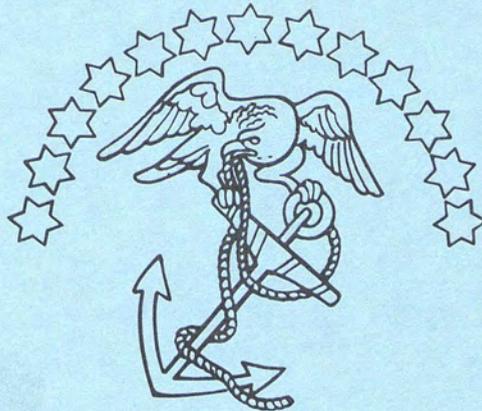


THE DEVELOPMENT OF AMPHIBIOUS TACTICS IN THE U.S. NAVY



by

General Holland M. Smith
U.S. Marine Corps (Retired)

with Preface by

Brigadier General Edwin H. Simmons
U.S. Marine Corps (Retired)

Occasional Paper

HISTORY AND MUSEUMS DIVISION
HEADQUARTERS, U.S. MARINE CORPS
WASHINGTON, D.C.

1992

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Preface

In February 1946, on my return from the Pacific, I became, as a 24-year captain, managing editor of the *Marine Corps Gazette*. All the officers really qualified as editors were Reserves and they were taking their post-war discharges just as rapidly as they could get them. One of my first editorial tasks was the preparation for publication of an imposing manuscript entitled "The Development of Amphibious Tactics in the U.S. Navy" putatively written by Lieutenant General Holland M. Smith.

The amanuensis was his junior aide, First Lieutenant William H. Lowe, Jr., a product of Harvard. By the time we were ready to begin publication Bill Lowe had been released from active duty and had gone to work for *World Report*, predecessor to *U.S. News and World Report*, and the manuscript was not yet complete. Lowe promised to finish it.

Part of my task of readying the manuscript for publication was to write a biographical profile of General Smith. That profile appears on page 1 of this reprint. Working with the manuscript and writing the biographical sketch caused me to wonder where the man, Holland M. Smith, ended and the persona, Howlin' Mad Smith, possibly created by his staff and the media, began. Frankly, now, 45 years later, I am still not certain.

The first installment of *The Development of Amphibious Tactics in the U.S. Navy* appeared in the June 1946 *Gazette*. The series, so far as it goes, is a very thorough piece of work. It is particularly strong in its coverage of the theoretical developments and landing exercises conducted between the two World Wars. It is also good in that it covers both the Pacific and European theaters and includes all significant Army landings as well as Marine. The approach is analytical and the series is still well worth reading and study.

With the October issue and the fifth installment, the by-line changed from "Lieutenant General Holland M. Smith" to "General Holland M. Smith (Ret'd)." The series ends abruptly with the March 1947 issue of the *Gazette*. That last installment deals with Salerno and the last line is "To be continued."

But it never was. Bill Lowe went to London and Paris as bureau chief for *U.S. News and World Report*.

General Smith himself had retired in April 1946 with an honorary promotion to four-star general. He had no staff upon whom to depend for the completion of the series. He turned instead to the Australian journalist, Percy Finch, and the writing of his "autobiography," *Coral and Brass*.

Finch must bear much of the blame for sensationalizing the autobiography. It is a quarrelsome, bitter book that must be considered against the background of the rampant postwar interservice rivalries which culminated in the enactment of the National Security Act of 1947. Smith was concerned not only over the future of the Marine Corps but also his own place in history.

Saturday Evening Post, then a tremendously influential publication, published much of *Coral and Brass* as a series of articles under such titles as "Tarawa Was a Mistake," "My Troubles With the Army on Saipan," and "Iwo Jima Cost Too Much." The book was an embarrassment to the Marine Corps and it did not serve Holland Smith well. He could have better spent his time tending his roses in La Jolla.

Quite possibly General Smith later regretted the book's publication because he made no further public comment on the conduct of the war.

Through the years I have found reason to return to *Amphibious Tactics* in the yellowed pages of my bound volumes of the *Gazette*, but I read it again, most thoroughly, in the

summer of 1989 when I was getting together some dedicatory remarks for the induction of General Smith into Alabama's Military Hall of Honor, a long overdue accolade.

The warrior ethic is strong in Alabama and it is also a state wherein the populace is unabashedly patriotic. The Military Hall of Honor is at the Marion Military Institute, one of the oldest military academies in the country, but Marion is not close to anything, so the induction ceremonies were held in Birmingham.

It was a black-tie affair, held the night of 25 August 1989 at The Club up on Red Mountain overlooking the city. The Club is a glittering kind of place more suited, I would think, to Palm Springs or Las Vegas than to Birmingham.

About 175 to 200 persons were present, including about twenty flag officers, most of them Army generals: active and retired; regular, National Guard, or Reserve. I was given to understand that there were still residual sensitivities over the Smith vs. Smith controversy at Saipan and that these feelings had possibly delayed Howlin' Mad Smith's juried acceptance into the Hall of Honor.

The Smiths were an old Georgian family who had come to Alabama after the Civil War. Holland McTyeire Smith was born 20 April 1882 in Russell County in the heart of the cotton belt. His father was a young school teacher who had read the law and had been admitted to the bar a year before Holland's birth. Holland's mother was of staunchly Methodist Scotch-Irish extraction, hence his middle name, McTyeire. When he was three the family moved into Seale, the county seat, which then had something less than 300 persons. His elementary education was in Seale's one-room one-teacher schoolhouse.

Holland's father, John V. Smith, acquired the reputation of being one of the best criminal lawyers in the state. Father and son were not particularly close, but it was taken for granted that Holland would follow his father into law. In 1898 he entered Alabama Polytechnical Institute which later became Auburn University. Polytech was run as a military school. Holland did not like the uniforms or the drill and he barely managed to graduate. History was his favorite subject and Napoleon was his favorite general. He graduated in 1901 and at his father's insistence enrolled in a two-year law course at the University of Alabama in Tuscaloosa. He was a good short-distance runner and in his senior year at the University was captain of the track team. He graduated in 1903 and returned to Seale to work in his father's law office. He did not do well.

After a year of this he went to Washington to see about getting a commission in the Army. There were no vacancies in the Army, but his congressman asked him if he would be interested in the Marines. He had never heard of the Marine Corps, but he jumped at the chance. He went to a cram school and in February 1905 passed the examinations for a commission. A month later he was appointed a second lieutenant.

He learned the rudiments of being a Marine Corps officer at the School of Application at Marine Barracks, Annapolis, much like today's new lieutenants go to The Basic School at Quantico, Virginia. While at Annapolis he was much taken by Miss Ada Wilkinson of Phoenixville, Pennsylvania.

On finishing the course he was ordered to the 1st Brigade of Marines, then serving in the Philippines. It was garrison duty at the tag end of the Philippine Insurrection. There was no fighting to be done but there was hard training in jungle warfare.

On his return to the States in 1909 he married Miss Wilkinson. That year also saw him going, as a first lieutenant, on expeditionary duty to Nicaragua. After Nicaragua he was assigned to Marine Barracks, Annapolis, and then a transfer to Marine Barracks, Bremerton, Washington. In 1912 he went once again to the Philippines to serve as a company commander in the 1st Regiment. Then he went to sea as Marine Detachment commander in the cruiser *Galveston* which gave him 15 months in Asiatic waters. The war in Europe had begun. In 1915 he returned to the States for duty at Marine Barracks, New Orleans. From here, as a captain and commander of the 8th Company, he went with the 4th Marine Regiment to active operations in Santo Domingo.

He was military commander of Puerto Plata on Santo Domingo's north coast when the United States entered the First World War in April 1917. Within a month he and

his company were ordered to Philadelphia where the 5th Regiment was being formed for service in France.

He sailed with the first convoy of American troops in mid-June 1917 in command of the 8th Machine Gun Company. Early in 1918 he became, as a major, brigade adjutant of the 4th Marine Brigade. The brigade saw action in a quiet section of trenches near Verdun and then was plunged into the battle for Belleau Wood. Major Smith's role in all this was not dramatic. He had moved from being brigade adjutant to brigade liaison officer. As such he was next assigned to the staff of I Corps, First Army. From this perspective he saw Soissons, St. Mihiel, and the Meuse-Argonne. In an article, "Liaison," which appeared in the September 1919 *Marine Corps Gazette*, he called liaison "the nerve center of command." Much of what he called "liaison" we would now call "fire support coordination." ("The artillery cannot act efficaciously unless it is in intimate Liaison with the infantry which it is supporting.")

After being briefly with the Army of Occupation in Germany he came home in March 1919 to duty at Marine Barracks, Norfolk, Virginia. The following year he was sent to the Naval War College at Newport, Rhode Island. He found it "bogged down in obsolescence," particularly in the area of amphibious warfare.

Following his graduation he was named to the Joint Army-Navy Planning Committee, a kind of forerunner of the Joint Chiefs of Staff, headed by the Chief of Staff of the Army and the Chief of Naval Operations. The planners were already quite certain that Japan was the most likely opponent and were devoting thought to a war in the Pacific. He was the first Marine to be so assigned.

Smith argued, without success, for the development of special amphibious landing craft. In 1924 the Navy and Marines held a large-scale landing exercise in the Caribbean. Smith, acting as an umpire, thought the results were appalling, most particularly in the ship-to-shore movement.

Smith's next assignment was as brigade adjutant of the Marine Brigade in Haiti which the Marines had been policing since 1915. Two years passed uneventfully and then he went to Quantico where he wangled a slot in the Marine Corps Field Officers Course. The tactics being taught were too rooted in First World War experience and too defensive in nature to suit Smith. He was also one of those, along with Lejeune and Holcomb, who saw the future of the Marine Corps as being elsewhere than as a reinforcement to the Army in a land war in Europe.

The years were passing. He now went to the humdrum job of post quartermaster at Marine Barracks, Philadelphia Navy Yard. In 1930 he was promoted to lieutenant colonel and in 1932 was detailed to the USS *California* as the Battle Force Marine Officer. There was a large-scale landing exercise on Oahu that did not impress him. The following year he served briefly as Commanding Officer, Marine Barracks, Washington, D.C. and then, in 1935, became Chief of Staff, Department of the Pacific, in San Francisco.

He was sure that war with Japan would come. He wrote to the Commandant urging that planning and training for amphibious operations be stepped up. In March 1937, and now a colonel, he was transferred to the staff of the Commandant, now Major General Thomas Holcomb, a long-time confidant and friend of President Roosevelt.

Smith continued to have a special interest in the development of landing craft. He was promoted to brigadier general in August 1939, and a month later, at about the same time Hitler's armies marched into Poland, was transferred to Quantico to take command of the 1st Marine Brigade, Fleet Marine Force. In January 1940 he took his brigade to the Caribbean for amphibious training and landing exercises.

In the summer of 1940 the brigade moved to Guantanamo Bay, Cuba, and began building a tent camp. Not only was he demanding of his subordinates but he was having problems with the Navy, particularly with respect to landing craft.

It was about this time that his subordinates began calling him "Howlin' Mad" although he did not learn of this nickname until much later when it appeared in a *Time* magazine article.

Actually, he was ordinarily a quiet-spoken man and very considerate to the officers and men around him. His contemporaries called him by the nickname "Hoke." Those who knew him best say that Smith never really lost his temper. "The greatest weapon that one can have," he told one subordinate, "is controlled anger, and the greatest defect that one can have is uncontrolled anger."

On the 1st of February 1941 the 1st Marine Brigade became the 1st Marine Division. There were more landing exercises. Vice Admiral Ernest J. King, then commanding the Atlantic Fleet, was one of those with whom Smith frequently clashed.

In June 1941, I Corps (Provisional), U.S. Atlantic Fleet, was activated as an expeditionary force to consist of the 1st Marine Division and the 1st Infantry Division. Admiral King insisted that Smith command the corps which in turn became the Amphibious Corps, Atlantic Fleet, essentially a training command.

When war did come on 7 December 1941, 59-year-old Major General Holland M. Smith was in the prime of his professional life. He was of medium height, perhaps five feet nine or ten inches and somewhat paunchy. His once black hair had turned gray. His once close-trimmed mustache was somewhat scraggly. He wore steel-rimmed glasses and he smoked cigars incessantly.

Except for the cigars, that was the man I saw when I received my diploma on graduating from the 9th Reserve Officers Course and 8th Candidates Class at Quantico on a Saturday morning, 22 August 1942. I knew only vaguely that this man commanded all the Marines assigned to the Atlantic Fleet.

A copy of his remarks has survived. The speech was not particularly profound, but there are kernels of wisdom in what he had to say about the art of command.

"You must develop the iron energy necessary to surmount every exigency which battle may bring forth," he said, "and you must develop an inflexible will to execute that which has been planned."

He spoke of the virtues of discipline and loyalty:

"In order for a leader to enjoy the loyalty of his subordinates, he must in turn be loyal to them. . . . Our Marines expect to be led. They expect their officers to share their hardships and their hazards and I say to you solemnly that you must never, under any circumstances, expect or call upon your men to show greater spirit or courage than that which you manifest yourself. . . . Let no man in your command have a better knowledge than you, of your weapons, their capabilities and their employment."

And then, in a few words, he sketched in what really was his own leadership credo:

"Avoid, as you would the plague, an uncontrolled temper. Shun favoritism. Treat every man with a similar firm kindness, and you will have mastered the rudiments in the art of command."

What I didn't know as a young second lieutenant was that there were great pressures from as high a level as President Roosevelt and Prime Minister Churchill to either chop up the Marine Corps into commando-size pieces or to send its divisions to the European theater. It took men like General Smith and the Commandant, General Holcomb, to resist such pressures, and to keep the Fleet Marine Force oriented on the war against the Japanese, the war for which it had prepared.

General Smith's remarks to my graduating class were also, in effect, his farewell to Quantico. In that same month, August 1942, at least in partial recognition that the Marine Corps' war was in the Pacific, he turned over command of Amphibious Corps, Atlantic Fleet, to an Army general and prepared to take command of its West Coast counterpart, Amphibious Corps, Pacific Fleet.

When he left Quantico for San Diego in September he took with him a hand-picked staff.

His chief of staff was the tough and capable Colonel Graves B. Erskine. Wounded at Belleau Wood and again at St. Mihiel and holder of the Silver Star, Erskine, after the First World War had served in Haiti, Santo Domingo, Cuba, and Nicaragua, and China.

Already known as “the Big E,” he had been Smith’s chief of staff in both the 1st Marine Brigade and 1st Marine Division.

Erskine said later that he could usually see when Smith was getting ready to explode: “He drew himself up, and usually when he was real mad he would start breathing very heavily, and I could see it coming.”

Another star performer was Lieutenant Colonel Robert E. Hogaboom, a 1925 graduate of the Naval Academy who had seen service in Nicaragua and China and who at Quantico had won the reputation of being a brilliant instructor.

Mercurial Lieutenant Colonel Donald M. Weller was also a member of the team that Smith took with him to San Diego in September 1942. Weller had specialized in naval gunfire support on the staff of Amphibious Corps, Atlantic Fleet, and he would continue that specialty in the Pacific.

Weller, who remembered Smith as being extremely kindly and considerate to his own staff, later pointed out how important an influence the relationship established in 1941 between Admiral King and General Smith was on subsequent Marine Corps operations in the Pacific.

The crux of the problems with Admiral King had been the penchant of Navy admirals to get down into the tactical details of operations of the landing force once it was ashore.

“Admiral King was a hard-nosed, irascible type; there’s no question about it,” remembered Weller. “King was very demanding, very arbitrary, autocratic, but competent. The relationship between Holland Smith and Adm King grew to be one of mutual respect, but it grew to be one of mutual respect because Holland Smith refused to lay over and play dead and let King run over him.”

Captain (now Lieutenant General, Ret.) Victor H. Krulak had been under Smith in both the brigade and division and in the new command he served as his aide (Smith found his facile pen most useful) and as Assistant Logistics Officer. In his book, *First to Fight*, General Krulak has this to say about Smith:

He took the Marines of the East Coast Fleet Marine Force—about three thousand of them, air and ground—to the Caribbean in the autumn of 1940 and drove them mercilessly in landing exercises at Culebra, grinding the tough edges off their performance He made few friends in the Navy with his critical assessment that the landing craft and troop transport available for the 1940 exercises were wholly inadequate.

Smith had found the BuShips designed landing craft to be “without merit.” He had sighted in on a boat developed by Andrew Higgins of New Orleans. Erskine remembered that “Higgins had been building boats for the rum runners, which were pretty fast, they could run up into the beaches where the Coast Guard couldn’t follow, and get away from them.”

Smith considered the Higgins boat, of which they had a dozen or so for testing, to be the only satisfactory type of landing craft.

“If we had 300 of those boats and the ships to carry them,” he said, “we’d be in business.”

This was the time also of the development of Donald Roebling’s “Alligator” into the amphibian tractor or “Landing Vehicle, Tracked,” (LVT). Captain Krulak was put in charge of its testing. During the Culebra maneuvers Smith arranged for Krulak to give Admiral King a demonstration of the LVT’s reef-crossing capabilities. Unfortunately the tractor got hung up a hundred yards off the beach and an enraged Admiral King, in a starched white uniform, had to wade ashore.

In San Diego Smith took over the supervision of the amphibious training of both Marine Corps and U.S. Army divisions destined for the Pacific.

Lieutenant Colonel John C. McQueen, Naval Academy, 1921, joined Smith’s staff at San Diego in October 1942, initially serving as an intelligence officer on temporary duty with the Rear Admiral Francis W. Rockwell’s Ninth Amphibious Force. Later he would become Smith’s G-3.

Lieutenant Colonel Hogaboom was put in charge of a training group sent to Fort Ord to ready the Army's 7th Division (which had been training for desert warfare) for amphibious operations in the Aleutians. Hogaboom found the soldiers responsive and eager to learn. On the other hand, Erskine said that the Army was courteous, but that "There was no real warmth for any of us." In any case, the 7th Division received no real cold weather training before being sent north against the Japanese-held Aleutians.

In April 1943 Smith, along with Lieutenant Colonels McQueen and Hogaboom, embarked as observers in the battleship *Pennsylvania*, Rear Admiral Rockwell's flagship, watched the muddled landing of the 7th Division at Attu. Later most of Smith's staff would accompany him as observers of the Kiska landing. To the mortification of the task force, the Japanese had bailed out.

Immediately afterwards Smith critiqued the operation for the benefit of Admiral King, now the U.S. Chief of Naval Operations, and Admiral Chester W. Nimitz, Commander in Chief, Pacific Fleet. So impressed was Nimitz that he invited Smith to accompany him on a tour of the South Pacific. There were now three Marine divisions—the 1st, 2d, and 3d, all three trained by Smith—operating in the South Pacific.

On the return flight from his inspection trip, Admiral Nimitz told Smith that he intended to give him command of all Marines in the Central Pacific. The time was coming when strategic emphasis on the drive toward Tokyo would shift from the South Pacific to the Central Pacific in accordance with plans very close to those developed by the Navy and Marine Corps in the pre-war years.

Accordingly Smith's command was redesignated as V Amphibious Corps and his headquarters moved from San Diego to Pearl Harbor. The first objective for the drive west through the Central Pacific would be the Gilbert Islands. Smith was to be commander of expeditionary troops for this operation, code-named GALVANIC. His immediate superior would be the Amphibious Force Commander, Rear Admiral (later Admiral) Richmond Kelly Turner, "Terrible Turner," whose temper was at least as legendary as Smith's. The two men struck sparks like flint against steel, but, as Smith said it in *Coral and Brass*, ". . . our partnership, though stormy, spelled hell in big red letters to the Japanese."

Turner, like many admirals of his generation, had a proclivity for playing general. Smith told him bluntly: "I don't try to run your ships and you'd better by a goddamn sight lay off of my troops."

The major target in the Gilberts was Tarawa. The flagship for Tarawa was again the old *Pennsylvania*. Lieutenant Colonel Hogaboom was loaned to Turner's staff and in his mind, "The greatness of Admiral Kelly Turner was in that Kelly Turner worked his plans out in minute detail himself, right down to the last position of every amphibious vessel, where they would be, when they should be there, what they were to do."

As to the relationship of Turner and Smith, as Hogaboom saw it, "At the social level the two seemed to get along quite well together and seemed to enjoy drinking together. At the professional level though there was this tremendous tension."

The landing was made on 20 November 1943 by the 2d Marine Division and in 76 terrible hours the battle against 5,000 Japanese defenders was won. There had not been enough amphibian tractors for the bloody move from the reef line to the beach and naval gunfire preparation, to Smith's way of thinking, had been inadequate. Also, progress by the 165th Regimental Combat Team from the Army's 27th Division in the simultaneous attack against lightly held Makin Island had been, in Smith's mind, "infuriatingly slow." Seeds for further problems between Smith and the Army were sown.

Next on the target list were the Marshall Islands.

Hogaboom considered Rear Admiral Richard L. ("Close-in") Conolly, the naval attack force commander, one of the finest amphibious commanders: ". . . he had all the great features of Kelly Turner and none of his faults."

Some of the lessons learned at Tarawa were successfully applied. There were more amphibian tractors. Naval gunfire support was better. American losses in the taking in February 1944 of Roi-Namur by the 4th Marine Division and Kwajalein by the Army's 7th

Division, were light compared to Tarawa. But while the Marines took Roi-Namur in a little more than a single day, the Army required four days to take Kwajalein. Again Holland Smith was not pleased by Army performance.

The concluding objective in the Marshalls was Eniwetok, taken in mid-February by the 22d Marine Regiment and the 106th Infantry.

In March, Smith received the third star of a lieutenant general. The next targets were the Mariana Islands, three islands in succession, Saipan, Tinian, and Guam.

D-day for Saipan was 15 June 1944. The assault was by the 2d and 4th Marine Divisions. One of the concepts for the landing was not to debark from the amphibian tractors at the beach but to continue the tractors on inland. This was Erskine's idea.

The Army's 27th Division was in reserve. There was friction between Kelly Turner and Smith as to who should have command of the reserve and who should say when and where it was to be landed. On 20 June the 27th Division was put into the center of the line between the two Marine divisions. On the 23d the three divisions jumped off in a shoulder-to-shoulder attack that was to sweep to the north of the island. The 27th Division bogged down, the line bent in the middle, and Lieutenant General Holland M. Smith, U.S. Marines, relieved the commander of the 27th Infantry, Major General Ralph Smith, U.S. Army. The press played up the relief and the repercussions would be felt for years. Colonel McQueen, Holland M. Smith's G-3, was one of those who thought that his boss' relief of Ralph Smith was a bit impulsive.

One immediate repercussion was that on 12 July, before either the Guam or Tinian landings could take place, Holland Smith was kicked upstairs to command of Fleet Marine Force, Pacific, an administrative command just created. He did not, however, leave the Marianas immediately for Pearl Harbor.

I remember getting a glimpse of him on the beach at Guam sometime after our landing on 21 July in company with Major General Roy S. Geiger, then commanding III Amphibious Corps. On 24 July he was replaced as Commanding General, Expeditionary Troops, by Major General Harry Schmidt, USMC.

By now, as General Hogaboom later put it, the staff "had a professionalism, a competence that—we knew how to solve the problems and we knew what they were and from there on . . . there was little doubt of success."

However, the fine staff that had been assembled at Quantico was breaking up. Lieutenant Colonel Krulak had left early in 1943 for parachute training and a combat command. Erskine, who had been promoted to brigadier general in the summer of 1943, received a second star after Tinian and was given command of the 3d Marine Division. He took Hogaboom with him as his chief of staff.

About this time Brigadier General Lemuel C. Shepherd's 1st Provisional Marine Brigade, which had landed at Guam along with the 3d Division, was expanded into the new 6th Marine Division. Newly promoted Major General Shepherd asked for Colonel McQueen to be his Chief of Staff and General Smith obliged.

Smith was in command of Expeditionary Troops at Iwo Jima, but Harry Schmidt, as V Amphibious Corps commander, stood between him and the fighting ashore.

There were those that thought that Smith should have had command of the Tenth Army—the Army's XXIV Corps and the Marines' III Amphibious Corps—which was formed for the Okinawa campaign, but command was given to the Army's much less experienced Lieutenant General Simon Bolivar Buckner. And so the war ended with Smith shelved in Hawaii.

General Smith was restive in retirement. In 1950 he hosted a series, "Uncommon Valor," on that new and burgeoning medium known as television. In 1952, at age 70, he visited the Marines then fighting in Korea. In 1965 he predicted that all that could come out of Vietnam was a stalemate. In November 1966 he suffered a heart attack and in January 1967 he died.

In 1987 the Marine Corps Association published *A Fighting General* by Norman V. Cooper. Although imperfectly edited, it is a much better biography of Smith than *Coral*

and Brass. The book had its origins as Cooper's doctoral dissertation at the University of Alabama. Dr. Cooper, himself an Alabamian, sums up Gen Smith's career and contributions very well:

" . . . the aggressiveness and *esprit de corps* which . . . he fostered, demanded, and embodied was preserved and transmitted to future generations of Marines. That was his legacy to the Corps he had served so long and which he loved so well."

Readers of this facsimile reprinting of *The Development of Amphibious Tactics in the U.S. Navy*, which is done with the express permission of the *Marine Corps Gazette*, will find in it a final demonstration of General Smith's superb use of his staff and a coda, regrettably incomplete, to his career.

Adapted from "Alabama's Holland M. Smith," FORTITUDINE, Fall 1989.

A handwritten signature in black ink, reading "E. H. Simmons". The signature is written in a cursive, flowing style with a large initial "E".

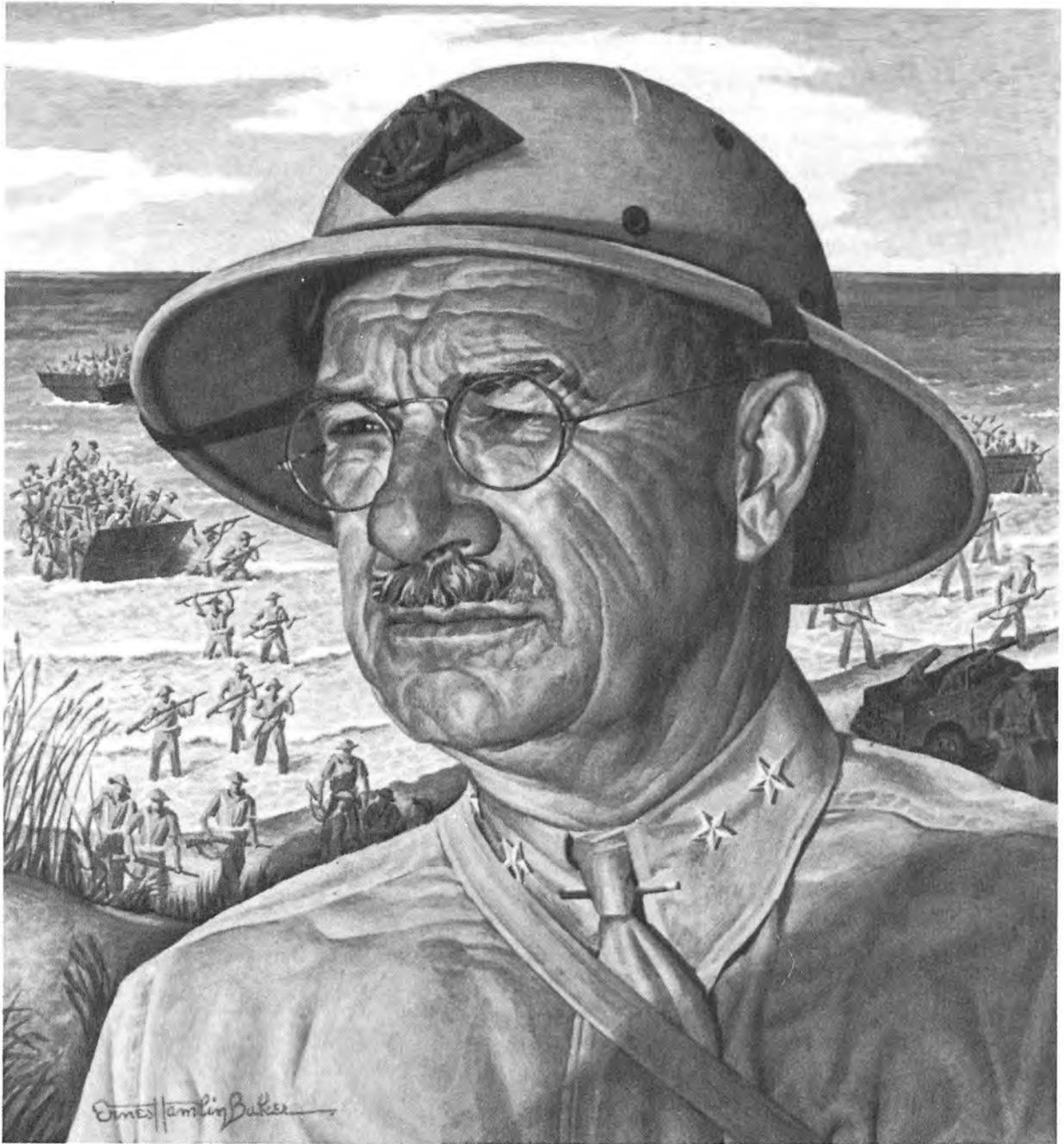
EDWIN H. SIMMONS
Brigadier General, USMC (Ret)

Table of Contents

Preface	iii
Table of Contents	xi

THE DEVELOPMENT OF AMPHIBIOUS TACTICS IN THE U.S. NAVY

Introducing the Author	1
Part I, Beginning a series on amphibious operations by the Marine who knows them best	2
Part II, Amphibious warfare from the Revolution to World War I	8
Part III, Birth of the FMF, fleet maneuvers, conception of amphibious doctrines	18
Part IV, Training, experiment six Fleet Landing Exercises—1934-1941	25
Part V, Three years of experiment in landing doctrine before Pearl Harbor	30
Part VI, Amphibious warfare's influence on the grand strategy of global conflict	39
Part VII, The Baptism—Guadalcanal, Makin Raid, Dieppe, and North Africa	46
Part VIII, Strategic Attu and Kiska fall, successful landings made on New Georgia	55
Part IX, Munda, New Guinea, Sicily fall before the Allies' growing seaborne might	63
Part X, Sicily secured, General Eisenhower now had a bridge to Italy	72



World War II-era portrait of Major General Holland M. Smith was painted by Ernest Hamlin Baker for the cover of Time magazine's 21 February 1944 issue. The painting is now in the collection of the Marine Corps Museum at the Navy Yard in Washington, D.C.

Introducing the Author . . .

LtGen Holland McTyeire Smith

THEY now call him the "Father of Marine Amphibious Combat" and the "Old Man of the Atolls," but when he was first offered a berth in the Corps, LtGen Holland M. Smith is supposed to have said,

"What are the Marines?"

It was 1905. After two years of law practice he had grown restless and come to Washington to see about a commission in the Army. None were available, but the Marines had a vacancy in the grade of second lieutenant and the 23-year old Smith accepted the appointment.



LtGen Smith

He had been born on 20 April, 1882, in Seale, Russell County, Alabama, and had graduated from Alabama Polytechnic Institute and the University of Alabama.

Basic training for newly appointed officers in those days was at Annapolis—the Schools of Application. While there he met Ada Wilkinson of Phoenixville, Pa. Later, in 1909 he would return from the Philippines and marry her.

He served three years as second lieutenant and eight as a first, most of it in the still-restless Philippines and in Panama and Santo Domingo. He was a captain for a year, then war was declared and he was made a temporary major. A month later, June, 1917, he was on his way to France with the first contingents of the AEF.

As adjutant of the 4th Marine Brigade and later as assistant operations officer of the 1st Corps, a combined Army and Marine unit, he distinguished himself at Belleau Wood, and was at Soissons, Champagne, and St. Mihiel. Somewhere along the line he picked up the nickname "Howlin' Mad" and it has stuck. Always a hard driver and sometimes sulphurous, he remains kindly, thoughtful, and enthusiastic.

In 1920 he received the permanent rank of major, in 1930 he was promoted to lieu-

tenant colonel, in 1934 to full colonel, and in 1939 received his first star.

A graduate of Marine Corps Field Officers' senior course and the Naval War College, BrigGen Smith in the spring of 1939 was named Assistant to the Commandant, then MajGen Thomas C. Holcomb.

BrigGen Smith was given command of the 1st Marine Brigade in September, 1939, with the mission of training 5,000 officers and men in amphibious landings. The Caribbean area was to be the testing ground with Guantanamo, Cuba, as the base.

Admiral Ernest J. King was then Atlantic Fleet Commander. Together they worked out the details of naval gunfire support, the tedious business of combat loading, the movement of troops from transport to landing craft to shore. Existing small boats were not suitable. BrigGen Smith experimented with Andrew J. Higgins of New Orleans and a landing craft was developed that could bounce in over shallow water reefs and hit the beach high. Since then "Higgins boat" has become synonymous with landing craft. Donald Roebing had designed an amphibious tractor for rescue work in the Florida Everglades—its possibilities were recognized and developed.

As war grew imminent, his role as an instructor of amphibious warfare broadened. Included in his student body were the Army's 1st and 9th Divisions. Later he brushed up the 7th Army Division before it hit Attu.

In September, 1943, MajGen Smith was given command of the V Amphibious Corps then forming in Hawaii for the drive through the Central Pacific. Within a year, the Gilberts, the Marshalls, and Saipan had fallen.

In the fall of 1944, the Fleet Marine Force, Pacific, was formed, consisting of the III and V Phib Corps and their supporting units with LtGen Smith in overall command. Heading the FMF, Pac, until after the war's end and redeployment, the 64-year-old Lieutenant General is now again in the United States, awaiting retirement from active service.

The Development of

AMPHIBIOUS TACTICS

in the U.S. Navy

By LtGen Holland M. Smith

FROM our entry into the war at Pearl Harbor in December 1941 until the Japanese surrender at Tokyo Bay in September 1945, every major offensive campaign launched by the United States was initiated by an amphibious assault. Our landings at North Africa in November 1942, at Sicily and Italy in July and September 1943, and at Normandy and Southern France in June and September 1944 ended in the defeat of the German armies in Western Europe by the Allied Expeditionary Force in May 1945. The Pacific offensive, which began in the South Pacific with the landings at the Solomons in August 1942 and in the Central Pacific at the Gilberts in November 1943, carried us 3,000 miles up the New Guinea-Netherlands East Indies axis for the reconquest of the Philippine Islands and 5,000 miles through the atolls and islands of the Japanese Mandates to the inner defenses of the empire in the Volcano and Ryukyu Islands. Before the Japanese surrender in September 1945, we were preparing for the final assault—an amphibious assault—and the destruction of the Japanese Army. The surrender was caused by the losses inflicted on the enemy in our amphibious offensive and by the pressure we were able to bring to bear on Japan from the naval and air bases gained in that offensive. Amphibious warfare was the primary offensive tactic in our conduct of global war.

The tactics and techniques of our landing operations represent a new and significant development in the art of war. Although military history contains many instances of landing operations conducted by both military and navy forces in all parts of the world, from the early time man first crossed the sea to wage war, the landings were generally either limited in scope and purpose or unopposed. The feasibility of amphibious raids, in which assault forces landed from the sea are withdrawn after limited operations, and of unopposed landings, relying on

surprise and conducted for the purpose of subsequent military operations ashore, has long been recognized. Until the recent war, however, the effect of modern defensive weapons was considered too decisive to permit successful assault from the sea. The development of radar, aviation, coast defense guns, torpedoes, submarines, mines, defensive obstructions and obstacles, automatic weapons, highly mobile reserves, and the necessary communication facilities to coordinate and control them seemed to present insurmountable difficulties to amphibious attack.

The combined operations conducted by the British during the Dardanelles Campaign in 1915 represent the only instance prior to the second World War of an assault landing by a major force on a hostile and defended shore. The operations ashore for the seizure of the Gallipoli Peninsula were unsuccessful. The landing forces were evacuated in December and January of 1916 after an eight-month campaign, and the impracticality of opposed landings was apparently conclusively demonstrated.

In that gap of 25 years between Gallipoli and Guadalcanal, the United States developed the doctrine, organization, tactics, techniques, and equipment necessary to wage successfully this difficult and complex type of warfare. The basic principles governing amphibious tactics are, like the concept of landing operations, by no means new, nor are they peculiar to this type of warfare. Advances in the field of offensive tactics are limited largely to technical developments, new methods, and logistical skill which increase mobility and fire power; the fundamental axioms do not change. It is the actual application of well-established principles in the organization and employment of amphibious forces, armed with modern weapons and equipment, that is new.

Although military services of all nations have pondered the problems presented by landing operations, the United States Naval Service is

Beginning a series on amphibious operations by the marine who knows them best

responsible, to a major degree, for the developments currently employed. The same technical advances that were so influential in military and naval tactics have rendered the world an increasingly compact sphere. It is no coincidence that the Navy, traditionally the country's first line of defense, should have pioneered in peacetime and refined and perfected in war its foremost offensive arm. To carry out its policy of maintaining a defense in distant waters, in order to assure a theater of operations removed from the continental United States the Navy was faced with the problem of securing and defending advanced bases for the support of the fleet. The benefits of a well-rounded, flexible fleet organization including an organic auxiliary air arm and a fleet marine force to exploit the advantages of sea power with landing operations have been more than realized in the solution of this problem. From beginnings in landings which were in concept auxiliary naval actions, the Navy has developed and practiced large scale joint amphibious operations, which are purely offensive in nature. Tactics governing an opposed landing for the seizure of a small advanced base to facilitate or exploit a naval campaign are equally valid for undertakings of greater magnitude, incident to invasion and extensive land warfare. The basic problems are constant, regardless of the scope, purpose, or varying local conditions which may obtain in any given operation.

LtGen Smith has expressly requested that full credit be given to the former Lt Bill Lowe for his research and editorial assistance during the preparation of Amphibious Tactics. Mr. Lowe is now with World Report, Washington, D. C.

The Coordinated Attack

Any landing operation directly related with combat, in which the forces participating operate both in the water and on the shore, must be termed amphibious and tactical. It may be a simple river crossing, conducted merely in the presence of the enemy and in anticipation of a battle soon to be joined. However, in its most literal and modern connotation, *amphibious tactics*, as conceived and practiced by the Navy and as discussed herein, means *the art of conducting an operation involving the coordinated employment of military and naval forces dispatched by sea for an assault landing on a hostile shore.*

The most significant words in the foregoing definition are "coordinated" and "assault." In them is the key to the development of modern amphibious tactics. It was the recognition that a landing operation, a combined undertaking of great complexity, must be carefully coordinated in planning and in execution, and that the landing of troops on a hostile shore must be accom-

plished as a tactical movement, including an approach, deployment, and assault by the landing force following an adequate preparatory bombardment and accompanied by the effective supporting fires of surface and air forces, that gave the impetus to the development of successful tactics.

The idea of a combination of arms in order to apply the maximum effective force against the enemy at the right place and at the right time is one that precedes our landing operations doctrine by over a hundred years. Late in the 18th century there was developed the concept of a corps of all arms, which gave to ground forces a new flexibility and power. The effect of co-ordination of associated and supporting arms increased through the years with the invention of new material, and its application to modern weapons, such as the tank and airplane, has been facilitated by concurrent advances in the field of communications. Swift application, coordination and control of military force is made possible only by reliable communications. The effective employment of coordination in relation to modern offensive weapons in land warfare was most clearly demonstrated by the German airtank-infantry blitzkrieg techniques unveiled in the offensives in Poland and France in 1939 and 1940. Its application to naval tactics is best exemplified by the strikes of the battleships, aircraft carriers, cruisers, and destroyers of the powerful fast carrier task force of the U.S. Pacific Fleet. The highest and most inclusive degree of coordination yet achieved has been applied in the joint amphibious offensives which have featured our major campaigns during the war, wherein the Army and the Navy have together so successfully employed their surface, air and submarine forces in mutual support and coordinated mass. Here, in the realization of the full implications of combination, cooperation, and coordination, lies amphibious warfare's most lasting and significant contribution to military science.

Military and naval mobilization, organization, administration, logistics, planning, training, movement and deployment are all directed to one end—combat. Combat is the means of achieving war's end. It was only when the naval phase of our amphibious operations—the sea-borne approach and the ship-to-shore or shore-to-shore movements—was visualized, not as a ferry ride, but as a tactical movement, culminating in an assault, that successful landing operations were possible. Only when reliance on

tactical surprise and stratagem, and the hope for favorable conditions were abandoned, and the problem of effecting a frontal assault on a defended shoreline was squarely faced, were adequate solutions evolved. Planning for the worst and the consideration of all eventualities resulted in the development of weapons, equipment and techniques to meet them. The concept of assault is therefore elemental. In amphibious tactics, whether the battle is for an island base or an invasion beachhead, it is the assault landing and the subsequent operations of the landing force to which all activities and the support of all participating forces are directed. The mission of the landing force is the primary tactical consideration.

All warfare is concerned with certain general principles. The factors of superiority, concentration, and economy of force, surprise, speed, offensive spirit, mobility, and simplicity are characteristic of successful offensive action and have their special application to landing operations.

Superiority of force is a prerequisite of amphibious assault. A condition of sea and air supremacy or decisive superiority must exist at the objective area and in the approaches thereto before a landing attempt is justified. The superiority must be exercised once the landing is begun to prevent enemy intervention or reinforcement and to provide reconnaissance, observation, and tactical support. The task of securing complete or even adequate intelligence, which in landing operations must include detailed data on terrain, hydrography, and meteorology as well as information on enemy strength and disposition, combines with the logistic problems of transport and support, frequently over extended sea lines of communications, to make the organization of an amphibious attack force peculiarly difficult. Superiority must be achieved in accurate fire power, planning, training, organization, and aggressive mobility rather than in numbers. It is the coordinated *concentration of the resulting force* that provides the superiority. The logistical problems of transport and supply and the requirements of speed and mobility render *economy of force* mandatory.

The mobility of sea-borne forces and the resulting ability to approach under cover of darkness and to conduct diversionary feints tends to increase their opportunity for tactical *surprise*. However, in any operation in which the enemy defenses require a prolonged preparatory bombardment the factor of surprise is sacrificed for the more certain advantages of destruction and neutralization achieved by bombardment.

"For the victor, the engagement can never be decided too quickly; for the vanquished, it can never last too long. The speedy victory is a higher degree of victory; a late decision is on the side of the defeated some compensation for

the loss."¹ From the time an amphibious attack is launched, speed is essential—speed in debarkation in the transport area, speed in the vulnerable period of the ship-to-shore movement, speed in the initial seizure of a beachhead, speed in landing tanks, artillery and other supporting arms, equipment, supplies and reinforcing troops, speed in the expansion of the beachhead and in the capture or construction of airfields, and speed in the pursuit and destruction of the enemy. A prerequisite of speed is *offensive spirit*. The decisive measure of superiority in the more difficult amphibious operations of the war had been frequently provided by the relentless aggressive spirit of the troops in maintaining a constant pressure on the enemy, denying him the ability to move, communicate or reorganize. The importance of constant offensive action in the apparent chaos of an opposed landing and the necessity for resourceful, dynamic leadership in all echelons can not be over-emphasized. "Therefore, the more lively the attacks are, the less men they cost. By making your battle short, you will deprive it of the time, so to speak, to rob you of many men. The soldier who is led by you in this manner will gain confidence in you and expose himself gladly to all dangers."²

The opportunity to choose the route of approach and move rapidly to any chosen objective and the immediate availability of mobile reserves for exploitation is greater for sea-borne than for land-based troops. The development of assault transports, troop-carrying destroyers, fast landing craft and other special equipment has all been directed at achieving increased *mobility*.

The complex and variable nature of landing operations requires comprehensive and flexible planning. The execution of plans by the many diversified component parts of a joint amphibious force in a coordinated and effective manner requires a *simple* scheme.

A joint operation may be one in which military and naval forces perform consecutive and distinct missions, in which coordination is a simple matter of timing, in which there is a sharp delineation between the phases of army and navy participation. Such undertakings may be termed cooperative. There is, however, in an amphibious operation a critical middle phase, during which the naval and military forces function simultaneously and in combination. Prior to the landing and then after the troops are established ashore, the functions of the naval forces and of the troops are, for the most part characterized by their normal distinct naval and military tasks. It is the interim period that is the province of amphibious tactics. Here there is the

¹Von Clausewitz.

²Frederick the Great.

combination of military and naval tactics, the mutual adjustment of respective techniques. The "task force" (whether it be an amphibious corps, reinforced division landing force, regimental combat team or battalion landing team) organized after the naval manner with regard to the mission assigned and the limitations of logistics, controlled through the medium of naval communications, executes a military tactical movement from ship or shore-to-shore. With a base of fire from naval vessels and aircraft, delivering the preparatory barrage against the landing areas and covering bombardment on the flanks and into the enemy's rear, troops embarked in naval landing craft approach rapidly in column, deploy when within range of hostile small arms fire, and assault the beach simultaneously and on a broad front. There follows the pursuit and continuation of the attack, closely supported by naval elements until the beachhead is established and the landing force, augmented with arms, reserves, and supplies, becomes self-sufficient. In the landing phase command is decentralized, and initial operations ashore are directed toward a resumption of centralized control by the landing force commander. The success of the maneuver, therefore, relies largely on the efficacy of the communications afloat and between ship and shore.

Amphibious tactics are confronted with certain special problems which must be solved before the essential elements of mobility, fire superiority, control, and logistical support can be achieved. Doctrine, technical development, and practical experience have provided the solutions. The current naval doctrine on landing operations, which was published prior to our first landings in 1942 and without benefit of the combat experience of this war, was based on long consideration of the problems and the limited experience gained in maneuvers. It has proved remarkably sound. The organization, planning, tactics, and techniques prescribed provide largely satisfactory answers. The doctrinal solutions have been revised and improved as technical developments have met the demands of tactical requirements.

Technical advances have been expedited by the research and experimental agencies established by the Army and Navy. Notable among these are the Office of Scientific Research and Development of the National Defense Research Committee, the Naval Research Laboratory and the Navy Department's newly established Office of Research and Invention, the Research and Development Division of Headquarters, Army Service Forces, War Department, the Army Engineer Board, the Marine Corps Equipment Board, and the Joint Army-Navy Experimental and Testing Board. Finally, tactics have been refined and perfected in the light of lessons

learned in maneuvers and actual combat operations.

The problem of achieving mobility in landing operations involves the following:

1. The development of assault transport vessels and landing ships for personnel and cargo.
2. The organization of transports into divisions and squadrons with regard to naval control afloat and employment of the battalions, regiments, and divisions embarked.
3. The organization and equipping of a landing force for embarkation in naval vessels and for decentralized tactical employment in landing.
4. The development of a technique for loading troops and equipment on transports in a manner to facilitate rapid debarkation in accordance with the tactical scheme of maneuver of the landing force.
5. The development of a technique for the rapid transfer of troops and equipment from transports into landing craft.
6. The development of rapid, maneuverable, shallow draft landing craft to transport assault troops and equipment through surf and enemy fire and over reefs to the beach.
7. The development of organization, equipment, and technique to control landing craft in the ship-to-shore movement in order to facilitate the continuous flow of troops, arms, and supplies to the beach in accordance with tactical requirements.
8. The development of methods for breaching and passing underwater obstacles and obstructions.

The problem of providing fire superiority in an amphibious operation involves the following:

1. Providing the landing force with supporting weapons during the period when its organic artillery and land-based tactical air support are unavailable.
2. The development of a technique for shore bombardment by naval guns. This includes adapting high velocity, flat trajectory, penetrating ordnance to missions calling for high trajectory, high explosives of wide bursting radius and the development of a technique for indirect fire control.
3. The maintenance of air superiority at the objective area and the provision of close air support. This requires mobile bases and methods for rapid, controlled, accurate support.
4. The development of equipment and methods for the early landing of tanks, artillery, land-based aircraft, supplies and equipment.
5. A technique for the coordination of air, naval gun fire, and artillery support.

The problem of control in amphibious operations is one of command, liaison, and communication, and training. This involves:



The Big Three of Marine Amphibious Combat; from left to right, LtGen Holland M. Smith, Gen A. A. Vandegrift, and LtGen Roy S. Geiger. Gen Vandegrift led the 1st MarDiv and I MAC in the Solomons in the opening campaigns of the Pacific offensive, then became Commandant. LtGen Smith took the V 'Phib Corps to Tarawa, Eniwetok, and Saipan, became Commanding General, Fleet Marine Force, Pacific. LtGen Geiger commanded the III 'Phib Corps at Guam, Peleliu, and Okinawa, succeeded LtGen Smith as CG, FMF, Pac.

1. The establishment of command relations which will best facilitate coordination in the planning phase and the uninterrupted application of combined force in the execution of the landing.

2. The development of equipment and methods for accurate, rapid, and secure communication between all elements. All major commanders must be constantly informed of the existing tactical situation in order to direct and coordinate their respective forces most effectively.

3. Provisions for realistic, full-scale joint training, which with experience is the only method for achieving that full measure of coordination necessary to success.

The problem of logistical support entails detailed planning and cooperative execution of the plans by both naval and military forces. It requires:

1. Long shipping lanes which must be protected from enemy surface, air or undersea attacks.

2. Special types of ships designed to carry and put ashore supplies or a combination of troops and supplies.

3. A system of combat or vertical loading whereby any given item aboard the supply ships can be reached quickly.

4. The organization and employment of a special supply agency, the Shore Party, to insure the flow of supplies and equipment from small boats or amphibious vehicles to the beach and thence to the fighting troops.

The situation, problems, and therefore the tactics employed in military operations vary with the mission assigned. There are three major types of missions in amphibious warfare, each of which has its peculiar characteristics:

1. There is the capture and occupation of an advanced naval or air base to facilitate or exploit a naval campaign. The Pacific offensive of the war was such a battle for bases. Operations of this nature are of paramount interest to the Navy. Generally, there are limited land masses involved— islands or atolls. There is frequently the presence of a fringing reef and the resulting problem of traversing it. In such restricted areas, there is no requirement for an armored force and little need for massed heavy artillery. The available land area can be

isolated by the exercise of sea and air superiority. The enemy can thereby be prevented from reinforcing his defending forces. His movement can be restricted, and his ability to employ mobile reserves is diminished. The attacker will probably encounter occupied defensive positions at the shoreline. The necessity for tactical surprise is therefore less essential. The movement to the objective from mounting and staging areas is generally a long one which increases the logistical burden. Land-based tactical air support may accordingly not be available before airfields are captured or built, and there is a greater need for carrier-based air at the target. Conversely, and because of the primarily naval character of the campaign, there is generally a larger number of bombardment vessels available. Daylight operations are consequently preferable to night landings.

2. On the other hand, there is the seizure of an invasion beachhead to facilitate a major land campaign. The opening phases of the North African, Italian, and Western European campaigns of the war are examples of battles for beachheads. The Army had the paramount interest in these undertakings. Extensive land areas with long, and frequently lightly defended, shorelines afford the enemy the opportunity to employ mobile reserves. The factor of surprise is therefore more important. The attacker requires armor and motor transportation to give him the necessary mobility. He has a greater need for quantities of heavy artillery and

can employ parachute and airborne troops to good advantage. There is a greater necessity for tactical air power for reconnaissance, observation, and attack missions. The movement to the objective is generally shorter and can therefore be accomplished to a partial or complete extent as a shore-to-shore operation. The proximity of mounting areas and friendly supporting bases and the primarily military character of the operation places the emphasis in supporting bombardment on tactical aviation rather than on naval gun fire. The characteristics of an invasion landing apply with modifications to river crossings.

3. The third type of mission can be classified as a raid and includes those landing operations of limited scope which are conducted for purposes of reconnaissance, harassing the enemy, diversion, or sabotage. They require above all else surprise and speed of execution and involve carefully timed and coordinated action, culminating in a withdrawal of the attacking force. Night landings are preferred to daylight operations. Special and widely varying techniques, organization and equipment are employed in operations of this nature, but as in the case of all three types of missions, they are based on the fundamental principles of amphibious tactics. British Commando operations in Europe and the landings of United States Marines at Makin and Choiseul are examples of amphibious raids.

The Development of **AMPHIBIOUS TACTICS** in the U.S. Navy

By LtGen Holland M. Smith

Illustrated by Sgt Franklin L. Jones

Part II

THE NAVY has been concerned with what Fleet Admiral Ernest J. King has termed "the most difficult of military operations" for 170 years. Early in 1776, our first Naval Squadron, which was established by the Continental Congress in the autumn of 1775, undertook as its first mission an amphibious operation against the British fort at New Providence in the Bahamas.

The Squadron consisted of the ships *Alfred* and *Columbus*, the brigs *Andrea Doria* and *Cabot*, the sloops *Providence* and *Hornet*, and the schooners *Wasp* and *Fly*. It was under the command of Commodore Esek Hopkins. Included in the complements of the vessels of the squadron were approximately 270 marines under the command of Capt Samuel Nicholas. The British, engaged in conducting a naval campaign of attrition along the Atlantic coastline, were known to have stored considerable quantities of weapons, ammunition, and naval supplies at Fort Montague and Fort Nassau under the protection of a small guard detachment on this base and the seizure of the supplies would serve as a blow to British logistics, and the captured material could be put to good use by the hard-pressed Colonials, who were also hopeful of seizing enemy ships with which to augment their thin naval strength.

Commodore Hopkins decided to surprise the small garrison and land a landing force to capture the fort and seize its stores. 220 Marines from the ships' detachments of the squadron together with 50 bluejackets under Lt Weaver of the *Cabot*, were embarked on two small sloops, and the command of this landing force was given to Capt Nicholas of the Marines. The transports were sailed in the van of the main force with the troops concealed below decks in order to gain surprise. However, the main body followed the sloops too closely, and the attacking

force was fired on by the guns of the fort as it approached. The original plan was adhered to nonetheless, and the landing force hit the beach under a covering naval gun bombardment delivered by the *Providence* and *Wasp* without opposition or loss. The British, taken by surprise, impressed by the strength of the squadron, and influenced by the diplomacy of Capt Nicholas, relinquished the fort and a total of 71 cannon, 15 mortars, and quantities of other stores including 24 kegs of powder.

In its first operation the Continental Navy conducted a successful combined land and sea action. An early precedent was established for the Navy-Marine Corps team, and the technique of planned operations involving the exercise of mutual support by naval and military forces was thereby initiated in the Navy. Barely three months after the founding of what later became the United States Marine Corps, marines were employed as specialists in ship-to-shore operations. In the 170 years of existence that have followed, amphibious tactics have evolved through study, development, and practice as the chief concern of the Corps. The Marine Corps is small in relation to the Army and Navy. It has had continuous experience in peacetime and war in actual combat operations with both the Army and Navy, afloat and ashore, in varying conditions of climate and terrain, against a variety of enemies in all parts of the world. It has been assigned missions which have varied from punitive expeditions and small wars for the maintenance of law and order and the protection of American life and property to participation in the major land campaigns of the first world war and the assault landings of our Pacific offensive in the second. From its size, experience, and mission, the Marine Corps has derived a degree of versatility which has fitted it well as the Navy's laboratory for the development of the specialized techniques of landing operations. In the twenty years before this war the Marines developed and wrote the landing operations doctrine, practiced and revised it in a long series of landing exercises with the fleet, played a

In this installment, amphib warfare from the Revolution to World War I

major role in the development of landing craft and equipment for its execution, trained officers and men in peacetime as amphibious experts, and finally proved the validity of modern amphibious tactics in combat at Guadalcanal. They have since refined and perfected these tactics in assault landings at Makin, New Georgia, Choiseul, Bougainville, Tarawa, New Britain, Kwajalein, Eniwetok, Saipan, Guam, Tinian, Peleliu, Iwo Jima, and Okinawa. The doctrine has been spread in the training of Army troops for amphibious employment under the supervision of Marine officers, who have served also as amphibious experts on Army and Navy staffs in all theaters of operation. Naval gunfire, air support and transport loading techniques have been developed by the Marine Corps for and in conjunction with the Navy. Both the Army and the Navy, as well as foreign military services, have made their own specific contributions to amphibious tactics, but credit for the initial development and the subsequent major revisions must go to the United States Marine Corps, an organization without parallel in the military services of other nations—specialists in amphibious warfare.

Between 1776 and 1846 the United States Navy was established and developed, but the period prior to the Mexican War saw little progress in the field of amphibious tactics. There were two further expeditions against New Providence in 1778, and in July 1779, marines and Massachusetts militia participated in combined operations against the British base at Penobscot Bay, Maine. Marines supported by gunfire from naval vessels landed artillery on Nautilus Island in the harbor to deny the enemy the use of the anchorage and to support future landings. Then, as assault troops, they seized a beachhead on a nearby peninsula under the cover of the island-based artillery to permit the subsequent landing of the militia. However, coordination between the landing force and the naval force was not good, and the troops received no naval gunfire support. The joint expeditionary force, which did not enjoy sea superiority at the objective area, was forced to evacuate the troops and withdraw in the face of fresh British naval forces before accomplishing its mission. The ships were scuttled and the force returned to Massachusetts overland.

IN the years following the Revolution, small mixed landing parties of sailors and marines were put ashore by naval vessels in the Mediterranean, Caribbean, and Pacific, in connection with naval operations against pirates, Indian wars, punitive missions, and moves to protect American lives and interests. Such landings were common for over a century. There were,

however, no landing operations of tactical significance conducted prior to the Mexican war.

The war against Mexico, which began in 1846, was in a real sense a combined military and naval undertaking. The Navy played a decisive role in two distinct theaters of operations, and amphibious tactics reached a new level of development, which was little improved in the next seventy-five years.

From the strategic point of view, it should be noted that the United States held complete sea supremacy, both on the Gulf coast of Mexico and in the west along the Pacific coastline. Operations in the Gulf of Mexico were affected by bad weather conditions. Local gales, known as "northers," were prevalent throughout the winter. Navigation was made difficult for the major vessels of our Navy by sand bars and the shallow waters of the coastal harbors. Naval vessels were forced to operate at the end of extended lines of communication; the nearest base at the beginning of the war was at Pensacola, Florida, 900 miles from the Mexican coast. A final factor which affected operations in Mexico was yellow fever.

AT the outbreak of the war and in anticipation of hostilities, our Navy was disposed in both oceans with the Home Squadron under Commodore David Conner based at Pensacola operating in the waters off the Gulf coast of Mexico between the Rio Grande and the Tabasco, and the smaller Pacific Squadron, under Commodore J. D. Sloat, operating independently in the waters off California and Lower California.

There was a much stronger naval force available to the United States in 1846 than the one Commodore Hopkins had sailed against the Bahamas seventy years before. The Navy consisted of 11 ships of the line, 14 frigates, 23 sloops-of-war, 8 brigs, 8 schooners, and 8 steamers. The change from sail to steam had been initiated. The wooden-hulled, paddle-wheeled frigate *Mississippi* and the iron-hulled, screw propeller *Princeton* played major roles in the campaign of the Home Squadron. Smaller steamers such as the *Vixen*, *McLane*, *Petita* and *Spitfire* were indispensable for operations over the bars and in the shallow waters of the Mexican ports and rivers flowing into the Gulf. Notable improvements had also been made in the field of ordnance: explosive shells had been developed, powerful guns were being constructed, and armor was under consideration. Shore bombardment by naval guns was consequently more effective during the Mexican War than ever before.

The Navy's mission on the Gulf coast was two-fold:

1. To effect a blockade of Mexican ports and



1776—the Marines landed and took Fort Nassau from the surprised British.

to seize such harbors as were necessary to carry out this mission.

2. To support the army by maintaining communications and, where required, to assist in landing operations on the seaward flank.

The mission of the Pacific Squadron was a similar one in respect to the blockade, but the role of the Navy in land operations was far more significant. Naval landing forces with the support of the vessels in the Squadron were largely responsible for the capture of California.

Mixed landing forces of marines and sailors, operating as a naval auxiliary, were organized from the ships of the squadrons when the need arose and used in operations for the capture of coastal ports. The primary tactical instrument, however, was naval bombardment. The landing operations were generally on a small scale and met with little resistance. The full effect of bombardment was realized by landing troops to occupy and destroy coastal forts and garrison abandoned cities. However, the organization of the landing force and the tactics evolved for ship-to-shore movement and fire support were significant developments. The seizure of ports by the Navy not only increased the effect of the blockade, but also served indirectly to support the operations of the Army ashore.

The well-coordinated joint operations con-

ducted by Commodore Conner's Home Squadron and Gen Scott's Army in landing four divisions totaling 12,000 men in special landing craft under cover of naval gunfire at Vera Cruz was the most significant amphibious operation of the Mexican War. Although no opposition was encountered in the ship-to-shore movement, the precise execution of that phase of the operation was essentially a tactical movement.

Late in 1845, prior to the formal declaration of war and the invasion of Mexico, a detachment of the Home Squadron supported Gen Zachary Taylor's Army at Point Isabel in the disputed area north of the Rio Grande. A landing force of 500 sailors and marines from the frigates *Raritan*, *Cumberland*, and *Potomac*, under the command of Capt F. H. Gregory, USN, was put ashore to assist in the defense of the town. A landing force was initially organized around the separate mixed marine and blue-jacket detachments of each ship. However, after protest the marines were organized as a separate battalion consisting of 145 officers and men under the senior marine officer present, 1st Lt Lang. No assault landing was necessary and the force was employed in the defense and for garrison purposes.

With the declaration of war, a stringent blockade was imposed on Vera Cruz and other

important ports by the Home Squadron, which operated from a fleet anchorage at Anton Lizardo near Vera Cruz. Capt J. H. Aulick, USN, took a small mixed landing force up the Rio Grande from Point Isabel in small boats to assist the Army. The men of this unit proved to be the first American troops to land in Mexico. This river operation was the first of several conducted during the war.

CONNOR, who had made repeated requests in vain for small steamers capable of operating shallow water, decided in August to capture the strongly defended port of Alvorado, which was second in importance only to Vera Cruz. A sand bar offshore made it difficult to assure an effective blockade of the port and proved a serious impediment to landing operations and close-in bombardment. On 7 August 1846, after a six-hour, long-range bombardment by the steamers *Mississippi* and *Princeton*, small schooner gunboats and towboats with a landing force embarked, attempted to cross the bar and go up the river to attack the fort, under the continued protection of ships' guns. A strong current combined with heavy small arms fire from the shore to force the attackers to withdraw. In mid-October, a second attempt was made to capture Alvorado. In the interim two small steamers, the *Vixen* and *McLane*, and several schooner gunboats reported for service in the Squadron. The landing force of marines and sailors from the *Cumberland* and *Raritan* were embarked in the *Mississippi* under Capt French Forrest, USN, for employment if required to support the close-in firing ships. Here is an indication of the relative value placed on naval gunfire and the landing force. On 15 October the *Vixen* with two gunboats in tow and the *McLane* with three set out for an attack on the fort at the river mouth whose guns commanded the approach over the sand bar.

There were other Mexican forts up river and several enemy armed vessels in the harbor. The *Mississippi* fired at the fort from long range and the small gunboats fired as they approached. The *McLane* grounded on the bar and cast off its tows. In this emergency the landing force was disembarked but was not used. The *Vixen*, which had traversed the bar, withdrew, and the attack was called off. It is notable that there was no plan for a landing on an undefended flank of the fort followed by a subsequent land attack—tactics which were later successfully employed in similar operations by Commodore M.C. Perry.

On 23 October Commodore Perry, with a detachment of the Squadron and 200 marines and sailors from the *Cumberland* and *Raritan* embarked on the *Mississippi*, organized and equip-

ped as a landing force for employment in small boats, undertook an attack against Frontera at the mouth of the Tabasco River. The landing force included the Squadron Marine battalion under the command of Capt Alvin Edson, USMC. The steamers *Mississippi*, *McLane*, and *Vixen* towed small boats across the sand bar successfully and the town surrendered on demand before a landing was necessary. Successful river operations including landings up the Tabasco followed. These were directed at the trading center of San Jan Bautista. The next attack was conducted against Tampico on 13 November. This port was needed as a base for Gen Taylor's Army, which was moving south from the border. A landing force numbering 300 was embarked on steamers, schooners and barges. The steamer, *Spitfire*, flying Commodore Conner's flag, towed the schooners *Petrel* and *Reefer* and several small boats. The steamer *Vixen*, flying Commodore Perry's flag, towed the schooners *Bonita* and *Monata* and other small boats. No resistance was encountered, and it was discovered that the Mexicans had evacuated the town. The technique of bombardment and cross-bar movement in small steamers and schooners initiated at Frontera was proved sound. Capt Edson and the marines garrisoned the town and on 17 November a small expedition conducted river operations.

THE success of the landing operations conducted by the Navy and the desire to force an early surrender, if necessary, by an attack against Mexico City, indicated a change of strategy. It was decided to shift the main effort from Gen Taylor's overland campaign and to land a major force at Vera Cruz. Gen Winfield Scott was given command of an army, which was assembled in southern Texas and from units of Gen Taylor's forces south of the border. The troops were embarked on a large fleet of army transports, organized and equipped for landing operations. The army's artillery included siege guns. The transports sailed to Lobos Island first for final training, equipping, and joint planning with the Navy. The Navy then convoyed the transports to the fleet anchorage at Anton Lizardo. There the troops were transferred to naval sloops. Each army division was loaded on two or more vessels of the Squadron. The 1st Division, which was to land in the assault, under BrigGen Worth, consisted of 4500 troops and was embarked on the *Raritan*, *Princeton*, and the army transport *Edith*. The Marine battalion, under Edson, was included in the task organization of the 3d Artillery. Surf boats, especially provided for the landing, were towed by the steamers. On 9 March, 1847, the force

Amphibious Tactics

approached to within two to three miles of the shore and five gunboats and two steamers took positions in a line parallel to the beach. The landing force was disembarked into 65 small landing craft, which then assembled under the protection of the larger vessels and deployed in line for the ship-to-shore movement. The landing boats were rowed to the beach at top speed by sailors, and units of the Division landed simultaneously without opposition and without casualty. 10,000 troops were landed between sunset and ten p.m. in the small boats, which made repeated trips from the transports to the beach. Vera Cruz was isolated and the siege was undertaken, which, with support from naval guns landed on the beach and on vessels at sea, succeeded in reducing the city and bringing about its capture.

On the 21st of March, Commodore Perry relieved Commodore Conner as Squadron commander, and following the success at Vera Cruz, further operations were undertaken against the Gulf ports. Early in April the gunboat *Scourge* independently forced the surrender of Alvarado, which left Tuxpan as the last port of importance held by the Mexicans. Perry, who had a greater belief in the value of the landing force than Conner, formed a special landing force brigade, consisting of 1489 officers and men and four artillery pieces, under the command of Capt S.N. Breese, USN. The brigade was given special training and drills, and on 18 April the *Mississippi*, with schooners and gunboats in tow, attacked Tuxpan. The steamers towed the gunboats in accordance with the established procedure and the gunboats returned the fire of shore batteries in the approach. The landing force was disembarked, and attacking from the flanks and rear seized the port. On 15 May, a force of 15 ships launched a second attack in the Tabasco against San Juan Bautista which ended in the seizure of the city by the brigade.

Commodore Sloat's smaller Pacific Squadron, operating independently without support or communication with either Washington or the Home Squadron in the Gulf, effected the capture of California and the blockade of Lower California ports. A special landing force of sailors and marines, which also contained California volunteers, waged a successful and extensive land campaign ashore in California employing the support and mobility provided by the vessels of the Squadron. However, planned ship-to-shore operations comparable to those in the Gulf were not necessary. Monterey was seized on 7 July 1846 by a landing force of 186 sailors and 35 marines; San Francisco (then called

Yerba Buena) was taken on 9 July; San Diego on 29 July; Santa Barbara on 4 August; and San Pedro on 7 August. The San Pedro landings were followed by an overland movement and the capture of Los Angeles. These initial landings were unopposed and required very limited forces. However, once taken, the coastal positions were insecurely held by the Americans, and an extended land campaign was required before Los Angeles and San Diego were finally and securely in our possession.

After the army arrived with reinforcements in 1847, attention was turned to strengthening the blockade against the ports of Lower California. Commodore Stockton had relieved Commodore Sloat on 15 July and had been responsible for the conduct of virtually the entire campaign in California. Commodore Shubrick, a later arrival, conducted two landing operations of note in the autumn of 1847 directed at enforcing the blockade to the south. On 17 October heavy artillery was landed on two small islands at Guayamas, and was coordinated with the bombardment of naval vessels to cover the landing of troops against the town. The bombardment was successful in forcing the enemy to evacuate before troops landed. On 11 November a landing force of 600 sailors and marines, equipped with five field pieces, was boated in three waves and dispatched under a naval bombardment, and the coordinated approach of the landing force, was so impressive that the enemy offered no resistance to this landing.

There was a clear appreciation in the prosecution of the Mexican War of the strategic value of sea supremacy and of the tactical relationship of military and naval operations. Successful tactics were developed by the Home Squadron for operations required in the particular theater, under the existing weather and terrain conditions, and against the existing defences. The mobility and fire power inherent in our naval superiority was so well exercised as to preclude many of the problems of modern landing operations. No assault landings were necessary. However, an elementary landing force organization and a technique for ship-to-shore movement, coordinated with naval bombardment, were developed. These tactics proved successful in both a large scale joint operation and in the limited naval landings against coastal positions.

During the period between the Mexican and Civil Wars, the Navy engaged in world-wide activity, which served to promote national interest and trade. It was employed largely as an instrument of diplomacy, and there was rarely a need to commit its force. There were no instances of landing operations comparable to those of the Mexican campaigns.

In November 1856, the East India Squadron conducted a series of landing operations in

China which followed the pattern of the Navy's peacetime operations. A naval landing force had been sent by Commodore James Armstrong to Canton to protect American life and property. It was soon withdrawn, however, in accordance with the desires of the Chinese authorities. During the withdrawal, the vessel carrying the landing party was fired on by one of the Chinese river forts. On 16 November, the ships *Portsmouth* and *Levant* undertook a bombardment of the forts and succeeded in silencing the shore batteries. However, with indications of renewed activities by the Chinese in the forts, Comdr A.H. Foote, four days later, employed a landing force of 300 men, consisting for the most part of marines, to assault one of the forts. When it was seized, 53 of its guns were turned on a second fort, whose batteries were thus silenced. After repulsing a counterattacking force of 3000 Chinese, the landing force assaulted another fort on the morning of 21 November, and again turned 41 captured guns against a fourth enemy position. During the afternoon, a third fort was taken in an assault landing against the island on which it was located. The following morning the last fort was captured, and the operation was concluded with 176 shore pieces of eight-inch calibre or more captured. The Chinese casualties totaled 250; while the Americans lost only 29.

Military operations were primarily responsible for the defeat of the Confederacy in the Civil War, but naval power made an important contribution to that victory. The Federal Navy held command of the sea and exercised it to:

1. Blockade the Confederate coastline and attack coastal and river ports in furtherance of the blockade and in support of the Army ashore;
2. Cooperate with the Army in logistics and fire support;
3. Protect lines of communication;
4. Prevent intervention by foreign powers on the side of the South.

The small Confederate Navy was, on the other hand, and in spite of very limited capabilities, skillful in devising effective techniques for harassing the Federal Navy. No advances were made in the amphibious tactics developed in the Mexican War, but there were significant and influential developments in closely related fields. The degree of cooperation achieved between the Army and Navy was greater than any that had existed before. The benefits of such combined actions were especially well appreciated by such military commanders as Gen Grant, and such naval officers as Capt Farragut and RearAdm D. D. Porter. Even more significant was the capability and common practice of employing ships to attack strong shore installations. The effectiveness of naval bombardment resulted in the seizure of many important coastal forts and

cities. Army forces were frequently landed to exploit the effect of naval gunfire, but such landing operations were not carried out in the face of enemy resistance.

The increased effect of naval gunfire was due to several factors. Naval vessels achieved a higher degree of mobility, navigability, and accuracy in gunnery with the advent of steam. Secondly, the new steamers were equipped with armor. Finally, there were important advances in ordnance. The standard naval gun during the war was the fifteen-inch, smooth bore cannon which fired either a 440-pound shot or a 330-pound explosive shell. Some of the newer vessels were armed with the more accurate rifled cannon, which, with their higher muzzle velocity, provided a more penetrating effect. Armored mortar boats and small gunboats were extensively employed particularly in river campaigns in support of military operations ashore. The South in its efforts to combat the blockade was responsible for the development of early submarines, mines, and electrical and mechanical torpedoes.

The capture of Hatteras Inlet, Roanoke Island, New Bern, Port Royal, Pensacola, New Orleans, and later Charleston, Savannah, and Wilmington, were either accomplished by the fire of naval vessels alone or were made possible by shore bombardment. The seizure of these important coastal positions relieved the Navy of the necessity for blockading them and at the same time provided bases for the fleet. With the loss at the beginning of the war of the Navy Yards at Pensacola, Charleston, and Norfolk, the seizure of such bases was essential for the further prosecution of the blockade. The operations of the mortar boats, gunboats, and larger vessels under Foote, Chase, Porter, and Farragut in the Mississippi was indispensable to the conduct of operations at Fort Henry, Fort Donelson, and Vicksburg and the long military campaign for the control of the west, which was finally won by Grant. The river vessels maintained lines of communication, transported the Army, and repeatedly provided the decisive measure of fire superiority necessary to the conduct of shore operations.

The operation for the capture of Port Royal in November 1861 is a good example of the effective employment of naval bombardment. A force of 50 vessels, including transports, were assembled under the command of Flag Officer S. F. DuPont. On 4 November, Comdr John Rodgers took the gunboats *Ottawa*, *Seneca*, *Curlew*, and *Pembina* across the bar, drove off three Confederate vessels and led the transports into the roadstead out of range of the Confederate shore batteries located at Bay Point and Hilton Head.

On the next day, a reconnaissance by light vessels drew fire from the forts. The landing



1847—an impressive landing force met no resistance at bombarded Mazatlan.

force of 13,000 troops under the command of Gen William T. Sherman had lost much of its special landing equipment en route. Therefore, the Navy undertook to attack the positions alone from the sea with its wooden ships. The main attack was executed on 7 November. A force consisting of the frigates *Wabash* and *Susquehanna*, the sloops *Mohican*, *Seminole* and *Paucnes*, the gunboats *Unadilla*, and *Ottawa*, and the sailing sloop *Vandalia* towed by the *Isaac Smith* made repeated runs in front of the fort, delivering heavy broadside bombardments. The first attack was made from 800 yards. A flanking squadron consisting of the gunboats *Bienville*, *Seneca*, *Curlew*, *Penguin*, and *Augusta* acted as a covering force in position between the main body and six Confederate gunboats. Other gunboats were used to enfilade the forts from both flanks.

The second run was conducted 600 yards from the shore positions, and after four and one-half hours of firing, the forts were abandoned. A Marine landing force occupied them until the Army arrived. The operation, which was won by a heavy and accurate column of fire power, succeeded in giving the Navy an important base, and the control of most of the coastal area between Charleston and Savannah.

The technique of bombarding well-defended shore positions, which was made possible largely

as a result of the superiority of armor to armament, was perfected in operations such as this, and in the extensive activity of the Navy's vessels in the Mississippi. Cooperation between the Army and Navy in joint operations meant that the Navy provided strategic mobility and fire power and the Army provided tactical mobility ashore. There were no coordinated assault landings.

In the thirty-year period between the Civil and Spanish-American Wars there were the usual instances of minor landing operations conducted by the Navy, but again there was no operation of significant scale or tactical note. In 1871 the vessels *Monacacy* and *Palos*, part of the Asiatic Fleet under the command of RearAdm John Rogers, was designated to escort the United States Minister to China on a treaty mission to Korea. These ships were shelled by a Korean fort during the progress of the conferences. An apology was demanded by the fleet commander and, when no reply had been received in ten days, the fort was taken under fire by the two ships. On 10 June a mixed landing force numbering 650, which included 105 marines and was reinforced with seven light howitzers, was landed under Comdr Blake. After the fort had been reduced by bombardment from the *Monacacy* and *Palos*, it was assaulted by the landing force. The position was captured by the marines, who

repulsed a strong counterattack in the night, and subsequently captured four more forts in an operation typical of the landings which had been conducted by the Navy for three-quarters of a century.

It was not until the years immediately preceding the Spanish-American War and during that conflict at the end of the nineteenth century that anything resembling modern amphibious tactics began to take form. The necessary precedents had been established in the experience of the previous 125 years. In 1885 the Naval War College was established at Newport, Rhode Island, where an interest in auxiliary naval weapons and the tactics for their employment was developed and stimulated. The experience and difficulties encountered by the Navy in sustaining an effective blockade during the Mexican and Civil Wars had indicated the need for a special force under direct naval control to seize and hold advanced operating bases for the fleet. Hastily assembled detachments of marines from vessels and Navy Yards had provided the core for the formation of improvised landing forces in the past. It was therefore logical that the Marine Corps, which had wise experience afloat and ashore operating both with the Army and Navy, should be designated to meet this need.

The first large scale training in landing force tactics was initiated near the naval base at Key West, Florida, in May 1898. A Marine battalion of five rifle companies and a battery of three-inch artillery, under the command of LtCol R.W. Huntington and organized as a landing force, participated in intensive drills designed to perfect a technique for rapid ship-to-shore movement and land tactics. The benefits of this month-long training were realized in the attack and seizure of Guantanamo Bay. A battalion of 650 marines landed without opposition and seized an important base to support the fleet's blockading operations. As a result, Carvera's Spanish Fleet was contained in Santiago and ultimately destroyed when it attempted a sortie. On 7 July 1898, the *Marblehead* and the *Yankee* reconnoitered Guantanamo Harbor, which was reported to be defended by 6000 Spanish troops. One Spanish gunboat was in the harbor, and it was further defended by the old cannon of Fort Toro. On 10 July, a force of 60 men from the *Marblehead* and *Yankee* effected the first landing by American forces in Cuba. They made a reconnaissance ashore and when Col Huntington's battalion, embarked on the Marine transport *Panther*, arrived during the day, it was landed immediately. The operations ashore were supported by the gunfire of the *Marblehead* and *Dolphin*, and the bombardment was controlled on more than one occasion by observers ashore.

It is significant that an army force of 17,000 men under the command of Gen Shafter, which

was embarked on thirty-two transports and conveyed by the American Fleet, failed to undertake an assault landing against Santiago. Adm Sampson, in command of naval forces which could provide overwhelming fire power against the weakly defended forts of the city, urged such a course, but erroneous intelligence from the War Department influenced the Army to conduct its landing at Daiquiri, twenty miles to the east. This operation, although unopposed, was notable for the lack of coordination. Naval gunfire, which was available in great volume, was not extensively employed, although for a considerable time the Army had no organic field artillery available. The transports remained a great distance from the shore during the debarkation necessitating trips of as much as twelve miles through heavy surf for the 52 small boats employed in the ship-to-shore movement. The beaches chosen for the landing were unsuitable for such operations. This failure to apply the lessons of the Civil War undoubtedly emphasized the need in the Navy for trained specialists in ship-to-shore operations. Dewey wrote of the Philippine campaign that he could have well employed 5000 marines to land at Manila and thereby have avoided the many international complications which characterized operations in the Philippines following his decisive naval victory.

At the turn of the century tactics were under study at the Naval War College for the employment of newly developed naval weapons. In 1900 a Marine officer was appointed a permanent member of the staff at the War College, and a special detachment of five officers and forty enlisted men were trained at the Naval Torpedo Squadron Station, Newport, in the use of torpedoes, mines, and signal communications, including telephone, telegraph, and searchlight. This detachment participated in maneuvers with the North Atlantic Fleet in the summer of 1901. A landing exercise was conducted at Nantucket Island in which a five-inch battery, two six-pounders, and two three-pounders were landed and emplaced for firing in twelve hours.

The special training at Newport continued in the winter of 1901-1902, and three officers and 100 enlisted men were trained for later employment with the Fleet in Caribbean maneuvers. In the summer of 1902, marines of the North Atlantic Fleet participated in a series of four landings at Martha's Vineyard. A battalion of four rifle companies and one artillery battery was formed the same summer and maintained for service with the North Atlantic Fleet. It was trained in field fortifications, hasty intrenchments, including the construction of gun emplacements, the transformation of guns and the construction of gun platforms and gun mounts, and the construction and operation of field telephone and telegraph lines. The unit was or-

ganized as an advanced base regiment and in the winter of 1902-1903 participated in the first of a long series of exercises at Culebra in the Virgin Islands, and engaged in the construction of gun emplacements for four and five-inch guns, erected magazines, and cleared roads. It should be noted that defensive tactics were emphasized in the training of this advance base regiment, and it was apparently contemplated that the unit would land on unoccupied and lightly defended beaches. During the next four years, training of marines with the Fleet lapsed with the advent of other tasks for the Corps. In 1906 a small battalion served for a brief period with the Fleet on the *Dixie* and *Yankee* prior to employment in Cuba. A Marine Corps School was begun in that year at New London, Connecticut. However, interest in an advanced base force had not waned. In 1908 the marines were removed from all ships of the Navy. This action is an indication that at the time the most important mission of the Marine Corps was seen, in some quarters at least, as the seizure of advanced bases for the Fleet. The Commandant began that year a long campaign to obtain Marine transports for expeditionary use, pointing out the necessity for maintaining the tactical unity of landing forces. Marines returned aboard ships early in 1909. In 1910 the Advanced Base School was established at New London, Connecticut, and was attended by ten officers and fifty enlisted marines. A year later the School was moved to Philadelphia.

A provisional brigade, formed for advanced base training in 1911 and consisting of two regiments formed from shore stations with a third regiment formed from marines assigned to vessels of the Fleet attached, participated in spring maneuvers at Guantanamo. In 1912 further training took place in the Caribbean and two officers of the Marine Corps underwent aviation training at the Naval Academy at Annapolis, Md. It was contemplated that an aviation element would be of value to an advanced base organization.

The mission assigned by the Commandant of the Marine Corps in July 1912 to the Advanced Base School at Philadelphia indicates the nature of the activities conducted by that organization. It was in part as follows:

"1. To train the officers and men in the handling, installing, and using to the best advantage in action of such advanced base material as may be provided.

"2. To investigate and determine what material is needed for, and is best suited to, advanced base work. This includes number, caliber, and types of guns; quantities and kinds of ammunition; number and types of mines; type of gun platforms; types of magazines; automobile and torpedo defenses; water and land transportation; and in general the number and types

of all the various appliances required to transport, install, and fight the materiel provided for the defense of advanced bases.

"3. Theoretical study by officers of such military and naval subjects as pertain to the selection, occupation, and attack and defense of advanced base positions, or to expeditionary service in general, including the services of communication, supply, and sanitation."

It is notable that offensive tactics were treated as "theoretical."

In 1914 the personnel and doctrine of this School were tested, both in the maneuvers in the Caribbean and in actual landings at Vera Cruz. In that year, the Commandant wrote in his annual report:

"I believe that advance base work is the most important duty for which marines can be trained. . . .

"The maneuvers in Culebra last winter demonstrated beyond peradventure that in order to do successful work of this character a yearly appropriation is necessary in order that the proper material may be procured, and, after being procured, to keep it up to date and in proper condition. A modest appropriation only will be necessary for this purpose. . . .

"In connection with this reference to advance base it may be proper to state that an impression seems to prevail that advance base work is purely a Marine Corps matter. This is an error, as there can be no doubt but that advance base work is essentially a naval matter in which the entire service is most deeply interested, and while the execution of the work is placed in the hands of the Marine Corps, it is nevertheless necessary for successful results that it be given earnest cooperation by and coordination with the various branches of the naval service. It is hoped that every facility will be provided the Corps for the continuing of this work, and if so, steps should be taken not only to perfect the outfit but also to devote as much time as possible to the training of the men in this work."

The *USS Henderson* was finally commissioned on 16 June 1917 as the first Marine transport and in the same month, the Navy Department directed the Marine Corps to form an advance base force of 360 officers and 7598 enlisted men which was to include in its task organization aviation elements; armored car units; signal units; engineer units; four batteries of heavy defense artillery; searchlight and mine elements; mobile artillery consisting of a light battalion, a battery of heavy artillery, and two anti-aircraft batteries and a brigade of infantry. The 8th and 9th Marines were organized at Quantico as the infantry brigade. There was no threat during the first world war by the German fleet against bases in the Western Hemisphere, and this organization was therefore never employed or even maneuvered as a unit. The advanced base force

was greatly reduced in strength in 1919. However, the materiel and a skeleton organization were maintained at Philadelphia and Quantico.

The strategic mission of the United States Navy in the first world war did not require landing operations. However, the development of naval aviation before and during that conflict and landing operations conducted by the British and Germans had an important influence on the later development of amphibious tactics.

The employment of sea-borne forces in the period before the Spanish-American War set important precedents for the later development of amphibious tactics by the Navy. But modern technical advances in ordnance and other materiel required modern techniques which were not developed until after the first World War. Commodore Perry recognized the need for a special landing force organization during the Spanish-American war. However, the use of improvised landing forces continued throughout the nineteenth century. The development of special landing craft and the development of a technique for ship-to-shore movement through surf was demonstrated in both the Mexican and Civil Wars. Steam gave additional mobility to sea-borne troops, but no transports were specifically designed for assault landing operations. Naval guns were used for shore bombardment with increasing effect with the advances in ordnance before and during the Civil War. A precedent of close cooperation with the Army was established during the war between the States. However, the missions of the Army and Navy in

joint operations were still quite distinct. There was cooperation but there was not coordination in amphibious tactics.

The special nature of landing operations was not recognized until the Spanish-American War. It was not until the Twentieth Century that amphibious warfare was considered to require a special field of tactics and not until that time was a specially trained organization established on a permanent basis. The war with Spain taught the need for special force as an auxiliary arm of the Fleet to seize and hold advance bases. This mission was assigned to the United States Marine Corps and became its most important one. Although the emphasis was on base defenses rather than on assault landings, landing force organization, early equipment and tactics came into existence.

The Navy did not participate in or contemplate opposed landings on a large scale prior to the world war. Naval bombardment was used to destroy or reduce strongly defended shore positions. Mobility was employed to gain surprise in landing forces on unoccupied or lightly defended beaches in order to conduct a land campaign ashore with naval cooperation and support. Amphibious tactics were considered to be almost exclusively the problem of the landing force. No purely naval organization or tactics were devised for landing operations, nor was there any emphasis on a coordinated ship-to-shore assault through surf against a defended beach.

The Development of

AMPHIBIOUS TACTICS

in the U.S. Navy

By LtGen Holland M. Smith

THERE ARE two considerations which influence the development of tactics during peacetime: (1) the conditions of geography, terrain, climate, hydrography, and enemy tactics likely to be encountered in prospective theaters of operations; (2) the scientific developments in armament, armor, and other material of war for which tactics must be devised. The "how" is largely determined by the "where" and "with what." The lessons learned in combat operations must be accurately evaluated and applied where similar conditions exist. Therefore, experience, together with intelligence and scientific research and development, form the basis for new doctrine. Realistic maneuvers will serve to demonstrate the adequacy of tactics in execution and indoctrinate troops for the employment of such tactics in combat. The doctrine, however, can not be considered sound until it has been so proved in actual combat.

The effect of these factors was evident in the development of modern amphibious tactics. It was not until the United States was faced with the possibility of conducting a major offensive campaign in the Pacific against a competent power, equipped with modern weapons, that the Navy began a serious study of tactics for assaulting defended beaches. The study was based on our experience in the Spanish-American War and on the more recent experiences of the British at Gallipoli in 1915 and the Germans at Oesel and Dago Islands in the Baltic in 1917. The doctrine contemplated the employment of the latest weapons and equipment and was changed or amplified as new material was developed which demanded new or revised techniques. The experience of training exercises was continuously applied. Between 1920 and 1935 a landing operations doctrine was developed and an organization established with which to test it. The Fleet maneuvers conducted between 1935 and 1940 provided a practical basis for judging the adequacy and for revising certain aspects of this

doctrine. Then when it became apparent that we would be called upon to use amphibious tactics in war, an intensified program of amphibious preparedness was initiated, which gained full momentum in 1942.

Prior to the World War I, the organization of an advanced base force in the Navy and the study of tactics for its employment had stressed defensive aspects. Interest in this field had been kept alive by the Marine Corps, but other tasks with the Navy at sea and on expeditionary duty on foreign shores required the services of most of the Corps' limited personnel. There was no need during the war to employ the advanced base force. Naval operations were directed chiefly at supporting military operations on the European continent by maintaining trans-oceanic lines of communication. There were no operations in the Pacific. Consequently, there was no urgency to stimulate a general interest in landing operations.

The British attempt to seize the Gallipoli Peninsula in 1915 in order to force a passage of the Dardenelles and threaten Constantinople was unsuccessful. However, as a result of the extensive analysis of the causes for this failure, many lessons were learned and many conclusions drawn which had a widespread effect on the study of amphibious tactics. The conclusions drawn varied widely. The British decided that daylight assault landings should be avoided at all costs and that surprise and speed and, therefore, night operations were essential to success. The effect in the U. S. Marine Corps was to shift the emphasis in advanced base force tactics to the offensive aspects of landing operations.

In February and March of 1915, a purely naval attack was delivered by a combined British and French squadron against the forts on both the European and Asiatic shores of the Straits. The attack was not vigorously prosecuted although in the final bombardment the attacking force had reduced the forts to a condition where the defenders were prepared to abandon them.

Part III: birth of the FMF, fleet maneuvers, conception of amphibious doctrines

The attack was broken off with success in view because of the loss of several ships, which were probably sunk by mines. If, in spite of the losses sustained, the waters had been swept of mines by the vessels which were available in the area for that purpose and if a landing force had been put ashore promptly to secure communications with the rear, the Naval squadron might well have proceeded to Constantinople and forced Turkey out of the war. However, the advantage of superior naval power was not thus exploited. The British generally were left with the belief that naval guns were not well-suited for shore bombardment. Their flat trajectory denied them the destructive effect at long ranges which was achieved by the plunging fire of howitzers and other field artillery weapons. The U. S. Marine Corps concluded, however, that the British had failed to capitalize on the naval bombardment, which actually had been successful, by landing troops immediately.

IT WAS decided to abandon the purely naval attack and to land a large military force on the Gallipoli Peninsula to secure the Straits and permit the passage of the Fleet into the Sea of Marmora. The organization, assembly, and preparation of the landing force in the staging area at Lemnos Island took over a month's time, and in the interim the Turks reinforced the Straits and organized a well-equipped and numerically superior force under German leadership, which was disposed in a flexible defense which took every advantage of the favorable terrain. Turkish communications overland as well as between the Asiatic and European shores were maintained throughout the campaign in spite of British submarine activity, and the defenders were consequently able, by reinforcement, to maintain a superior force. If the British had had aviation for reconnaissance and interdiction, they might well have prevented such reinforcing. The chief cause of delay in undertaking the landing was the failure to load the troops and equipment of the 29th Division aboard transports in a manner to facilitate their rapid debarkation and tactical employment ashore. As a result, the transports had to be returned from Mudros Bay to Alexandria for "combat loading."

On 25 April, a landing force of 78,000 men, consisting of the Anzac Corps (31,000 men), the 29th Division (18,000 men), the Royal Naval Division (11,000 men), and the French Colonial Division (18,000 men), under the overall command of Gen Ian Hamilton, was landed on three beaches on a 60-mile front. The landing force was embarked on 60 transports which were part of a 300-ship naval force under Admiral de Robeck. Hundreds of small craft and lighters had been assembled from all corners of the Mediterranean for the ship-to-shore movement.

All landings were covered by the gunfire support of naval vessels.

The Royal Naval Division, which consisted of sailors of the Fleet and which was poorly equipped and untrained, conducted a demonstration in the Gulf of Zeros at the northeastern base of the Peninsula.

The Anzac Corps, assigned the secondary objective, landed ten miles northeast of the tip of the Peninsula at Ari Burnu. The ship-to-shore movement was successful. 8,000 troops were put ashore without loss in three hours, and the entire Corps had been landed in the afternoon. The attack force approached the beach with the covering naval vessels in the van, firing preparatory bombardment and providing continued support of the landing. 1,500 troops were landed at 0420 hours in the first wave from attendant ships closely following the bombardment vessels. The second wave, 2,500 troops, was embarked on destroyers and was ashore an hour later. The main force of 12,000 troops was embarked on twelve transports. The Turks did not consider the Anzac beachhead required fixed defenses and the landing itself was, therefore, unopposed. However, the 19th Turkish Division, in mobile reserve, counterattacked at 1600 and inflicted heavy losses, totaling 5,000, on the Anzac Corps.

THE 29th Division made the main landing on five beaches on Cape Helles at the tip of Gallipoli Peninsula, designated from left to right: Y, X, W, V, and S. These beaches were narrow, thousands of yards apart and dominated on the flanks and from the rear by high, rugged ridges. The landings were conducted in daylight. A force of 2,750 (supported by the fire of battle-ships) was landed on Y beach without loss. However, like the Anzacs, this force was counterattacked by strong Turk detachments which forced it the following day to withdraw from the beach and abandon the landing. At X beach, 2,050 troops were landed with few losses. However, W beach was strongly defended. Underwater barbed wire obstacles and wire on the beach were covered with enfilade machine gun and rifle fire from well-protected and entrenched positions, and the British losses were very heavy. V beach was similarly defended. Here the British attempted to run a converted collier, the *River Clyde*, up on the beach in order to land troops and provide a strong base of fire to support the attack. However, the ship was not entirely beached and almost all of the men who attempted to land in file from narrow ramps during the daytime were killed. The landing at S beach in Morto Bay was only lightly opposed.

The French Division conducted a demonstration at Bashika Bay on the Asiatic shore and subsequently landed one regiment in a diversionary attack across the Straits from Helles. The landing was successful and the force was

withdrawn two days later. The remaining five battalions were maintained in general reserve afloat.

These were the assault landings in which the landing force, in spite of severe losses, was successfully put ashore. However, in the four months that followed, the expeditionary force was never successful in establishing a secure beachhead. The campaign ashore suffered for lack of ammunition and replacements and from sickness. Although cooperation between the Army and Navy was excellent, the logistic build-up on the beaches was never sufficient to achieve even a local superiority of force ashore. The vessels of the Fleet supported land operations with bombardment, but this support was not closely coordinated with the advance of the troops. The enemy took advantage of this intelligence to close with the British front lines during bombardments and thus avoid the destructive effects of the naval gunfire. As previously noted, the British had no air power with which to support the landings. Although the troops ashore fought with outstanding vigor and courage, the employment of available reserves was not directed at exploiting unopposed landings but rather was thrown into the bitterly defended sectors. The beaches chosen for landing were not good.

THE lessons learned by the British in this operation have been well stated by Adm de Robeck's Chief of Staff, Admiral of the Fleet, the Lord Keyes:

"Among the most valuable lessons we learned from the original landings was the folly of attempting to storm a defended beach in daylight. All our amphibious operations after this, whether attacking or evacuating, were carried out with as many hours of darkness at hand as possible and also have a regard to the vital importance of surprise, doing nothing to disclose our intentions before dark."

A further conclusion implied in the foregoing was that naval gunfire is of limited value in support of landing operations. The conclusions drawn by the U.S. Marine Corps were the value of a heavy volume of accurate gunfire at close range in destroying shore positions; the necessity for detailed, coordinated, and flexible planning to include the provision of combat loading, for rapid landing and the buildup of land-based artillery and supplies following the initial assault; the necessity for speed and deployment on a broad front in the initial ship-to-shore assault; the importance of choosing favorable beaches, destroying defenses in the immediate landing area, and neutralizing enemy positions in the rear and on the flanks which might oppose the landing; the need for a technique for coordinating naval bombardment in close support of land attacks; the need for a naval air arm to

support landing operations; and, finally, the need for vigor and resourcefulness in all phases of the operation to exploit the inherent mobility of seapower.

After the capture of Riga from the Russians in the autumn of 1917, the Germans conducted landing operations at Oesel and Dago Islands at the northern end of the Gulf of Riga in order to threaten the Russian position at Petrograd. The landings, based on surprise, were the result of careful study and joint training in debarkation methods.

A reinforced division of 13,000 men was landed with the support of ten battleships and cruisers and several other light naval vessels. Although the landing and the rapid capture of the islands succeeded in precipitating the collapse of the Russian Army, three German ships were damaged by mines, and so again the hazards rather than the advantages of landing operations were stressed. However, the value of joint preparation and training, combat loading and speed in execution were forcefully reiterated by these operations.

WHILE the study of amphibious tactics in the light of war experience was in progress at the Marine Corps Schools at Quantico, Virginia, and to a lesser extent at the Naval War College at Newport, marines of the Fleet and the East and West Coast Expeditionary Forces (as the advanced base force had come to be known by 1921) participated in small scale landing operations which were a part of annual fleet maneuvers. Although these operations were on a small scale and patterned generally on the pre-war maneuvers, they sufficed to keep alive an interest, and as the interest grew, they led to the formation of a permanent amphibious organization in the Fleet.

Postwar demobilization and assignments to overseas expeditionary duty greatly handicapped the existence of an adequate advanced base force in the Marine Corps until 1933. However, a technical regiment was organized at Quantico in 1920 and a second advance base force headquarters was also activated at San Diego. Experience under the Army in the war led the Marine Corps to conduct land maneuvers ashore for several years. Although these exercises were conceived as landing operations, the actual landing was in every case constructive and the emphasis was on land tactics. In 1921 the East Coast Advanced Base Force, consisting of a brigade headquarters, the 5th Marine Regiment, a skeletonized 6th Marine Regiment, signal, engineer, searchlight, and anti-aircraft battalions, an artillery regiment, and an aviation unit, maneuvered at Wilderness Run, Virginia. The following year exercises were held at Gettysburg, Pennsylvania. In 1923, Virginia was again the



U. S. Marines profited more than the British from lessons learned at Gallipoli.

Amphibious Tactics

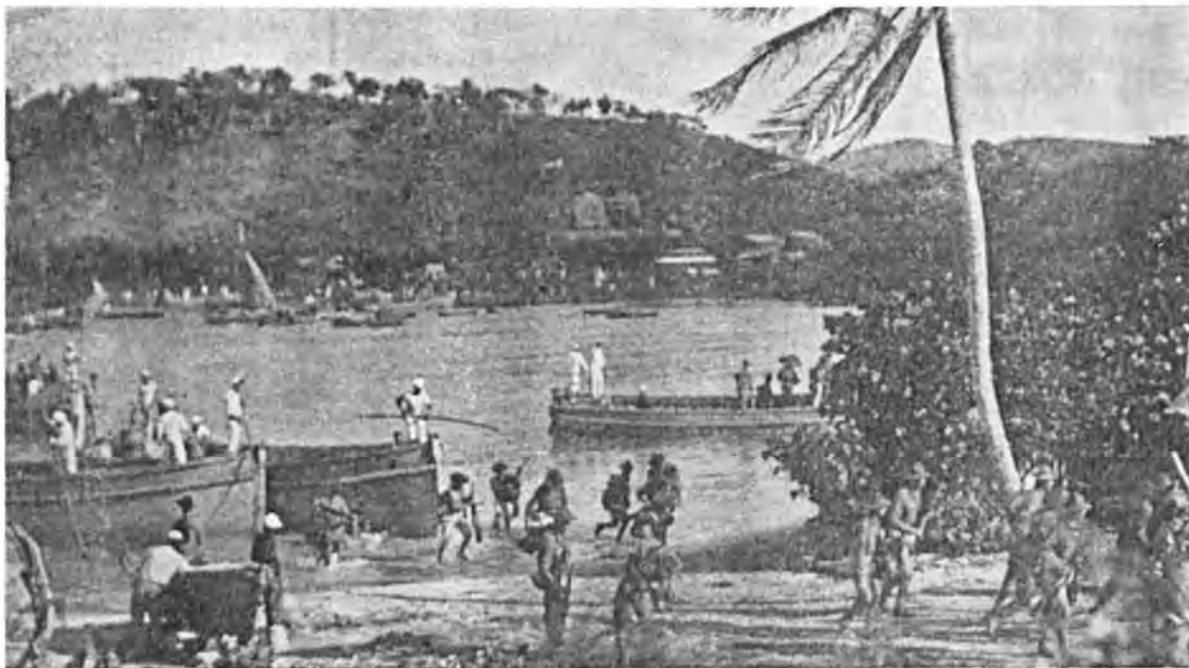
scene of the maneuvers, and in 1924, exercises were held in Maryland. It was hoped that the training periods ashore in 1921 and 1922 could be followed by participation in fleet maneuvers at sea but this was not possible.

The employment of aviation in landing exercises began after the war and Marine aviation elements which were committed to action with overseas expeditionary forces were able to pioneer in combat operations many techniques which are now standard. In 1919, a mixed squadron of land and sea planes operated with the expeditionary brigade in Haiti and a flight of six land planes operated with the brigade in Santo Domingo. The following missions were performed in support of operations against the guerrillas: strafing and bombing, reconnaissance, photograph and map making, support of ground troops, and transporting of passengers and mail. As early as 1922, Marine aviation flew ambulance planes for evacuating sick and wounded from the front lines to base hospitals in the rear. This early experience was increased in the extensive operations in Nicaragua during the next decade.

Between 9 January and 25 April, 1922, the 5th Marine Regiment, reinforced with engineer, mine, and machine gun detachments, participated in fleet maneuvers with the Control Force of the Atlantic Fleet. The problems included the attack and defense of Guantanamo Bay and Culebra.

In March, 1923, a consolidated Fleet Marine detachment conducted a landing exercise at Panama, and in the summer a battalion of marines and sailors from the vessels of the Scouting Force practiced a landing on Cape Cod, employing naval gunfire and smoke. Again in January and February 1924, the 5th Marines, commanded by Col Dion Williams, USMC, embarked at Quantico on the Marine transport *Henderson* and participated in US Fleet Problem No 3 at Panama and subsequently Fleet Problem No 4 at Culebra. In the first problem, the marines, part of a fleet defending the Canal against passage by hostile naval forces, landed and attacked Forts Randolph and Coco Solo, which were defended by Army detachments, and destroyed the locks. In Problem No 4, the infantry elements of the 5th Marines landed in the assault against defending artillery detachments at Culebra. During these maneuvers, signal, chemical, tank, artillery, and aviation elements received valuable training in the field. Two special types of boats were experimented with in the landings and the results, according to the report of the Commandant of the Marine Corps, were: "Interesting although not decisive."

One interesting experimental vehicle tested during this exercise was the Christie Amphibian Tank. Powered by wheels, tracks, or twin-screw propellers, this versatile machine developed speeds of 35 mph on wheels, 15 mph with tracks, and 8 mph in the water. However, it demonstrated a singular lack of seaworthiness. Prior to loading aboard ship for the maneuvers, careful measurements were made of cargo holds and



1924—an annual fleet maneuvers, U.S. Marines swarm ashore at Culebra.

diagrams were drawn to facilitate loading by troop officers. At this early date the beginnings of our later transport quartermaster functions were already in evidence. In unloading transports at Culebra, effective use was made of pontoon bridges as temporary docks and lighters for heavy equipment—a practice perfected twenty years later in the combat operations of the war.

THE 7th Marines were organized at San Diego in 1924 as a nucleus of the West Coast Expeditionary Force. In the spring of 1925, 1,500 marines from the East and West Coast Forces, staffed and commanded by officers from Headquarters, Marine Corps, participated in a joint Army-Navy exercise in the Hawaiian Area. Detailed plans and annexes were drawn up and a successful assault landing was conducted against Oahu with the limited actual force representing a constructive one twenty times its size. It is noteworthy that the scheme of operations was based on the Gallipoli Campaign. One of the important results of this maneuver was the recognition of a need for special landing boats and self-propelled artillery lighters. Ships' boats were unsatisfactory. Recommendations were also made for more air power in landing operations, for lighter and better communication equipment, and for a standardized procedure for ship-to-shore and landing operations.

During the next five years, expeditionary duty in China and Nicaragua so reduced the Marine Corps as to prevent participation in fleet exercises. However, a course in landing opera-

tions tactics was begun in the field officers' course at the Marine Corps Schools in 1927, and in 1929 the Commandant of the Marine Corps convened a board to make extensive tests of landing craft. In December 1931, a provisional battalion of marines reinforced with a battery of artillery was embarked on the *Wyoming* and *Arkansas* and conducted extensive maneuvers in Atlantic, Pacific, and Caribbean waters. In February 1932 a regimental headquarters, an infantry battalion, and an artillery battalion again took part in joint exercises in Hawaii. In 1933, there were again no units available for extensive landing exercises.

The Joint Board as early as 1923 had declared: "The most important function of the Marine Corps is to seize and hold temporary advanced bases in cooperation with the Fleet and to defend such bases until relieved by the Army." In the fall of 1932, the 7th Marine Regiment, stationed in Quantico under Col Charles H. Lyman, organized a battalion landing force which was ordered to duty on the *Wyoming* and sent to Cuban waters. This battalion remained on the *Wyoming* for several months and in March was transferred to the *Antares*. It was landed at Fort Everglades, Florida, where it continued landing force training.

The Commandant of the Marine Corps, in the autumn of 1933, recommended to the Chief of Naval Operations that the expeditionary force be designated Fleet Marine Force. This title was approved and the Fleet Marine Force was officially established on 8 December 1933 in

accordance with Navy Department General Order #241, which was based on the recommendations submitted by the Commandant of the Marine Corps.

THE order directed the Commandant to maintain an organization to be designated Fleet Marine Force, in a state of readiness for operations with the fleet. The Fleet Marine Force was to constitute a part of the regular organization of the United States Fleet, and to be included in the Annual Operating Force Plan. It was placed under the direct operational control of the Commander-in-Chief and held available for operations with the fleet or for exercises afloat or ashore in connection with fleet problems. For the first time there was a permanent organization continuously available under direct naval control for the study and practice of amphibious warfare. The force initially organized consisted of 3,000 men and contained one full strength infantry regiment, one skeletonized infantry regiment, one battery of 155mm guns, two batteries of 75 mm pack howitzers, one battery of 50 calibre machine guns and Aircraft One and Two. The units were stationed on the east and west coasts with the major elements at Quantico, Virginia. No personnel was available for the formation of the units contemplated. These included two full regiments of infantry, three battalions of light artillery, two battalions of six-inch guns, and four batteries of antiaircraft artillery. The lack of personnel continued to handicap the training mission of the Fleet Marine Force for almost seven years. A reinforced battalion participated in landing exercises on the West Coast in February 1934, and in April, units of the Fleet Marine Force from both coasts under the command of BrigGen C. H. Lyman, USMC, embarked on the *Charmont*, *Antares*, and *Holland* for participation in a joint fleet exercise in the Caribbean.

The Fleet Marine Force was born in the U.S. Navy as a result of the interest maintained and developed by the Marine Corps in landing operation tactics for over thirty years. In the ten years following its inception, the Fleet Marine Force succeeded in so spreading its knowledge and influence throughout the naval and military services that by 1942 we were able to open a full scale amphibious offensive.

The Navy doctrine for landing operations which has governed the conduct of all of our amphibious campaign from Guadalcanal to Okinawa was first conceived in 1934. Although the first landing operations manual has been revised repeatedly in the last ten years, the major principles originally set forth remain sound today.

IN OCTOBER 1934, the Commandant of the Marine Corps directed that a board be convened at the Marine Corps Schools to prepare a

tentative landing operations manual. Close cooperation was maintained by the board in the preparation of the doctrine with the Commanding General and staff of the Fleet Marine Force, with Marine Corps Headquarters, and with experienced officers throughout the Naval Service.

In 1934, there were already in existence two types of directives which pertained to amphibious operations. One of these was the Navy manual which for over thirty years had governed the organization, drill, and employment of provisional landing forces, organized, when necessary, by separate vessels and units of the fleet from the sailors and marines available in the ships' regular complements. This landing force manual contained detailed instructions on formations and drills but little tactical information on ship-to-shore operations. The other type of directive evolved as a result of the recognition, which had existed in the Army and Navy since before the First World War, that there were certain operations wherein military and naval functions overlapped and where there was a need for coordinated action. In May of 1916, a conference was convened at the Naval War College to consider the problems of cooperation between the Army and the Navy. The attendance of Army officers was unfortunately limited and the discussions undertaken were of a preliminary and general nature. The two types of operations wherein cooperation was considered necessary were those involving coast defense and joint overseas operations. No decisive conclusions were drawn in this War College discussion. However, the conference recommended the formation of a permanent joint board as an instrument of continuous strategical cooperation. Such a board was established in 1919 and between 1919 and 1934, the Joint Board promulgated several manuals and pamphlets, prescribing methods for Army and Navy cooperation in joint overseas expeditions. The latest had been published in 1933. These directives were primarily concerned with the techniques and agencies for cooperation and with the respective functions of each service in the conduct of joint operations. They established two methods for joint action: mutual cooperation under separate commands between the military and naval forces involved in an operation and coordination of the two under a unified command. The concept of unity of command is based on the principle of paramount interest. Under this principle, the commander of the service whose function and requirements are of the greater importance at the time of the operation is given the authority and responsibility for the overall conduct of the entire mission. Unity of command vests in the commander of one service the authority to coordinate the operations of the participating forces of both services by the organization of task forces, the assignment

of missions, the designation of objectives and the exercise of such coordinated control as he considers necessary to insure the success of the undertaking. Unity of command does not contemplate control of the administration or discipline of the forces of another service, except if absolutely necessary and then only through the regular chain of command. It does not call for instructions beyond those absolutely necessary for effective coordination.

THE tentative manual prepared by the Marine Corps Schools in 1934 was maintained in effect in the Navy for over three years. In 1938 it was revised and published as the official landing operations doctrine. It was written for the Fleet Marine Force rather than for joint forces and the reinforced Marine division was taken as the basic element of the landing force organization. Since the Fleet Marine Force was an organic part of the Navy, there was no problem of unified command. The harmony and mutual understanding that existed between the Fleet Marine Force and the other fleet elements in the amphibious training of the next ten years facilitated the practice of the tactics prescribed in the manual and the unimpeded development of supplementary special techniques and equipment. New landing craft, shore bombardment techniques, joint communication methods, and other aspects of amphibious tactics were developed around the framework of the manual. Although written for naval landing forces employed to seize advance bases for the fleet, the principles which it contained and the techniques developed in later training have been successfully applied to joint operations.

The publication of the doctrine brought about for the first time a standardization of policy, method, and terminology and gave direction and basis to the study and continuous development of amphibious tactics in the naval service. The manual discussed the peculiar characteristics of landing operations, their problems, purpose, and various types, the forces necessary for conducting them, the respective missions of the landing force and the naval attack force, and the phases of an amphibious attack. It set forth in detail techniques for coordinated planning, organization, training, embarkation, command relations,

control and communications, logistical support, air and naval gunfire support, the employment of field artillery, tanks, engineer, and smoke. It covered the choice of landing areas and frontages, timing, the characteristics and employment of landing craft, and all aspects of a coordinated landing and continued attack ashore.

BY 1935, the thought which had been devoted to landing operations since the last war had crystallized. An organization had been established on a permanent basis and standard tactics had been adopted with which to train it. This was by no means the end of the development; the principles established in the doctrine allowed ample latitude for continued development and revision in accordance with the lessons learned in actual landing exercises and with technical developments in weapons and equipment. The doctrine, however, recognized all the essential problems and offered generally satisfactory solutions to them. It showed how superiority of force must be gained in planning, organizing, training, and with an accurate volume of gunfire and aerial bombardment; how speed, timing, and coordination must be achieved in executing a landing, and how the continuation of shore operations by the landing force must be closely supported tactically as well as logistically by the naval attack force. The practical application of the tactics in the five years of fleet maneuvers that followed brought forth supplementary techniques which served to increase the coordination and effectiveness of the combined components of the attack force.

Fleet maneuvers involving landing operations by the Fleet Marine Force were conducted in both the Atlantic and Pacific each year. The fleet landing exercises in which elements of the Atlantic Fleet and the First Marine Brigade participated, held usually at Culebra, were considered the more important. However, the participation of the Second Marine Brigade in fleet problems and minor landing exercises at San Clements closely paralleled the exercises in the Atlantic and served to give experience and to increase the proficiency in amphibious tactics of the West Coast units of the Fleet Marine Force as well as the participating elements of the Pacific Fleet.

To Be Continued

The Development of **AMPHIBIOUS TACTICS** in the U.S. Navy

By LtGen H. M. Smith

Fleet Landing Exercise No. 1

SOON AFTER the formation of the Fleet Marine Force, the Commander-in-Chief of the Fleet approved a general plan for training it in landing operations in the Carribean. The Chief of Naval Operations authorized RearAdm C. S. Freeman, Commander of the Special Service Squadron, to command an experimental problem involving a landing attack by the Fleet Marine Force embarked on the vessels of the Special Service Squadron. This Squadron, which was at sea for continuous practical service, was considered to be the fleet unit most interested in landing force operations. The training came within the province of the Training Squadron of the Scouting Force and consequently the Training Squadron and the Fleet Marine Force were placed under the Special Service Squadron for the purposes of the problem. The Training Squadron consisted of the *Arkansas* and *Wyoming* and Destroyer Squadron Ten. The northwest peninsula of Culebra Island was chosen as the training area. In December 1934, a conference between BrigGen C. H. Lyman of the Fleet Marine Force and Adm C. S. Freeman was held aboard the Special Service Squadron flagship *Trenton* at St. Petersburg, Florida, to formulate plans for this training.

Fleet Landing Exercise No. 1 was conducted during the period 21 January to 8 March 1935. In addition to the *Trenton*, the following ships participated in the exercise: the *Taylor*, *Claxton*, *Woodcock*, the *Arkansas*, flagship of Adm Ellis, Commander Training Squadron, which was used to transport 37 officers and 554 enlisted marines of the landing force, the *Wyoming* which carried 30 officers and 552 enlisted men, and the *Antares*, a general transport and supply ship, scheduled for decommissioning, which had 24 officers and 379 men embarked. The landing force under the command of Gen Lyman included 91 officers and 1476 enlisted men and consisted of Fleet Marine Force Headquarters,

the 5th Marine Regiment less one battalion, the 1st Battalion of the 10th Marine Artillery Regiment equipped with 155mm guns, 75mm pack howitzers, 50 caliber antiaircraft guns, and one squadron of Aircraft One. The total baggage, equipment, and motor transport of the landing force was limited to 258 tons.

The actual exercises began at Culebra on 28 January and lasted for a month. They involved the daily landing of troops for training ashore and included the tactical landing of a reinforced regiment and the establishing of artillery and aviation ashore for the defense of a Fleet base. A battalion of the Fleet Marine Force which had been assigned to the Commander, Special Service Squadron, for emergency employment was attached to the 5th Marines and constituted the third infantry battalion. The ship-to-shore movement was practiced in regular ships' boats which included four 50-foot motor launches (capacity 110 men), six 40-foot motor launches (capacity 50 men), two 36-foot motor launches (capacity 38 men), five 26-foot motor whaleboats (capacity 12 men), one 50-foot motor launch with a boat rig "A" and a ramp, a device contrived to transport artillery and vehicles on the gunwales of the small boats and to land them by ramps, and one towed artillery lighter. Shore bombardment training during Fleet Landing Exercise No. 1 consisted of counter-battery, harassing, neutralization, and interdiction fires at long range. Indirect fire was controlled by air spot and shore observation. This gunfire training was handicapped by many artificialities. No actual firing was conducted in support of troops but the value of various types of ammunition against shore installations was tested in actual firing at dummy targets. Experiments were made to determine the destructive and anti-personnel effects of naval ordnance, the effect of gunfire on reverse slopes and the particular missions for which given caliber projectiles and fuses were best suited. Practices were conducted in firing small arms and mortars from landing boats in the approach. Actual strafing, bombing, and smoke missions

Part IV: training, experiment, six Fleet Landing Exercises—1934-1941

were conducted by airplanes in support of the troops during the training exercises. Field artillery training was conducted separately and not in coordination with infantry. The emphasis was on field training ashore rather than on the problems of ship-to-shore assault and troops were daily disembarked into small boats by gangways. It was recommended, however, that the experimental cargo net method of debarkation for troops be adopted as standard. Reports also indicated a need for greater numbers of landing boats for training. Five Army officers observed this first practical test of the new landing operations doctrine. The exercise was considered to be a success and to warrant a continuance of this training on an annual basis.

Fleet Marine Force units on the West Coast participated between 29 April and 12 June 1935 in United States Fleet Problem XVI. The Commanding General, Fleet Marine Force, and seven officers of the Fleet Marine Force Headquarters, together with Headquarters, 6th Marine Regiment, and one infantry battalion of the 6th Marines, the 2d Battalion, 10th Marine Artillery Regiment (2 batteries of 75mm pack howitzers), and Aircraft Two, operating from the *USS Langley*, participated in landing operations, and the establishment of a base on Midway Island between 11 and 23 May.

Fleet Landing Exercise No. 2

Fleet Landing Exercise No. 2 was conducted under RearAdm Hayne Ellis, Commander Training Squadron, during the period 4 January to 24 February 1936. The ships participating included the *Arkansas*, *Wyoming*, *Claxton*, *Taylor*, *Antares*, and *Woodcock*. RearAdm George J. Meyers, Commander Special Service Squadron, was present during the exercise with the *Memphis*, *Manely* and *Fairfax*, but did not participate. During 1935, Fleet Marine Force Headquarters had moved from Quantico to San Diego. However, the Commanding General and members of his staff were present to observe the operations at Culebra. The landing force for Fleet Landing Exercise No. 2 consisted of the 1st Marine Brigade under Col James Meade and included Brigade Headquarters, the 5th Marine Regiment less one battalion, the 1st Battalion of the 10th Marine Artillery Regiment containing two batteries of 75mm pack howitzers, one battalion of base defense artillery, which included a 155mm gun section and a 50 caliber anti-aircraft section, the Brigade Chemical Company and the Brigade Engineer Company. Aircraft One, including observation, fighting, and bombing squadrons, also participated and conducted extensive experiments in various types of aircraft missions, including the dropping of flares and bombing of underwater obstacles. The

landing force, totalling 99 officers and 1686 enlisted troops, remained aboard ship at night and conducted daily landings and field exercises ashore. The training included an umpired one-sided maneuver involving an assault landing and the evacuation of casualties. Artillery, engineer and aviation elements were established ashore and participated in all exercises. Standard ships' boats were again used for the landing, and there were four 50-foot, six 40-foot, and two 36-foot motor launches available in addition to nine motor whaleboats and two motor boats. Experiments were made in firing boat guns in the landing. Guns and mortars were found to be the most effective weapons for this mission. More emphasis was placed on ship-to-shore training, which included landings through mangroves, but extensive field training including combat firing of all weapons ashore continued to be the principal activity of the landing force.

As a result of the exercise, it was reported that combatant naval vessels were not suited for use as transports because they were unable to carry a sufficient number of landing boats and the space available for troops was limited. Accordingly, it was recommended that assault transports be provided for the Fleet Marine Force. This recommendation was continuously reiterated, but it was not until 1941 that such vessels became available for use in landing exercises. The need was also recognized for a fast, maneuverable, well-protected landing boat. The 1st Marine Brigade was understrength in personnel and equipment and the addition of another infantry regiment and more artillery was strongly recommended. A special gridded map was employed for designating naval gunfire targets. Air spot was effectively employed for indirect fire missions, and high explosive projectiles were found to be preferable to armor piercing ordnance for shore bombardment. Extensive tests were conducted in the firing of 12-inch guns against shore targets. It was also recommended that aircraft carriers be made available for landing exercises. Twenty United States Army officers were present as observers for the training period.

The 2nd Marine Brigade on the West Coast conducted training with the Fleet during the period 14 November to 16 November at San Clements Island.

Fleet Landing Exercise No. 3

The following year the annual problem was conducted on the West Coast in the San Clements and San Pedro areas between 27 January and 10 March 1937, and included both the San Diego and Quantico elements of the Fleet Marine Force as well as an Army contingent. The exercises were under the over-all command of RearAdm W. T. Tarrant, Commander Scouting Force. The

following units participated in Fleet Landing Exercise No. 3: the *Wyoming*, *New York*, Battleship Division One plus the *Nevada*, Cruiser Division Four less the *Salt Lake City*, Cruiser Division Five less the *Chicago* plus the *Louisville*, Destroyer Division Eight and the following transports: *Utah*, *Bridge*, *Holland*, *Antares*, and the United States Army Transport *St. Mihiel*. The maneuver was a joint problem. The 1st Expeditionary Brigade, United States Army, including the 40th Infantry Regiment, joined the Fleet Marine Force for landing exercises. The 1st and 2nd Marine Brigades were under the command of BrigGen D. C. McDougal. The 1st Brigade less artillery detachments, which were left at Quantico, embarked aboard ship on 6 January for movement to the West Coast, and 52 planes of Aircraft One flew to North Island to join Aircraft Two. There were a total of 251 officers and 2479 enlisted men of the Marine Corps, and 61 officers and 731 enlisted men of the Army involved in the training. RearAdm Wilson Brown commanded the training detachment of the Scouting Force. Landing exercises were conducted between 30 January and 18 February at San Clements. Little motor transport or heavy equipment was embarked in view of the limited size of the objective. However, there were ample landing boats available because of the large number of ships participating. Fourteen 50-foot motor launches, twenty-eight 40-foot motor launches, two 40-foot motor whaleboats, five 36-foot motor launches, two 33-foot motor launches, six 30-foot motor launches, five 16-foot dinghies, 25 wherries, and, for the first time, three experimental boats were employed for the ship-to-shore movement. Minor landing exercises were held for all units both at night and during the day. All weapons were combat fired, and a shore bombardment in support of attacking troops was actually executed for the first time in a fleet landing exercise. Parachute drops were also included in the maneuvers. As a result of prevailing bad weather, boat crews received valuable training in maneuvering through the heavy surf. The results of comparative tests of landing craft showed that the 40-foot motor launch was the best standard boat available. The real need for fast, maneuverable, surf-riding landing craft was again clearly indicated, and valuable recommendations were contributed for the development of special craft as a result of the exercises. The need for careful joint training of all individuals and small units in the fundamental techniques of embarkation and debarkation prior to combined training and participation in full-scale landings was also demonstrated. The second series of landing exercises at San Pedro were hampered by bad weather and only one landing was actually conducted.

Fleet Landing Exercise No. 4

Culebra was again chosen in 1938 as the area for Fleet Landing Exercise No. 4 which was held between 13 January and 15 March. The forces participating were designated "Hepburn Attack Force" and were under the command of Rear Adm A. W. Johnson, Commander Training Squadron. The naval attack force included the *New York*, *Arkansas*, *Wyoming*, *Antares*, Destroyer Squadron Ten (8 destroyers), Submarine Eleven (4 submarines), two Coast Guard cutters, and a naval patrol plane squadron. The landing force was the 1st Marine Brigade under the command of BrigGen R. P. Williams and included Brigade Headquarters, the 5th Marines less one battalion, the 1st Battalion, 10th Marines, less one battery, Brigade Engineer Company, Brigade Tank Company, which included three light tanks, Brigade Chemical Company and Aircraft One. There were 153 officers and 1200 men in the landing troops of the Brigade. The 2d Provisional United States Army brigade, 42 officers and 547 enlisted men, under the command of Col Brabson, also participated in the maneuvers. This Brigade consisted of the 18th Infantry Regiment, the 2nd Battalion, 7th Field Artillery, and the 1st Engineer Company.

All troops were encamped ashore initially and conducted combat firing and preliminary unit training in anticipation of combined landing exercises. In addition to the usual standard landing boats, four experimental boats, one tank lighter and one artillery lighter were available. The experimental boats lacked armor and reports indicated excessive vibration. However, they were improvements on the landing boats then in use. The tank lighter performed very well, landing its tanks in less than 20 seconds. For the first time troops were transferred from battleships to old type destroyers on skiffs and two infantry companies participated in a rapid surprise landing. The success of this experiment led to the conversion of other destroyers for troop-carrying missions. The advantages of a coordinated daylight attack with full air and naval gunfire support were already considered decisive for major landings.

The second phase of training had three parts. The first was a landing attack against Culebra in which the entire joint landing force, less one battalion of Marine infantry and one battery of artillery, which were used in the defense, landed in an unopposed maneuver. The enemy force was represented in part by control flags. Added realism was attained by the interjection of last minute changes in landing beaches and naval gunfire targets. In the second part of the landing exercise phase of training, the landing force, less one reinforced battalion again used in the defense, approached under cover of darkness and landed on beaches on Vieques Island unknown

to the defending force. The third phase was a large umpire-controlled, two-sided maneuver. Two National Guard regiments and one Regular Army regiment under the command of BrigGen W. C. Short was employed to defend the south coast of Puerto Rico against which a landing at-out gunfire support. The success of the final landing on Puerto Rico showed the benefit of prior unit training and rehearsal at Culebra. tuck was launched one hour before daylight with Fleet Landing Exercise No. 4 contained many notable improvements. There was far more realism and less use of constructive forces than had been necessary in the past. Reconnaissance elements were landed. Special landing equipment was tried for the first time. Light tanks were used to destroy defensive obstacles in the landing area. Special motor transportation and litter hoists were tried out in actual shore-to-ship casualty evacuation. Bail loading of landing boats was attempted. And the value of aviation for reconnaissance and photographic missions was clearly established. The need for aircraft carriers to provide aviation support for landing exercises was indicated and so reported. However, the chief deficiency in the Fleet Landing Exercises continued to be the shortage of personnel in the Fleet Marine Force which prevented its functioning as a well-balanced organization and the lack of suitable troop transports.

The Army had detailed officers to observe the landing exercises conducted by the Fleet Marine Force since 1935 and had provided small detachments to participate in the training under the Fleet Marine Force. The growing importance of amphibious tactics led the Chief of Staff of the Army to request of the Chief of Naval Operations that the Army be permitted to participate more fully in amphibious training. Adm William D. Leahy's reply of 11 August 1938 to Gen Malin Craig, Chief of Staff of the Army, stated: "I consider joint operations are of a major type and therefore do not belong in the opening phase of a war. This first, or opening phase, it is believed, will be purely naval in character, involving the seizure of temporary bases in the immediate theater of fleet operations.

"It is essential that naval forces, including the Fleet Marine Force, perfect the doctrines and techniques of such operations."

Fleet Landing Exercise No. 5

RearAdm A. W. Johnson, Commander Atlantic Squadron, was again in over-all command for the fifth Fleet Landing Exercise which was held between 13 January and 19 March 1939 at Culebra. The designation "Dewey Attack Force" was given the participating forces and naval elements included the *New York*, *Wyoming*, *Arkansas*, *Texas*, Destroyer Squadron Ten, two Coast Guard cutters, and the *Capella*, a sister ship

of the *Antares*. Cruiser Division Eight, Destroyer Division Four, and five submarines joined the participating forces for the final phase. The landing force of 160 officers and 1968 enlisted men was again under the command of BrigGen R. P. Williams and included the 1st Marine Brigade Headquarters, the 5th Marine Regiment less one battalion, the 1st Battalion 10th Marines, and batteries of the 15th Marines, and Brigade chemical, tank, engineer, medical, and aviation units, 20 officers of the United States Marine Corps and 10 officers of the Marine Corps Reserve acted as umpires. The following special landing craft were available for training in addition to regular naval landing boats: 2 tank lighters, 1 artillery lighter and 19 experimental craft of various types including rubber boats. Landings were conducted on both Culebra and Vieques. The logistical aspect of landing operations were stressed with special emphasis on the supply of ammunition and rations. Five light tanks and 81 experimental motor vehicles were tested.

Three main landings were conducted during the training period. In the first, a battalion of infantry, reinforced with a mortar platoon and carrying one unit of fire and twenty-four hours' rations was transferred at sea to six destroyers and landed at night in four waves of landing boats and eighteen skiffs powered with outboard motors. The landing was covered by aircraft and destroyer support. In the second landing, a full-scale attack was launched against Culebra. This was a two-day, one-sided operation which was closely umpired and controlled. On the first day, landings were made on outlying islands and artillery landed with which to support the main attack. On the second day, the entire landing force was put ashore with the coordinated support of artillery, naval gunfire and air. In the third operation, small task groups conducted landings against Vieques, which was defended by a reinforced battalion. This operation was preceded by preliminary reconnaissance and a demonstration. In this two-sided maneuver, problems of supply and evacuation were again stressed. During Fleet Landing Exercise No. 5, there was the usual preliminary field training and combat firing of weapons ashore, and considerable quantities of new equipment, developed as a result of previous fleet landing exercises, were tested.

In five years, substantial advances were made in training methods and in the simplification of orders and of staff functioning. Tactical progress was effected with constantly improved coordination. The basic doctrine was apparently sound. The two major deficiencies which were continually apparent were the lack of transports and of adequate personnel in the Fleet Marine Force.

Fleet Landing Exercise No. 6

The sixth Fleet Landing Exercise, conducted during the period 11 January to 13 March 1940, was the most advanced and realistic maneuver yet attempted. The benefits of previous training and experimentation and the extensive training in landing boats, which had been conducted by the Fleet during 1939, were apparent in the proficiency and coordination which characterized the activity of the participating forces. The advent of war in Europe the previous September gave a new urgency to amphibious training and Fleet Landing Exercise No. 6 was a turning point in the development of landing force tactics. The major deficiencies which continued to exist through 1940 were the lack of transports, the lack of sufficient landing craft, the shortage of personnel, and the limited production schedule for amphibious

RearAdm Hayne Ellis, Commander Atlantic Squadron, commanded the Farragut Attack Force for the maneuver. The naval forces included Battleship Division Five, Cruiser Division Seven less the *Quincy*, Destroyer Squadron Ten and a "transport" group including the *Wyoming*, *Capella*, and *Manley*. Submarine Division Eleven and a naval patrol squadron embarked on the *USS Yukon*. The landing force consisted of the 1st Marine Brigade (151 officers and 2093 enlisted men) and the 1st Marine Air Group and was under the command of BrigGen Holland M. Smith. Troops and 1000 tons of equipment were embarked on the *Texas*, *New York*, *Arkansas*, *Wyoming*, *San Francisco*, *Tuscaloosa*, *Capella*, and *Manley*. Landing craft included two tank lighters, two artillery lighters, twenty-five special landing craft, of which twelve were the Bureau type, and eight landing skiffs. Comparative tests showed the Higgins Eureka landing craft, the 45-foot tank lighters and rubber boats were the best adapted to landing operations.

Training included preliminary field exercises ashore followed by three landing exercises between 15 February and 8 March. In the first landing exercise, the 1st Battalion, 5th Marines Reinforced, conducted a reconnaissance landing and then organized a defense to oppose the second landing. The second landing was made on Vieques with a company landing from rubber boats at night prior to the main attack and the final one on Culebra. This was also a two-sided exercise. Submarines were used for reconnaissance missions and landing scouts. The destroyer troop transports were again employed with good effect. Landings were opposed by underwater defenses and recommendations for aircraft carriers and transports were reiterated in the reports covering the exercise. Naval gunfire training emphasized control and the capabilities of various types of ammunition.

Summary

The period between 1934 and 1941 was one of application, test, and experimentation in the development of amphibious tactics. The doctrine which had been developed in the preceding fifteen years was put to practical test by the organization for which it had been promulgated, and its efficacy was demonstrated. Organization, weapons, and equipment were scrutinized in actual use, and recommendations were made for new and further developments. Experiments were made with the limited amount of materiel thus developed. Training methods were established. The personnel of the Fleet Marine Force was indoctrinated and trained to carry out its mission as a part of the Fleet. The doctrine was supplemented with the new techniques which evolved in training. They were largely directed at improving the coordination of participating air, ground, and surface elements. Finally, the first six Fleet Landing Exercises resulted in a more widespread interest in amphibious tactics and a general recognition of their complexity in both services.

However, there were certain marked and recognized deficiencies which limited development in amphibious warfare during this period. The limited appropriations for, and therefore the strength of forces available for amphibious training, the shortage of troops in the Fleet Marine Force and the necessity for rotating them, the resulting skeletonized organization of the Fleet Marine Force, the limited number of other Fleet elements available for participation in landing exercises, the view that materiel production should be on an experimental rather than quantity scale, the total lack of assault transport vessels, the very limited number of landing craft, and the view that landing operations required the organization of task forces but that no permanent type organization of transports or amphibious elements was necessary in the Fleet resulted in the following limitations:

1. The necessity to repeat fundamental training each year.
2. The resulting handicap to a progressive program over a period of several years.
3. The training of leaders and key personnel but the inability to maintain a permanently organized, full strength, trained tactical unit of any but the most limited size for actual employment in war.
4. The general limitation of tactics by, and the development of tactics for, the means available rather than the development of weapons and equipment to meet tactical requirements.
5. The lack of trained landing craft and transport personnel.
6. The lack of realism in training.

The Development of **AMPHIBIOUS TACTICS** in the U.S. Navy

By Gen Holland M. Smith (Ret'd)
1940-1942 Preparing Amphibious Offensives

ON 1 SEPTEMBER 1939, the German Army invaded Poland and demonstrated to the world the "blitzkrieg" tactics of combined arms. Two days later the British and French joined the conflict and World War II had begun. The effect of these happenings was immediately apparent throughout the world. On 8 September the President of the United States proclaimed a limited National Emergency and called for strengthening the national defense within the limits of peacetime authorization. The Navy promptly took steps to protect our neutrality and to intensify our peacetime readiness program. It was realized that the Navy would be called upon to employ amphibious tactics at an early date in the event of war. The mobilization, organization, equipping and training of amphibious forces was accordingly accelerated. The production and conversion of assault transport vessels, landing craft and other material required in landing operations was initiated and given a high priority. War plans were concurrently developed for possible amphibious assault operations.

The urgency resulting from the international situation gave new impetus to the development of amphibious forces and tactics. Simulation and the employment of constructive forces and equipment gave way progressively to detailed and exacting realism in training programs. On 30 June 1939, the total strength of the Fleet Marine Force, the Navy's amphibious arm, was 4,525 officers and men. This was doubled in a year and tripled in two. By June of 1942 two U.S. Army infantry divisions and two Marine divisions had been trained and were in a condition or readiness for participation in assault landing operations.

Each successive development in world events during this period acted to draw the United States closer to war and to increase the pace of our readiness program. We began to abandon our neutrality as early as November 1939, when

the Arms Embargo was repealed in favor of a cash and carry policy. The German's success in their spring offensive in Western Europe ended with the British evacuation at Dunkerque and the French surrender in June 1940. On June the President reiterated the condition of National Emergency. On 19 July, Congress authorized a two-ocean Navy. This act involved the largest naval expansion in history. It meant a 70 percent increase in naval strength, or 1,325,000 tons of new shipping and a commensurate increase in Navy and Marine Corps personnel.

In September 1940 bases were acquired in the Western Hemisphere from the British in exchange for 50 old destroyers. This transaction strengthened our strategic position and relieved us of the necessity for seizing certain vital advanced bases in the Atlantic. It gave us time in which to increase our preparedness. In the same month the Selective Training and Service Act was approved. On 27 September a new threat arose. Japan joined with Germany and Italy in a triple Axis alliance.

On 15 October, the Commandant of the Marine Corps ordered the mobilization of 23 Marine Corps reserve battalions and by 9 November these units were on active duty. The crucial "Battle of Britain" raged in English skies throughout the winter of 1940-1941, and the long, fluctuating desert campaign began in North Africa. In April the Germans opened their Balkan offensive against Yugoslavia and Greece. On 27 May 1941 the President declared that an Unlimited National Emergency existed. At that time, there were 25,000 officers and men in the Fleet Marine Force. In the months that followed repeated requirements to dispatch amphibiously trained Marine units overseas for the defense of vital bases handicapped the preparation of an amphibious expeditionary force for offensive operations. The 1st Provisional Marine Brigade was dispatched to Iceland in June 1941, and a year later the 2d and 3rd Marine Brigades had been sent to Samoa in the Pacific. Germany invaded Russia in June and the United States protested the German sinking of the destroyer

Parv V: Three years of experiment in landing doctrine before Pearl Harbor

Robin Moor. The Atlantic Charter was signed in August. By September the U.S. Navy had been ordered to shoot German war vessels on sight.

War came on 7 December 1941 and in a brief period the United States suffered the extensive damage to the Fleet at Pearl Harbor, the loss of Guam, Wake, and, by May, of the Philippine Islands. By the end of January, the Japanese had landed in New Britain, New Guinea, and the Solomons. In February the British Naval Base at Singapore fell to the enemy, and the Dutch East Indies were being captured by the Japanese.

During this critical period while the Navy, on the defensive, struggled to maintain the precarious balance of naval power in the South Pacific, we initiated our first offensive action. On 1 February 1942, a carrier raid was undertaken against the Marshalls and Gilberts. This was followed, on the 24th of the same month, by a similar raid on Wake and Marcus Islands, and on 10 March by a strike at Lae and Salamaua in New Guinea. On 20 May, the forward echelon of the 1st Marine Division departed for New Zealand to join the newly established South Pacific Amphibious Force and to train further for offensive operations. On 6 June the Japanese advance eastward across the Central Pacific was halted in the Battle of Midway. On 1 July around the world in North Africa the British retreated to El Alamein, and the United Nations were at the nadir of their fortunes in the European war. From that time on we assumed the offensive throughout the world. On 7 August 1942, the 1st Marine Division (Reinforced) landed on Florida, Tulagi, Gavutu-Tanambogo and Guadalcanal Islands in the British Solomons in our first amphibious operation.

Condition of Amphibious Readiness in 1940

Guadalcanal was the turning point in the Pacific war, but the earlier advent of the European war in September 1939 was the turning point in amphibious development. The lessons learned and gradual advances made between 1935 and 1940 were vigorously applied in the two years that followed. The doctrine initially published in 1935 had been refined in six fleet landing exercises. Experiments had been conducted for the purpose of developing landing craft suitable for putting troops ashore through surf, over bars and reefs, and through hostile fire. Effective shore bombardment techniques had evolved. Although the major deficiencies and needs in personnel and materiel, apparent during the conduct of the first six fleet landing exercises, were recognized and reported, the exercises were carried out year after year on an improvised and skeletonized basis. Urgency came only with the war. Peacetime conditions had not encouraged the forceful and critical approach to the maneuvers and experiments which was brought to bear by those commanders

charged with preparing amphibious forces between 1940 and 1942.

Doctrine

The tactics in effect in 1940 prescribed effective methods for gaining the comprehensive intelligence required for planning purposes. Aerial reconnaissance and photography, submarine reconnaissance, and amphibious reconnaissance conducted in rubber boats had all been attempted in maneuvers. The standard procedure for planning called for the early designation of naval and landing force commanders, for close cooperation between them, for detailed planning by higher echelons well in advance to cover all phases of the preparation and execution of the landing, in order to assure the necessary coordination between the many participating forces. The necessary flexibility was gained by requiring the preparation of alternate plans. The established concept for organizing forces included a naval or joint attack force consisting of the following major elements in its task organization:

1. A Transport Group—containing the assault transport and cargo vessels necessary for embarking a combat-loaded landing force.
2. A Fire Support Group—containing the vessels designated to render gunfire support to the landing force.
3. An Air Group—consisting of support aviation elements.
4. A Mine Group—for sweeping the transport and fire support areas.
5. A Screening Group—for protecting the vessels and craft engaged in conducting the landing.
6. A Salvage Group—for the salvage and maintenance of small craft.
7. A Landing Force—organized as a mobile, striking force of self-sufficient combat elements for flexible employment.

The reinforced Marine division, which was the basis of landing force organization, consisted of three regimental combat teams, (RCTs) each containing three battalion landing teams (BLTs). Each infantry battalion was reinforced with artillery, tank, engineer, medical, and service units. The choice of equipment for amphibious operations was based on the mission assigned and the capabilities of the transports. The technique of unit combat loading had been developed, and joint training included a full-scale realistic dress rehearsal following the necessary preliminary individual and small unit training. The training prior to 1940, however, had not covered all phases of amphibious operations. The embarkation and loading phases were never stressed in maneuvers.

It was an accepted rule to embark the respective military and naval commanders—the landing force and naval attack force commanders, the

Marine division and transport squadron commanders, the regimental and transport division commanders, and the battalion and assault transport commanders—on the same vessels. Techniques were established in detail for coordinated naval gunfire preparations and continued support during operations ashore. Systems were in effect for rapidly disembarking troops from the transports into landing craft, the rendezvous and dispatch of the landing craft from the transport areas to the beach, and control of the landing craft in the ship-to-shore movement. Finally a procedure was also in force for the build-up of supplies on the beachhead for the support of ground operations based on the scheme of maneuver of the landing force ashore.

Landing Craft

In addition to the experiments and practice in landing craft employment during Fleet Landing Exercises 1 through 6, the Marine Corps Schools at Quantico, the 1st Marine Brigade of the Fleet Marine Force, while at its home base at Quantico, and its predecessors in the Marine Corps had been experimenting with landing craft for twenty years. Boards had been formed from time to time, one of which in 1931 tested shallow draft skiffs and boats used as rum runners. In 1933 the Navy Department had established a continuing board for the development of landing boats, and there was also a landing boat development board within the United States Fleet. A five-year experimental program had been initiated which called for the production and maintenance of 120 landing craft but did not contemplate full-scale production until a national emergency arose. All experiments were directed at developing landing craft with the following general characteristics:

1. Sufficiently *light weight* to be hoisted by ships' booms and davits.

2. *Small beam and bulk* for deck-storage aboard transports.

3. The desirable *length* was considered to be between 30 and 36 feet.

4. *Speed* of approximately 10 knots when loaded.

5. *Seaworthiness* and *stability* in the open sea.

6. The *ability to land* and *retract* from the beach.

7. A *steel hull free from projections* with protected propellers and rudders.

8. A minimum *draft* of 2 feet.

9. *Armor* for the coxswain, engine, and gunners.

10. *Light armament*—i.e. machine guns.

11. *Capacity* of not less than 18 troops and preferably capable of carrying 38.

12. Sufficiently *low fuel consumption* to permit 120 mile endurance.

The best landing craft developed prior to 1940 was the Higgins Eureka landing craft or the LCP. The 14-foot rubber boat was the best suited for surprise landings against difficult terrain. Tank lighters for transporting 10-ton tanks, 155mm guns, and other heavy equipment required by the landing force were also being tested.

The Development of the Amphibian Tractor

By 1940 experiment and practice had demonstrated that several types of landing craft and larger lighters were suited to the needs of amphibious warfare—i.e., they could carry men and equipment from ships to the shore through surf and against hostile fire. They were sufficiently fast and maneuverable, could retract from the beach under their own power and return to the transports to embark more troops and supplies. However, all types of landing craft had certain inherent limitations. There had to be a sloping beach for them to land on and there had to be a clear approach to the beach of sufficient depth to permit the passage of the boats. Therefore, such natural obstructions as reefs, which were found at most islands and atolls of the Pacific, greatly facilitated the task of defense against hostile landings. Only those shore areas where the conditions of ter-

From this alligator, designed by Mr Donald Roebling for rescue work in the Everglades, the amphibian tractor was developed.



rain and hydrography allowed the beaching of landing boats, needed to be defended in any strength. Conversely any equipment or technique which could be developed by an attacker for traversing natural or man-made obstructions and landing on unfavorable shore areas would give the unit landing the advantage of surprise and less opposition. The use of the rubber boat in landing exercises was one attempt to provide a solution to this problem. However, the rubber boat had its definite limitations. Its capacity was small, and it was difficult to handle. Practice landings showed that it was suited for limited reconnaissance missions or raids but not adapted for employment in any landing operation including major units and heavy equipment. The development of the amphibian tractor, or LVT, which began in the middle 1930's provided the solution and was one of the most important modern technical contributions to ship-to-shore operations. Without these landing vehicles our amphibious offensive in the Pacific would have been impossible.

The first amphibian tractor was designed and built in Lakeland, Florida, by Mr Donald Roebling, Jr. Mr Roebling, who had retired to Florida for his health, saw the need for amphibious transportation to perform rescue work in the Everglades. After several years of experiments in his own shop, he had patented and manufactured by 1938 the first model of the amphibian tractor or "Alligator," as he called it. It included all the essential features of the models now in military use throughout the world. The Commander-in-Chief of the Fleet saw a magazine picture of this first model and realizing its possible military applications brought it to the attention of the Commandant of the Marine Corps. Members of the Marine Corps Equipment Board were ordered to Florida to observe Mr Roebling's tractor in action and to discuss it with him. On 25 April 1938 the Board recommended the procurement of experimental tractors and on 18 May the Commandant of the Marine Corps made a similar recommendation. However, the Chief of Naval Operations, upon the recommendation of the Landing Boat Development Board declined to allot funds, already earmarked for critically needed landing craft and tank lighters, for the purchase of an amphibian tractor.

The Marine Corps made repeated recommendations for the procurement of an "alligator." Finally in April of 1940 the Commandant contracted with Mr Roebling for the production of three trial "alligators" and the Bureau of Construction and Repair, the Naval agency chiefly interested in landing craft development, procured an additional tractor for experimental purposes. The first aluminum "alligators" passed performance tests at Dunedin, Florida, and later at Norfolk, Virginia, in 1940 and demonstrated

their usefulness in Fleet Marine Force maneuvers in the Caribbean. On 5 November 1940 the Navy ordered 200 steel amphibian tractors for the Marine Corps. Construction began immediately at Dunedin under the direction of Mr Roebling. By August 1941 the first LVT (1) had come off the production line. Changes were made in design by automotive engineers, Mr Roebling, the Bureau of Ships and the producers, and the second model, the LVT(2), which included airplane, tank, and truck characteristics came off the production line in 1943. The LVT(1) was first used at Guadalcanal and later in November of 1942 at North Africa. The second model was first used a year later at Bougainville and Tarawa. Armored and turreted models were based on the LVT(2). Further refinements and developments based on combat experience and continuous experiment have resulted in two newer models and two turreted armored amphibian tanks. On 30 October 1942 the Secretary of the Navy established a continuing board for the development of amphibian tractors. A variety of tasks including personnel and equipment carrying, demolition, engineering, rocket launching, and field artillery missions were designed for the LVT.

Naval Gunfire

The basic problem in shore bombardment is to develop the most effective fire for the support of troops and the destruction of land targets with the ships, guns, and ammunition available, and to devise methods for controlling this fire and for coordinating it with other supporting arms and activities during an assault landing. The mission of naval gunfire is to replace the artillery normally available to ground forces, which is unavailable in landing operations, in destroying personnel and weapons capable of opposing the landing. The naval gunfire support in any specific landing operation will vary with the terrain, tactics, size and disposition of the defending force, and the amount of ammunition available. By 1940 the following distinctions were made in regard to gunfire targets:

1. Beach defenses in the immediate landing area.
2. Inland and flank areas containing artillery, reserves, and other permanent defensive installations.
3. Enemy artillery.
4. Enemy observation and command posts and communication and supply axes.
5. Enemy reserves.

Gunfire was classified in the following manner.

1. According to *effect*: neutralizing vs destructive fires. The terms "harassing," "interdicting," "illuminating," and "counter-battery" fires were also used to describe the effect.

2. According to *form*: concentration fires vs point fires. The distinction here was between area and pin-point targets.

3. According to *arrangement*: there were scheduled fires, fires delivered on call, and fires at targets of opportunity.

4. According to *purpose*: preparation, close supporting fires, deep supporting fires and special long range fires against cities, airfields, and heavy permanent installations.

5. According to *method*: indirect vs direct fire.

The characteristics of various types of ammunition, guns, batteries, and ships, had been tested to find out which of each was best suited for the missions required in shore bombardment. Destroyers and 5-inch guns with their high rate of fire and small pattern were found to be particularly suitable for close support. Cruisers and 6-inch guns as well as 5-inch 38 calibers with their high rate, small pattern, and longer range were found to be suitable for deep support missions as well as close. Heavy cruisers with their 8-inch guns and battleships with their main 14-inch and 16-inch batteries were considered best suited for deep support and special long range missions. Normally one close fire support ship was assigned to each battalion. One deep fire support ship was assigned to each regiment, and ordinarily, an additional deep fire support ship was assigned to each division. Other special fire support ships were employed for preparation fires and special missions. There were three methods of fire control:

1. Visual control from observation posts aboard ships for direct fire.

2. Air spotting for deep support indirect fire.

3. Shore observation and control by shore fire control parties with the landing force.

Communication channels were maintained between the fire support group and the landing force and between the firing ships and the landing force.

Coordination with respect to transports, debarkation areas, the boat lanes and ship-to-shore movement, the landing force scheme of maneuver ashore, aviation support, and field artillery fires was achieved with the use of maps, charts and aerial photographs delineated with the M square grid, with the assignment of fire support areas and target areas to fire support groups, with the use of schedules for guns and for targets, with the use of liaison officers and observers, and with extensive signal communications.

Training for War

Amphibious preparedness in the two years prior to Guadalcanal consisted on the one hand of full-scale production of the materiel which

had to the mountain of stores), brought up to in the experimental yards, dispersed and put under the other of training military and Engineer Battalion to use that materiel in accordance with the tactics and techniques, which had also already been developed, in war. The national emergency served to remove most of the peacetime obstructions. Adequate funds were available and allotted to the Navy and Marine Corps, and the materiel and personnel shortages were eliminated as rapidly as possible. The most important aspect of readiness, therefore, was training—a program of intense application and vigorous criticism. The job of training troops in amphibious tactics fell to the Marine Corps.

Fleet Landing Exercise No. 7

The last in the series of Fleet Landing Exercises took place in the Culebra-Vieques area between the 4th and 14th of February 1941. It was a joint exercise involving elements of the 1st U.S. Army Infantry Division and of the 1st Marine Division, the newly organized successor of the 1st Brigade in the Fleet Marine Force. For the purposes of the maneuver, both Army and Marine Corps units were under the command of MajGen Holland M. Smith, CG of the 1st Marine Division. The Brigade under Gen Smith had just completed six months of intense training in Cuba and had been redesignated the 1st Marine Division only four days before the exercise. It was still far from divisional strength. Its three infantry battalions together with two of the Army's placed the landing exercise once again on a brigade basis, and the majority of training was actually of battalion scale.

The Naval forces participating included Battleship Division Five (3 battleships), Cruiser Division Seven (4 cruisers), Destroyer Squadron Two (less a division), and an Air Attack Group including two aircraft carriers, a Naval patrol squadron, and the 1st Marine Aircraft Group, the successor of Aircraft One. For the first time there were assault transports available in a fleet landing exercise, and the transport group consisted of three transport divisions organized as follows: Transport Division One—the *McCawley*, *Wharton*, and *Harry Lee*; Transport Division Two—the United States Army Transports *Hunter Liggett* and *Chateau Thierry*; and Transport Division Three—the destroyer transports *Colhoun*, *Gregory*, and *Little*. The unified command of all participating forces was under RearAdm Ernest J. King.

The purpose of the exercises was to train the Marine and Army divisional units in landing operations, to train the Army and Navy in joint operations and test the efficacy of existing doctrine governing such operations, and to train the commanders involved in joint command and staff procedures. The Army and Marine bat-

talions conducted alternate landing exercises which were valuable in orienting personnel in the new transports and for computing debarkation intervals (i.e. the time necessary to debark a battalion from ship into landing craft) so necessary in planning the ship-to-shore schedule. Although troops, weapons, supplies, and notably landing craft were again short, satisfactory boat training and the practice of supply functions in landing were carried out. The participating units finished the training with an appreciation of the intricate problems involved in joint undertakings—even on a small scale.

First Joint Training Force Exercises

In June 1941, plans were made for the first large-scale amphibious training. MajGen H. M. Smith was given command of the 1st Joint Training Force, a provisional corps organization consisting of the 1st Marine Division, commanded by BrigGen Philip Torrey, the 1st U.S. Infantry Division, commanded by MajGen D. C. Cubbison, and other force troops. The primary mission of this Corps was to prepare a two-divisional expeditionary force for employment under the Commander-in-Chief, Atlantic Fleet, in amphibious assault operations in the Atlantic theater, and to plan continuously for this mission. Emphasis was placed on combat readiness which included materiel procurement, training, and tactical planning. The force, envisioned first as an expeditionary force, became after 9 June 1941 increasingly a training staff. The commander of the 1st Joint Training Force was directed to plan, conduct, coordinate, and supervise all amphibious training in a series of exercises to be conducted at New River, North Carolina, between June and August 1941.

Upon the completion of the training at New River in August, the 1st Joint Training Force was redesignated the Atlantic Amphibious Force. This command was subsequently and variously designated Amphibious Force Atlantic Fleet, Amphibious Corps Atlantic Fleet (there was a naval counterpart of the Amphibious Corps known as the Amphibious Force Atlantic Fleet under the command of RearAdm H. K. Hewitt) and the Amphibious Training Staff. A similar organization was activated on the west coast for employment in the Pacific. The command of the 2nd Joint Training Force was given to MajGen Clayton B. Vogel. This Corps organization consisted of the 2d Marine Division, the 3d U.S. Army Infantry Division, and other force troops. The west coast force was later known as the Amphibious Corps Pacific Fleet. In August of 1942, Gen Vogel and his staff departed for overseas duty and for the command of the I Marine Amphibious Corps in the South Pacific. He was relieved as the CG, Amphibious Corps Pacific Fleet, by MajGen H. M. Smith. A

year later in September, 1943, Gen Smith and his staff departed for overseas and for the command of the V Amphibious Corps in the Central Pacific. In April of 1944 the I Marine Amphibious Corps was redesignated the III Amphibious Corps, and together with the V Amphibious Corps under the command of MajGen Harry Schmidt, in the Central Pacific, was placed under the Fleet Marine Force, Pacific, commanded by LtGen H. M. Smith. These two Corps organizations and the later Fleet Marine Force, Pacific, the three chief Marine commands of the war, were responsible for both training and fighting all six Marine Divisions in the Pacific theater and for training the 1st, 3d, 7th and 9th U.S. Army Infantry Divisions as well as other Army units for amphibious operations.

The Fleet Marine Force doctrine was thus spread through both services and all theaters of operations. Adm Hewitt and Adm A. G. Kirk, who had as members of their staffs officers who had formerly served under Gen Smith, applied the doctrine in the landing operations in North Africa, Sicily, Italy, and Southern France. Adm D. E. Barbey, who had been Chief of Staff to the commander of training in the Atlantic Fleet, took the doctrine to the Southwest Pacific Area. The 1st Marine Division, serving under the Army at Cape Gloucester in New Britain, also added its influence in this theater. In the South Pacific the I Marine Amphibious Corps, and in the Central Pacific the V Amphibious Corps, continued to practice and refine the basic tactics.

The training at New River was conducted in two phases. During June and July preliminary training was stressed which included individual and small unit training ashore and battalion and regimental landing exercises, some of which were held at Hilton Head and the rest at Onslow Beach, New River. The landing operations included rubber boat training from destroyer transports. The 1st Marine Division was trained first, and both the 5th and 7th RCTs had completed preliminary training by the middle of July. They were trained in ship-to-shore operations and in surf landings. Special emphasis was placed on the study of debarkation schedules for individual transports carrying battalion landing teams. The 7th Marines were trained first aboard ship for approximately one month in daylight ship-to-shore operations and night debarkations. The destroyer-transport battalion of the 5th Marines underwent similar training during the same period. Several factors acted to handicap the training. There was no headquarters or divisional training area as yet developed at New River. It was necessary to conserve materiel in order to insure a constant state of readiness for active combat operations. The transports required Navy Yard availability periods during the time allotted to training and while

Amphibious Tactics

troops were still embarked. There was a complete lack of tank lighters in the preliminary training. There were not enough vessels to carry and train important divisional service and auxiliary units. The limited number of landing craft had to be used by both Army and Marine troops. Destroyer transports had a limited fuel capacity and after four landings had to return to port for refueling.

The Army units of the 1st Infantry Division moved from their base at Camp Devens, Massachusetts, to the New York Port of Embarkation by rail at the end of June and travelled to New River in the converted liners, *West Point*, *Wakefield*, *Mt. Vernon*, (formerly the liners *Manhattan*, *America* and *Washington*.)

All nine battalion landing teams of the 1st Infantry Division (consisting of the 18th, 26th and 16th Infantry Regiments) had completed their preliminary training by 23 July.

The Force landing exercise, which began on 4 August, was the largest of its type ever held in the United States. Over 16,500 officers and men, 300 vehicles and 2200 tons of supplies were put ashore through the surf. Forty-two naval vessels participated in the operation together with four aircraft squadrons of the 1st Marine Air Wing, which were later designated the 11th Marine Air Group. The exercise included assault landing, the seizure of a force beachhead line, and an advance inland of about nine miles following the seizure, and organization of the force beachhead line. Force Headquarters as the controlling agency so influenced the progress of the tactical situation as to necessitate a forced withdrawal of the attacking force. Parachute troops, which had been trained in the Marine Corps since November 1940, were employed both in the attack and during the withdrawal. The withdrawal was executed tactically over a period of three nights, and all troops re-embarked under the cover of darkness. D-Day was 11 August and H-Hour was at 1100.

Landing beaches were designated by letters and 1500 yards of beach were allotted to each assault division. The 1st Infantry Division landed on the left. Air support consisted of one squadron of observation planes, two squadrons of dive bombers and one squadron of fighters. There were five fire support groups consisting of battleships, cruisers, and destroyers. The parachute troops and the destroyer-transport battalion of the 5th Marines were under Force control and conducted a secondary landing to the right of the 1st Marine Division. The 18th Infantry Regiment was initially in Force reserve. The transport area was 13,000 yards from the

beach and the line of departure for the landing craft was 4,000 yards offshore. Control vessels and guide planes led the landing craft to the line of departure. No light tanks were landed initially. The following landing craft were available at the beginning of the exercise:

- 62 30-foot landing boats
- 173 36-foot landing boats (Higgins)
- 5 36-foot landing boats with ramp (Higgins)
- 10 tank lighters constructed by the Bureau of Ships

- 16 Higgins tank lighters

The Higgins tank lighters and the ramp boats proved the most satisfactory.

The transport vessels engaged in the landing exercise were under the command of Capt R. M. Emmet, and were organized with three personnel transports and one cargo transport per division as follows:

- Transport Division One—*Barnett*, *G.F. Elliott*, *Neville*, and *Markab*.

- Transport Division Two—*McCawley*, *Heywood*, *W. P. Biddle*, and *Arcturus*.

- Transport Division Three—*West Point*, *Fuller*, *Harry Lee*, and *Alchiba*.

- Transport Division Four—*Wakefield*, *Mt. Vernon*, *Orizaba*, and *Almaack*.

- Transport Division Eleven—the fast destroyer transports *Colhoun*, *Gregory*, *Little*, *Manley*, *Stringham* and *McCain*.

The troops of the training force consisted of the following units:

- The 1st Infantry Division, consisting of the 18th, 26th and 16th Infantry Regiments (a total of nine BLTs.)

- The 1st Marine Division, consisting of the 5th Marines, less the destroyer-transport battalion (this 1st Bn was later redesignated the 1st Raider Bn) and the 7th Marines. Under Force control, there were the parachute troops and the destroyer transport battalion together with Headquarters and service elements.

The period enroute to the training area was devoted to technical and theoretical training. Transport quartermaster schools were conducted to train officers in combat loading techniques, and daily instruction was given to all officers in the U.S. Navy doctrine on landing operations.

Adm Ernest J. King, Commander-in-Chief, U.S. Atlantic Fleet, was in over-all charge of the joint maneuver and the naval forces involved were under the command of Rear Adm Randall Jacobs who was commander of training in the Atlantic Fleet. The Marine Division organization included in addition to the infantry regiments an artillery regiment, consisting of three battalions of 75mm pack howitzers and one battalion of 155mm howitzers, an engineer battalion, a light tank battalion, a special weapons battalion, a scout company, a signal company, an amphibian

tractor battalion, a medical battalion, a service battalion, a guard company and the Division Headquarters company.

The Commanding General of the 1st Infantry Division and members of his staff observed the preliminary phase of training of the Army units, which was under the direct control of BrigGen J. G. Ord.

Four battalion landing teams of the 1st Infantry Division were not combat loaded. The air assault group employed by the force in the landing exercise, consisted of Co A, 2d Parachute Bn of the 1st Marine Division, the mobile landing group, i.e., the destroyer transport battalion of the 1st Bn, 5th Marines. The battalion landing team organization in effect in both the Infantry and Marine Divisions included the following elements:

The basic infantry battalion reinforced by:

1. A battery of artillery
2. A tank platoon
3. Antiaircraft and machine gun platoons
4. An antitank platoon
5. A shore party detachment
6. A motor transport section.

Air support during the landing included observation planes for photographic and reconnaissance missions, utility planes for troop carrying, dive bombers for direct support, and fighters for air cover. A command plane was employed to report on front lines and the progress of the troops.

The experience gained in the New River exercises were extremely valuable and showed the need for frequent full-scale rehearsals to test the efficiency of equipment, organization, staff functioning and training. All elements involved in the maneuver gained experience in landing operations. The doctrine proved sound. Realism was the keynote of all training. However, the maneuver was not two-sided, and, because of the requirement for the Navy to maintain a neutrality patrol in the Atlantic, gunfire support groups were limited in number and all firing was simulated.

The major deficiencies noted in the exercise were an imperfect task organization, lack of equipment and personnel, and lack of sufficient transports. The organization of the force was inadequate. The 1st Infantry Division required streamlining for amphibious employment. The 1st Marine Division lacked a third infantry regiment to bring it to full strength. Nowhere in the organization was there a unit assigned the mission of clearing underwater obstacles which might oppose the landing of small craft.

Lack of equipment and personnel was seriously felt in many units and particularly in the field of communications. The newly organized 1st Marine Aircraft Wing needed both personnel and equipment to bring it to full strength in

order that it might fulfill its mission of supporting the 1st Marine Division. Service troops also suffered shortages; there were not enough shore party and beach party personnel to unload the ships and supply the troops ashore. Artillery and engineer units were also short of personnel. A deficiency in landing craft, tanks, and anti-tank guns was severely felt as well as a lack of motor transportation ashore. There were not enough vehicles to move equipment from the beach to the troops nor were there sufficient tank lighters of the proper design. It was recommended upon completion of the exercise that tank carrying ships similar to the British tank assault craft be produced to eliminate the existing handicap of normal tactical doctrine resulting from the lack of tanks and heavy equipment in the initial phases of the landing.

In addition to the lack of sufficient transports, the smaller APAs were not equipped to carry a full battalion landing team or the necessary motor transportation and heavy equipment.

Several shortcomings in training were also painfully noticeable. One of the major deficiencies in all phases of training was communication. The personnel of both the Army and Navy were not experienced in the prescribed joint Army-Navy procedure. Additional instruction and practice was also obviously necessary in supply-training, coordination of supporting arms, and joint staff procedure.

In spite of these difficulties and in spite of the fact that transports remained for five hours in the transport area before disembarking troops, the ship-to-shore operations were well executed. Many lessons were learned which were to prove valuable in subsequent training and in combat.

Joint Army-Navy Exercise

After the New River exercises training and equipping of both the 1st Marine Division and the 1st Infantry Division was intensified in the light of the lessons learned on maneuvers, and a second joint maneuver was conducted between 12 and 19 January, 1942. Since close liaison in amphibious tactics was maintained at all times between the British and the U.S. Navy, these exercises were observed by British officers from Combined Operations Headquarters.

Commander of training in the Atlantic Fleet, RearAdm F. L. Reichmuth, was the naval officer in charge of training and troops were again under the command of MajGen H. M. Smith. On 22 December, the 1st Infantry Division was again placed under the control of the Commanding General of the Amphibious Force Atlantic Fleet. The 1st Marine Parachute Bn and the 1st Bn, 5th Marines (the 1st Raider Bn), were assigned to the control of the Army division. The exercises were characterized by a lack of air and naval gunfire support groups so that it was more in the nature of a ship-to-shore practice than a full scale

coordinated amphibious assault. This condition resulted from our recent entrance into the war and the need to employ most of the Navy's combatant ships in active operation.

12 January was D-Day for the maneuvers and H-Hour was 1100. Five battalion landing teams were landed in the assault. The landing was a two-sided maneuver in which elements of the 1st Infantry Division; reinforced by the 1st Marine Raider Bn, executed landings against an area defended by the 16th Infantry Regiment of the 1st Infantry Division, reinforced by the 4th Bn of the 11th Marine Artillery Regiment (155mm Howitzers) and Co A of the 1st Marine Tank Bn (light tanks). Bad weather conditions made the landing difficult. It involved a landing, advance inland and seizure of a division beachhead line, after which, through controlled interjections in the tactical situation, a withdrawal was conducted over the beach and reembarkation was executed. Seventeen naval vessels and one squadron of aircraft participated. The forces engaged in the landing showed a marked improvement in training status over their condition during the previous summer.

Battalion and Regimental Landing Exercises

On 15 February 1942, the 1st Infantry Division was detached from the Amphibious Force, Atlantic Fleet, and was replaced by the 9th Infantry Division. This Army unit was assigned to the Force in a status of continued availability for joint training. On 20 February 1942 the Commander in Chief of the U.S. Fleet directed that both the fleets, Atlantic and Pacific, should include an amphibious force with a flag officer of the Navy as force commander to consist of three groups as follows:

1. Covering forces, as assigned, under the command of a naval officer.
2. Transports, combat and other, also under the command of a naval officer.
3. An Amphibious Corps, under the command of a general officer, preferably of the Marine Corps.

The Amphibious Corps, Atlantic Fleet, was accordingly organized on 3 March 1942 under command of MajGen H. M. Smith. The Amphibious Force, Atlantic Fleet, was placed under the command of RearAdm H. K. Hewitt.

During the months that followed, battalion and regimental landing exercises were conducted on Solomons Island in the Chesapeake Bay. The units trained included all battalions of the 5th Marine Regiment, the 1st Bn of the 1st Marine Regiment, and the 1st Raider Bn of the 1st Marine Division and all regiments of the 9th Infantry Division. Regimental landing exercises undertook to provide a maximum of realism and a minimum of simulation in the coordinated functioning of all elements of the regimental combat team.

These exercises, preceded by 10 days of preliminary battalion training, included the following:

1. A communication exercise in which all communication elements of the regiment, its reinforcing units, and naval vessels participated.

2. A two-sided umpired day landing of the regimental combat team, including the debarkation of vehicles and supplies sufficient for five days. This was a four-day exercise which stressed supplies and vehicles. This exercise required three days, including reembarkation.

3. A two-sided night landing of the regimental combat team, including the debarkation of plies and vehicles. This exercise required three days, including reembarkation.

All landing exercises, included the employment of limited air support.

Other special training in connection with amphibious operations was also conducted during the period July 1941 to July 1942. This included the training of shore fire control parties, naval gunfire spotters, transport quartermasters, air observers and spotters, amphibious reconnaissance elements and amphibious communications.

Shore fire control party instruction included the training of Navy, Marine and Army officers in the duties of the shore fire control parties, and covered the characteristics and capabilities of naval batteries and the technique of naval gunfire against shore targets. The naval technique was used for spotting artillery fire. Transport loading schools covered instruction in the fundamentals of combat unit loading and emphasized the paramount importance of supporting tactical plans with parallel tactical loading. Instruction was given in the preparation of embarkation plans and was followed by practical exercises in the actual loading of transports for training exercises. Communication schools provided theoretical and practical instruction in radio code and message center operation, type-writing, and the fundamentals of joint Army-Navy communication procedure. One transport division had been made available on each coast in March of 1942 so that at least piecemeal amphibious training could be conducted. The transport divisions assigned, however, included ships which were concurrently assigned availability for overhaul in Navy yards.

Simultaneous technical experiments were continued during this period in various phases of amphibious warfare, and newly developed special items of equipment were tested. Training of reconnaissance elements as amphibious scouts was conducted from submarines in rubber boats. Training and tests patterned on those conducted on the East Coast were undertaken by the Amphibious Corps, Pacific Fleet, in the San Diego Area, and close liaison was maintained between both commands to assure a common level of training and development.

The Development of **AMPHIBIOUS TACTICS** in the U.S. Navy

By Gen Holland M. Smith (Ret'd)

IT MAY WELL be said that without our knowledge and ever-increasing skill in amphibious tactics, our strategy for defeating the German Armies in Western Europe and bringing about the surrender of Japan in the Pacific would not have succeeded. The inability of the Germans to project their Western Offensive of 1940 across the English Channel in an amphibious assault against the United Kingdom and the failure of the Japanese to exploit their naval and air success at Pearl Harbor in 1941 with landing operations represent, on the other hand, two unique opportunities lost. The foresight of the United States Navy in its development of landing operations doctrine and equipment and amphibious forces was responsible in large measure for our victory. The apparent failure on the part of the Axis Powers to recognize that global strategy must depend on amphibious tactics proved a fatal error.

The Basic Strategy

The battles fought throughout the world from September 1939 until September 1945 were all part of one world war. Never before have so many forces and so much materiel been committed to so many separate yet coordinated combat operations in so many theaters in accordance with one strategic plan and for one common end. Once the United States entered the war, already two years old in 1941, a grand strategy was devised in conjunction with Great Britain, Russia, China, and the other United Nations. In most simple terms this plan called for defeating the European Axis Powers first while maintaining maximum military pressure against Japan in order to achieve the best possible strategic position in the Pacific for forcing a surrender once the European victory had been gained. Although developed for one war, our strategy envisioned two separate tasks in two major areas: — the European-African Middle-Eastern Area and the Asiatic-Pacific Area.

For the United States, and more particularly for our Navy, this involved the following missions with regard to the European War:

1. Maintaining and increasing as rapidly as our expanding productive power permitted our supply of weapons, ammunition, and equipment to our European allies through Lend-lease and other agencies, in order to assist them in applying the greatest force possible against Germany and Italy while preparations for invasion were completed. For the Navy this meant operating the convoy lanes and protecting them against German undersea attack.

2. Assembling, equipping, and training the forces necessary for a full-scale invasion of the European continent and moving those forces to bases in or near the theater of operations, from which the attack was to be launched. The Navy had to complete its program of amphibious readiness and carry out the logistic mission of overseas movement.

3. Conducting the landing operations necessary for the invasions of North Africa, Sicily, Italy, Normandy, and Southern France. This series of operations was conducted in order to destroy German military power in the Mediterranean, secure that ocean for allied communications, force Italy out of the war, and establish and maintain a sufficient military force on the continent to defeat the German armies in the West.

The following tasks were called for in the Pacific war. They were gradually and, to some degree, simultaneously performed as our power increased over a period of three years.

1. Providing a defense with the limited forces available, after the losses incurred in the initial attack against Pearl Harbor and our other island bases, to halt the Japanese advance to the south and east. The Navy stopped the enemy in the battles of the Coral Sea and Midway in May and June of 1942. Then as new vessels were completed and additional forces made available we were gradually able to assume the offensive. From the outset our submarines were

Part VI: Amphibious warfare's influence on the grand strategy of global conflict

busy destroying Japanese combatant and merchant shipping.

2. Gaining strategic naval and air superiority.

3. Exercising that superiority to exert all-around pressure on the Empire (i.e. from China, Burma, New Guinea, the Netherlands East Indies, the Philippines, the South Pacific, Central Pacific, and North Pacific Areas).

4. Thus extending our control of sea and air. The major and most decisive extensions were westward through the Central Pacific, to the Marianas, Bonins, and Ryukyus, and northwest along the New Guinea-Netherlands East Indies axis to the Philippine Islands. The gradual destruction of the Japanese Fleet was accomplished as a necessary part of this extension.

5. Gaining bases with which to strike directly at Japan by air and sea. The capture of the Marianas in the summer of 1944, an accomplishment made possible by our previous landings at Tarawa, Makin, Majuro, Kwajalein, and Eniwetok in the Central Pacific and by the sum of the pressures applied against Japanese forces in all other Pacific areas, provided the airfields from which the final blow was delivered. Saipan, Tinian, and Guam were made secure by our subsequent capture and occupation of Iwo Jima. By the summer of 1945, Japan was in a strategically hopeless position. She had suffered disastrous military and naval attrition as a result of losses in all theaters. Our recapture of the Philippine Islands had denied her access to the badly needed resources of the Netherlands East Indies. Our capture of Okinawa and occupation of strong bases in the Marianas presented the ominous threat of an early invasion of the Empire itself. Finally, the timely inception of atomic bombing from our Marianas bases and Russia's declaration of war against Japan forced her to admit what she had realized implicitly for some time, that only two choices remained—surrender or utter destruction.

6. The final, and as it happened unnecessary task, was to be amphibious invasion of Japan from the newly gained bases in the Western Pacific.

The details of the strategy for our participation in the war were developed by the Joint Chiefs of Staff, an agency established by President Roosevelt in February 1942. Putting that strategy into tactical execution depended, of course, on the ability of the Nation, and more specifically the industrial home front, to supply the tremendous quantities of war materiel required by the military forces. The problems of distributing that materiel and those military forces to both major war areas was solved by the Joint Chiefs of Staff in such a satisfactory manner that while our main effort was being exerted to finish the European war, our strength in the Pacific was simultaneously being in-

creased to a degree where once Germany was defeated, we had achieved a strategic position which caused Japan to sue for surrender in less than four months.

European vs. Pacific Tactics

The amphibious tactics employed to carry out the basic strategic plan for defeating Germany and Japan were fundamentally the same. They were based on the United States Navy's landing operations doctrine. However, the European and Pacific areas presented different problems. The differences between the seizure of invasion beachheads and the capture of advanced island bases has been discussed previously in the introduction to this report. The effect of these differences on the planning and execution of actual operations is reiterated here in order to clarify the influence of each area in the development of amphibious tactics.

General of the Army Dwight D. Eisenhower was charged with the conduct of our European campaign, a primarily military undertaking. In accordance with the concept of unity of command, commanders of subordinate echelons (e.g. Naval Attack Forces) determined the tactics to be employed in the performance of assigned missions (e.g. landing operations). The amphibious phases of the campaign, although essential, were relatively short in duration, and the Navy's tactical participation was limited. Soon after the initial landing, its mission became largely logistical.

The problem of securing accurate intelligence on which to base tactical plans was solved in much the same manner in both Europe and the Pacific. However, in Europe the objective areas were frequently well charted and accurately mapped. Aerial and submarine reconnaissance and photography were, therefore, chiefly employed to discover new, man-made defensive installations. Political considerations and the existence of friendly underground forces affected military operations in Europe as well as in North Africa and were therefore necessarily included in all estimates of the situation and planning. The shores on which landings were made were consequently not necessarily strictly hostile, nor did those landings always require an assault. Coordinated joint planning was facilitated in Europe because commanders concerned were frequently able to work together under one roof in a joint headquarters.

Landings were made on unlimited continental and masses with extended shore lines, many portions of which were unoccupied, or lightly defended. The enemy usually chose to rely on the use of mobile reserves to strike the landing forces soon after it hit the beach rather than on the occupation of defensive positions at the water's edge. Surprise and night operations

Landing Operations Timetable

Although this report is concerned with the development of amphibious tactics rather than with an historical account of amphibious operations, the following timetable will serve to indicate the chronology of the more significant landing operations of the second world war:

<i>Date:</i>	<i>European Area:</i>	<i>Pacific Area</i>
7 August 1942		Guadalcanal, Tulagi, etc., Southern Solomons Campaign opens in South Pacific Area.
17 August 1942		Makin Island Raid, first Central Pacific landing.
18 August 1942	Dieppe Raid, first Allied landing in force on European Continent since 1940.	
8 November 1942	North African landings to capture Oran, Algiers, and Casablanca.	
11 May 1943		Attu—campaign for recapture of Aleutians opens in North Pacific.
21 June 1943		Segi Point, New Georgia, first landing in Central Solomons, South Pacific Area.
29 June 1943		Nassau Bay, New Guinea. Southwest Pacific offensive opens (10 miles south of Salamaua).
30 June 1943		Main landings at Rendova and Viru, New Georgia, South Pacific Area. Landings simultaneously effected on Woodlark and Trobriand Islands to westward.
5 July 1943		Rice Anchorage, New Georgia, South Pacific.
10 July 1943	Sicily landings at Gela, Scoglitti, and Licata.	
15 August 1943		Occupation of Kiska in North Pacific.
3 September 1943	Landings on Italian shore of Straits of Messina.	Nopoi, New Guinea, Southwest Pacific Area.
9 September 1943	Landing at Salerno, Italy.	
22 September 1943		Finschafen, New Guinea, Southwest Pacific Area.
27 October 1943		Mono, Stirling, Treasury Island landings, Northern Solomons, South Pacific Area.

28 October 1943		Choiseul Island Raid, Northern Solomons, South Pacific Area.
1 November 1943		Empress Augusta Bay, Bougainville, Northern Solomons, South Pacific Area.
20 November 1943		Gilbert Islands invaded at Tarawa and Makin as Central Pacific offensive begins.
15 December 1943		Southwest Pacific Forces invade New Britain Island at Arawe.
26 December 1943		Cape Gloucester, New Britain, Southwest Pacific Area.
1 January 1944		Saidor, New Guinea, Southwest Pacific Area.
22 January 1944	Anzio, Italy.	
31 January 1944		Marshall Islands invaded at Majuro by Central Pacific Forces.
1 February 1944		Kwajalein Atoll, Marshall Islands, Central Pacific Area.
14 February 1944		Green Islands, South Pacific Area.
17 February 1944		Eniwetok Atoll, Central Pacific Area.
29 February 1944		Los Negros Island, Admiralty Islands, Southwest Pacific Area.
20 March 1944		Emirau, St. Matthias Islands, Southwest Pacific Area.
22 April 1944		Hollandia, New Guinea, Southwest Pacific Area.
17 May 1944		Wakde Island, New Guinea, Southwest Pacific Area.
27 May 1944		Biak, New Guinea, Southwest Pacific Area.
6 June 1944	Normandy landings, Northern France invasion opens.	
14 June 1944		Central Pacific Forces invade Marianas at Saipan.
(19-20 June 1944)		Naval Battle of Philippine Sea.)
2 July 1944		Noemfoor Island, New Guinea, Southwest Pacific Area.

21 July 1944		Guam, Marianas Islands, Central Pacific Area.
24 July 1944		Tinian, Marianas Islands, Central Pacific Area.
30 July 1944		Cape Sansapor, New Guinea, Southwest Pacific Area.
29 August 1944	Invasion of Southern France.	
15 September 1944		Peleliu Island, Palaus, invaded by Central Pacific Forces. Morotai Island, Southwest Pacific Area.
17 September 1944		Angaur Island, Palaus.
23 September 1944		Ulithi Atoll, Central Pacific Area.
20 October 1944		Invasion of Philippines begun with landing of Southwest Pacific Forces at Leyte.
(23-26 October 1944)		Naval Battle of Leyte Gulf.)
15 December 1944		Mindoro, Philippine Islands, Southwest Pacific Area.
9 January 1945		Luzon invaded by Southwest Pacific Forces at Lingayen Gulf.
29 January 1945		Further Luzon landings at Subic Bay.
14 February 1945		Mariveles, Luzon.
16 February 1945		Corregidor, Luzon.
19 February 1945		Iwo Jima, Volcano Island, invaded by Central Pacific Forces.
28 February 1945		Palawan, Philippine Islands, Southwest Pacific Areas (followed by extended amphibious operations for recapture of other Philippine Islands).
1 April 1945		Okinawa, Ryukyu Islands, invaded by Central Pacific Forces.
30 April 1945		Tarakan and Sadan Islands, Dutch East Borneo, Southwest Pacific Area. Campaign for reconquest of Borneo begins.
10 June 1945		Brunei Bay, Borneo, Southwest Pacific Area.
1 July 1945		Balikpapan, Borneo, Southwest Pacific Area.

were therefore feasible and desirable. Parachute and airborne troops could well be employed in coordination with the amphibious operations. There was little likelihood of enemy naval intervention, but it was not possible to isolate the target area, and air supremacy at the objective could rarely be counted on. Enemy land-based air attacks were usually launched from the fields outside the immediate landing area and there was, therefore, the requirement for tactical air cover during the landing operations. The enemy could reinforce his defending ground elements in a similar manner. Landing force organization for the amphibious phase was similar in both theatres, but in Europe it was possible for the smaller units to revert soon after the landing to centralized command and to their normal organization for tactical employment in a long campaign. The landing forces in Europe employed more complete and heavier equipment. They required motor transportation and armor for mobility at the earliest opportunity and needed heavy artillery for employment against targets out of range of naval gunfire for the support of the infantry's advance inland. One result was a different type of shipping. Transport organizations had to include a greater number of tank-carrying craft and cargo vessels for transporting heavy equipment. The movement to the objective and the lines of communication were usually shorter in Europe, and shore-to-shore operations were frequently possible. This meant the employment of larger seagoing landing craft. Amphibious vehicles designed to traverse reefs were unnecessary. The training of the landing force did not require emphasis on tactics for assaulting strongly fortified positions. Such installations were not encountered often, and, when they were, there was usually the opportunity to maneuver around them. Fire support for the landing force consisted normally of land-based aircraft employed in mass rather than of naval gunfire or any considerable number of carrier-based planes. This was due to the Army's primary interest in the campaign, to the availability of nearby supporting bases, to the need for distant reconnaissance, observation, and attack missions against targets out of range of naval gunfire, and to the fact that, since there was little threat of enemy naval intervention, there was a small number of combatant ships on hand to provide gunfire support. It should be noted that air support as conducted by the Army involved massed air power against area targets rather than the direct, coordinated, precise pinpoint support characteristic of naval aviation in the Pacific. There was less need for careful coordination of air support with artillery and naval gunfire. The Navy's logistical mission in Europe was different in that heavier equipment such as railroads and construction material was required in the post-assault

phase. However, unloading was frequently facilitated by the presence of developed harbors.

FLEET Admiral Chester W. Nimitz was charged with the conduct of the campaign against the Japanese in the Pacific Ocean Areas, a primarily naval undertaking. Commanders of Army units participating in the campaign exercised full tactical command over their respective units within the framework of Adm Nimitz's overall unified command. The Navy's participation was a continuous one from the time of the preliminary carrier strike through development of the objective as an advanced base for vessels and aircraft of the Fleet. The pattern of our Pacific offensive customarily included the following:

1. Carrier aircraft strikes, long range surface bombardment, and photographic reconnaissance by Fast Carrier Task Forces.

2. Repeated strikes by these carriers augmented where possible with long range land-based air attacks, which were intensified during the period immediately prior to the target date.

3. Intense, destructive, and deliberate preliminary surface and air bombardment at close range to prepare the objective for landing operations.

4. Dog Day bombardment and the landing of troops covered and continuously supported by fleet guns and carrier aircraft. Covering operations by fleet units on many occasions involved naval actions to prevent intervention by the enemy fleet. The many engagements during the Guadalcanal campaign, the Battle of the Philippine Sea during operations at Saipan, and the Battle of Leyte Gulf incident to our invasion of the Philippines were largely responsible for the destruction of the Japanese fleet.

5. Continuing logistical and tactical support until the island had been captured.

6. Garrison logistics and the development of an air and/or naval base.

THE problems of securing intelligence were more difficult in the Pacific Ocean Areas. Detailed information had to be secured by frequent and repeated air and submarine photographic reconnaissance, for charting and mapping purposes as well as for information on enemy dispositions and defensive organization. There were no political factors involved, and the landing force could count on assaulting a bitterly defended hostile shore. Landing force training, therefore, had to emphasize techniques for storming such positions, develop discipline, and point to the highest coordination in order to realize maximum fire support from all sources available. The joint planning for amphibious operations had to be conducted by the commanders of the component elements of the expeditionary forces,

Amphibious Tactics

located in limited land areas widely separated across the reaches of the Pacific. Training, mounting, and staging also had to be accomplished from separate locations. Coordination was achieved as a result of the teamwork developed in employing the same forces and the same commanders in a series of successive operations.

Islands and atolls are limited land masses with short shore lines with little choice of landing beaches and where the available beaches are always strongly defended. However, the island can be isolated by the exercise of sea and air superiority and the enemy can be prevented from reinforcing his original defending force. A closely coordinated preparatory bombardment and assault are required to breach the defenses and tactical surprise is therefore forsaken in order to achieve maximum destruction prior to landing. Daylight is required for such operations. It is usually impractical to employ air borne troops.

THE Japanese rarely employed mobile reserves and our tactics called for the employment of mobile weapons for direct fire against strongly fortified positions, light and medium field artillery, extensive naval gunfire throughout ground operations, and the use of aircraft carriers and escort carriers as mobile bases from which very close air support was delivered. Landing force organization was designed to permit the independent functioning of small units in the assault. Landing force equipment was light; heavy artillery was not required in assault shipping, and individual equipment was kept at a minimum. There were long lines of communication ending usually in a ship-to-shore operation. There were reefs to be crossed and the resulting need for tracked vehicles, such as the LVT. An adequate shore party organization had to be devised to maintain the flow of supplies from the ships to the fighting troops. Modern harbor facilities were almost never available. Roads, airfields, and other advanced base facilities all had to be constructed after the ground had been captured. There was the additional problem of replacing the heavy landing force casualties which had to be expected in the assault landings.

The various techniques required to solve the particular problems in the two areas were largely solved by commanders in the theaters. The fundamental tenets of our landing operations doctrine were the basis for all amphibious tactics employed. The concept for command relations,

methods for gaining intelligence, manner of coordinating planning, training and execution, attack force and transport organization, landing force organization, transport loading, debarkation, ship-to-shore movement, amphibious communications and control, underwater demolition activity, naval gunfire techniques, and shore party functioning were common to both European and Pacific landings and far outweighed local differences. The training of amphibious forces in the United States for employment in both Europe and the Pacific was based on that doctrine, and the lessons learned in combat in one area were rapidly applied in planning subsequent operations in both.

FROM our first landings at Guadalcanal, it was apparent that our tactics were sound. Development during the war consisted of the following:

1. Learning where to place emphasis in our training and application of the doctrine.
2. Refining and perfecting existing techniques.
3. Developing new techniques (e.g. the Joint Assault Signal Company, Air Support Control, and Underwater Demolition Teams) for old problems and new equipment (e.g. radar, amphibious flagships, and escort aircraft carriers) and integrating them with the basic doctrine.
4. Learning that no matter how sound our tactics were, they were ineffective unless applied with aggressive vigor and resourcefulness by dynamic, intelligent, and well-informed commanders and highly trained and disciplined troops.
5. Increasing coordination and efficiency as we gained combat experience. In this manner we learned how to land more troops and material on the beach in a shorter time and with less loss.

The progress of our amphibious offensives in the field depended on research and experiment, production, procurement and training at the amphibious training bases, established by the Navy on both coasts, in the United States.

We learned lessons in every landing operation, and just as the strategic position gained by one victory permitted successive operations, just as our capture of Tarawa, Kwajalein, and Eniwetok put us in position to take Saipan, Tinian, and Guam; so the lessons we learned in one landing made possible our successes in later ones. This was a continuous and cumulative process which transcended the limits of any particular theater or campaign. The value of Tarawa's lessons was realized equally at Saipan and Normandy. This wartime development of amphibious tactics fell into four main periods: August 1942-August 1943, September 1943-December 1943, January 1944-July 1944, August 1944-August 1945.

The Development of **AMPHIBIOUS TACTICS** in the U.S. Navy

Gen Holland M. Smith (Ret'd)

☛ IN OUR FIRST YEAR OF OFFENSIVE OPERATIONS, the Navy's landing operations doctrine was put to the test of combat and found satisfactory. This was our first lesson; we found that our tactics would work and work for both services in all theaters of operations—in the Southwest Pacific, the South Pacific, the Central Pacific, the North Pacific, North Africa, and Europe. The difficulties encountered in those undertakings were due largely to our failure, in some cases unavoidable, to adhere strictly to prescribed tactics. We had to learn, too, which aspects of the doctrine required emphasis. For example, we learned that the importance of close cooperation between military and naval staffs through the planning, training, and execution of the landing cannot be stressed too strongly. We learned that the logistical aspect of amphibious operations was as vitally important as our assault tactics, and that there was a need for further study and elaboration of the doctrine in this regard. Finally, in the first year, we found the need for new equipment and techniques, especially in communications, to improve our tactics. We were actually relearning much of this; combat confirmed and underscored previous training experience. The answer to many of our problems was more training and better training methods.

The Solomons Offensive

☛ ON 7 AUGUST 1942, THE SOUTH PACIFIC Amphibious Force, commanded by RearAdm R. K. Turner, landed the 1st Marine Division, Reinforced, commanded by MajGen Alexander A. Vandegrift, on Florida, Tulagi, Tanambogo, Gavutu, and Guadalcanal Islands in the British Solomon Islands. The purpose of the operation was

to halt the Japanese advance southward and forestall the threat to our thin lines of communication to New Caledonia, New Zealand, and Australia. Indirectly, our occupation of these positions would serve to aid the Southwest Pacific Forces under Gen MacArthur in stemming the enemy's offensive on Southern New Guinea. The Japanese were established on Tulagi as early as April and on Guadalcanal in July.

ViceAdm R. L. Ghormley, the Commander South Pacific Force and Area, had a difficult task. He was directed to capture the objectives on short notice and with the very limited forces and materiel available. Europe had first priority in our war strategy, and the South Pacific was indeed a neglected step-child. The lack of time for training and planning, the lack of adequate naval forces, and the limited number of trained troops available resulted in an inability to achieve, maintain, or exercise air or sea superiority. The expected effect on our tactics was quickly forthcoming. The small landing force did not have adequate tactical support. Logistical support of the troops was even more critically lacking. The enemy could not be isolated. He could and did intervene by air and sea to oppose our effort. He was able to reinforce his ground forces continually. The campaign lasted for six months and until we were able in a long series of bitterly fought naval and air engagements to gain control of the sea and air in the Southern Solomons.

There were three major task forces involved in the tactical execution of the mission. ViceAdm F. J. Fletcher was in overall command of the first two which operated at the objective area. The covering carrier task force, commanded by RearAdm L. Noyes, included three aircraft carriers, one new battleship, five heavy cruisers, one

Part VII: The Baptism — Guadalcanal, Makin Raid, Dieppe, and North Africa



Initial objective for the 1st Marine Division on Guadalcanal was the airfield.

light anti-aircraft cruiser, and sixteen destroyers. The amphibious force, commanded by RearAdm Turner, included 6 heavy cruisers, 2 light cruisers, 15 destroyers, 5 mine sweepers, 13 assault transports, 4 destroyer transports, and 6 assault cargo vessels. Land and tender-based aircraft at New Caledonia, the Fijis, and Samoa, which were available to support the operation, were in a third task force commanded by RearAdm J. S. McCain, Commander Aircraft, South Pacific. The Landing Force, consisting of the 1st Marine Division, less the 7th Marine Regiment on Samoa and reinforced with the 2d Marine Regiment, the 1st Raider Battalion, the 1st Parachute Battalion, and the 3d Marine Defense Battalion, totalled 19,546 officers and men.

The Guadalcanal campaign is historically important as the first major United States offensive operation in the war. It was a significant strategic victory. It was long and costly. It was as much or more of a naval campaign as it was an amphibious or ground operation and was won in the sea and air battles of Savo Island, Eastern Solomons, Cape Esperance, Santa Cruz Islands, Guadalcanal, and Tassafaranga, as well as in the fighting on the ground. In the air, on the sea, and ashore, we came to know our enemy and his tactics, and we learned how to fight in the jungle. Our amphibious tactics were baptized, but it was not initially a baptism of fire. Guadalcanal is therefore important in the history of

amphibious warfare, but its lessons and influence on the development of amphibious tactics are limited.

The expeditionary force was mounted in New Zealand and conducted a partial rehearsal of the operations at Koro Island in the Fijis. The actual landings were preceded by scattered naval gunfire at the limited "targets of opportunity." No preliminary scheduled bombardment was, in point of fact, necessary. We enjoyed tactical surprise, and the main landing on Guadalcanal was unopposed. The advance of the landing force ashore was unimpeded during the entire first day, and by the second day, our first objective, the airfield (later called Henderson field), was in our hands. Opposition did develop on Tulagi soon after the landing, and our landings on the lesser islands were opposed. However, on the second day, the landing force had secured all of Tulagi. The early retirement of the covering carrier force for refuelling on the second day made the position of the transports untenable, a fact which was emphasized by our losses in the Savo Island Battle on the night of 8-9 August. Their withdrawal, after landing only scant quantities of supplies, left the landing force in a logistically desperate position, which was only slowly remedied over an extended period.

Some of the logistical lessons we learned were:

1. The limited number of ships which could

be expected for amphibious operations required a careful screening of landing force equipment. No organizational equipment could be included in assault shipping.

2. An increased number of troop transport quartermasters were needed to effect most efficient loading plans and embarkation.

3. Well-trained boat crews were required for rapid unloading and landing at the target. In this regard, the necessity for effective control and efficiency in the ship-to-shore movement was re-emphasized. The more quickly supplies could be landed, the sooner the transports could be dispatched from their vulnerable positions at anchor and the stronger the landing force could become to fulfill its mission ashore.

4. Unloading landing craft at the beach and moving the supplies to the troops inland required a substantial force of specially trained and organized service troops. There was a shortage of shore party personnel at Guadalcanal.

5. A careful plan for resupply shipping and an echeloned schedule was needed to maintain the landing force ashore for any but the most limited operations.

THE NAVAL AND AIR FORCES WERE ENGAGED throughout the campaign in combating enemy attempts at intervention and reinforcement. The joint support rendered the landing force was consequently of a most limited and primitive nature. No gunfire was delivered in close support of troops and close air support was handicapped by the fact that the controlling agency was afloat, many miles from the scene of ground action. Air-ground communication was almost non-existent, and there was the problem of identification of friendly troops by our own aircraft, one which persisted to some degree during the entire war. It was apparent that for coordinated and effective fire support a centralized controlling echelon was necessary. The need for an amphibious flagship with ample communication facilities was already felt. Lighter, stronger, and more extensive communication equipment was another definite need.

The operation demonstrated that a more specific treatment of the ship-to-shore movement in our landing operations doctrine to include control and communications would improve that portion of our landings. Boat crews showed the need for intense training. There was room, too, for improvement in landing craft salvage procedure. The landing force commander recommended that some landing craft be maintained

at the objective and held available to him for employment where required in connection with operations ashore. The LVT "demonstrated a usefulness exceeding all expectations." It was used to tow and carry equipment and as a ponton for temporary bridges, but it was not considered or employed tactically.

Gen Vandegrift in his final report on the Guadalcanal operation suggested that the best efficiency could be achieved in future operations with the organization of a permanent amphibious force, consisting of ships and troops necessary to undertake landing operations. Such an organization would have the advantage of frequent joint operational training, and its component elements would together benefit from common experience in combat. Although such an organization was never possible, every attempt was made during the conduct of the Pacific war to employ where possible in successive operations the same commanders, troops, and ships.

Makin Island Raid

TEN DAYS AFTER THE LANDING AT GUADALCANAL, another amphibious operation of a different type was undertaken over a thousand miles away in the Central Pacific Area. At 0300 on the morning of 17 August 1942, 225 officers and men of the 2d Marine Raider Battalion, commanded by LtCol Evans F. Carlson, disembarked from the submarines *Nautilus* and *Argonaut*, which with the landing force were under the overall command of Capt J. M. Haines, USN, and landed in a surprise assault from rubber boats at 0500 on Makin Island in the Gilbert Group at the Equator. Part of the battalion was reembarked on the night of 17 August and the remainder on the following day. The operation was conceived as a diversionary raid and achieved its purpose. The enemy was distracted from his defensive operations in the Solomons by this threat in a different sector. We gained information on which to base our offensive campaign in force in that area 15 months later. The Japanese garrison of approximately 150 troops was destroyed by the raiding force, and all major enemy installations were destroyed or severely damaged. These included one transport vessel, one patrol vessel, two seaplanes, the radio station, and considerable quantities of gasoline, supplies, and equipment. Our losses were rather heavier than anticipated and amounted to approximately 30 per cent of the raiding force. The raider battalion trained at Midway and at Oahu in the

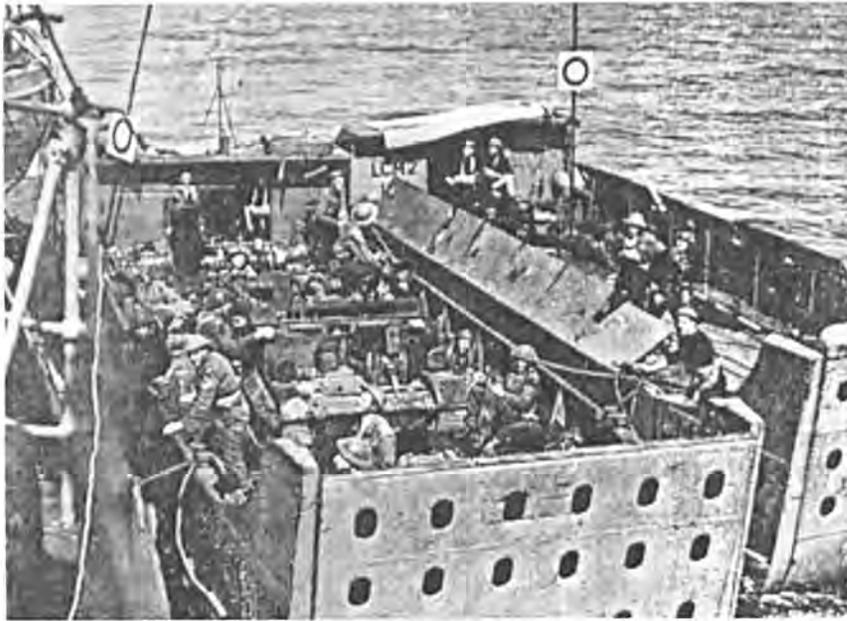
Hawaiian Area in night landings from submarines. Loading plans, surf, and not altogether satisfactory communications made control in the ship-to-shore movement difficult, and a reorganization had to be made on the beach. Gunfire support was provided by the *Nautilus*, which succeeded in sinking the two enemy vessels, but it was not equipped with high capacity bombardment ammunition. Operations ashore were not pursued at all times with the offensive spirit so necessary in operations of this nature, and the result was that, at the end of the first day, one of rather stabilized activity, the remaining enemy force was overestimated by the battalion commander. A costly attempt was made to reembark the battalion that night through heavy surf. The force which remained ashore the night of 17-18 August discovered that few enemy actually had survived the first day's fighting, and it was able consequently to complete the demolition of Japanese installations and reembark at its leisure. In the Navy's first combat trial of a submarine-borne landing force, we learned that submarines were suited to troop transporting missions, and that rubber boats were suited to raiding missions. The raider battalion learned valuable lessons for future missions of this nature. Radar showed its value in spotting enemy aircraft and as an aid in navigation. The need for more efficient portable radio equipment, apparent also at Guadalcanal, was demonstrated. It was concluded that plans for a similar undertaking should be prepared with more flexibility unless intelligence was accurate, complete, and detailed.

Dieppe Landing

☞ TWO DAYS AFTER THE MAKIN LANDING, ANOTHER amphibious raid was undertaken—but by a far larger force and in a far distant theater. On 19 August 1942, (Greenwich Central Time), a combined force of Canadians, Fighting French, Americans, and English landed under British command at six beaches in the vicinity of the French channel port of Dieppe in what was the most extensive amphibious reconnaissance in force of the entire war. However, no United States naval forces participated. It was nonetheless of considerably more interest tactically than the Navy's two previous Pacific landings. It was an opposed landing. It was a test of *combined* (i.e. involving the forces of two or more allied nations as opposed to "joint" meaning Army and Navy cooperation) operations procedure, organization and staff functioning. It provided a

graphic preview of the invasion problem facing allied planners. From it tactical lessons were learned which were of value to all allied amphibious forces. The difference between British and American amphibious doctrine were clearly set forth in the conduct of the raids. Finally, prisoners were taken, enemy forces and installations were destroyed, and the raiding forces obtained valuable intelligence on the enemy coastal defensive organization and tactics.

☞ THE PRIMARY PURPOSES OF THE DIEPPE RAID were to test German defensive strength and tactics on a heavily defended shore line and to gain experience, which Prime Minister Churchill, in referring to the landings, called "an indispensable preliminary to full scale operations," in combined operations techniques for large forces. Planning was under the direction of ViceAdm Lord Louis Mountbatten, Chief of Combined Operations. His headquarters had previously planned and directed the smaller destructive Commando raids against Vaagso and Lofoten in Norway and St. Nazaire and Boulogne in France, but had never before Dieppe undertaken a mission of comparable magnitude. The forces involved numbered between 10 and 15 thousand and included Commando Three, commanded by LtCol Durnford Slater; Commando Four, commanded by LtCol Lord Lovat, a Royal Marine Commando; the 2d Canadian Division, commanded by MajGen J. H. Roberts; and small American and Fighting French detachments. They were trained and rehearsed in the United Kingdom and dispatched in a large flotilla of landing craft for the shore-to-shore movement across the 64 miles of English Channel with a convoy of British destroyers and the greatest umbrella of allied air cover yet employed. Four preliminary landings were made at 0450 by the Commandos and elements of the Canadian Division. Commando Four landed at Varengeville, west of Dieppe, accomplished its mission of destroying a German 6-inch howitzer battery of 12 guns, which flanked the main landing beaches, and quickly reembarked. Commando Three had been assigned the mission of destroying an identical battery at Berneval, flanking Dieppe on the east. Its landing craft were discovered by a German coastal convoy which included anti-aircraft ships, heavily armed trawlers, and E boats, and all but one of the landing craft were destroyed. The 20 men in this one boat, consisting of runners, communicators, and mortar men and com-



At Dieppe the British had excellent air cover and landing equipment but depended too much on Commando-like tactics.

manded by Maj Peter Young, landed, advanced to the vicinity of the hostile battery position, and, with 11 rifles, 6 submachine guns, 2 pistols, and one 2-inch mortar, succeeded in neutralizing the German guns for four critical hours before withdrawing and reembarking. Two Canadian elements, the Royal and South Saskatchewan Regiments landed in other diversionary attacks inside the Commando beaches and between them and Dieppe at Puits on the east and Pourville on the west respectively. Both forces encountered stiff opposition ashore. The Puits regiment was opposed for 20 minutes prior to landing by the German E boats which were finally driven off by British destroyers. All tactical surprise was lost, and the landing was vigorously opposed. None of these preliminary landings were preceded by air or naval gun bombardment, nor was any direct support provided after these landings were made. Preliminary air operations for the Dieppe Raid consisted of cannon and strafing attacks against beach defenses and known installations and positions in the Dieppe vicinity. U. S. Army Air Forces B-17 bombers attacked nearby Abbeville during the raid. The aerial phase of the raid consisted primarily of a great air battle between the British and German fighters, which raged overhead throughout the landing. The British succeeded in flushing the long hidden enemy fighter strength in western Europe, in keeping it off the landing forces' back, and in destroying 275

enemy planes. The main landings at Dieppe were preceded by a limited destroyer and mortar gun boat bombardment and covered by smoke screens. Later smoke screens were laid by aircraft during the heavy fighting in the town of Dieppe and proved their worth many times. The assault waves in the main landing were boated in tank landing craft, and tanks accompanied by engineers and infantry formed the landing force. The tanks were poorly suited to the task of fighting through the narrow streets of Dieppe, which were lined with reinforced and heavily fortified houses and strong points. Losses were very heavy. After nine hours of battle, the landing force withdrew and reembarked in those landing craft which had not been sunk. Virtually all tanks landed were abandoned ashore. The results of the operation were the loss of 98 allied planes, one destroyer sunk during the evacuation, many landing craft sunk, and 50 per cent casualties for the whole landing force.

The most important lesson emphatically relearned at Dieppe was that it is fatal to send a boy to do a man's job. The force assembled for the raid against a hostile shore known to be heavily defended was manifestly inadequate to the task. True to the tradition of the Commandos, which was a direct heritage of Gallipoli, the entire success of the landing depended on achieving surprise in the preliminary landings. No provisions were made for meeting any other contingency which might arise. Only one preliminary landing was effected with surprise, and the neutralization of the flanking mortar batteries resulted from an act of heroism which no sound commander could afford to expect. Previous commando raids had fortunately enjoyed surprise and had tended to substantiate the British belief in surprise as the key to amphibious success. The U. S. Navy doctrine that no frontal assault should ever be attempted without overwhelming close naval gunfire and air support was heartily reaffirmed at Dieppe. Naval gun-

fire might well have been employed to destroy enemy defenses on the flanks and in the rear of the landing beaches, and close fire and air support would undoubtedly have reduced the landing force casualties. The British failure to employ any volume of gunfire support gained them nothing and cost them much.

☛ THE DIFFERENCES BETWEEN OUR AMPHIBIOUS tactics and those of the Commandos go far beyond the varying values placed on shore bombardment and surprise results. British planning, organization, and training emphasized the precise execution of different assigned tasks by small units in accordance with a rigid timetable. The success of the entire mission depended on the accomplishment of each component task. Each unit was briefed only to do its own particular job and no other. Success further depended on such variable factors as weather and hydrographic conditions, and implicit faith was placed on intelligence concerning enemy defenses and dispositions. Our experience has shown that the manifold complexities and variables in landing operations require above all else flexible planning. Every possibility must be considered and provisions made to meet them all. Units must be trained to be resourceful and be adequately briefed to permit them to contribute most effectively to the overall effort if their particular mission cannot be carried out. U. S. Marines trained in this manner have been found equal to all amphibious missions from raids to invasions. To sum up the experience of Dieppe which was applied in later landings, the British learned:

1. That military and naval cooperation can always be improved.
2. That most effective joint planning can best be achieved at one joint headquarters.
3. That planning for landing operations must be flexible.
4. That the factors of weather and hydrography have a vital effect on the conduct of landing operations and must be carefully scrutinized in planning.
5. That wherever possible plans for assaulting defended beaches should include a maximum preparatory and supporting bombardment by all naval guns and aircraft available. In any event, full advantage should be realized from all supporting arms available.
6. That tactics for landing on a hostile shore

should always be premised on the necessity for assault, and, whether or not the attack is in fact opposed, all planning, organization, training, and deployment should be directed to meet that eventuality. The assault should be conducted initially with the minimum force necessary to assure success deployed on the broadest front possible. The width of the front should be determined by the ability of the commander to control his force and the character of the gunfire and air support provided. A considerable force should be held in reserve afloat prepared to support and exploit the initial landing(s) of the assault elements.

7. That an important kind of naval gunfire support can be provided by small, close-in supporting gun and mortar boats accompanying the leading waves in the approach to the beach. The lack of such support had also been sorely felt at Gavutu and Tanambogo in the Solomons.

8. That landing force assault equipment should include light, mobile artillery and high-velocity self-propelled weapons (e.g. the 75 mm pack howitzers employed by the Marine division and self-propelled guns).

9. That smoke has many valuable uses in landing operations.

10. That improved communications techniques and equipment would benefit ground operations and joint air-naval-and ground tactics.

11. That airborne troops might well be employed in conjunction with amphibious forces.

12. That landing force training should include repeated ship or shore-to-shore and night exercises.

Invasion of North Africa

☛ THE ALLIED INVASION OF NORTH AFRICA ON 8 November 1942, involving three separate landing operations against an 800-mile coastline by a total landing force of 107,000 men, was the first large-scale test of our amphibious doctrine, the first Allied invasion in the European Area, and the opening phase of our European amphibious offensive. It was the largest ship-to-shore operation yet undertaken. The plan was first considered in Washington in January 1942 in conferences between President Roosevelt, Prime Minister Churchill, and their Combined Chiefs of Staff, but there were insufficient forces and materiel available at that time for the undertaking. Further study was made in June, and the decision was arrived at in London in July.



North African beaches were congested, the result of inadequate preparation.

The invasion was to be coordinated with the attack of the British Eighth Army westward from the El Alamein line and had as its purpose the opening of the Mediterranean and the removal of the German threat both to Suez on the east and to the Moroccan coast and Dakar on the west. The capture of French territory would further provide a setting for the re-establishment of a Free French Army. American and British forces, mounted both in the United States and the United Kingdom, were to launch three major attacks: one against the French Moroccan port of Casablanca on the Atlantic, and the other two against Oran and Algiers on the Mediterranean. Many new vessels and landing craft, still a highly critical item in our production schedule, and very recently trained crews were employed in the landing. The completion of those vessels and necessary training delayed the operation until 8 November. The overall Allied and unified command of the invasion was given to LtGen Dwight D. Eisenhower, USA, who directed the planning from his joint headquarters in London. Adm Sir Andrew Browne Cunningham, RN, was the Allied Naval Commander. Gen Eisenhower opened his command post at Gibraltar on 5 November. It should be noted that all land-based air support for the invasion had to be staged through that one base.

Planning for the North African operation was complicated by the political factors involved.

The extent of Vichy French-German cooperation and the extent of the Vichy government's control of the North African colonies and the many racial and local differences in North Africa combined to make any estimate of colonial opposition to our landing highly conjectural. Gen Eisenhower wished to avoid conflict with the French and if possible effect an unopposed landing. However, the necessity for security prevented his giving any wide-spread advance warning of our landings.

The Morocco attack force was organized, trained, and dispatched from the United States. The landing force involved included the 3d Infantry Division, the 2d Armored Division, and the 9th Infantry Division, less a regiment, all under the command of MajGen George Patton. The Naval attack force was under the command of RearAdm H. K. Hewitt. This expeditionary force sailed from the United States on 24 October and landed at 0400 on 8 November at three points in the vicinity of Casablanca. The main landing was made at Fedala, 24 miles north of Casablanca. A secondary landing was made without initial resistance at Port Lyautey, 65 miles north of Casablanca, and a third landing was made from destroyers 125 miles to the south, at Safi. Coastal defense batteries and the guns of the French battleship *Jean Bart* opposed our landing on D-Day. French naval units, including eight submarines, two destroyer leaders, five

destroyers and a light cruiser, attempted a sortie from the port and were either sunk or beached as a result of our naval gunfire.

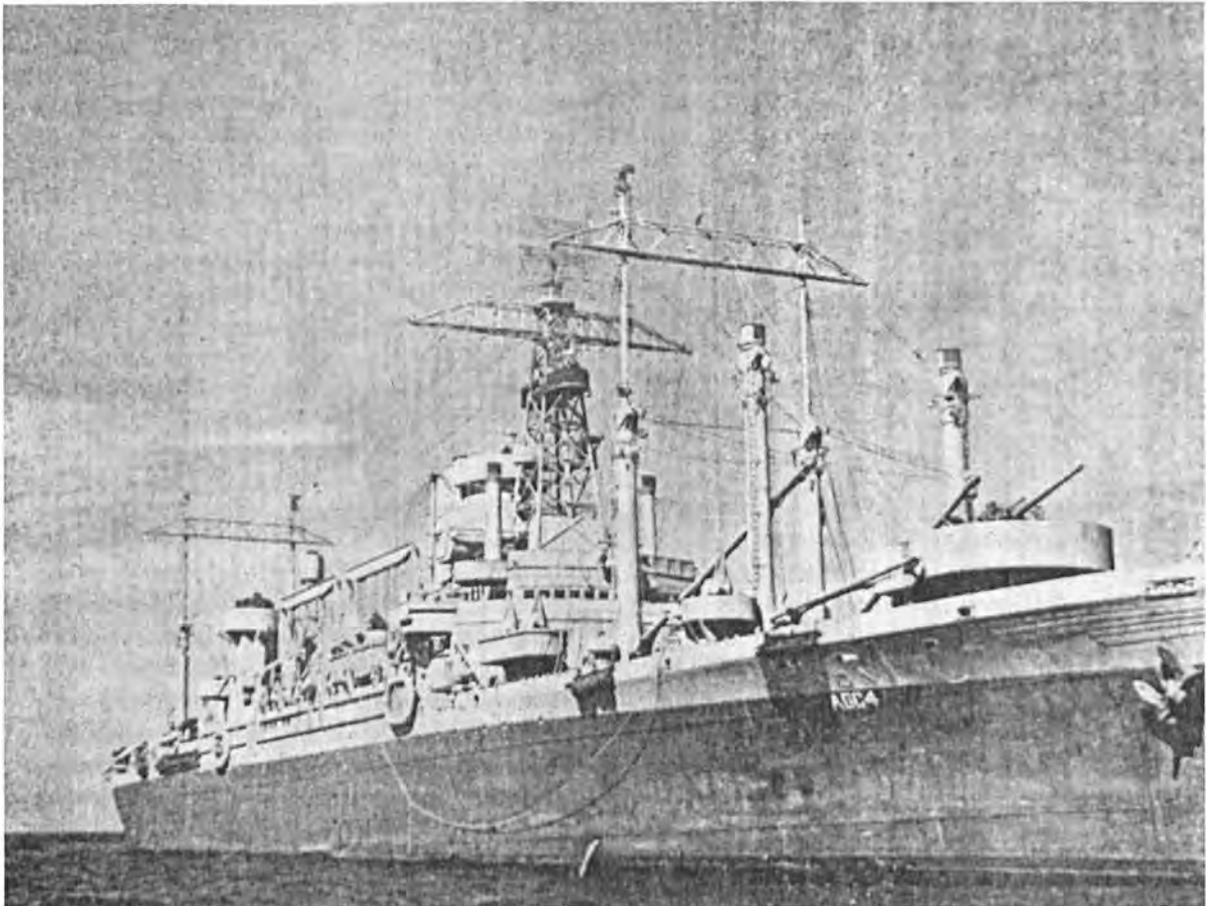
The Oran attack force was organized, trained and dispatched from the United Kingdom and consisted of United States troops and British naval vessels. The Army units involved included the 1st Infantry Division, half of the 1st Armored Division and Corps troops under the command of MajGen Lloyd Fredendall. This landing force landed at 0100 on 8 November.

The Algiers attack force was also mixed and included British naval units and British and American landing forces. The landing force was under the command of LtGen K. A. N. Anderson of the British Army and included British Commando units, two United States regimental combat teams, one from the 34th Infantry Division and the other from the 9th Infantry Division, and a United States Ranger battalion in the as-

sault under the command of MajGen C. W. Ryder, USA. This unit was landed at 0100 on the 8th. The British First Army landed after the beachhead was secured. One American Transport Division was included in the naval force; two of its vessels were torpedoed. There were three covering naval forces, one of which was commanded by RearAdm R. C. Giffen, USN, as well as airborne troops which had to be flown 1,500 miles to the objective. Complete strategic surprise was achieved in the invasion and within 48 hours, we had won all of our initial objectives, which included both facilities and airfields. By 11 November, an armistice had been signed with the French and the amphibious phase of the operation was completed. British and American detachments landed eastward at Bougie on the 11th and at Bone on the 12th.

The invasion did not encounter heavy resistance. It was successful both strategically and as

The *Ancon* was the first specially equipped AGC or amphibious command ship.



amphibious experience. The doctrine was again proved sound and the chief conclusions drawn from the undertaking were that we must strive to improve our application of the doctrine, that we must improve our training methods, and that the forces involved needed more training and experience before they could realize the full effect of the doctrine in an opposed landing. Some changes were indicated as a result of the operation. We made the usual mistakes which can in general be attributed to lack of training and experience. We landed at the wrong time and on the wrong beaches, a result of deficient control. We landed with lights and noises, a result of bad discipline. We abandoned landing craft, which were left stranded at many points in the landing area, another result of bad discipline. The landing beaches were congested, a result of lack of training and of inadequate techniques and equipment for unloading and beach clearance.

As a result of the operation, it was recommended that a standard pattern for planning amphibious operations be adopted which would include the following steps: (1) basic training; (2) tactical planning; (3) operational training; (4) full-scale rehearsal.

No rehearsal was possible for the North African invasion. In regard to our supporting arms, there was again no centralized controlling agency, and it was discovered that a combatant vessel of the *Augusta* type made a poor flagship for amphibious operations. Again the need was felt for an amphibious command ship, similar to the British *Bulolo*, *Largo*, and *Hilary*, one of which had been used at Madagascar the previous May, with adequate communication facilities to coordinate the activities of the many participating elements. One such ship, the *Ancon*, was used at Algiers. The need for an aerologist at the objective area was strongly felt. A special naval gunfire target map was recommended. It was recommended that destroyers which had been assigned gunfire support missions not be used for control purposes in the ship-to-shore movement. It was recommended that a landing craft similar to the LCC or LCI be used for guiding the waves beyond the line of departure. Air elements provided antisubmarine patrol, spotting missions for gunfire, and reconnaissance flights. Air-ground communications again proved

inadequate and means of identification of friendly troops by aircraft were unsatisfactory. The depth bomb proved itself suited to bombing missions against exposed troops ashore. Air liaison parties were attached to each regimental combat team. This was the first step; later air liaison teams were attached to each battalion and all teams were coordinated through a centralized controlling agency—Commander Support Air. Aerial and submarine photographs and silhouettes proved a valuable aid in the ship-to-shore movement.

The LCVP was considered to be an improvement over both the LCV and the LCP. Rope debarkation nets proved better than metal ones. Rail loading of Davit-lowered LCVPs was effective. It was realized that the time involved in forming and dispatching waves from the transport area could only be reduced with training, experience, and constant time studies. Some method of controlling landing craft at night was needed. Communications aimed at speed rather than security and plain language voice transmissions were used in North Africa. The shore party again lacked the personnel, training, and organization to fulfill its function. What was needed was a specially trained service organization adequately manned and equipped. The boat salvage functions of the beach party could not be fulfilled because of the lack of personnel and engineering equipment. Military police were needed for guarding unloading areas. Palletized equipment greatly aided rapid unloading and ponton barges were used to good effect.

IN JANUARY 1943, AS A RESULT OF THE EXPERIENCE gained in maneuvers conducted immediately prior to the war and of the lessons learned at Guadalcanal and North Africa, the Commander-in-Chief of the U. S. Fleet published a supplement to the landing operations doctrine already in existence. These general instructions for transports, cargo vessels, and landing craft of the amphibious forces set forth in detail a single standard procedure for the ship-to-shore movement. It covered characteristics of landing craft, debarkation, rendezvous, landing craft organization, control, beach party functions and communications, and resulted in a marked improvement in these phases of landing operations.

The Development of Amphibious Tactics In the U. S. Navy



Aleutian Campaign

AMPHIBIOUS OPERATIONS WERE UNDERTAKEN in the North Pacific Area in the spring and summer of 1943. The island of Attu was captured between 11 and 31 May and the island of Kiska was occupied without opposition on 15 August. These were the only operations conducted in the Aleutians and rendered our northern flank secure for the duration of the war. Limited forces based in the north thereafter were able to support our main effort in the Central Pacific by exerting aerial and naval pressure against the Japanese-held Kuriles and presented a constant threat to the northern islands of the Empire itself (i.e. Hokkaido).

The Aleutians were of strategic importance because of their location on the great circle aerial highway between North America and the Orient. Weather and terrain were the decisive characteristics in that theater of operations. The Bering Sea to the north is known as the "storm factory"; severe storms form in that area each week during the winter months and move south and southeast. Fog and variable winds, known locally as "williwaws," are always present and make air and sea operations difficult. The land masses are mountainous; rocks, ice, snow, and mud impede ground operations.

A U. S. Naval Base was established at Dutch Harbor in May of 1942, and the North Pacific Force, consisting of all naval, ground, and air units, Canadian and American, in the theater, was placed under the unified command of Rear-Adm R. A. Theobald. On 3 June, Dutch Harbor

was bombed from high altitude through heavy overcast and fog by enemy aircraft, and landings were made simultaneously by the Japanese on 6 June on Attu and Kiska to the west. This move is believed to have been part of a two-pronged offensive; the southern part was halted in the Battle of Midway. The enemy's efforts to reinforce the newly-gained positions were constantly interdicted by our submarines and air forces during the ensuing months. On 7 August Kiska was bombarded by surface units under the

command of Rear Adm W. W. Smith. Adak Island in the Andreanof Group was occupied by

North Pacific Forces in the end of August, and in January 1943, a base was established at Anchitka, even closer to the enemy bases. Aerial attacks were launched against Attu and Kiska from fields on these islands throughout the spring. A task group of the North Pacific Force under RearAdm C. H. McMorris attacked a heavily protected enemy convoy enroute to reinforce the Japanese garrisons 65 miles south of Komandorski Peninsula on 26 March. The gunfire of the cruisers *Salt Lake City* and *Richmond* and vigorous torpedo attacks delivered by destroyers forced the stronger enemy unit of heavy and light cruisers and destroyers to retire. Attu was bombarded by surface forces in April, and in May the amphibious assault was launched.

Landing on Attu

AN OPERATION AGAINST THE JAPANESE POSITIONS in the Aleutians had been under consideration by the Commander-in-Chief, United States

By Gen Holland M. Smith (Ret'd)

Part VIII: Strategic Attu and Kiska fall, successful landings made on New Georgia

Pacific Fleet, and the Commanding General, Western Defense Command, since December 1942. Commander, Amphibious Force Pacific Fleet, RearAdm F. W. Rockwell, and Commanding General, Amphibious Corps Pacific Fleet, MajGen H. M. Smith, had been engaged in studying estimates and plans for an attack against Kiska during the first months of 1943. In April a joint warning order was issued by the Commander-in-Chief, United States Pacific Fleet, and the Commanding General of the Western Defense Command which directed the capture of Attu in order to sever enemy lines of communications to the Western Aleutians, to deny the Near Islands to the enemy, and to provide a supporting base for further operations against Kiska. The directive designated the following forces and commanders for the operation: the Commander North Pacific Force, RearAdm T. C. Kinkaid, was designated officer in charge of the operation; two covering surface forces were provided, one commanded by RearAdm R. C. Giffen, consisting of three heavy cruisers and four destroyers, and the other commanded by RearAdm C. H. McMorris, consisting of four light cruisers and five destroyers. Shore-based air units (11th Air Force), designated to support the landing force, were under the command of MajGen W. O. Butler, USA. Fleet Air Wing Four was assigned long-range search and anti-submarine patrol missions. Command of the Naval Attack Force was given to RearAdm F. W. Rockwell. His force included a supporting group consisting of the battleships *Pennsylvania* (the force flagship), *Idaho*, and *Nevada*, one escort carrier, the *Nassau*, and six destroyers. Control of air and naval gunfire support was vested in the attack force commander. The transport group consisted of four attack personnel transports, the *Zeilin*, *Harris*, *Heywood*, and *Bell*, one merchant transport, the *Perido*, four destroyer transports, and six supporting destroyers. There was also a reinforcing unit consisting of four personnel transports and three cargo vessels with the reserve regiment (32nd Infantry) and reinforcing garrison elements embarked. The landing force was until 17 May under the command of MajGen A. E. Brown, USA, and consisted of the 7th Infantry Division, Reinforced, less one regiment. MajGen E. Landrum, USA, relieved Gen Brown. The 17th Regimental Combat Team was in the assault, and the 32nd Infantry was in reserve.

Dog-Day was 11 May. The 7th Scout Company was landed early in the morning of the 11th from the submarines *Nautilus* and *Marshal*. The 7th Reconnaissance Troop landed later from the destroyer transport *Kane* which was guided to the landing beach by radar on the *Pennsylvania*. The main landings were made by the 17th Regimental Combat Team at 1600 during the afternoon without opposition. The main landing was made at Massacre Bay, where the commander of the force was located aboard the *Zeilin*. A secondary landing was made at Holtz Bay, where the commander of the attack force was located in the *Pennsylvania*. The three-week battle for Attu ended on 31 May. The 7th Infantry Division, after advancing across the island, destroyed the remaining enemy force which had been contained at Chichagof Bay. Landing force casualties amounted to 512 killed in action and approximately 2,000 wounded.

☞ AS FAR AS THE LANDING PHASE of operations was concerned, Attu was the most skillfully conducted amphibious operation of its time. The battle ashore was difficult; the 7th Infantry Division fought weather and terrain as well as the enemy for three weeks. However, in spite of personnel and materiel shortages, which were characteristic of our Pacific campaign in the early stages, the landing force was transported to the objective, established ashore, supplied and supported from the sea and air to the limit of the attack forces' capabilities under the existing weather conditions. Lessons were learned by the participating forces in planning, training, logistics, air and naval gunfire support, communications and control in the ship-to-shore movement.

Tactical planning was conducted in three separate localities. Commander North Pacific Force, in charge of the operation, was located in the Alaskan Area; Commander Amphibious Force Pacific Fleet, in command of the attack force, established his joint staff in the San Diego area, where the plans were actually drawn up. The Commanding General, 7th Infantry Division, was at Fort Ord, California. Although liaison was maintained between all commanders concerned, it was impossible to achieve the same integration which would have resulted from one joint planning headquarters. The separation of commanders did not end with the planning phase. At the objective the attack force commander was aboard the *Pennsylvania* at Holtz Bay, and the landing



American and Canadian troops landing on the NW coast of Kiska. Unlike Attu they found their only opposition was the elements; the Japs had pulled out.

force commander was in the *Zeilin* at Massacre Bay. The target area was a difficult one to reconnoiter and photograph; intelligence was therefore incomplete in many aspects. As a result, it was necessary to prepare several alternate plans which merely served to increase the complexity of preparing the expeditionary force. Late hydrographic information received at the rendezvous area at Cold Bay caused further last-minute changes in plans. The military and naval forces originally available were continuously reduced. There was a shortage of attack personnel transports and cargo vessels, and the limited number of landing craft caused a substantial reduction in the quantities of equipment which could be employed. Security regulations were so strictly enforced during the planning phase that in many cases ships and troops were not adequately prepared or briefed for their role in the operation. However, this action may have been justified by the complete tactical surprise which was enjoyed by the expeditionary force.

Training of the forces was in some cases more advanced than any undertaken hitherto and in other ways was characterized by the same deficiencies which continued to plague amphibious training throughout the period. Landing craft and boat crew training had been much improved with the establishment of the amphibious train-

ing base in San Diego. The benefit of communication training was realized in improved coordination and control in the ship-to-shore movement and supporting bombardment. And although the landing force received intensive amphibious training under the supervision of the Commanding General, Amphibious Corps Pacific Fleet, troops were not trained with the same transports and cargo vessels in which they were to be embarked for the operation. This training was further handicapped by the limited number of landing craft available. There was no full-scale rehearsal of the operation, and amphibious training did not provide a sufficient test of logistical readiness for the service troops involved. None of the transports were fully combat-loaded for training exercises, nor were all supplies unloaded. The shore party and other service elements, therefore, could not grasp the scope or complexity of their mission prior to Dog-Day. The need for training the landing force on terrain similar to that to be encountered at the objective was one of the most apparent lessons resulting from the Attu operation.

The supply aspects of the operation, although imperfectly planned, were all executed. The shore party, still inadequately manned and equipped with little effective motor transportation, functioned well and efficiently. The smooth-

ness of unloading was largely the result of discipline and control on the part of landing craft crews. It was felt that palletization of supplies would have greatly facilitated the flow of supplies to the troops. Tracked vehicles such as the "Weasel" were needed for use over the Aleutian tundra. Logistical plans did not call for the landing of blankets and hot food on Dog-Day, a provision which was desirable in view of the climatic conditions prevailing. No priority of equipment to be landed was established by beachmasters for control vessels, and as a result there was some congestion of boats offshore. Landing craft salvage and maintenance was performed in a far better manner than in previous operations. These functions were aided by the employment of the "Geheemie" and other engineering equipment.

☛ DIRECT AIR SUPPORT for the landing forces was all but impossible because of poor visibility and the constant fog. Plans called for mixed Army and Navy support of troops. Heavy and medium bombers of the 11th Air Force and fighters from the escort carrier were to provide the support. For the first time, an escort carrier was employed and with remarkable success. The planes from this base were used for combat air patrol, observation and emergency support missions. Most of the direct support was to be delivered by Army bombers. The aircraft based on battleships and carriers were to provide air spot for naval gunfire. However, visibility prevented any extensive effective employment of these planes. Submarine patrol and search missions were carried out by naval Catalina patrol bombers. For the first time an air coordinator was employed to assist the attack force commander in the control of air at the objective. A senior naval aviator was airborne in a heavy bomber at the target area to fulfill this mission. Each battalion and the landing force commander had air liaison parties with them. These parties consisted of one army officer, one naval officer and two enlisted army radio men. This was one step closer to the ultimate joint assault signal company organization. These air liaison parties were trained in conjunction with Marine Observation Squadron 155 at Fort Ord and were lectured on the characteristics and limitations of air support by experienced aviators of the Army, Navy, and Marine Corps. The squadrons actually employed for support missions, however, had not been

trained for such operations. Supplies were successfully dropped from the air to landing force elements during the Attu operation. Air support control passed to the landing force commander on 17 May.

No scheduled pre How-Hour naval gunfire bombardment was possible; the landing force fortunately encountered no opposition on the beaches. Landing craft armed with beach barrage rockets accompanied the assault waves to render close in support but no rockets were fired at Attu. The majority of support missions were directed by shore fire control parties, and a limited amount of air spot was used. All firing ships and all shore fire control parties had been intensively trained in their functions prior to the operation. However, it was evident there was a need to train landing force unit commanders in the characteristics and limitations of shore bombardment in order to assist them in making intelligent requests for support and to aid in conserving ammunition supply. The heavy expenditure of bombardment ammunition was used largely to neutralize targets rather than for destructive purposes. There was no really effective counterbattery fire. Probably because of inexperience, troops did not exploit gunfire support to the limit. Had the landing force been able to get its organic field artillery in action at an earlier date, the burden of fire support, which rested on the attack force, would probably have been lessened. It is notable especially in the light of later lessons learned at Tarawa and in other opposed landings, that great emphasis was placed on naval gunfire as a primarily neutralizing agent. The attack force gunnery officer made the following comment in his report of the Attu operation: "It must be continually emphasized and drilled into the minds of troops that naval gunfire is primarily for neutralizing and not destruction." The use of relief maps of the target greatly aided both air and surface units in rendering effective support.

☛ IN SPITE OF THE DIFFICULTIES imposed by weather, the ship-to-shore movement was efficiently executed. Troops were landed on the right beaches at the right time. This was largely the result of effective communication; radar equipped destroyers were employed to guide the assault waves through the fog to their landing beaches. The LCM(3) proved to be the outstanding landing craft in the operation and the new LCVP, al-

though a good boat, was reported to be bow heavy. The value of the Combat Information Center, radar, new and additional radio equipment aboard the *Pennsylvania* proved a great benefit to control. The need for an amphibious flagship of the new AGC type was again clearly demonstrated, as was the desirability of having the landing force and attack force commanders embarked aboard the same vessel. It was also clear that some simple code device for plain language radio transmissions, such as the shackle code, which was later so extensively employed, would greatly expedite radio traffic. The organization and training of Shore Fire Control Parties and Air Liaison Parties definitely pointed toward the organization of the Joint Assault Signal Company. Communications were on the whole good. It was recommended that commanders preparing for future amphibious operations stress the importance of interchange between all echelons of frequent periodic dispatch reports on the changing tactical situation.

Occupation of Kiska

☛ THE ALEUTIAN CAMPAIGN WAS CONCLUDED ON 15 August with the unopposed occupation of Kiska by our amphibious forces. The operation was planned as an assault landing and a considerably larger force than the one committed at Attu was assembled and trained to execute it. The landing phase, conducted initially under combat conditions, clearly showed the benefit of Attu experience. ViceAdm Kinkaid again held supreme command and RearAdm Rockwell commanded the attack force with his flag again in the *Pennsylvania*. The support group consisted of two battleships, one heavy and one light cruiser, and six destroyers. The transport group contained five attack transports (with the *Doyen* augmenting the four which had participated in Attu), one attack cargo vessel, two transports, one destroyer transport, one LST, eight merchant transports, three merchant cargo vessels, and nine screening destroyers. Also included was a landing group consisting of 13 LSTs, 9 LCIs and 19 LSTs. MajGen C. H. Corlett was designated the landing force commander and the landing force consisted of the following American and Canadian units: the 17th Infantry Regiment, the 53rd Infantry Regiment, the 87th Mountain Infantry, the 184th Infantry, the 1st Special Service Force, and the 13th Canadian Infantry Brigade Group. The landing force to-

talled 34,426 officers and men of which 5,300 were Canadians. Preliminary training of most of the units was conducted in Alaska under the direction of the Commanding General, Amphibious Corps Pacific Fleet, MajGen H. M. Smith. The 87th Mountain Infantry was trained at Fort Ord, California, and San Diego under Gen Corlett and Adm Rockwell. The landing attack called for a naval bombardment of the southern and eastern sides of the island where the enemy's principal defenses were located and the landing against the bulk of this fire support on the northern and western shores. The main landings were preceded by night surprise landings. The outstanding feature of the Kiska operation was the remarkable effectiveness of radar-controlled shore bombardment.

North through the Solomons

☛ AFTER THE SUCCESSFUL COMPLETION OF THE six months' campaign for the control of Guadalcanal, the South Pacific Force, under Adm W. F. Halsey, undertook to extend its control northward into the Central and Northern Solomons, forcing the Japanese back into their major bases at Rabaul and Kavieng in the Bismarek Archipelago. This advance to the north through the Solomons to New Britain and the Admiralties was closely coordinated with the offensive of the Southwest Pacific Forces, under Gen Douglas MacArthur, northwest along the northwestern coast of New Guinea from Buna. By the spring Higgins boats carrying first wave of Americans in the landing on Attu. They hit bad weather.



of 1943 the defensive phase was at an end in both theaters; strong advance bases were available, and both commands were in improved strategic position with larger air, sea, and land forces available for more ambitious undertakings.

Enemy air activity in the Solomons did not decrease in the early months of 1943. On 3 December 1942 an enemy air strip, which had been completed under a thoroughly effective camouflage marquee of palm treetops, was discovered at Munda Point on New Georgia, 200 miles north of Guadalcanal. This field and a secondary strip in the Vila-Stanmore area of Kolombangara Island just north of New Georgia were subjected to continuous aerial attack during the early months of 1943. Munda was bombed 80 times in three months. A surface task group of cruisers and destroyers bombarded the base on 4 January. The Vila Stanmore field was similarly shelled on the night of 23-24 January, and both bases were bombarded by cruiser-destroyer task groups on the nights of 5-6 March and 12-13 May. All attempts, both air and surface, to put the strips out of action for more than 24 hours were unsuccessful.

New Georgia Campaign

IT WAS THEREFORE APPARENT THAT THE 150-mile-long island of New Georgia with its fringing reefs and barrier islands, and consequently Kolombangara and Vella Lavella to the north, must be occupied by amphibious assault. Preliminary planning was underway in May, and on 3 June, Adm Halsey issued the basic directive. The two newly completed airfields in the Russell Islands north of Guadalcanal, which had been occupied without opposition by South Pacific Forces on 21 February, and the four fields on Guadalcanal provided fine supporting bases for the landings. The forces employed in the attack were mounted at Noumea in New Caledonia and Espiritu Santo in the New Hebrides and staged through the Russells. Three major task forces were organized by Commander South Pacific. The attack force was commanded by RearAdm R. K. Turner, Commander South Pacific Amphibious Force. His force was divided into two attack groups: a western force commanded by Adm Turner himself and an eastern force under RearAdm G. H. Fort. The former included three transport divisions, of which two were destroyer transport, a flotilla, 12 LSTs. (tank landing ships), and 8 screening and supporting destroy-

ers. The latter included a minesweeping group, 41 LCTs (tank landing craft), 15 coastal transports, 26 LCIs (infantry landing craft), and a motor torpedo boat squadron.

The second major task force was the Air Support Force under ViceAdm A. W. Fitch, Commander Aircraft South Pacific, and included all land and tender-based aircraft in the area as Escort Carrier Division 22 in the initial stages. RearAdm M. A. Mitscher had tactical command of the Solomons-based aircraft. A total of 258 fighters, 193 light bombers, and 82 heavy bombers were available to support the New Georgia operations.

The third task force was the covering force under the direct command of Adm Halsey. There were six task groups in the covering force. RearAdm W. C. Ainsworth commanded a group of three cruisers and five destroyers; RearAdm A. S. Merrill commanded another consisting of four cruisers, five destroyers, and three mine-layers. The carrier group was under RearAdm D. C. Ramsey and included the *Saratoga*, *HMS Victorious*, and eight destroyers. A group of three new battleships, the *Massachusetts*, *Indiana*, and *North Carolina*, and five destroyers was commanded by RearAdm G. B. Davis. The old battleships *Maryland* and *Colorado* were under RearAdm H. W. Hill. Carrier Division 22 including three escort carriers and six destroyers was commanded by RearAdm A. C. McFall.

The initial landing force was commanded by MajGen J. H. Hester, USA, and organized as follows: the western landing force, commanded by Gen Hester, transported and supported by Adm Turner's western attack group, consisted of the 43d Infantry Division less Regimental Combat Team 103, the 1st Battalion 103d Infantry, the 136th Field Artillery Battalion (155 mm guns), one company of Fiji Infantry, the 9th Marine Defense Battalion, one company of the 4th Marine Raider Battalion, and service troops. The Eastern Landing Force, transported by Adm Fort's attack group, was commanded by Col D. H. Hundley, USA, and consisted of the 103d Regimental Combat Team, less the 1st Battalion, the 2d Battalion 70th Coast Artillery (antiaircraft), the 4th Marine Raider Battalion, less one company, and service troops. The Reserve Force, committed as the northern landing force, consisted of regimental headquarters and the 1st Marine Raider Battalion of the 1st Marine Raider Regiment, commanded by Col H. B.

Water Jeeps

SEAGOING JEEPS, which do not float, but which can cavort around in the briny deep with the same mobility with which they can roll on land, are the latest development of Willys-Overland Motors. In conjunction with a U. S. Navy demonstration of the "underwater Jeep" at Beverly Beach, Maryland, recently, came the announcement that the U. S. Navy had purchased 982 deep water fording kits for Marine Corps use which make it possible for an ordinary jeep to roll through the waves in landing and other amphibious operations with ease. Not perfected until after V-J day, the kit contains 125 parts. With it, an ordinary jeep can operate under approximately six feet of water for periods as long as 45 minutes.

Waterproofing is accomplished by pressure, varnishing, sealing and vents. A waterproof ignition system including a distributor and coil, a waterproof battery and aviation-type spark plugs are the principal essentials of the kit, which weighs 117.2



pounds. The most spectacular parts of the kit are two periscope-like devices which serve as an air intake and exhaust pipe.

In designing such equipment problems fell into four classifications—the air intake and exhaust systems, air vents, the electrical system and general sealing of the engine against water. Despite its additional weight, certain parts of the jeep must be removed for installation, so that the total weight gain of the vehicle is only 36.51 pounds. Once waterproofed, the jeep is permanently equipped, whether it operates on land or water. On land, the waterproofing actually helps as it keeps parts free from sand and dirt.

Liversedge, USMC. The 37th Infantry Division under MajGen R. S. Beightler, USA, was designated as the initial general reserve. Dog-Day was set as 30 June.

Although far larger forces, especially sea and air, were available for the New Georgia operation than had been employed in the Guadalcanal campaign, Adm Halsey felt that there were insufficient forces on hand to permit a frontal assault against Munda Point and the Vila-Stanmore field. The plan therefore called for four simultaneous surprise landings on 30 June on Rendova, a small island across the lagoon to the west of Munda Point, at Viru Harbor and at Segi Point on the southwestern coast of New Georgia, and at Wickham Anchorage on the southern end of Vanguru Island just south of New Georgia. The main landing was to be conducted with destroyer support by Adm Turner's Western Attack Force and Gen Hester's Western Landing Force at Rendova in order to gain a

supply base and firing positions for heavy shore batteries to support the final attack against Munda across Roviana Lagoon. The occupation of Viru Harbor and Wickham Anchorage would secure a line of supply and communications for the additional small craft required in the continuing operation and provide a base for the motor torpedo boat squadron. An airfield was to be constructed for fighters at Segi Point for supporting Guadalcanal-based bombing missions and providing combat air patrol over ground operations. The Eastern Attack Force and Landing Force were given the Viru, Segi, and Wickham missions, which were to be executed without preparatory gunfire bombardment. Counterbattery and call fires were to be available, however, if required. The Northern (or Reserve) Landing Group under Col Liversedge was to land at Rice Anchorage on the northern coast of New Georgia across Kula Gulf from Kolombangara after the Dog-Day landings and in coordination

with the main attack from Rendova to Munda, in order to prevent the enemy from reinforcing the Munda defenses from the north. In addition to the specific tactical ends gained by these separate landings, it was hoped that they might force the Japanese to divide their force of 8 to 10 thousand defending troops. The June 30th landings in the New Georgia Area were to be coordinated with simultaneous landings by the Southwest Pacific forces on Trobriand and Woodlark Islands between New Guinea and New Georgia. These intermediate positions would provide staging bases to facilitate the rapid interchange of Allied air forces between the two theaters, should either require reinforcements.

The first phase in the execution of the New Georgia plans was initiated ahead of schedule on 21 June. Reports had been received that the enemy intended to reinforce the Segi Point Area, and two companies of the 4th Marine Raider Battalion were therefore landed without opposition from the destroyer transports *Dent* and *Waters*. They were reinforced the next day by two companies of the 1st Battalion, 103 Infantry, which were also landed from destroyer transports. The position was consolidated and held by this force from 22 June until Dog-Day a week later. Additional army troops and construction personnel were then landed and construction of the airfield was begun. By 11 July, it was prepared for emergency landings and soon after was in full operation as a fighter strip. On the night of 29-30 June, RearAdm Merrill's cruiser-destroyer task group bombarded the Vila-Stanmore Field on Kolombangara and Buin and Shortland Islands to the north off the southeastern tip of Bougainville, while his minelayers mined Shortland Harbor. A simultaneous preparatory aerial bombardment was delivered against both Munda and Vila-Stanmore.

With the exception of the Viru Harbor landing and the Segi Point occupation, the Dog-Day schedule was executed according to plan. The Rendova landings were covered and supported by two groups of destroyers and conducted under a continuous combat air patrol of 32 fighters. The leading waves met with machine-gun fire from the shore, and soon after coastal batteries opened fire on the attack force. The covering destroyers effectively silenced this opposition with accurate counterbattery fire. Although the reaction by enemy aircraft was neither as prompt nor as severe as had been anticipated, the trans-

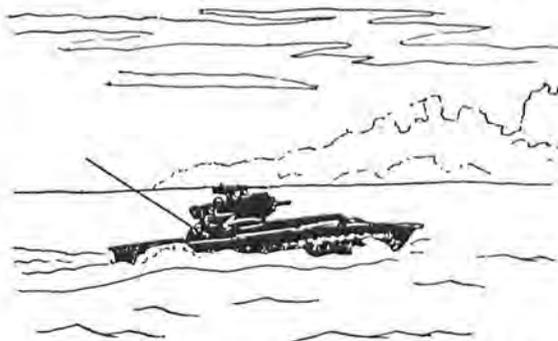
port area was repeatedly attacked during the day. Adm Turner's flagship, the transport *McCawley*, was torpedoed by enemy aircraft and later sunk. Two hours after the first troops landed, field artillery units had their guns in position to bombard Munda. The first Rendova echelon was embarked in the transports. The second echelon which arrived the next day (Dog-Day plus one) consisted of four LSTs and 5 LCIs. Aerial reconnaissance had failed to reveal that the beaches designated for unloading these landing ships were ill-chosen; coral and bad mud continued to hamper beach unloading throughout the operation. However, before the campaign was completed with the capture of Munda on 5 August, 28,748 troops (of these 25,556 were Army personnel of the 43d, 37th, and 25th Infantry Divisions, 1,547 were naval personnel, and 1,645 were marines), 4,806 tons of rations, 3,486 tons of fuel, 9,961 tons of ammunition, 6,895 tons of vehicles, and 5323 tons of other supplies had been landed. The June 30th landing at Wickham was executed by two companies of the 4th Marine Raider Battalion and elements of the 2d Battalion, 103d Infantry, from two destroyer transports and seven LCIs. The landings were unopposed but were executed with much confusion, a fact which may be attributed in some degree to bad weather and sea conditions. The LCIs carrying Army troops broke into the assault waves from the destroyer transports. Control and contact between landing craft were lost and boats had to land individually. The first wave landed seven miles west of the right beach. Six boats were lost. By 3 July all objectives in the area had been captured. The capture of Viru Harbor was delayed one day, and the landings originally scheduled for that area were not carried out. The Viru plan called for an overland advance by the two Marine Raider Battalion companies, which had landed on 21 June, from Segi to Viru. Their mission was to destroy coastal batteries at the entrance to Viru Harbor to permit the landing of a company of the 1st Battalion, 103d Infantry, and the Construction Battalion. The Marines were delayed by enemy opposition on 28 August at the Choi River near Nona Point enroute to Viru, and rather than attempt a landing in the face of the shore batteries, the Viru force was landed south at Nona Point. Viru was captured by the Marines on 1 July and reinforcing elements were landed the same day.

The Development of Amphibious Tactics In The U.S. Navy

Assault on Munda

AS EARLY AS DOG-DAY PREPARATIONS WERE initiated for the assault on Munda. Landings were made by elements of the 169th Infantry, 43d Infantry Division, on several small islands adjacent to the entrance of the Roviana Lagoon. Scouts landed on the New Georgia mainland six miles east of Munda at Zanana on 2 July and were reinforced by infantry units. In the week following, LCMs, LCVPs, and LCP(R)s protected by PT boats transported the troops and artillery of the 43rd Infantry Division in a shore-to-shore operation from Rendova to Zanana. The division was in position along the Bairike River for the coordinated jump-off against Munda on 8 July.

Our beachheads for the Munda attack were well established by 5 July, and the time was at hand for the covering landing on the northern shores of New Georgia. On the night of 4-5 July, a bombardment of southern Kolombangara was carried out by Adm Ainsworth's cruiser-destroyer group. The next morning, after a preparatory bombardment of Bairoko, the 1st Marine Raider Battalion, the 3d Battalion, 145th Infantry, and the 3d Battalion, 148th Infantry (both Army units were from the 37th Infantry Division) landed from seven destroyer transports at Rice Anchorage. The mission of the Northern Landing Group was to sever enemy overland communications between Bairoko Harbor and Enogai Inlet on the coast and Munda to the south, and subsequently to capture both Bairoko and Enogai in order to prevent the Japanese from reinforcing New Georgia from the islands of Kolombangara and Vella Levella. The ship-



to-shore movement was made in Higgins landing craft and towed rubber boats. Original plans had called for shelling both Enogai and Bairoko prior to the landing, but reconnaissance failed to reveal any enemy installations capable of opposing the landing at Enogai, and that phase of the preparation was consequently abandoned. However, the bombardment and landing were effectively harassed from well concealed positions actually in existence at Enogai. Heavy enemy counterbattery fires from the shore opposed our

By Gen Holland M. Smith (Ret'd)

preparatory bombardments for the first time and centered in our transport area. The beaches chosen for the

landing were narrow; only four boats could beach at a time; and there was a fringing bar to be traversed before the beach could be reached. Last minute changes in debarkation plans by the naval commander combined with the natural obstacles to the landing to cause such confusion and congestion in the ship-to-shore movement that the landing force tactical scheme of maneuver could not be adhered to. However, virtually all troops were landed undetected and without casualty by six o'clock in the morning. Equipped with the most limited supplies (barely two days' rations), this northern landing force succeeded in blocking the jungle trail south to Munda by 9 July and in capturing Enogai two days later. Limited emergency resupply was effected by air-drop on the 6th and 7th of June. Thereafter supplies were brought in to Enogai by destroyers and landing craft. The surface naval actions of Kula Gulf on the night of 5-6 July and of Kolombangara on the night of 12-13 July effectively denied the waters

Part IX: Munda, New Guinea, Sicily fall before the Allies' growing seaborne might

immediately north of New Georgia to enemy shipping. Forced to employ heavily armored barges thereafter to reinforce Bairoko and Vila-Stanmore, the Japanese were continuously harassed by air and PT boats. Two hundred troops of the 4th Marine Raider Battalion arrived to reinforce the Northern Landing Force on 18 July. Two days later the first attempt was made to capture Bairoko. An enemy force of approximately 600 armed with automatic weapons and heavy mortars, skillfully emplaced in reinforced coral and log positions, and supported by a battery of heavy artillery, repulsed this July 20th attack 300 yards east of Bairoko, caused heavy casualties and forced a retirement to Enogai. Destroyers brought in fresh supplies to Enogai on the night of 23-24 July and Bairoko was simultaneously bombarded. It was not occupied for another month. The Northern Landing Force conducting a most difficult campaign through swamps, banyans, mangroves, coral, and humid jungle accomplished a highly successful diversion of the enemy from the Munda defenses.

☛ THE 43D INFANTRY DIVISION, deployed across a 1,300-yard line of departure on the Bairiki River, jumped off at dawn on 9 July in the main attack against Munda. A deep supporting naval bombardment of Munda Point and an air attack both provided a preparation for the attack. Initial progress was good; 2,500 yards were gained in the first day. Difficult terrain, a stubborn and skillful enemy delaying action, and constant enemy patrol activity slowed the advance thereafter. Another shore bombardment was delivered by cruisers and destroyers on the night of 11-12 July. On 15 July two important changes occurred in the command organization at New Georgia. RearAdm T. S. Wilkinson relieved Adm Turner as Commander Amphibious Force South Pacific. The latter officer reported to Adm Nimitz at Pearl Harbor to begin preparation for the Central Pacific offensive. MajGen O. W. Griswold, USA, Commanding General, XIV Corps, assumed command of the ground forces. Gen Hester retained command of the 43d Division. Three infantry divisions, the 43d, 37th, and 25th, operated under the Corps in the final stages of the Munda attack. A third shore bombardment was executed by destroyers on 24-25 July. The airfield was captured 5 August.

With the capture of the Munda Point airfield, the largest landing operation theretofore at-

tempted in the South Pacific was successfully completed. Like the Guadalcanal operation which it followed, the capture of New Georgia was as much the result of air and sea engagements as it was of ground fighting. We gained air and sea supremacy at the objective at an early date and exercised that control to a greater extent than had been possible at Guadalcanal in supporting the landing force. For the first time in the South Pacific Area, we employed infantry, tanks, artillery, and flame throwers as a team in overcoming strong enemy defensive positions. This ground team was further employed in somewhat loose coordination with air and naval gunfire support. However, from the point of view of amphibious development, the vestigial tactics employed at New Georgia were characterized by the same failings and errors committed at Guadalcanal and were in many ways below the level of those used earlier at Attu. There was no *close* air support, no *close* naval gunfire support, no heavy main battery shore bombardment for destructive effect, and no effective system of communication for controlling and directing such support (the battalion shore fire control and air liaison parties at Attu). The ship-to-shore movements, in almost every case, totally unopposed and effected with complete surprise, were nonetheless poorly coordinated and controlled. Logistical planning was imperfect. The army units of the landing force had made little provision for a shore party organization. As a result, naval construction battalion personnel badly needed for engineering and construction missions had to be diverted for unloading ships and clearing beaches. The need for careful engineer and logistical reconnaissance was brought to light after the Rendova beaches turned to hopeless mire.

☛ NEW TYPES OF landing ships and tanks were employed and proved their effectiveness. The LST and LCT(5) both did good service and later became the backbone of South Pacific landings. Hospital LSTs were used to evacuate 120 stretcher cases and 140 ambulatory patients. Navy dive bombers carrying 1000-pound bombs and torpedo bombers carrying 2000-pound bombs were used in general support of ground action. Army medium (B-25) and heavy bombers (B-17 and B-24) also joined in attacks against the main airfield. The night use of destroyers and cruisers for counterbattery and general supporting



Landing craft swing toward New Guinea, jumping-off place for the Philippines. MacArthur's forces swept over the island until the Japs were bottled up at Buna.

neutralization missions again showed a lack of appreciation of the full value of shore bombardment in landing operations. The following statement by the South Pacific Amphibious Force Gunnery Officer after the New Georgia campaign is clear evidence that no thought was given to coordinating the destructive effect of naval guns with land-based artillery and air support after the actual landing was completed—a technique which was later used with decisive effect at Saipan, Iwo Jima, and Okinawa.

“Night naval area bombardments in the island warfare of the South Pacific accomplish limited and uncertain objectives. If fortunate enough to reach an airfield filled with planes, they should do much damage to the planes. Little consequential damage will be done to the airfield itself. Against other areas, they will give the enemy an uncomfortable time, but will probably cause less than the anticipated personnel casualties and material damage. They are valuable in covering a night landing or other operations in the vicinity of enemy-held shore. They give excellent training for untried ships newly arrived in a combat area.

“Naval gunfire support is of primary importance during amphibious operations prior to the time that adequate artillery support can be furnished by ground troops. Then it assumes a secondary role. Particularly in jungle warfare it is believed that the artillery can in general give more effective support than naval gunfire.

“When it is necessary to support the advance of troops through the jungle, the naval gunfire should be close to our front lines and of adequate density. It should be delivered in daylight to allow the accuracy required.

“There are conditions of terrain in which our mortars cannot reach reverse slopes which can be reached from the sea. Naval gunfire then becomes quite important. An example of this was the use of naval gunfire during operations on Guadalcanal when there were numerous ravines and draws opening seaward and naval gunfire was used effectively.”

Opening Up New Guinea

☛ ON THE NIGHT OF 29-30 JUNE, WHILE LANDINGS were made at Rendova and New Georgia, the Southwest Pacific Forces landed at Nassau Bay on New Guinea, ten miles south of the important enemy base of Salamaua, in the first of 56 landing operations conducted by the Seventh Amphibious Force of the United States Seventh Fleet, a part of the unified command of the Commander-in-Chief, Southwest Pacific Area. In a series of surprise amphibious attacks, most of which were made without opposition and as shore-to-shore operations, Gen MacArthur moved around the Huon Peninsula, into the Admiralties and western New Britain, and westward up the New Guinea coast to the southern Philippines, enveloping and containing strong enemy defensive areas. 1,076,000 men and 51½ tons of sup-

plies per man plus 1 ton per month of maintenance supplies were landed in the period June 1943-August 1945. The use of air transport and air supply in conjunction with amphibious landings is an interesting aspect of Southwest Pacific Area operations. PT boats were used here as troop transports. Nassau Bay was the beginning. By June 1943 the enemy had been pushed back from his greatest advances (over the Owen Stanley ridge to within 30 miles of our advance base at Port Moresby) to Buna. Australian forces were at Mubo and joined the troops which landed at Nassau Bay, to attack Salamaua from the south. Heavy bombers struck that base to cover the landings at Nassau. The landings were supported by PT boats and naval aircraft, which were particularly effective in interdicting enemy barge traffic, as well as by shore bombardment.

Combined Invasion of Sicily

☛ THE LARGEST OPERATION UNDERTAKEN IN THE first year of our amphibious attacks was the combined invasion of Sicily on 9-10 July 1943. The Germans had been driven out of Tunisia by May with a loss of 349,206 troops as prisoners or casualties and over 200,000 tons of supplies and equipment. The plan to invade Sicily had been formally considered at the Casablanca Conference in January, and the decision of the Combined Chiefs of Staff had been relayed to Gen Eisenhower on January 23d directing him to invade Sicily in June after the winter rains had ceased and the clouds had lifted from the Sicilian Straits. The strategic purposes of the operation were: to extend Allied control of the Mediterranean (the Axis powers held the northern shores from Turkey to Spain) thereby securing lines of communication for prospective landings in southern France and to apply sufficient pressure to force Italy out of the war. Gen Eisenhower enjoyed overwhelming air and sea supremacy as a result of the successful North African campaign. The strategic scene was set in early June. The island of Pantelleria between Tunisia and Sicily fell after heavy air and sea bombardment on 11 June, and within a few days the nearby islands of Lampedusa and Linosa surrendered. Heavy air strikes were initiated in mid-June against airfields, ports, rail lines, bridges, roads, and enemy fortifications in Sicily, Sardinia, and the Italian peninsula proper.

The invasion, like the North African landings,

was again a combined undertaking involving the employment of American, British, Canadian, French, and other United Nations' ground, sea, and air forces. Gen Eisenhower was again the supreme commander of the Expeditionary Force. Adm Cunningham again commanded the Allied Naval Forces. Air Chief Marshal Sir Arthur Tedder commanded Allied Air Forces in the Mediterranean.

Gen Eisenhower's Deputy Commander for Ground Forces, Gen Sir Harold R. L. G. Alexander, was in tactical command of the Fifteenth Army Group which made the landing. The initial landing force included 160,000 men, 600 tanks, and 1,800 guns. The Fifteenth Army Group contained the U. S. Seventh Army, under the command of LtGen George S. Patton and the British Eighth Army under LtGen Sir Bernard L. Montgomery. The Seventh Army contained initially the II Corps, commanded by LtGen Omar N. Bradley, consisting of the 1st and 45th Infantry Divisions and the 82d Airborne Division, commanded respectively by MajGens T. Allen, T. Middleton, and M. Ridgeway, and a separate task force under MajGen L. K. Truscott which included the 3d Infantry Division and a Combat Team of MajGen H. Gaffey's 2d Armored Division. The 9th Infantry Division later reinforced the Seventh Army. For the landing, the Eighth Army, made up of British and Canadian troops, contained two corps of two infantry divisions, two brigades, and an airborne division. The 5th, 50th, and 51st British Infantry Divisions participated under the Eighth Army.

☛ OVER 3,000 NAVAL vessels participated in the Sicily landings. British naval forces responsible for landing and supporting the Eighth Army were under Adm Sir Herbert Ramsey. United States naval forces transporting and supporting the Seventh Army with over 1,500 vessels were commanded by Vice-Adm H. K. Hewitt and organized as three attack forces for the three separate landing operations commanded by Rear-Adms A. G. Kirk, J. L. Hall, and R. L. Conolly.

Air Chief Marshal Tedder's tactical commander was LtGen Carl Spaatz, the Commanding General of the North African Air Force, which comprised a strategic air force under MajGen James Doolittle and a tactical air force under Air Marshal Sir Arthur Cunningham.

The forces employed in the invasion came from the United States, the United Kingdom, the



LCTs unload at Scoglitti. After the successes in North Africa, Gen Eisenhower enjoyed overwhelming air and sea supremacy in the July 1943 invasion of Sicily.

Middle East, Algeria, and Tunisia. The Seventh Army mounted at Oran, Algiers, Tunis, and Bizerte. The plan called for both ship-to-shore and shore-to-shore operations, and for the first time in the European area there were LSTs and LCT(5)s available for the latter type movement. The U. S. Seventh Army was to land on three beaches on the southern (or southwestern) coast at Scoglitti, Gela, and Licata. The British Eighth was to land on two beaches on the eastern coast in the vicinity of Syracuse and Pachina. Personnel transports and cargo vessels and cruisers and destroyers of Adm Hewitt's U. S. Naval Force assembled at Oran and Algiers; the smaller shore-to-shore craft assembled at Tunis and Bizerte. On 5 July the transports and combatant vessels of the Scoglitti Attack Force left Oran. On the following day, the Gela force left Algiers. The smaller craft joined the convoy as it passed Tunis and Bizerte.

☛ HEAVY WEATHER approaching gale proportions on the night before the landings subsided somewhat by How-Hour, but generally unfavorable conditions obtained during the ship-to-shore movement. However, this ill wind undoubtedly assisted the expeditionary force in achieving complete tactical surprise. The amphibious landings were preceded three hours before How-Hour by surprise American parachute and British glider-borne attacks against positions in the rear of the landing beaches. These attacks were made under difficult weather and wind conditions and

the air task force transporting the assault troops was fired on by our surface vessels as it passed over off its course enroute to the objective. Several planes were shot down. Subsequent airborne landings were made by both British and Americans during the Sicily campaign. The remainder of the 82d Airborne Division landed with a loss of 23 planes on Dog-Day plus 2 in the midst of an enemy air attack and fire fight on the ground chosen for the landings. All such attacks, and in fact all air operations over the objective area, brought to light the inadequacies of our methods and procedures for recognizing friendly planes.

☛ THE AMPHIBIOUS LANDINGS were preceded by naval gun bombardments delivered against coastal batteries and beach defenses. Troops landed with very little opposition at Scoglitti in a combined ship-to-shore and shore-to-shore movement before dawn on 10 July. Italian units abandoned defensive positions in the face of our landings. The Gela landings were to a greater extent a shore-to-shore undertaking and were made through bad surf. The first wave of landing craft landed on schedule with light resistance, but the second and subsequent waves met with heavy opposition and suffered heavy casualties until the cruisers *Savannah* and *Boise* silenced coastal batteries. Licata was occupied in what was almost exclusively a shore-to-shore landing again through heavy surf. Troops disembarking from landing craft encountered enemy opposition

but all beaches had been secured before noon. Three hours after How-Hour at sunrise the Expeditionary Force held control of a 100-mile beachhead extending from the southern limits of Syracuse on the eastern coast to positions west of Licata on the southern coast. The enemy reacted to our landings with intense air attacks which lasted for three days and acted to handicap the rapid unloading of landing force supplies and reinforcing elements.

☛ A UNITED STATES destroyer and minesweeper were sunk by bombing during the initial landings. Antiaircraft fire by our destroyers and fighter interception were generally effective in nullifying the destructive effect of enemy air raids. Continuing bad weather and surf conditions together with the air raids did impede unloading operations, however. A notable feature of unloading was the employment for the first time of the amphibious truck, or DUKW, a 2½-ton wheeled vehicle with a boat-type hull and propeller. In spite of difficulties, in two days more than 80,000 troops, 7,000 vehicles and 300 tanks had been landed. Several small ports had been captured and placed in limited operation to relieve the burden on the beaches. Six airfields had been captured and were being rushed into

readiness for allied aircraft. By the 13th of July the first echelon of transports had been completely unloaded and retired.

Constant tactical air support and cover was provided for ground operations by all types of allied aircraft. As many as 1,200 sorties a day were flown during the early stages of the landings. Heavy bombers struck airfields and enemy installations and communications in the enemy rear and in Sardinia and Italy. Later in the campaign during the German attempts to evacuate their forces across the Straits of Messina, intensive allied air attacks were made to interdict these movements. In the period 5-17 August, 34 craft were sunk, 47 left dead in the water by direct hits, and 225 severely damaged. During the entire operation, 2,000 tons of bombs were dropped on enemy ports and bases, 7,450 tons on airfields, and 1,530 on lines of communications. Tactical air support of troops was general rather than close and followed the army pattern of area attacks rather than direct pinpoint support against positions immediately in front of our own lines. As indicated above, air-ground recognition and identification techniques were poor. It was reported after the operation that there was no effective air-support doctrine.

Naval gunfire support of the troops was ex-

Higgins boats discharge men and equipment. Speed was mandatory in the invasion of New Guinea; PT boats were employed as transports, while planes brought supplies.





LSTs open wide their jaws to discharge cargo. Used with great success in both the Pacific and European theaters, they are shown here hitting the beach at Sicily.

tremely effective at Sicily. Cruisers and destroyers provided counterbattery and deep supporting fires along the coast as the Seventh Army advanced westward along the southern coast and eastward from Palermo to Messina along the northern shore. Radar-controlled fire from cruisers and destroyers repelled an incipient enemy armored counterattack against the 1st Infantry Division at Gela, which would undoubtedly have threatened the security of our entire beachhead at that critical period in the landing. On 12 and 14 July cruisers and destroyers bombarded Porto Empedocla and Agrigento facilitating their capture three days later by our advancing ground troops.

☛ BY 16 JULY the Fifteenth Army Group held a beachhead which ran from Porto Empedocla on the west to Catania on the east. There was a lull in naval activity thereafter while the second echelon of transports arrived and Gen Patton pushed rapidly northward in an armored drive to capture Palermo on the western end of the north coast on 22 July. The immediate political reaction to the Seventh Army's success in rapidly capturing half of the island was the resignation of Premier Mussolini on 25 July. On 31 July fresh troops including the United States 9th Infantry Division and French forces were brought

into Palermo. These troops were successfully unloaded despite vigorous enemy air attacks. An attack was then launched eastward along the coast against Messina with the continued support of naval gunfire, against coastal batteries, lines of communications and defensive installations. An interesting aspect of this attack was the advantage gained by three amphibious envelopments. Surprise landings were made by small detachments (of less than regimental size) behind enemy lines with gunfire support. One such amphibious attack was also made by the British Eighth Army attacking north to Messina along the eastern coast from Catania. On 16 August patrols of the 3d Infantry Division entered Messina from the west and shortly thereafter were joined with British armored elements from the south and the campaign was successfully concluded. 167,000 enemy were captured. 32,000 enemy were killed or wounded in action. Over 200 tanks and 502 guns were destroyed or captured. 591 enemy planes were shot down in the air and over 1100 destroyed on the ground. Our casualties totalled 32,000. By the 17th of August naval units joined the Mediterranean Air Forces in the bombardment of the Italian Peninsula. The Eighth Army projected its offensive across the Straits of Messina onto the Italian mainland on 8 September.

The experience of the North African landings was valuable in preparing for the Sicilian attack. The AGC (amphibious flagship) *Ancon* was again effectively employed. Radar improved shore bombardment and control in the ship-to-shore movement. Communication procedures and equipment were improved, and naval and troop personnel showed the benefit of previous combat experience. Coordination in planning still lagged behind other phases of the landing operation. The need for an early and wide dissemination of intelligence, target dates, mission, and designation of forces and commanders was reiterated in reports on Sicily. No beach reconnaissance or underwater demolition missions preceded the landings, and it was recommended that both be undertaken prior to future operations. Bad weather and sea conditions again handicapped unloading, and the importance of these factors in planning was redemonstrated. The participating naval commanders set forth in their reports the necessity for the high command to give detailed intelligence on enemy defensive tactics, organization, coast and beach defenses, artillery, and order of battle to naval elements in order that most effective and intelligent gunfire support might be provided. Submarine reconnaissance aided the attack forces in navigation at the target area. A successful airdrop of last minute aerial photographs was again made to the attack force enroute to the objective. Logistical planning was incomplete and inflexible. Ports were not available as early as had been hoped for. Sea and beach conditions were bad. Extended unloading had to be conducted over the beaches. There were not enough service personnel available in the shore parties. Combat troops had to be employed on supply missions. The two cardinal axioms for planning amphibious operations were well substantiated at Sicily: (1) Complete cooperation and interchange of information must exist between all services and all echelons throughout planning and execution. (2) Plans must be made for the worst possible combination of circumstances.

☛ SMOKE SCREENS AND barrage balloons were both employed as passive anti-aircraft measures. The early establishment ashore of an effective air warning system and a method for coordinating fighter protection and anti-aircraft fire were needed. Aircraft identification had to be improved. Naval gunfire included beach barrage

rockets fired from small support landing craft accompanying the assault waves. Radar greatly improved the accuracy of fire direction. Air-spot was employed, but ship-borne observation planes proved too vulnerable for overland tactical reconnaissance missions. Naval support was effectively coordinated with land-based artillery and air strikes in general support well after the initial landings.

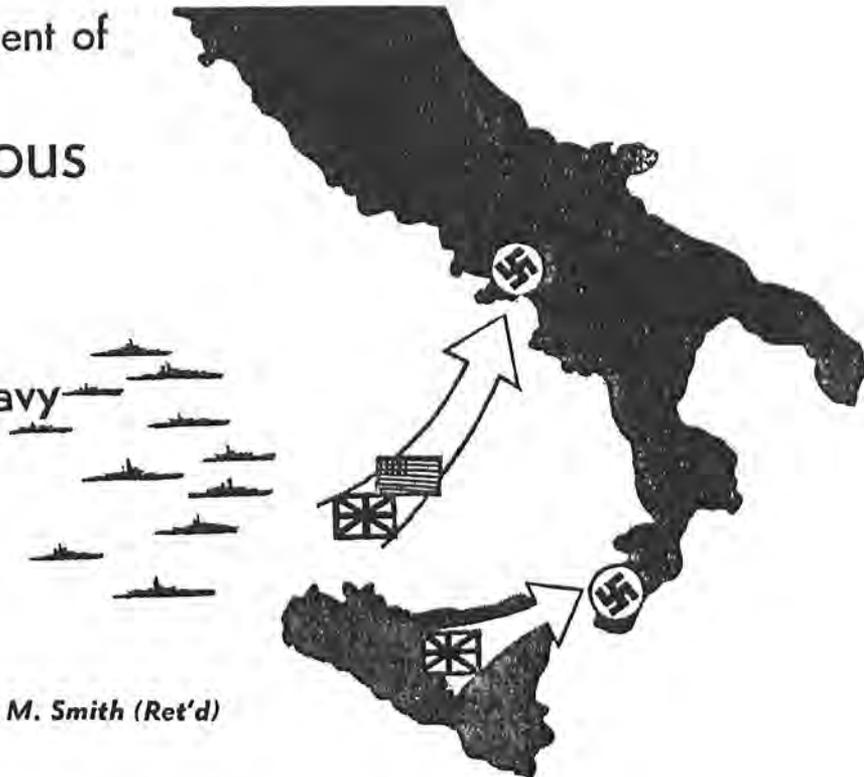
☛ THE SHIP-TO-SHORE and shore-to-shore movements were smoothly executed. Radar aided the control task, and patrol craft and minesweepers were used as control vessels. It was found that enemy flares tended to nullify the advantages of night landings. Torpedo nets and an active destroyer screen were used to protect the transport area from subsurface attacks. Rail loading greatly speeded debarkation from transports. Several landing ships and craft were used for the first time in the European area and results were gratifying. The LST was employed and unloaded where beaching was impractical, over pontoon causeways carried to the target on deck and guided into position by the new DUKWs. Hospital LSTs were well suited for evacuation in shore-to-shore operations. The new LCT was most favorably received, and it was recommended that LSTs and LCTs be grouped in one task organization for future landings (this had already been done at New Georgia). The LCI(L) (large infantry landing craft) was effectively used for towing and landing craft salvage work. LCMs again turned in a sterling performance. Losses in personnel landing craft (i.e. LCVP) were heavy as a result of the heavy surf; 199 were lost. The rocket-armed LCS proved "white elephants"; they were too heavy to be unloaded by ships' booms and too light to make the shore-to-shore movement. The DUKWs were the outstanding innovation at Sicily.

The Shore Party planning, organization, equipment, and training were still not satisfactory. Motor transportation, engineers for road construction, and engineering equipment for salvage, an air warning system, anti-aircraft and local ground security measures were deficiencies noted at Sicily.

In the first year of the United States' amphibious offensive, we learned to apply our landing operations doctrine with increasing skill and efficiency. However, no beachheads were established by assault landings on heavily defended shores.

The Development of Amphibious Tactics

In the U. S. Navy



By Gen Holland M. Smith (Ret'd)

☛ THE CRITICAL PERIOD IN THE NAVY'S wartime application of amphibious tactics came in the last four months of 1943. In that brief time, we tempered the weapon that had been designed in peacetime and forged in our first year of landings.

Organization, equipment, and tactics were put to the ultimate test in opposed landings and found adequate. Moreover, for the first time there was a view in the sharpest focus of the tactical deficiencies that had escaped notice in the easier landings of the first year.

The amphibious lessons learned in the autumn of 1943 were the most important of the entire war. From such engagements as Salerno and Tarawa came improved control—tactical and logistical improved support—air and naval shore bombardment—and improved coordination between all participating elements. We learned, too, which items of equipment were best suited for landing operations, which could be improved, and what new items were needed to help us get on the beach, stay there, and destroy the enemy.

The outstandingly successful attack against Kwajalein only 70 days after Tarawa, for example, was completed in short order and with a minimum of casualties as a direct result of

the lessons learned in the preceding operation. The European, Southwest Pacific, and South Pacific Campaigns were continued during the period, and an offensive in force was launched in the Central Pacific Area.

Salerno

☛ THE FIRST LARGE SCALE allied invasion of the European mainland was launched against beaches across the strait of Messina from Sicily at 0430 on 3 September 1943 and in the Gulf of Salerno 40 miles south of Naples at 0330 on the morning of 9 September. The Sicilian campaign, successfully terminated on 17 August, had provided Gen Eisenhower with the necessary bridge to Italy proper. The strategic aerial and naval bombardment of the Italian peninsula was well underway before the capture of Sicily had been completed.

The Combined Chiefs of Staff meeting at Quebec in August had directed the Allied commander in chief to occupy Sardinia and Corsica and to invade Italy in order to obtain airfields in the home area and force Italy out of the war. At that time plans were already being worked out for the cross-channel invasion of Western Europe. The assembling, organization, equipping, and training of troops for that mis-

Part X: Sicily secured, Gen Eisenhower now had a bridge to Italy. He launched a two-pronged attack; the Fifth hitting Salerno and the British Eighth crossing Messina Strait. The Allies found heavy German resistance 40 miles south of Naples

sion in the United Kingdom seriously reduced the forces available in the Mediterranean for the invasion of Italy. Operations there were from the outset relegated to a position of secondary importance. In the two years of difficult campaigning that followed the Salerno landing, the forces involved—the Fifteenth Army Group, consisting of the U. S. Fifth and British Eighth Armies, had to perform their mission with the means at hand in order not to dissipate the strength required for the Normandy invasion and the drive across the Rhine. The decision to invade Southern France, as a diversion for and in support of the Normandy attack, also was reached at Quebec and made the Italian landings all the more important.

Political unity in Italy had rapidly deteriorated after the fall of Mussolini in July and with the loss of Sicily in August, Gen Eisenhower had taken advantage of the situation to force the unconditional surrender of Italy and to utilize that surrender to his own best military advantage. The armistice was signed at Syracuse in Sicily on 3 September but was not announced until 8 September when our invasion armada lay poised off the Salerno beaches. It was hoped that the delayed announcement of the Italian surrender would prevent the Germans from regrouping their forces in Italy and replacing Italian units with German ones to oppose our landing.

☛ THE STRATEGIC PURPOSE of the attack was to capitalize on the loss of Italian resistance to contain German divisions which might otherwise be employed on the Russian front, to gain air bases from which the Balkans and Southern Germany could be subjected to bombardment, and to complete Allied control of the Mediterranean—now a necessary condition for the invasion of Southern France.

The bombing of Southern Italy had been intensified after 17 August in preparation for the landings and attacks were directed by the Northwest African Air Force against airfields and communications north of Rome, in the Naples area, at the important airbase at Foggia in the center of Southern Italy, and throughout the toe of the peninsula.

At the end of the month, allied battleships, cruisers, and destroyers joined in the bombardment by firing at Italian targets on the strait of Messina across from Sicily.

The high command organization for the Italian landings was substantially the same as the one employed at Sicily. Gen Eisenhower's ground forces deputy, Gen Sir Harold R. L. G. Alexander, commanded the Fifteenth Army Group. Air Chief Marshall Sir Arthur Tedder commanded Allied Air Forces and Admiral of the Fleet Sir Andrew Cunningham commanded Allied Naval Forces.

☛ IT WAS ESTIMATED that the Germans had approximately eight divisions—some 300,000 troops in all—in position to oppose the landings, of which two were near Rome, three near Naples, and three in the South.

Plans called for landing the British Eighth Army under Gen Sir Bernard L. Montgomery in a two mile shore-to-shore operation across the Strait of Messina on beaches on the toe of Italy between Villa San Giovanni and Reggio di Calabria on 3 September. LtGen Mark W. Clark's Fifth Allied Army was to land five days later at Salerno to the north, push four divisions across the peninsula to the Adriatic coast and subsequently destroy the German forces contained between the two allied armies.

Heavy naval gunfire and aerial bombardment preceded the Eighth Army's landing. An allied force of battleships, cruisers, and destroyers had begun shelling the Italian positions on 31 August and especially heavy air attacks began on 1 September. Commando units had reconnoitered the Italian shore a week before the landings. A heavy artillery preparation was fired from the Sicilian shore, and landing craft carrying the British and Canadian forces, escorted by cruisers, destroyers, and gunboats, moved across the strait on a moonless night.

The landing force landed according to plan at 0430 on 3 September. Little opposition was encountered; a beachhead was quickly established. The Eighth Army moved north through Calabria. By 6 September the beachhead was 70 miles long and 10 miles deep, the advance continuing against weak resistance.

In the Naples area there was a choice of two landing places for the Fifth Army. Both were long distances from fighter air bases in Sicily (200 miles). Land-based air support consequently would be achieved only with difficulty until fields were captured or constructed in the beachhead. This was also one of the chief factors that prevented a landing further north nearer Rome.

One choice was to land north of Naples at the mouth of the Volturno River, the other to land south in the Gulf of Salerno. In spite of the flat terrain between the Volturno and Naples, Salerno was chosen. The controlling factor was the more favorable hydrographic conditions. The 26 miles of smooth, sloping beach between Sorrento and Agropoli, the shortness of the beaches permitting easier beach exits, the lack of surf and the steep offshore gradient that permitted ships to come in close to the shore all added up to better landing conditions.

However, the two factors that made the Salerno landing as difficult as it was were the terrain inland from the beaches and the fact that the beaches and the hills and mountains commanding the coastal plain had been occupied by the Germans for two weeks and were bitterly and skillfully defended.

☛ A WALL OF mountains with their satellite foothills rise sheer from the coastal plain to heights of from 1,000 to 3,000 feet and runs from the Sorrento Peninsula in the north in an arc around to the Agropoli end of the gulf in the south. Mount Soprano, the highest point of the wall overlooked the beaches where U. S. troops landed. Two rivers cut across the plain and two highways and two railroads run north and south along it.

Gen Clark's Fifth Army consisted of two corps and army troops. The British 10 Corps, commanded by LtGen Sir Richard L. McCreery, included the 46 Division under MajGen J. L. I. Hawkesworth, the 56 Division under MajGen G. W. R. Templer, the 7 Armoured Division under MajGen G. W. E. J. Erskine, the 23 Armoured Brigade under Brigadier R. H. B. Arkwright, and a task force consisting of the 1st, 3d, and 4th U. S. Ranger battalions and the 2 and 41 British Commandos under LtCol W. O. Darby.

The U. S. VI Corps, commanded initially by MajGen E. J. Dawley, who was relieved by MajGen J. P. Lucas on D plus 11, included the

36th Infantry Division under MajGen F. L. Walker, the 45th Infantry Division under MajGen T. H. Middleton, the 3d Infantry Division under MajGen L. K. Truscott and the 34th Infantry Division under MajGen C. W. Ryder. The U. S. 82d Airborne Division, commanded by MajGen M. B. Ridgeway, was under direct control of the Fifth Army.

☛ THE WESTERN Naval Task Force, with the mission of transporting, escorting, and establishing the Fifth Army ashore at Salerno and supporting it, was commanded by ViceAdm H. K. Hewitt in the Ancon. His force included over 450 ships for the H Hour landings and more than 50 in follow up shipping. The Northern Attack Force transporting the British 10 Corps was commanded by Commo C. N. Oliver, RN, in HMS *Hilary*. Although senior to the British commodore, RearAdm R. L. Conolly, USN, commanded a subordinate task group of the Northern Attack Force. The Southern Attack Force (the Eighth Amphibious Force) transporting the U. S. VI Corps was commanded by RearAdm J. L. Hall, Jr, USN, in the assault transport *Samuel Chase*. Adm Hewitt's force included the British battleships *Warsprite* and *Valiant*, the U. S. light cruisers *Boise*, *Philadelphia*, and *Savannah* and a score of destroyers for gunfire support.

Each attack force was organized with a landing force, a transport group, a landing craft group, a beach battalion, a support group, a control group, a sweeper group, a salvage group, and a beach identification group. The Southern Attack Force, for example, contained 9 APAs and APs (assault transports), 3 British LSTs (landing ships infantry), 1 British LCS (landing craft support), 4 AKAs (assault cargo vessels), 1 British LSG (landing ship gun), 3 British LSTs (landing ships tank), 27 LSTs (landing ships tank), 36 LCIs (large landing craft infantry), 3 light cruisers, 3 old destroyers, 1 British monitor (mounting 15-inch guns), 13 destroyers, 1 British tank ship, 9 mine layers, 12 minesweepers, 1 British submarine, and 15 smaller vessels.

The beach along the Salerno Gulf is divided approximately in half by the Sele River, which was designated the Corps boundary. The 10 Corps assigned the main effort, was to land two divisions abreast—the 46 and the 45, with the 56 on the right—on beaches north of that river. The British Corps upon landing was to capture

the town of Salerno at the northern end of the gulf, the important Monte Corvino airfield, the railroad and road center of Battipaglia and Pont Sele, a bridge, and then advance on Naples.

☛ THE SORRENTO PENINSULA, at the extreme left flank of the Fifth Army and 10 Corps, was to be captured by the three ranger and two commando battalions under LtCol Darby. The rangers were to land at Vietri sul Mare and enter the town of Salerno.

The U. S. VI corps was to land the 36th Division south of the Sele River at beaches in the vicinity of Paestum, capture the tactically important foothills and passes overlooking the narrow landing beaches and plain and thus secure the Army's right flank. The U. S. Corps then was to pivot north abreast and on the right of the 10 Corps through the mountains to the Naples plain. Two regimental combat teams, one from the 45th Infantry Division and one from the 82d Airborne, were to be maintained in floating reserve for VI Corps.

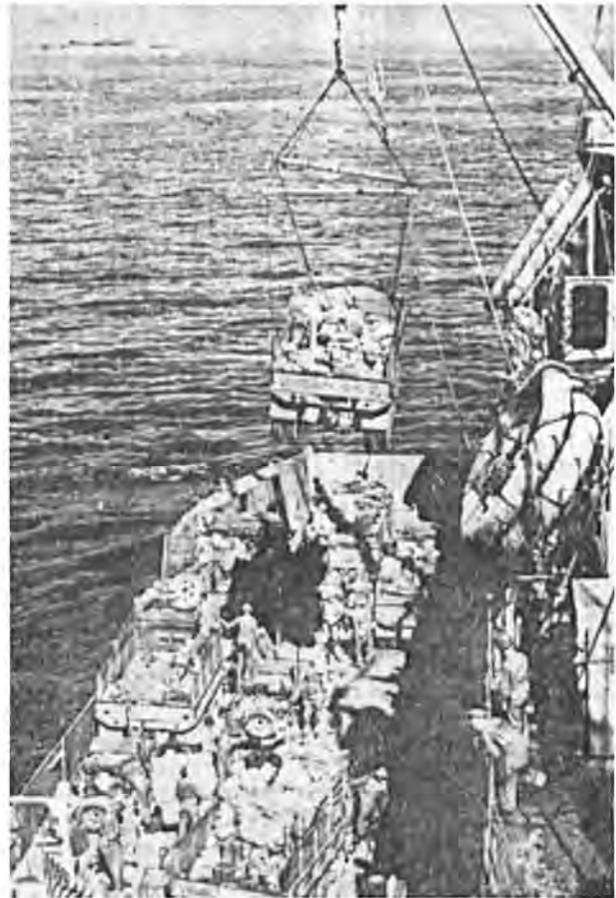
A ten mile gap was to exist between the two corps on landing but was to be closed by 10 Corps advanced inland to join forces at the Pont Sele bridge.

The remaining elements of the 45th Infantry and 82d Airborne Divisions as well as the 34th and 3d Infantry Divisions, a field artillery brigade, an armored division, a tank brigade and other supporting troops were to follow up the Fifth Army's assault troops.

A diversionary force embarked in a special naval task unit under the command of Capt C. L. Andrews Jr., USN, was to carry out a demonstration at the mouth of the Volturno River north of Naples. One aircraft carrier and four auxiliary carriers were available in the Western Naval Task Force to support the landings.

The British 1 Airborne Division was to land from the sea at Taranto on the heel of the Italian peninsula simultaneously with the Salerno landing and join forces with the British Eighth Army in its advance north.

The Fifth Army was mounted in North Africa, where the Allied planning headquarters was located, and at Sicily. Training including divisional landing exercises was conducted at both places. The untried U. S. 36th Infantry Division held a dry run on beaches in North Africa. The U. S. 34th Division acting as enemy opposed the 36th in that exercise. The British 10 Corps



Despite a lack of support from naval guns, Americans and British go ashore at Salerno.

did its final training in Tunisia and Tripoli. The U. S. 45th Infantry Division, with the Sicily landing behind it, did its training on that newly won island.

The invasion force moved to the objective area in three major convoys. The U. S. assault forces left Oran on the evening of 5 September. The British forces sailed from Bizerte the following day.

So critical was shipping that all U. S. loading plans for reserve elements and follow-up supply were made on a tentative basis until the last minute. Vehicles and equipment for the landing force had to be kept at a bare minimum. The resulting lack of armor ashore in the first five critical days of the landing was keenly felt. As it turned out, additional landing ships and craft could have provided reinforcements when they were most needed.

The movement to the objective by the U. S. convoy from Oran was without incident. But the British force from Bizerte was spotted and attacked twice by enemy aircraft which sunk one LCT.

At 1830 on 8 September, D minus 1, as the Allied force approached the Gulf of Salerno, Gen Eisenhower's announcement of the Italian surrender was broadcast. The Allied troops were soon to learn that they were the only ones surprised. The Germans had anticipated it for days and knowing of it for 30 hours had manned all coast defenses at Salerno, alerted for an attack.

The approach to the designated transport areas began 12 minutes later and went smoothly. The moon set just before 0100. The sky was dark, the weather clear, and the sea smooth, as H Hour—0330—approached.

☛ IN ATTACKS on enemy air fields during the three weeks before D Day Allied planes had destroyed 248 planes on the ground and damaged 93 enemy aircraft. But for what Secretary of the Navy Frank Knox at the time called "the most hotly contested landing ever made," *there was no preliminary air or naval gun bombardment of the beaches or landing areas.*

The troops in the first waves began to debark into LCVPs and LCMs shortly after midnight. The two assault regimental combat teams of the 36th Infantry Division were in the first six waves, directed to advance 2500 yards inland on landing before reorganizing. The VI Corps landing beaches were two miles in length and the initial corps beachhead was to comprise about 100 square miles. The reserve combat team was ready to land on either flank. DUKWs (2½ ton amphibious trucks) were loaded with light field artillery and antitank guns. One 105mm howitzer, 21 rounds of ammunition, and 7 men could be loaded in one DUKW. Others were loaded only with artillery ammunition and were rigged with A frames for unloading cargoes ashore. Tanks, heavy guns, anti-aircraft artillery, supplies, and ammunition were scheduled to be landed by shuttle trips of landing craft after the assault waves had been landed.

☛ THE FIRST TROOPS of the Fifth Army to land were the ranger battalions and the commandos of the 10 Corps. They landed on the Sorrento Peninsula at the left, north flank of the landing force at 0310 without opposition. By 0900 the rangers were in the hills commanding the passes north to the Naples plain, and the commandos, overcoming resistance near Vietri sul Mare, were entering the town of Salerno.

In the VI Corps zone landing craft approached the line of departure in the wake of mine sweepers. In spite of extensive sweeping operations, floating mines impeded the ship to shore movement, forced transports to remain far off shore for 12 hours, prevented the gunfire support ships from getting on station in time, and slowed up the runs of the landing craft into the beach. PCs acted as control vessels and lead the waves into the beach. Smoke was used to cover the approach.

☛ THE FIRST WAVE of the VI Corps hit the beach on schedule at 0330. No sooner did the lead boat of the first wave scrape the bottom than the enemy sent up flares and opened fire. The German defense of the beaches consisted of automatic weapons, mortars, field artillery, anti-aircraft artillery fired horizontally, a 132mm railroad gun, roving platoons of tanks, and snipers. The beaches had been heavily mined with Teller mines placed from 10 to 15 yards in from the water back for 100 yards in depth. Barbed wire obstacles were covered by enfilade fire from automatic weapons. Enemy 88mm guns fired from position 400 yards behind the beaches.

As a result, the second and third waves, following at eight minute intervals, ran into trouble. In the first 20 minutes several landing craft had been hit by enemy fire. Some troops were landed on the wrong beaches, and wave on the flank was forced to withdraw later and re-land closer to the unit on its left. Reserve battalions were 50 minutes late coming in. In the confusion control was almost impossible. Isolated groups of men pushed inland off the beaches. By 0345 regimental weapons were landed to help the hard-pressed infantrymen. The only other support available was from landing ships and craft that fired their automatic weapons against shore targets and from rocket craft. No naval gunfire of 5-inch or heavier batteries was fired during the first few hours before dawn. By the time the reserve regiment of the 36th Division landed at 0640 the beaches were still full of enemy gun positions and snipers. Evacuation of the growing number of wounded was still impossible.

☛ SLOWLY MORE fire power arrived ashore. A 75mm self-propelled howitzer came in on the third wave. But until dawn .50 caliber machine



Artillery and air bombardment softened the way for the American Fifth at Salerno. Rallying with a tank and artillery attack, the Germans almost halted the Americans.

guns were the heaviest guns in action in the VI Corps. Between 0530 and 0730, 123 DUKWs had come in with a battalion of field artillery. The sixth and last assault wave, including tanks and another artillery battalion, landed at 0600 in time for the first enemy tank attack. Small groups of enemy tanks moved across the landing beaches firing at will into the attacking infantry who were able to return fire only with small arms and bazookas.

☛ MEANWHILE THE SHORE party (531st Shore Engineer Regiment, reinforced, veterans of the North Africa and Sicily landings) with companies attached for the assault landing to each battalion landing team were trying to bring order to the beach. The 4th Naval Beach Battalion set up shore to shore communication. For a long time that was the only channel through which requests for naval gunfire could be relayed. Shore fire control parties lost much of their communication equipment in the landing and were unable to establish communications with the firing ships much before the afternoon. At dawn the cruiser *Philadelphia* began firing along with small rocket craft—LCT(R) and LCS(R). Smoke was used to protect the landing craft in the ship to shore unloading process. The first enemy air attack came at dawn. But good fighter protection from the patrols of Allied Spitfires, Seafires,

P-38s, P-51s, and A-36s kept the enemy planes off the back of the ground forces.

☛ At 0700 a coordinated enemy tank attack was launched. As many as 15 enemy tanks hit one battalion on the right flank. Two 105mm howitzers were in action, and with anti-aircraft weapons fired horizontally, joined with mortars and other infantry weapons to withstand the assault. By noon this attack had been turned back. Three more enemy tank attacks were launched against other sections of the corps front before 1300.

During the afternoon the situation improved. Cruisers and destroyers had been delivering support since 1000. By nightfall the initial VI Corps objectives had been reached. The coastal plain in the corps zone of action was held. Some high ground in the rear of the beaches had been taken on the right (southern) flank of the Fifth Army beachhead, but the hold was precarious. Dumps had been set up, and exit roads from the beaches were operating. Anti-aircraft batteries were in action, and communications finally were working.

To the north, on the left of the U. S. VI Corps, the British 10 Corps had an even harder time of it. But from the very beginning far more naval gunfire had been employed in direct support of the landing force in the British zone of action. By nightfall the landing force in the

north had a thin three mile beachhead, had taken Monte Corvino airfield and entered Battipaglia.

There was no contact or communication between corps on D Day. The ten mile gap at the corps boundary still existed. Although the enemy's beach defense was hasty, improvised, and weaker by far than his inland positions, it had prevented the Fifth Army from pushing in and quickly seizing control of a secure beachhead for a rapid attack through the mountain passes to Naples.

☛ ON THE NIGHT of D Day the enemy withdrew from the coastal plain to the front of the VI Corps into prepared positions on the hills to the north and east, concentrating his main strength in front of the 10 Corps. Instead of maintaining contact with him the VI Corps spent the day of D plus 1 reorganizing and preparing for an attack northeast into the mountains on D plus 2. As a matter of fact, the regiment on the Corps right flank had several days of rest. A regiment of the 45th Infantry Division in floating reserve was landed with the divisional artillery on D plus 1 to lead off the VI Corps attack.

The newly landed regiment moved out up a corridor running inland to the northeast from the beaches at nightfall on D plus 1. Its advance into the hills was deceptively easy. At dawn it was attacked from the rear by the enemy, and two battalions were cut off from their artillery and the rest of the landing force. This enemy attack striking the left of the VI Corps hit the center of the Fifth Army—its weakest point. The British 56 Division of the 10 Corps, on the left of the VI Corps, itself hardpressed, could not extend its right flank to help the Americans. So the Corps boundary was moved north of the Sele River to the actual right flank of 10 Corps and the other two regiments of the U. S. 45th Infantry Division, in reserve, were committed under the VI Corps and landed in the gap between the British and Americans.

By the night of D plus 2 the situation began to look critical. The right flank of the VI Corps and Fifth Army was secure by default. The enemy had withdrawn to the north and east. In the center and left of the VI Corps (the center of the Fifth Army) one regiment had been cut off from the rest of the landing force by the enemy and the attack of two others had bogged down altogether. Resistance to the

front of the 10 Corps was even stiffer, but the British lines had held. On the Army's extreme left flank on the Sorrento Peninsula at the north—the northern end of the Gulf of Salerno, the rangers and commandos had held their ground and were reinforced with infantry and artillery.

☛ ENEMY AIR ACTIVITY was intense and our air support still came from the few aircraft carriers and from Sicily. On D plus 1 and 2, 120 air attacks were thrown against our ships. Smoke was used to screen the transport areas. Barrage balloons and antiaircraft fire kept the attacking planes high up where 196 Spitfires, 119 A-36s, and 326 P-38s were stationed to handle them. But the cruiser *Savannah* was hit nevertheless and forced to withdraw from the Gulf, thus reducing the gunfire support available to the landing force. The Monte Corvino air strip captured from the enemy on D Day was under constant enemy fire and no progress could be made in preparing it for friendly planes. A new strip was constructed by engineers of the VI Corps on the coastal plain in their zone by D plus 4.

The Fifth Army maintained a tenuous hold on a beachhead 35 to 40 miles long and from six to seven miles deep on the night of D plus 3. Actually the Army's center was so weakly defended that there were in fact two corps beachheads rather than one army position. The enemy, still holding the initiative and keeping the beachhead under observation and fire, had begun to bring elements from two divisions up from the south and elements of two other divisions down from the north and place them in position to launch an attack in corps strength against the Allied landing force.

On D plus 4 a completely motorized enemy force drawn from six divisions that had escaped the "trap" between the Allied Fifth and Eighth Armies launched a major attack supported by artillery and heavy armor against the weak center of the Fifth Army. Relying on the advantages of positions and mobility the enemy attacked and withdrew in a series of probing jabs on 13 September.

The main attack came on the night of the 13th and during the 14th—D plus 5. It drove a salient of some five miles into the center of the Allied beachhead. The crying need at that time was for motor vehicles to speed reinforcements to weakened positions along the over-

extended VI Corps line. But the shipping shortage had not allowed the landing force to have the transport, armor, or reserves it needed once the battle began. During the entire period a five mile gap continued to exist between corps. Communications across this gap were maintained in part by reconnaissance units of the British 23 Armoured Brigade. The enemy penetration of the VI Corps positions was so deep that artillery batteries had to defend their guns with small arms. At the height of the battle the VI Corps refused the right flank and withdrew into a tight final defensive line where its thin forces could be better controlled and employed. On the 13th and 14th two elements of the U. S. 82d Airborne Divisions were dropped into the beachhead as reinforcements.

☛ ON THE 14TH with a heavy volume of supporting naval gunfire and aerial bombardment the new line held. Divisional artillery of the 36th and 45th Infantry Divisions fired 11,000 rounds of ammunition in that one day. Half of the enemy's attacking armor was destroyed. The lines of the British 56 Division on the 10 Corps right flank were held by the efforts of a guards brigade including the Coldstream Guards. The gap between Corps was closed that night—D plus 5. The British 7 Armored Division was landed in the 10 Corps zone of action on the 14th.

During this critical period when it looked as if the enemy would push the Fifth Army back into the sea, the strategic airforce had become tactical. Airfields and communications in the rear of the beachheads were abandoned as primary targets. Every available aircraft was thrown into the fight for the protection of the beachhead itself. Employing its one advantage over an enemy who in all other arms but naval guns was superior, the invader sent 187 B-25s, 166 B-26s, and 120 B-17s over the coastal plain to bomb enemy troops. Heavy bombers flew two missions a day. In four days, more than 300 sorties were flown and 2150 tons of bombs were dropped. Two British battleships, the *Valiant* and *Warsprite*, hastened to the Gulf of Salerno to add their heavy rifles to the fire power of the naval support force.

By 15 September the pressure was off and the crisis had passed. The Allies began to occupy high ground inland from the beaches. In the first week U. S. forces had suffered

4,000 casualties and the British 5,000. On the 16th—D plus 7—the British Eighth Army joined forces with both the Allied Fifth south of Salerno and with the British 1 Airborne Division to the east on the Adriatic coast.

☛ TWO DAYS LATER the 3d Infantry Division landed and, replacing the 36th, joined the attack northward to Naples, as the Fifth Army pivoted on the Sorrento Peninsula. The enemy's strongest defenses continued to be in front of the 10 Corps on the Fifth Army's left. In eight days the U. S. 3d Division moved 28 miles northward through the mountains, and the 45th Division on its flank moved 34 miles in the same period. The U. S. 34th Infantry landed at Salerno instead of at Naples as originally planned. In order to move that division up from Sicily, shipping scheduled for use by service troops had to be taken over. On 1 October the Fifth Army entered a devastated Naples and six days later was along the Volturno River north of the city, to which the enemy had withdrawn. Between 9 September and 6 October American troops of the Fifth Army suffered 4,870 casualties and the British 6,847.

A comment by the commander of the first wave from the transport *Frederick Funston* summed up metaphorically the biggest tactical deficiency at Salerno: "It is my opinion, based on observation, that had a power play instead of a sneak through the line been attempted, a more successful touchdown with more yardage and fewer casualties would have been the result."

It was a lesson already known in the Pacific, one which should have been learned at Dieppe: surprise works sometimes, but a preliminary air and naval bombardment always makes a landing against a defended shore easier. At Salerno there was no surprise and no preliminary bombardment.

Overlooking strategical considerations—the decision to attack at the time and place chosen and the resulting limits placed on the tactical commanders in man power, shipping, and supporting forces, the way the assigned mission was carried out with the forces allocated left something to be desired.

The chief failing, after the attempt to surprise the enemy, was one which might have escaped notice in an easier landing. It was imperfect coordination of the combined arms

at the target area (and therefore presumably in planning and training). What finally permitted the landing force to maintain its thin hold on the beaches was the belated application of all the fire power the ground, naval, and air forces could muster. Gen Eisenhower reporting to Gen George C. Marshall, the U. S. Chief of Staff, on the work of the Allied air forces at Salerno wrote that it was again clear "that the greatest value of any of the three services is ordinarily realized only when it is utilized in close connection with the other two."

Rapid communication is the *sine qua non* of coordination as it is of command. The enemy's resistance to the first landings threw the landing force into such confusion that it was many hours before naval gunfire could do anything but fire counter battery missions against observed enemy positions inland from the beaches—helpful but certainly not the most effective kind of support. At no time in the early phase were naval guns, aircraft, tanks, and field artillery coordinated under central control. Contact and even communication between adjacent units of the landing force were so lightly considered during the first few days that a strong enemy threatened to defeat the overextended American unit in detail. With better communication and a better realization of the need for speed from the very beginning of a landing operation, the VI Corps might have been in a stronger position to withstand the heavy counter attacks of D plus 5 and D plus 6.

✻ AIR SUPPORT in the six weeks of preparation and support involved 17,046 sorties and 15,338 tons of bombs dropped during daylight hours and accounted for 544 enemy planes destroyed, 119 enemy planes probably destroyed, and 172 damaged. The best service the air arm performed was to prevent enemy air intervention with the landing. Air cover was excellent. Improved air warning systems, barrage balloons, and smoke were highly effective. But close-in support for infantry battalions directed from the ground was rare and improvised on the spot. P-51s of the Army Air Force proved to be the best naval gunfire spotters yet employed in the theater. Their speed, maneuverability, and armament made them far more effective than ship-based observation planes.

In the case of naval gunfire, the most notable feature was again improvised at the objective: the use of LCIs and other small vessels to provide inshore support with small automatic weap-

ons. The shore fire control parties showed a need for more training. The gunfire support for the U. S. VI Corps came from three groups, two consisting of a cruiser and destroyer each and the third of the British monitor. Although the terrain was not well suited for naval gunfire, 4,579 rounds of 6-inch and 3,527 rounds of 5-inch were fired. That is a little more than half the amount fired at Sicily.

✻ DESPITE ENEMY RESISTANCE, fire on the beaches, and constant attempts by the German air forces to attack the ships in the transport areas with radar-guided, rocket-propelled glider bombs, the unloading and movement of troops and equipment ashore went more smoothly than it had at Sicily. One factor that aided these operations was consistently good weather. In the first 18 days, 108,000 tons of supplies, 30,000 motor vehicles, and 189,000 troops were unloaded. By 2200 on D plus 1 all ships but one carrying assault troops were completely unloaded. The average time for unloading a transport at Salerno was from 25 to 36 hours as compared with 55 hours at Sicily. The loading of landing craft at the rail worked well, as did the "packaging" of supplies in cargo nets. These nets were lowered into landing craft from the decks of the transport, carried to the beaches, and then unloaded by A frame hoists mounted on DUKWs.

The LCT and LCM were highly valuable and widely praised. More were needed. LSTs, still new to the theater, were unloaded slowly by inexperienced crews. Pontoons were used again as floating piers. Once ashore, only a few of the DUKWs returned out to the ships for shuttle runs as they were supposed to. As a result, some officers recommended giving control of the amphibious trucks to the Navy. The LCI(L) proved to be a most versatile vessel performing troop-carrying, control, fire support, salvage missions.

Recommendations were made for setting up an offshore traffic control boat to prevent congestion on the beaches. It was also recommended that one vessel be provided to do nothing but repair landing craft. That would leave the transports free to continue unloading without interruption. More men were needed on the beach for service functions.

All in all, the operation was a success in spite of unavoidable limitations. But after it was over, those present realized that it could have been accomplished with less loss.

(Originally ended "To be continued")