would serve as "the basis for joint amphibious training on the Pacific Coast during the calendar year 1946."[15] That there was such an agreement is implied in the statement at the critique by General Old, Twelfth Air Force commander, that during the amphibious phase of the exercise "we were to be guided by . . . Ops C."[16]

During the early planning for [redacted], before joint planning got underway, Brig. Gen. L. C. Lockwood, Jr., Assistant Chief of Staff G-3 of Fourth Army, wrote a memorandum stating that most of the detailed

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planning for the exercise would be done by the Navy since "under the existing agreement between the Army and the Navy, the naval commander commands and controls the entire expeditionary forces from the time the troops embark until they have been landed and the Army commander has advised the naval commander that he is prepared to assume command ashore."[17] The substance of this "agreement" was consistent with Navy doctrine as contained in NWP 6, and exercise reports make it clear that it was this manual that governed the command structure for the amphibious phase of the exercise.[18]

At the very inception of Exercise POLARLEX, Navy doctrine was placed in a preferred position. The Joint Chiefs of Staff (JCS) directive initiating the exercise stated that the doctrine contained in NWP 6 and other Navy manuals, "unless superseded by approved joint doctrine prior to 1 October 1949, will serve as a guide for the amphibious training and for the conduct of the overseas movement and amphibious phase of the operation."[19]

It is possible to conclude, then, that to some extent Air Force planners in each of these exercises were confronted with a fait accompli so far as the doctrine governing the command structure was concerned. In none of these exercises, however, was a discussion of doctrine and command relationships ruled out because of any prior agreement or stipulation on these matters. Moreover, the Navy--AAF agreement affecting JCS 1844/1 would not have been binding on the Army; and there is no evidence that the Air Force, which had achieved independent status several months

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before Guadalcanal, was bound by the Army-Navy agreement that concerned this exercise. It should be pointed out also that the JCS directive for HUSKY allowed for some leeway when it stated that Navy doctrine would serve as a "guide." This directive did not flatly state that this doctrine would govern; also, indeed, despite this directive the command structure for HUSKY was drawn up in planning conferences marked by prolonged debate over this problem.[20]

The position of Air Force spokesmen at joint planning conferences may have been weakened by these early agreements or stipulations, and for that reason these officers should not be judged too harshly. But the fact remains that in each case there was a discussion of command structure as it pertained to control of air; in each case a final agreement on this point was reached in a joint planning conference; and in each case the Air Force planners, however grudgingly, put their stamp of approval on a command structure for the amphibious phase in harmony with Navy, rather than Air Force, doctrine.

How, then, if the question of command structure was open to argument, did the Air Force find itself in the position of accepting the Navy view? For none of these conferences is a detailed account available that might provide answers to this question. It is likely, however, that the answers do not lie in what went on at these meetings, but rather that they are to be found by examining certain other considerations.

In the first place, the Army in Southern Command and the Air Force in HUSKY were late in entering the planning, and thus their views on command structure could not be adequately presented. With regard to

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HQUSAFE CofS, Tactical Air Command complained that it was not notified or asked to take part from the beginning of the planning and that its participation " was added as an afterthought to already partially completed plans involving Army, Navy, and Marine elements."[21] This criticism was directed primarily at the Navy, but in exercise FOTLEX the Air Force itself was largely to blame for the fact that it was not fully represented during the early planning.* Failure to assign officers of sufficient rank to the joint planning staff and the fact that those officers who were detailed to this duty were late in reporting put the Air Force in a poor bargaining position.† In this latter regard General Hodge, the Joint Task Force (Invasion) commander, made the significant comment that because of the tardy arrival of Air Force staff officers, the Air Force was not able to present "comments and recommendations on very important issues, such as those affecting command structure, until the final coordinating conferences were held."[22]

More significant, it would seem, was the lack of an official Air Force position on amphibious doctrine. With the publication of Air Force Manual 1-5, "Air Operations in Conjunction with Amphibious Operations" (1 September 1953), the Air Force finally set forth, authoritatively and precisely, its views on this subject.†† Before the issuance of this manual, and of course during the period of these exercises, Air Force

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* See above, pp. 92-94.
† See above, pp. 93-94.
†† See Appendix 7.

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officers, in discussing with the other services problems of doctrine and command structure for amphibious operations, were seriously handicapped by the absence of the any official Air Force doctrine for amphibious warfare.

Following World War II the wartime experience of the AAF and the Army was used as a basis for the revision of Field Manual 31-35, "Air-Ground Operations." But the AAF, after the war, passed up the opportunity to nail down in official form what it had learned about amphibious operations. Possibly the AAF, immediately after the war, delayed work on a manual for amphibious operations in the belief that such a project should await the creation of an independent air arm. Still, in the period between the end of the war and the passage of the National Security Act of 1947 (unification act), the AAF, even without publishing a manual, could have set forth an official position. If this had been done, the officers engaged with the Navy in working out command relationships for Exercises [redacted] would have been on much firmer ground. After unification this project still lay dormant, and during the planning for POWER X, two years after unification, Air Force officers faced the same handicap as had their predecessors. In all of these exercises, Air Force planners, lacking official guidance on doctrine, were compelled to deal with the Navy from a position of weakness rather than strength.

Navy planners, on the other hand, could take a position firmly supported by Navy publications on amphibious operations. Shortly after World War II the Navy, in USF 6 and USF 66, had codified its views on amphibious warfare. Detailed and comprehensive, these manuals have

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been called "excellent examples of completed staff action,"[23] and they gave the Navy officers engaged in joint planning a decided advantage over their Air Force counterparts. Throughout the period of these exercises the Air Force, so far as a clearly defined amphibious doctrine was concerned, was operating in a sort of vacuum, a vacuum the Navy was well prepared and quite willing to fill.

It is possible only to speculate as to why the Air Force during these years, and indeed until 1953, failed to come up with something official in the way of amphibious doctrine. No doubt some of the difficulty stemmed from the fact that during the period between the end of World War II and the outbreak of war in Korea, Air Force thinking tended to center around strategic air and, to a lesser extent, around air defense. Tactical air was to a considerable degree neglected. Amphibious operations are chiefly tactical in character, and the neglect of tactical air led naturally to a certain amount of apathy and indifference toward the problem of formulating an amphibious doctrine. It is likely that the advent of mass destruction weapons was also a factor. Within the Air Force there was considerable doubt as to whether amphibious operations were feasible in the face of such weapons, and it seemed improvident to spend time and effort working on doctrine for a form of warfare that seemed to have been largely outmoded.

Whatever the reasons, the fact remains that during the period of these exercises the Air Force was without a firm, written policy on amphibious operations. The result was that in each of the exercises, so far as command structure was concerned, the Navy, almost by default, walked away from the planning table with most of the spoils. In each instance a

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precedent was established, and the Navy position was strengthened. At the conclusion of Exercise HURRICANE GOAT Admiral Struble asserted that "we have set the initial pattern" for peace-time exercises.[24] After Exercise SHAKEDOWN the Navy could report that[25]

> Command relationships were standard for amphibious operations according to the doctrine of NWP 6. The success of this exercise demonstrated that these war-tested command relationships provide the principle of unity of command, allow for the passing of command from afloat to ashore, and permit the organization of a joint /amphibious/ task force to accomplish successfully the delicate and complicated amphibious assault against enemy held beaches.

Following Exercise PORTEX General Hodge praised the command structure for the exercise and recommended it "as a basis for future operations."[26] Admiral Blechteler, the maneuver commander, observed that "the command structure of the Invasion forces, as an example of a type of command for future airborne-amphibious doctrine, is of interest to the Joint Chiefs of Staff," and the admiral went on to quote at some length from a passage in General Hodge's report outlining and commending the command structure for the exercise. Furthermore, in commenting on a statement that PORTEX, because of the artificialities involved, should not be used as a basis for formulating or modifying doctrine, Admiral Blechteler observed that "all exercises, no matter what their nature, should be carefully examined with a view to confirming current doctrine or in developing new doctrine."[27]

These remarks, by implication at least, would seem to confirm the fact that these exercises established precedents and added weight and authority to the Navy position. The Air Force, correspondingly, suffered a loss in influence and prestige so far as its role in amphibious operations

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## Chapter VI

## SUMMARY AND CONCLUSIONS

The joint amphibious training exercises conducted during the period 1946-1950 were, by and large, profitable and successful. They afforded worthwhile experience in the planning and conduct of joint amphibious operations and helped to preserve the skills and techniques learned at great cost during World War II. Interservice cooperation was outstanding; and although in each exercise there was a serious division between the Air Force and the Navy over the problem of command, control, and employment of air forces, the dispute was in each case confined to the planning phase, and the exercises themselves were marked by teamwork and harmony.

Despite their over-all success, these exercises, so far as Air Force participation is concerned, revealed a wide variety of deficiencies and weaknesses. These have been discussed in considerable detail above in the text. It is important, however, to summarize here the most significant of those mistakes, in particular those that were common to two or to all three of the exercises. Especially noteworthy in this connection were shortcomings in the fields of planning; reconnaissance and airborne operations; communications and control; and logistics.

A major share of the difficulties encountered during the planning of these exercises stemmed from the failure to establish at an early



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was concerned. It is possible also that by agreeing to command relationships that placed air under a surface commander during amphibious operations the Air Force gave comfort and encouragement to an element in the Army that persists in the belief that air should be placed under the surface or ground commander during a land campaign.

The formulation of an official Air Force position on the writing of a manual would not, of course, have guaranteed in all of these exercises acceptance of the Air Force viewpoint. But if this position had been clearly defined, Air Force representatives at joint planning conferences could have bargained from a posture of strength; and they might very well have gained, for one of these exercises at least, a command structure in harmony with fundamental Air Force principles. Post-World War II practice would not then have been a Navy monopoly, and the Air Force could have added to its World War II experience a major training exercise as tangible evidence of the soundness of its doctrinal views.

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date a joint planning staff. No such staff was provided for Exercise MOUNTAIN GOAT. For [redacted] there was a marked improvement in this regard, and a joint planning staff functioned during the latter stages of the planning. It was created, however, only after the early planning was well under way. Moreover, its effectiveness was limited by its small size. In [redacted] a joint staff was formed at Joint Task Force (Invasion) level but not at Joint Assault Force (Invasion) level, where much of the most important joint operational planning took place. Although the Joint Task Force (Invasion) was furnished a joint staff, its work was seriously hampered by the late arrival of officers assigned to this duty, and much of the planning had to be taken over by the staff sections of V Corps.

All of these exercises were characterized by a certain amount of haphazard, hit-or-miss joint planning. Actually, much of this planning had to be done at joint conferences, called periodically to resolve problems as they arose, and attended by officers brought together over long distances. Many of these problems could have been worked out on the spot by a joint staff, at a considerable saving of time and effort. An important lesson of these exercises is that to insure smooth, continuous, and effective joint planning, a joint staff should function from beginning to end of the planning period.*

During the operational phase of these exercises most of the difficulties centered around reconnaissance and airborne activities and around

* For a detailed analysis of planning problems see above, pp. 20-21, 53-54, 92-95.

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communications and control procedures and facilities. A large proportion of the reconnaissance deficiencies can be traced to a lack of understanding of the proper employment of jet reconnaissance aircraft or to inadequate equipment used by these aircraft. In Exercise SEMINOLE, for example, pin-point photography was largely neglected despite the fact that the FP-80 was especially well suited for this task. During the period when the reconnaissance effort was under Navy control in POMMIXX, RF-80's were kept orbiting on-station for long periods of time, waiting for targets to be assigned, a procedure that was unrealistic in light of the high fuel consumption that is characteristic of jet aircraft.

As for equipment, it was found in Exercise MOUNTAIN GOAT that the maps provided for reconnaissance pilots were of too large a scale to be used comfortably in the FP-80 cockpit. More serious were the difficulties reconnaissance units experienced with their outmoded camera equipment. Exercises SEMINOLE and POMMIXX revealed a pressing need for the development of cameras with faster exposure intervals for use in high-speed jet reconnaissance aircraft. It is difficult to understand why, at least by 1950, when POMMIXX was conducted, such cameras were not available.*

Airborne operations were incorporated into only two of these exercises—MOUNTAIN GOAT and POMMIXX. In both exercises the performance of the troop carrier units, so far as the actual drops were concerned, was outstanding. The only exception was the drop by the small artillery

* For further discussion of reconnaissance deficiencies see above, pp. 22-23, 54-56, 95-101.

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serial in PORTREX. Otherwise, the drops were made accurately and almost exactly on time. The Air Force record, then, was a good one. But the over-all results of airborne operations were unsatisfactory. In MOUNTAIN GOAT lack of realism is the main criticism. Only dummies were dropped; the whole operation was not worked in logically with the ground situation, and the drop zone for the dummy drops of paratroops and supplies was chosen chiefly to facilitate recovery of parachutes rather than to conform with the realities of the ground battle. In PORTREX, a series of misfortunes--losses to antiaircraft fire, heavy actual jump casualties, an unexpected delay in H-hour for the amphibious assault, and serious losses inflicted by the maneuver enemy--combined to make the operation a near fiasco.

Many of these deficiencies resulted from the choice of maneuver areas unsuited for realistic action by airborne forces. Other factors were the lack of sufficient care in the selection of drop zones and the lack of thorough joint planning. Sound planning is, of course, required for success in any field of endeavor, military or otherwise. To secure the high degree of coordination necessary in an airborne-amphibious assault, it is especially important that plans be painstakingly drawn to cover every contingency. This is a truism that was too often ignored in the preparations for airborne operations in these exercises.*

Revealed in these exercises also was a wide variety of shortcomings in the field of communications and control. Operations by fighter and

* The results of airborne operations are examined in detail above, pp. 23-24, 101-8.

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reconnaissance aircraft, particularly in MOUNTAIN GOAT and POLNEX, were handicapped by a lack of sufficient air-ground radio channels. In all of the exercises considerable difficulty was experienced with radar equipment used in the detection of enemy aircraft. Most of the trouble lay in the faulty siting of this equipment and in its inability to track fast-flying jets. In Exercise SEMINOLE, for example, it was the exception rather than the rule when Aggressor aircraft were detected by radar before they reached the beach area. And in all of the exercises ground-controlled interception (GCI) was seriously hampered by ineffective radar.*

Failure of early-warning and GCI radar was the most significant communications deficiency to appear in these exercises. A similar failure in combat could easily bring defeat. Amphibious operations are extremely vulnerable to attack, and thus their success depends in large measure on a very high degree of air superiority. To gain and preserve this superiority, enemy air must be struck continually at its source--at its home bases. In addition, air defense within the objective area must be virtually letter-perfect. Without effective radar, capable of giving adequate warning and of controlling interception, such a defense is impossible. It should be noted also that the vulnerability of amphibious operations has been vastly increased by the advent of jet aircraft and, more importantly, by the development of mass destruction weapons. In the face of an enemy equipped with such aircraft and weapons it would

* For detailed coverage of communications problems see above, pp. 22-23, 27-32, 59-64, 113-16.

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seem that amphibious operations might well be impossible without a vast improvement in radar detection and control equipment.

Important also were certain problems that arose in connection with facilities and procedures for requesting and controlling close-support strikes. In MOUNTAIN GOAT, after control of air passed to the AAF ashore, tactical air control parties (TACP) were used to request air support despite the fact that they are primarily a controlling rather than a requesting agency. Violation of standard procedure, in this case, could be laid at the door of the Army, which had failed to assign to the exercise a signal company air-ground liaison, whose function it was to provide air request communications for the ground forces. Air Force control of air operations in SEMINOLE broke down completely on one occasion because of air-ground communications failure at the tactical air direction center (TADC), and for a short period control had to be returned to the Navy.

The major defect in the Air Force control system in PORTREX lay in the performance of the TACP's. Instead of landing with the ground units they were to support, Air Force TACP's joined these units later, on the third day of operations ashore. The join-up was so long delayed that the TACP's saw action for only a very short period and thus gained little experience from the exercise. Nor did the Air Force TACP that took part in the airborne operation pull its full weight. here the chief criticism was that this control party did not jump with the airborne battalion but, rather, joined it non-tactically after the drop. For the amphibious operation provision should have been made for placing the

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TACP's with the ground units before the landing, and a TACP should have jumped with the airborne force. If these measures had been taken, TACP's would have received better training, and close air support would have been more effective.

Obviously, there was a considerable lack of realism in the employment of TACP's, particularly in Exercise PORTREX. Also unrealistic was the manner in which Air Force control installations were set up on shore. In MOUNTAIN GOAT certain radar facilities were located outside the maneuver area, and all AAF control equipment was placed in position ashore prior to the amphibious landing. A similar procedure was followed in SEMINOLE. The TADC was set up before the actual landing, and it was assumed that it came ashore at a logical time during the early stages of the assault. In PORTREX, TADC equipment and vehicles were assault landed, but the move across the beaches was administrative rather than tactical.*

This unrealistic movement of tactical control facilities was especially unfortunate from the standpoint of joint logistic training. These exercises were marked by a number of troublesome Air Force logistic problems,/ but perhaps even more serious was the failure to provide training and experience in the field of joint logistics. In a joint amphibious operation most Air Force logistic activities can be handled within the normal Air Force logistic support structure or under joint policy as set forth in existing joint directives and publications. A

* For full treatment of control problems see above, pp. 27-30, 60-64, 88, 108, 111-12.

/ See above, pp. 21, 116-19.

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notable exception is the discharge of Air Force supplies, personnel, and equipment across the beaches. In this area the Air Force lacks the capability to provide adequate logistic support, and this problem is not covered in existing directives and publications. How this matter can best be handled is presently under consideration by the Joint Amphibious Board. Seemingly, this question might well have been explored also in these joint training exercises.

It is regrettable that the joint exercises considered here shed no light on this problem. In none of these exercises was there anything approaching full play of logistic activities that require joint action. Since the exercises were all of very short duration, they did not include a post-assault or base development phase; and little follow-up support was required by the forces that went ashore. In all of these exercises, however, Air Force tactical control facilities did operate ashore for a brief period. Here, then, was an opportunity to test procedures and develop doctrine for the movement of Air Force supplies, personnel, and equipment across the beaches. Unfortunately the services passed up this opportunity. As has been pointed out, Air Force tactical control facilities in Exercises MOUNTAIN GOAT and SEMINOLE were not taken in over the beaches; rather, they were moved into position overland before the exercises got under way. Although in PORTREX these facilities were moved to Vieques Island by ship, their personnel and equipment were discharged across the beaches nontactically, under umpire control.

All of these exercises were so compressed in time that it was perhaps impossible to deal with this problem realistically. But by increasing

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the duration of the ashore phase and by the use of more foresight and imagination in planning, it does seem that the logistic play involving joint action could have been given a more prominent place. At the very least it would appear that by such measures the joint logistic activities connected with the movement of tactical control facilities could have been carried out in more realistic fashion. Tactical control group personnel would have benefited greatly from the experience of landing, moving across the beaches, and positioning their equipment much as they would in combat. And all of the services would have gained a fund of knowledge relative to the discharge of vital Air Force control installations across the beaches in an amphibious operation.

In addition to the findings already summarized, there were a number of findings that are related peculiarly to joint amphibious operations in which both Navy and Air Force air participate. From the experience of these exercises it is evident that there are several points of difference between the two services that should be resolved if they are to work together with maximum effectiveness.

Revealed in these exercises were important deficiencies in communications, in procedures for close-support operations, and in basic amphibious doctrine. In all of the exercises communications problems were needlessly multiplied because of the variation between Navy and Air Force communications equipment and procedures. The obvious answer

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to this problem lies in a greater degree of standardization. After Exercise MOUNTAIN GOAT Maj. Gen. W.D. Old, Twelfth Air Force commander, observed that "the lesson we must take from this operation is that we must, at once, standardize our communications equipment so that we can work together from the start." That there was little progress in this direction during the ensuing three years is apparent from the comment made after POSTRAX, in the invasion commander's communications report, that except for the Signal Corps radio (SCR) series "there is little interchangeability of major components of communications equipment between the services."

These exercises suffered also from a lack of standardization in communications procedures. Joint communications procedures have been set forth in the joint Army-Navy-Air Force publications (JANAP) series put out by the Joint Communications-Electronics Committee under the Joint Chiefs of Staff (JCS). After they are fully approved at JCS level, the JANAP's are binding on the services when they are conducting joint operations. Intra-service use of these publications is not, however, required. Within the Navy the JANAP's are universally the controlling communications directives; but because of the belief that certain JANAP's violate Air Force doctrine, they have not been given the same broad application within the Air Force. As a result, when the Air Force in these exercises engaged in joint training with the other services, Air Force personnel were at a considerable disadvantage. Trained in the use of one set of procedures, they had to employ another and sometimes conflicting set during these joint operations.

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Important also were differences in Air Force and Navy procedures governing close-support operations. Outstanding in this connection was the lack of a common method for requesting air strikes. Under the Air Force system requests go up through ground force channels, through each major ground echelon, to the joint operations center; and TACP's are used primarily for control. According to Navy procedure TACP's request as well as control close-support strikes. Requests are sent over air channels directly to the control center and are merely monitored by TACP's at higher ground echelons on a silence gives consent basis. The Air Force believes that its system enables the ground commanders at each level to check requests carefully and to select and send forward those requests that are most urgent in view of the over-all ground situation. The Navy holds that in its system the monitoring of requests allows for sufficient supervision by the ground commanders, and it believes that its system is faster and thus more effective.

Both systems were used in these exercises; Navy procedures obtained while it was in control of air, and Air Force procedures went into effect after control was passed ashore. There is nothing in the record of the exercises to indicate clearly that one method was superior to the other. But there is much evidence that the ground forces, in particular, were disturbed and confused by the differences in the two systems. This is understandable; the ground forces have a primary interest in the matter of requesting close support strikes, and the requirement that they operate, within the space of a very few days, under two completely different

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arrangements represented something of a hardship. After each of the exercises ground force participants stressed the need for developing a uniform request procedure. It was believed that by eliminating the change-over from one system to the other during the course of an operation, an important source of misunderstanding and confusion would be removed.

The most significant of all the differences between the Air Force and the Navy lay in the field of amphibious doctrine. In this study the doctrinal controversy was deemed to be of sufficient importance to merit treatment in a separate chapter,* and consequently only the highlights will be reviewed here.

During the planning period for each of the exercises examined in this study there was a disagreement between the Air Force and the Navy over the problem of command structure as it pertained to control of air operations. Underlying this dispute was a fundamental cleavage over doctrine. The Navy, holding to doctrine based largely on its World War II Central Pacific experience, believes strongly that in amphibious operations control of air should be vested in the joint amphibious task force commander, a naval officer. This officer exercises over-all control through his tactical air commander (Navy), a staff officer. During the progress of the operation, however, the joint amphibious task force commander may assign to the Navy attack force commander control of air employed in his support. After the amphibious

* See above, Chapter V.

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troops commander sets up control facilities ashore, control is passed to him.

The key to the Navy concept is that air is only one of several supporting weapons and that although it has special capabilities, these are not, in an amphibious operation, so unique as to require for air a special or independent status. Control of air operations is assigned by the Navy to the surface commander, first afloat and later ashore, because of the firm conviction that he is ultimately responsible for success or failure and that therefore he must be given direct control of all supporting weapons, including air.

For the period of these exercises Air Force views on amphibious doctrine are somewhat more difficult to define, for at that time (1946-1950) the Air Force had no official position or manual on this subject. But the Air Force did hold to certain basic principles derived to a considerable degree from its World War II experience in North Africa, the Mediterranean, and Europe. Included, of course, was a broad experience in amphibious operations in those theaters.

The Air Force, then, did have at least some unofficial views on amphibious warfare and doctrine. It believed that a joint task force commander should be a unified commander--that is, that he should command the components of his force not directly but through the ground, naval, and air component commanders of the joint task force. All air--Air Force, Navy, and Marine--should be placed under an air component commander, a coequal of the ground and naval component commanders. Under this arrangement also there would be no parceling out of control of air or passing of control from one surface commander to another during the

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progress of an operation; rather, the air component commander would be in control from beginning to end.

The basic principles underlying this position were that air power should not be subordinated to surface power, that air power is a unity and that it should not be subjected to divided control, that its outstanding characteristics are mobility and flexibility, and that it is most effective when employed en masse. The Air Force believed that its views on command in amphibious operations were consistent with these principles and that Navy doctrine failed to take these principles sufficiently into account.

For the amphibious phase of each of these exercises Navy doctrine governed, and a command structure was established based on that doctrine. During the ground phase that followed, air-ground operations were conducted in harmony with standard Air Force procedures and under co-equal ground and air commanders. But except for the fact that control of air was not passed to the amphibious troops commander, the amphibious phase was carried out in accordance with Navy principles.

In each of these exercises the Air Force accepted, albeit reluctantly, a command structure that violated basic Air Force concepts. The most important factor contributing to this situation was the failure of the Air Force to set forth precisely and concretely its views on amphibious doctrine. Lacking a manual or at least a written and official Air Force position, Air Force planners sitting with the Navy at the planning conferences for these exercises were at a serious disadvantage. Navy

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doctrine, on the other hand, was clearly and ably set forth in manuals published in 1946 and 1947; and Navy representatives, bargaining from a position of strength in this regard, prevailed at the conference table. In each case, also, the command structure that was established set a precedent, a precedent that served to bolster and solidify the Navy position.

There appears to be no final answer as to why the Air Force, after World War II, neglected for so long to construct a formal doctrine on amphibious warfare. But there are two factors in particular that may have delayed this project. In the first place there was the tendency on the part of the Air Force, especially between the end of World War II and the beginning of the war in Korea, to emphasize strategic air, and to a lesser extent air defense, and to neglect tactical air. Air operations carried out in conjunction with amphibious operations are essentially tactical in nature, and the assignment of a low priority to tactical air had an inhibiting effect on the formulation of an amphibious doctrine. In the second place there seems to have been considerable doubt within the Air Force as to whether, in the future, amphibious operations would be feasible against an enemy possessing mass destruction weapons. This climate of doubt was bound to breed a certain amount of indifference toward the problem of establishing an amphibious doctrine.

Eight years after the close of World War II the Air Force finally made its doctrinal position clear, when in September 1953 it issued Air Force Manual 1-5, Air Operations in Conjunction with Amphibious

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Operations. With the publication of this manual the Air Force put its house in order and furnished what was lacking during the period of these exercises--authoritative backing for Air Force spokesmen discussing problems of command relationships and doctrine with representatives of the Navy.*

Still to be solved, however, is the problem of creating a joint doctrine. Since late in 1951 the Joint Amphibious Board has been wrestling with this problem without success. The publication of Air Force Manual 1-5 has no doubt strengthened the position of the Air Force members of that board. But it is difficult to see how the basic concepts embodied in this manual could be acceptable to the Navy; and in light of the fundamental differences between Navy and Air Force doctrine, especially in the matter of command structure as it relates to control of air, the problem of arriving at a joint doctrine appears to be well-nigh insoluble. Nevertheless, the efforts to resolve these differences must continue, for to admit defeat and to hope that in the event of war these problems will somehow work themselves out is to court disaster.

The shortcomings of these exercises that stemmed from interservice differences in communications, in procedures for requesting close air support, and in doctrine could not, of course, have been corrected by the Air Force acting unilaterally. These problems were capable of solution only by joint action or, failing this, by arbitrary decision at the highest level. But it does appear that the Air Force could have taken more positive action to correct its own deficiencies. The same or similar mistakes in such areas as reconnaissance, and communications

* See App. 7.

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and control occurred in at least two, and some of them in all three, of these exercises. This situation teaches the lesson that man does not automatically learn from experience. The repetition of mistakes can be avoided only by conscious and intelligent effort, and it is important to consider, with respect to training exercises, the steps that can be taken in this direction.

Exercise reports should be carefully written and should include full information as to deficiencies along with recommendations for their correction. Following each exercise there should be a wide distribution of these reports, and a careful check should be made to insure that all reports detailing the shortcomings of the exercise reach and are examined by the units that had participated. All other units likely to be engaged in similar exercises or operations in the future should also receive and study these reports. In addition, information as to deficiencies in aircraft, weapons, and equipment, particularly reconnaissance and communications equipment, should be passed on to the agencies concerned for examination and corrective action.

A determined effort should also be made to insure that the follow-up stage of the training process is not neglected. Maximum use of exercise reports should be made at all levels of command by those responsible for the construction of individual and unit training programs, and wherever possible each exercise should be followed up immediately with corrective training. Just before each exercise it is customary to conduct pre-exercise training. Here, it would seem, is a further opportunity to review the mistakes of the past and to take action to prevent their re-occurrence.

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Finally, it is extremely important that planners, at all levels, responsible for the preparation of training exercises review carefully the findings of previous exercises. Among the written objectives of each exercise, planners should include the correction of specific mistakes made in the previous exercise, and plans should be so constructed as to contribute to this end.

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NOTES

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20. Hq AFF (PONTREX) Opn Plan 1-50, 20 Dec 1949, Annex G, App 1. In its list of Air Force units, Operation Plan 1-50 included the 314th, rather than the 316th, Troop Carrier Group. However, it was the 316th Group that actually took part in the exercise.

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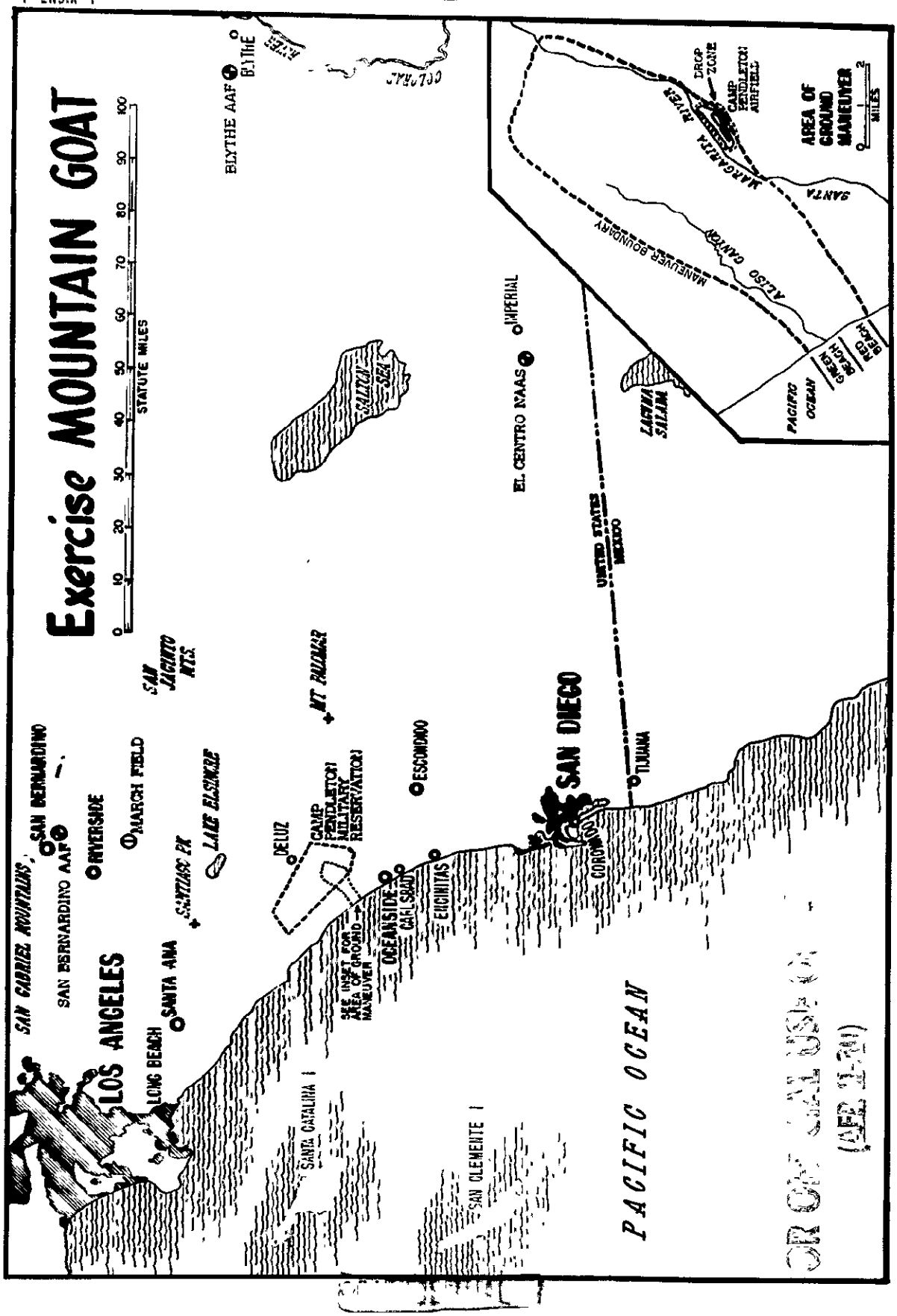


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APPENDIX 2

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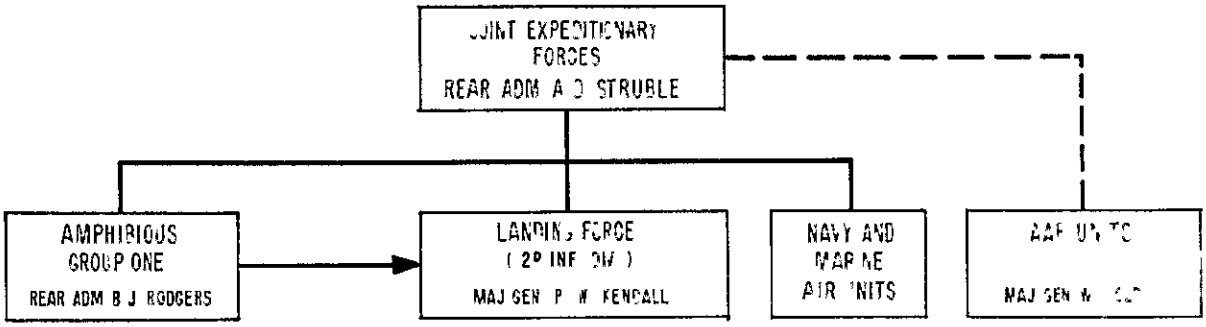
# Exercise MOUNTAIN GOAT

## COMMAND STRUCTURE DURING AMPHIBIOUS PHASE

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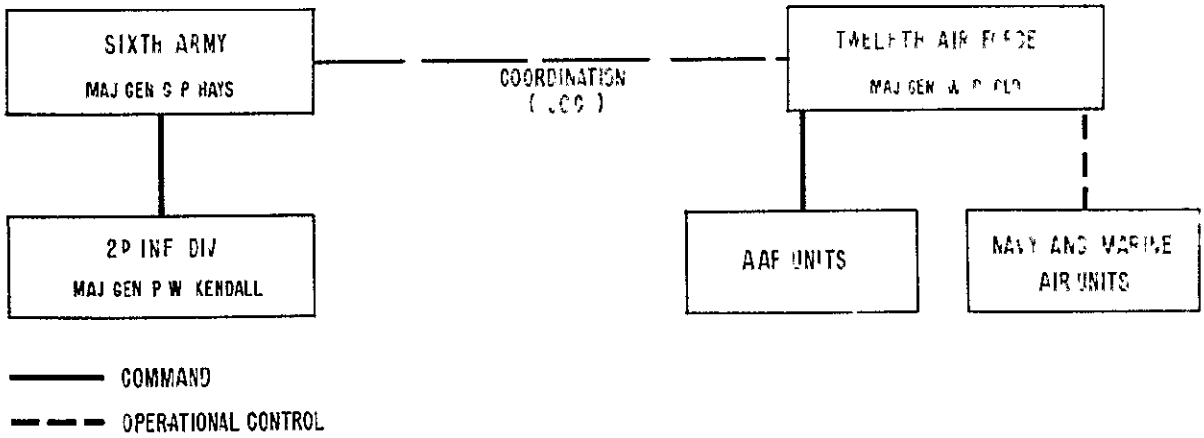


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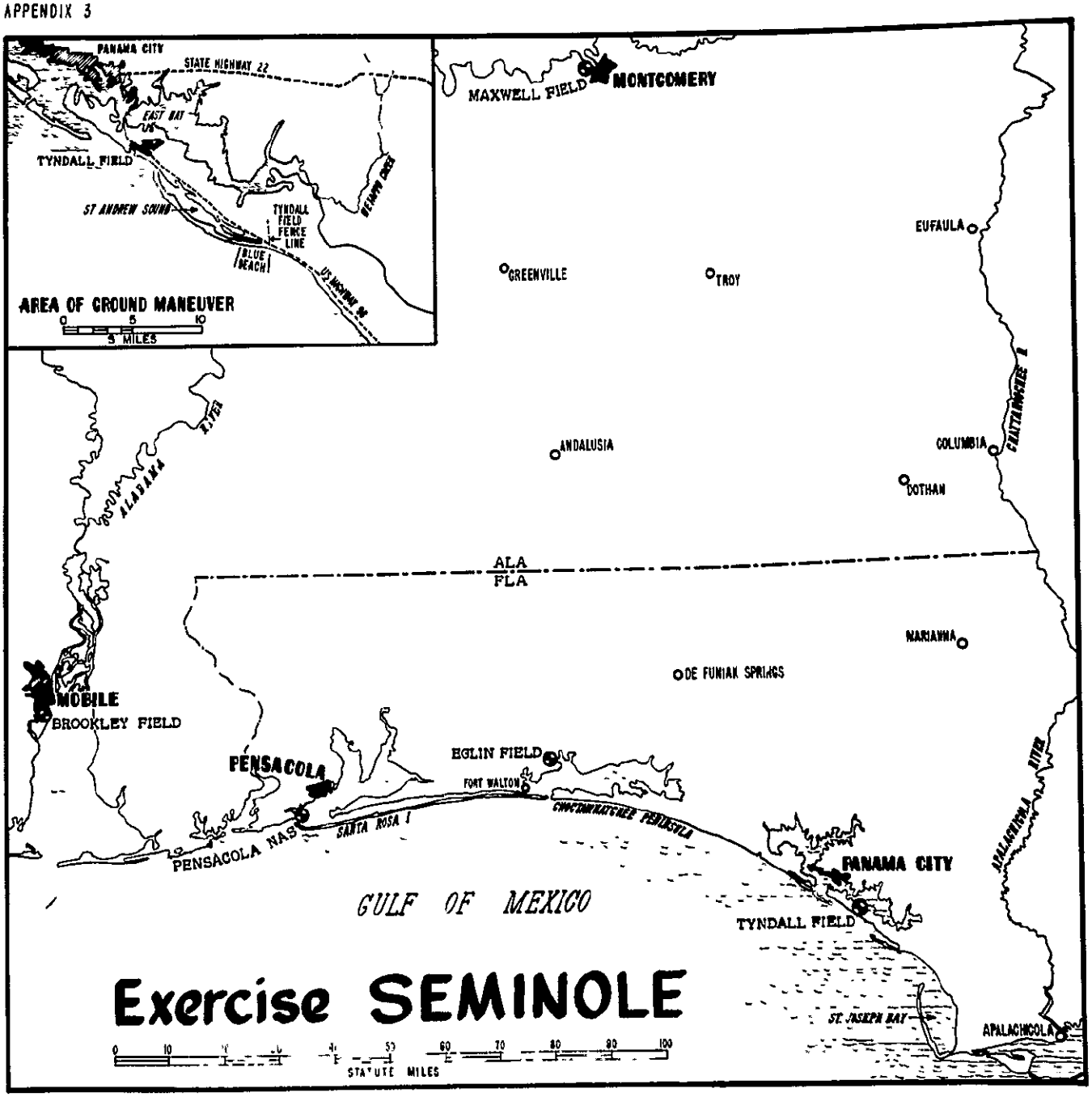
APPENDIX 3

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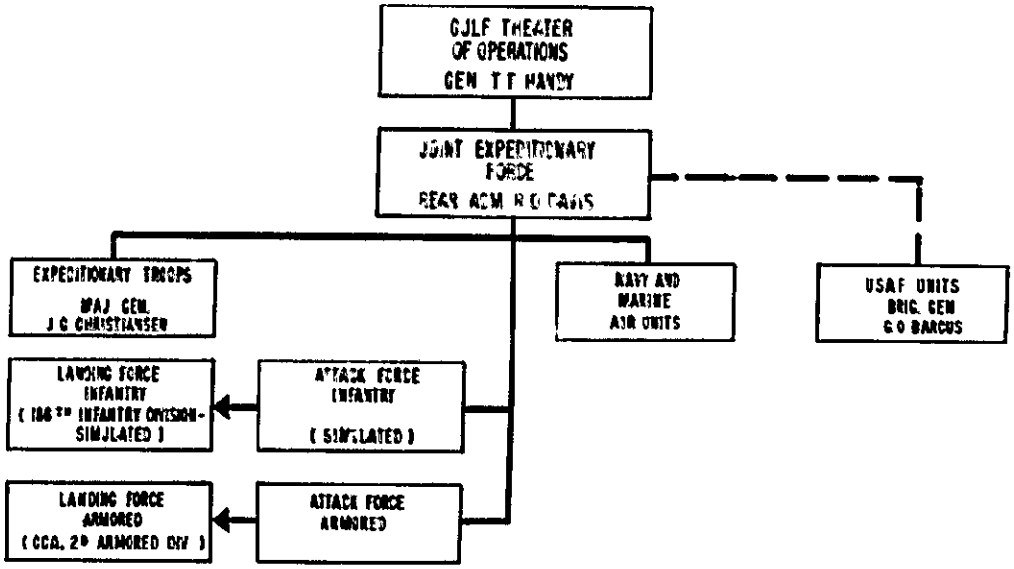
APPENDIX 4

# Exercise SEMINOLE

## COMMAND STRUCTURE DURING AMPHIBIOUS PHASE

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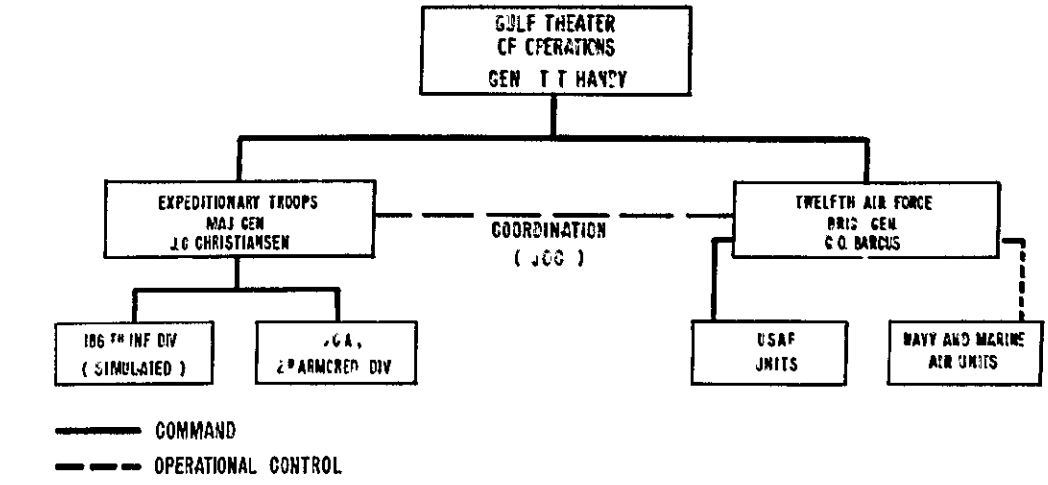


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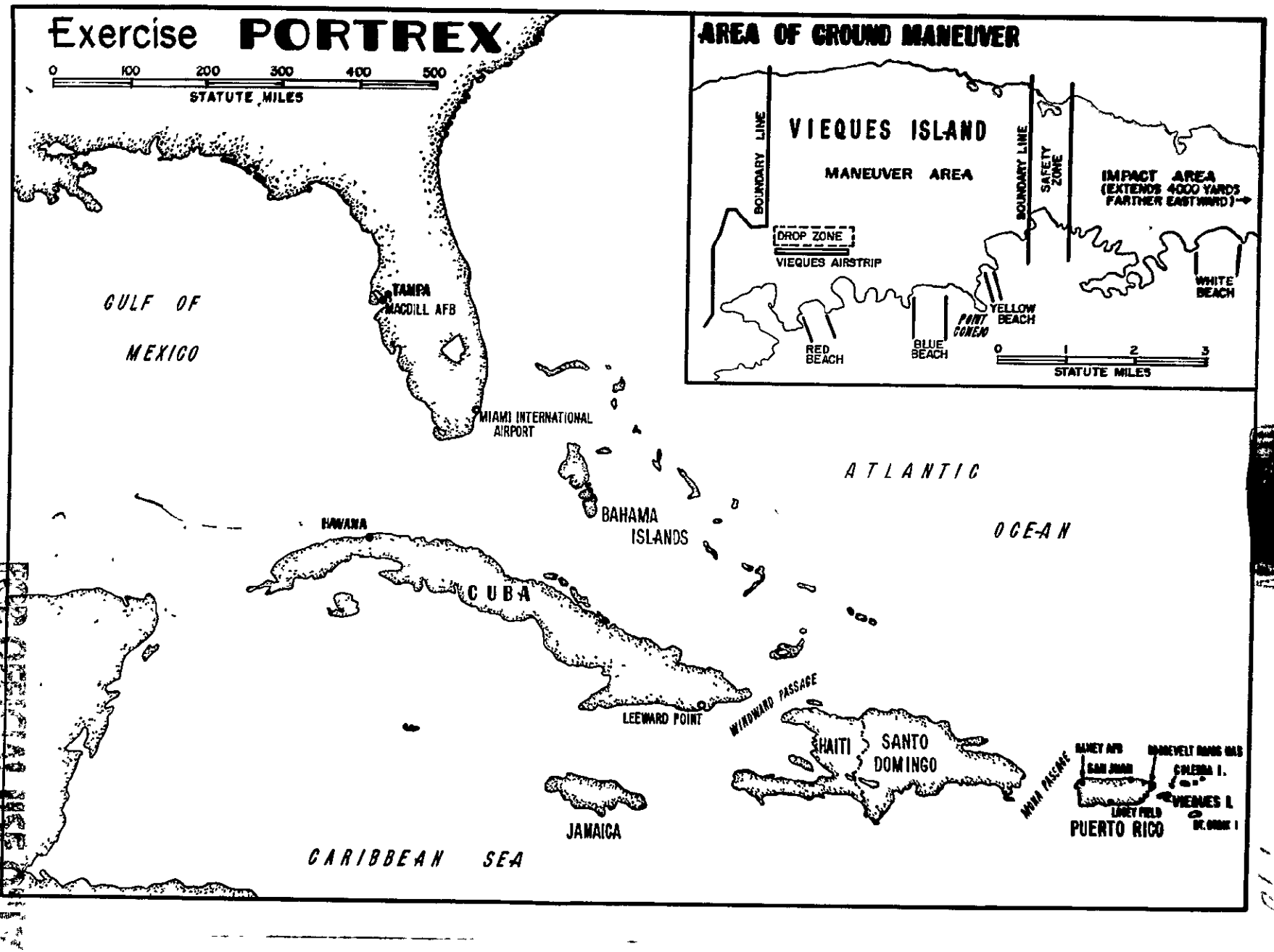


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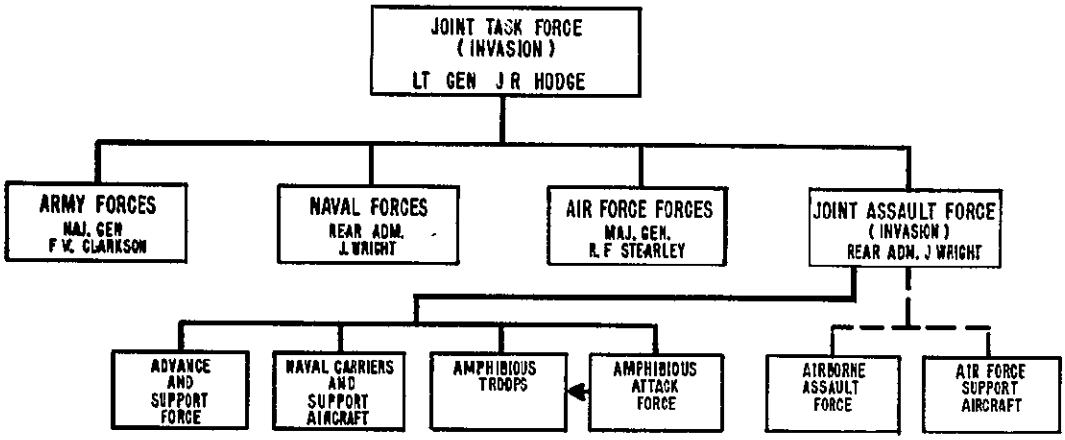
APPENDIX 6

# Exercise PORTREX

## ◯ COMMAND STRUCTURE DURING AMPHIBIOUS PHASE

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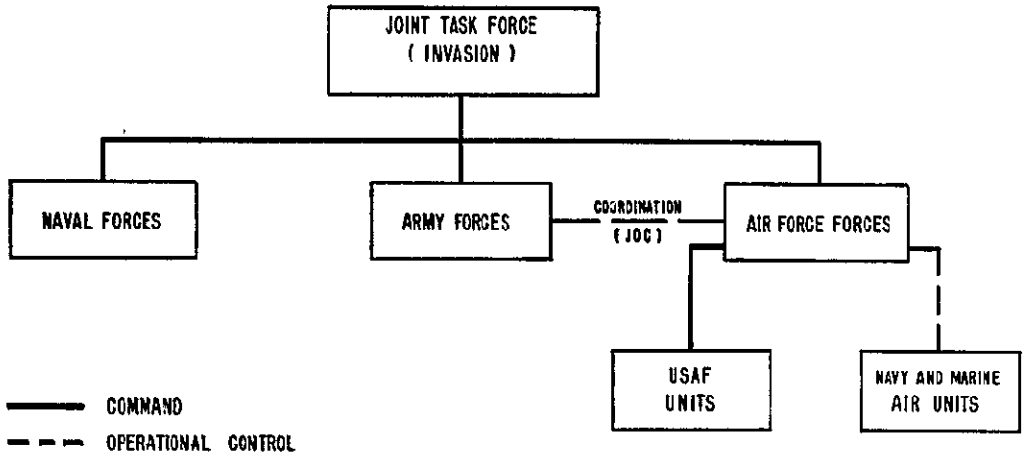


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PRESENT AIR FORCE DOCTRINE FOR AMPHIBIOUS OPERATIONS

The following is a summary of the current Air Force position on command and control of air forces operating in conjunction with amphibious operations. This summary is based on Air Force Manual 1-5, "Air Operations in Conjunction with Amphibious Operations," 1 April 1954 /first published 1 September 1953/.

Under most circumstances amphibious operations can be conducted within normal theater command channels and relationships (see Chart 1). The theater commander, under this arrangement, is in direct command of the amphibious operation. The command structure is the same as it is for any other theater operation, with unified control vested in the theater commander and with centralized control of air, ground, and naval forces vested in each of the respective component commanders. The theater air commander is responsible for all air actions, including naval and Marine air participation.

For the actual conduct of an amphibious operation, ground and naval forces drawn from the theater ground and naval components are joined in an amphibious task force. The amphibious task force is a surface force, and it has no air forces in its organization. Control of all air operations that directly affect the amphibious operation is vested in an air commander. Normally this control is delegated by the theater air commander to a subordinate air commander. For the amphibious operation this commander established an advance air headquarters at the same echelon of command as headquarters, amphibious task force. All

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air--Air Force, Navy, Marine, and Allied--assigned and attached to the advance air headquarters participates in conjunction with, and not as part of, the amphibious task force, with the air commander always a co-equal of the amphibious task force commander.

Under certain circumstances the theater commander may elect to establish a special force which will have to conduct an amphibious operation as a step toward the accomplishment of its over-all objective (see Chart 2). If this operation involves significant elements of the theater force, a joint force will be created and organized in accordance with the principles of unified command, that is, with a single commander using a joint staff and exercising command through ground, naval, and air component commanders. In matters of organization, coordination, and control, the amphibious operation conducted by a joint force is identical with the amphibious operation conducted under direct command of the theater commander as described above.*

* The doctrine set forth in Air Force Manual 1-5 is widely at variance with that of the Navy. The Navy places control of all air in the objective area of an amphibious operation in the hands of the amphibious task force commander, who exercises this control through his tactical air commander, a staff officer. The Air Force position is that control of air is vested in an air commander who is independent of an coequal with the amphibious task force commander. The Navy stand on control of air stems from the conviction that successful amphibious operations depend in large measure on centralized control by the amphibious task force commander. This officer, and commanders of subordinate task organizations within their areas of responsibility, must, the Navy holds, have direct control of all supporting weapons, and air is included in this category. The Air Force argues, in connection with this problem, that Navy doctrine violates the cardinal principle that air forces are an entity and must be employed accordingly. The Air Force points out that Navy doctrine allows control of a segment of theater air to be parceled out to an amphibious task force commander, who in turn may further parcel out control to his attack force commanders. The employment of air in segments for localized actions, the Air Force claims, places serious and unnecessary restraints on the inherent mobility, flexibility, and striking power of theater air forces. The Air Force believes that Air Force doctrine for amphibious operations more fully recognizes the importance of these fundamental qualities of air power--qualities it considers essential not only to the success of over-all theater operations but also to the success of the amphibious operation itself.

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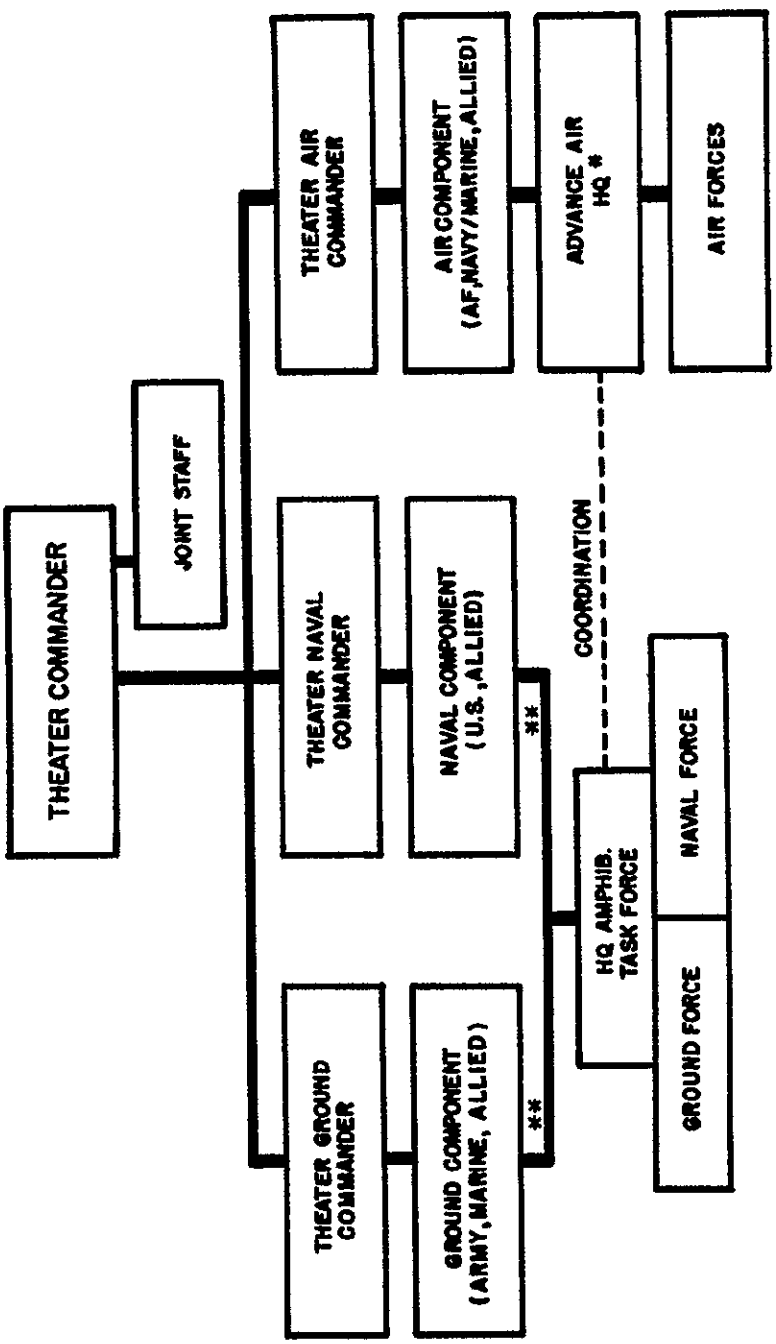
CHART I

# TYPICAL THEATER COMMAND STRUCTURE APPLIED TO AMPHIBIOUS OPERATIONS




* COMMANDER, ADVANCE AIR HQ ( AF, NAVY/MARINE, OR ALLIED ) IS LOCATED ON BOARD THE COMMAND SHIP AND HE IS THE COMMANDER WHO HAS BEEN DELEGATED THE DIRECT RESPONSIBILITY FOR AIR OPERATIONS IN CONJUNCTION WITH THE AMPHIBIOUS OPERATION.

** THESE TWO COMMAND LINES ARE NOT SIMULTANEOUS BUT ARE CONSECUTIVE.

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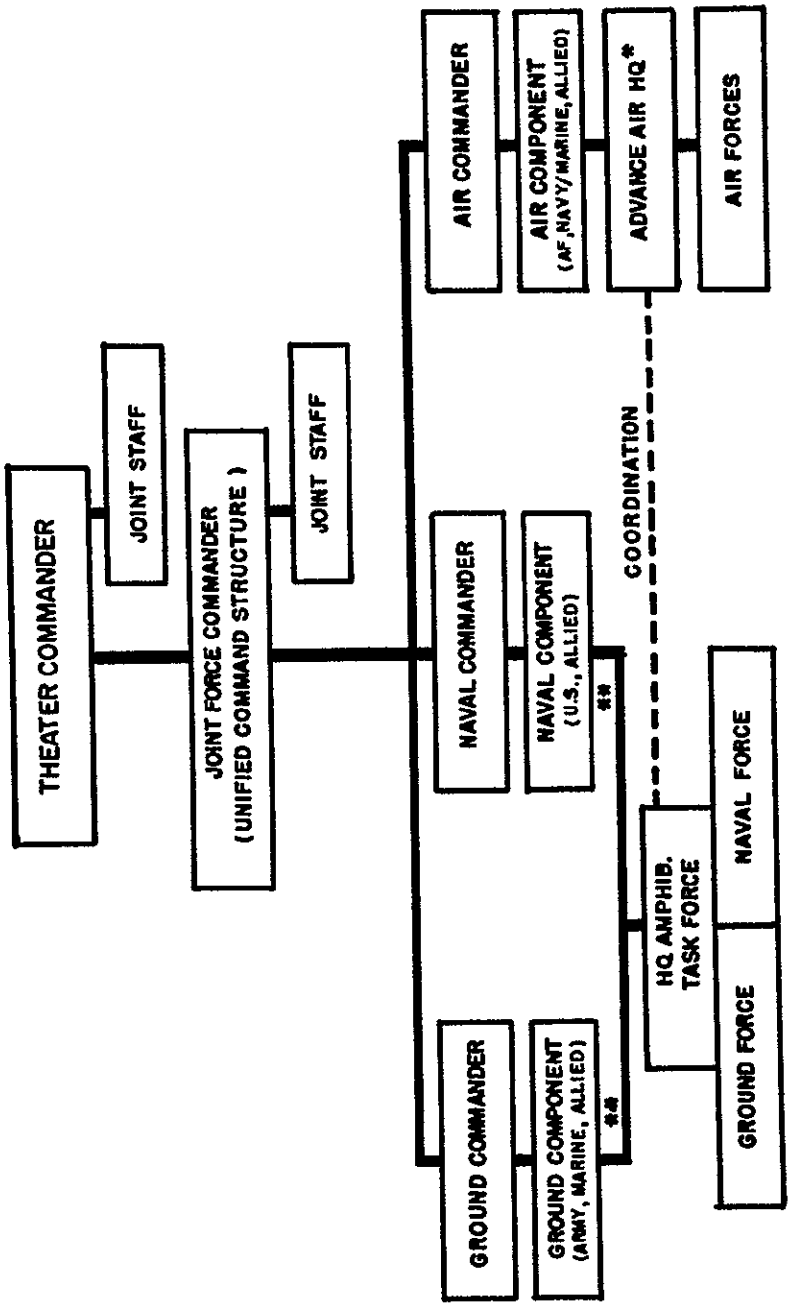
CHART 2

# TYPICAL JOINT FORCES COMMAND APPLIED TO AMPHIBIOUS OPERATIONS




* COMMANDER, ADVANCED AIR HQ (AF, NAVY/MARINE, OR ALLIED), IS LOCATED ON BOARD THE COMMAND SHIP AND HE IS THE AIR COMMANDER WHO HAS BEEN DELEGATED THE DIRECT RESPONSIBILITY FOR AIR OPERATIONS IN CONJUNCTION WITH THE AMPHIBIOUS OPERATION.

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