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World War II in the Pacific

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Foreword

In observance of the fiftieth anniversary of the end of World War II, the Air Force History and Museums Program sponsored several commemorative events. One, co-sponsored by the Air Force Historical Foundation was a symposium on the War in the Pacific, held at the Bethesda, Maryland, Naval Officers' Club. The gathering offered a unique opportunity for its guest panelists—participants in that war or historians of it—to reflect on a variety of subjects: Japanese objectives; American military preparedness and grand strategy; the interaction between U.S. Army, Air, and Navy leaders; combined operations; political and diplomatic intrigue; the challenges of ground, air, and sea warfare within differing Pacific theaters; military science and technology; the essential role of intelligence; the proposed Allied invasion of the Japanese home islands; and the use of the atomic bombs.

For the United States, World War II began and ended in the Pacific, from Japan's aerial attack on Pearl Harbor, on December 7, 1941, to its surrender in Tokyo Bay, on September 2, 1945. During those years, for all but five months, Americans and their Allies were compelled to hold the line in Asia, doggedly opposing the imperialist Japan while a "Europe First" policy against Nazi Germany and fascist Italy prevailed in the Atlantic and the Mediterranean. The United States operated over huge distances, from China, Burma, and India, to countless Pacific islands from the Aleutians to the Coral Sea. It sent its Army, Navy, Marine, and Air forces into gruelling and horrific battles against a Japan bent at all costs on expanding its empire across thousands of miles and exploiting human and natural resources wherever it conquered.

The momentous Allied victory in World War II made the United States the superpower it has been for half a century and, in large measure, determined its military planning into the present day. The War in the Pacific in particular proved that American military personnel fought bravely in many climes, on many fronts, against the odds, with amazing ingenuity and purpose. The discussions on World War II in general and the War in the Pacific in particular presented herein deal frankly with a time that tested America's resolve as it was never tested before and has not been tested since.

RICHARD P. HALLION
Air Force Historian

Table of Contents

Foreword iii

Grand Strategy in the Pacific War
Gerhard L. Weinberg 1

Joint Operations
Walter S. Poole 15

The Island Campaign
Brig. Gen. Edwin H. Simmons, USMC (Ret.) 25

Intelligence Methodologies in the Pacific War
John Prados 45

The Sea War against Japan
William S. Dudley 53

Military Technology and the Pacific War
Richard P. Hallion 69

Strategic Intelligence and War Termination
Edward J. Drea 91

Revolutionizing Submarine Warfare
Rear Adm. Eugene B. Fluckey, USN (Ret.) 103

The Strategic Air War against Japan
William M. Leary 113

The Decision to Drop the Atomic Bomb
Theodore H. McNelly 131

Panelists 171
Notes 175
Bibliography 189

Photographs

Japanese invasion of China 3
Triumphant Japanese soldiers, China 4
Ledo Road, Burma 8

Photographs

Casablanca Conference 11
General MacArthur, President Roosevelt, and Admiral Nimitz.... 17
General Eisenhower and Lt. General Spaatz 21
General MacArthur 26
Admiral Halsey and Vice Adm. Spruance 28
Marines on Betio in the Tarawa atoll 30
Admiral Nimitz at a press conference 32
Flag-raising on Iwo Jima..... 35
Battle on Okinawa..... 37
Victory on Okinawa 39
U.S. Marine mass grave, Iwo Jima..... 41
Battleship Row under Japanese aerial attack, Pearl Harbor 42
Japanese aircraft carrier *Hiryu*, Battle of Midway 49
Japan-bound Tokyo Raiders..... 55
Japanese aircraft carrier *Shoho*, Battle of the Coral Sea 57
Pacific Ocean commanders, Saipan 59
Japanese military base, Marcus Island 60
Japanese torpedo bomber exploding, Kwajalein 62
USS *Yorktown*, Battle of Midway..... 64
Flight deck of USS *Hornet*..... 72
Boeing B–29 Superfortress 73
Boeing B–17 Flying Fortress and Consolidated B–24 Liberator ... 74
Amphibious LCVP, Leyte, Philippine Islands 75
Amphibious LCM, Kiska, Alaska..... 76
Amphibious LVTs, Okinawa..... 77
North American B–25 Mitchells, Indochina..... 78
Mitsubishi A6M2 Zero "Zeke" 79
Grumman F6F Hellcat..... 80
Lockheed P–38Lightning..... 81
Amphibious DUKW, Guam 82
Amphibious LSTs and LSMs, Okinawa..... 83

Photographs

Barrage rockets firing from amphibious LSM 84
Kamikaze attack on USS Missouri 85
U.S. Army Air Forces intelligence gatherer 93
Japanese Ohka suicide bomb 95
Japanese "Val" dive-bombers 97
Japanese soldier in jungle hideout 99
U.S. Navy Gato/Balao Class submarine 105
Mark XVIII electric torpedo 107
Sinking Japanese ship through U.S. Navy periscope 109
B–29 bombing of Showa Steel Works, China 116
General Henry "Hap" Arnold 117
B–29s dropping bombs 118
Curtiss-Wright C–46 Commando over Himalayan "Hump" 119
Brig. General James Doolittle being honored for Tokyo Raid 120
Maj. General Curtis LeMay and Brig. General Haywood Hansell . 121
Isley Field, Saipan 122
Japanese aerial attack on XXI Bomber Command 123
Tokyo, Japan after incendiary bombing 124
Kobe, Japan under incendiary bombing 125
Bombed Mitsubishi aircraft assembly plant, Nagoya, Japan 126
Bombed crude oil refinery, Toyama, Japan 127
President Truman prior to departure for Potsdam Conference . . 141
B–29 *Enola Gay* 142
Plutonium bomb, Fat Man type 145
Atom bomb exploding over Nagasaki, Japan 146
Battle scene, Numfoor Island 149
Kamikaze damage to U.S. Navy carrier 150
Japanese delegation to surrender ceremony 153
Gen. MacArthur signing Japanese surrender document 154
Gen. MacArthur and Japanese Emperor Hirohito 157
United States Military Cemetery, Yokohama, Japan 158

Grand Strategy in the Pacific War

Gerhard L. Weinberg

If we are ever to understand the basic concepts that determined American strategy in the Pacific in World War II—from Japan's attack on Pearl Harbor to its surrender in Tokyo Bay—we must first, in my judgment, recall both America's effort to stay out of the war altogether and the personal role of President Franklin Roosevelt in that effort. Unlike many of his advisors, Roosevelt believed, in the summer of 1940, that Britain could hold out and was therefore worth assisting; he was proven correct. Similarly, unlike most of his advisors, he believed, in the summer of 1941, that the Soviet Union could hold out and was therefore worth assisting; he was, again, proven correct. He wanted to provide the two powers with substantial American assistance to defeat Nazi Germany without direct American participation. He was willing to use whatever incidents occurred in the Atlantic as that aid was shipped across it to alert the American people to the dangers posed by Germany and its ally, Italy. As too many scholars have refused to take into consideration, the United States made every effort all during 1941 to use the knowledge it gained from breaking German naval ENIGMA codes to *avoid* incidents to the greatest extent possible, instead of the opposite, as it could easily have done.[1]

President Roosevelt was concerned, not unreasonably, because of the Tripartite Pact signed in September 1940, that Japan might be tempted to take advantage of an opportunity to build a great empire at the expense of the French, Dutch, and British by entering the war on Germany's side, but he knew that not all in Japan's government were enthusiastic to wage war with still more countries than China. If Japan, fighting in China since 1937, could somehow be stalled until there was an obvious turn of the tide against Germany in Europe, its leaders in Tokyo might reevaluate the situation and decide not to join an obviously losing Germany. As we know today, America's strategy for avoiding war with Japan missed by about two weeks. Had the leaders in Tokyo had time to evaluate the significance of Germany's crushing defeat before Moscow in November and December 1941, they might very well have recommended that Japan refrain from attacking the United States, Britain, and the Netherlands. As it was, they devoted much of their diplomatic effort for the remainder of the war to trying to arrange a separate peace between Germany and the Soviet Union.

To return to the situation of 1941, however, as regards America's strategy to avoid war in the Pacific, two factors would become significant after December 7th. The first was President Roosevelt's continu-

ous personal attempt to stall Japan. Historians have generally failed to pay attention to one of the most obvious facts of life: Presidents, like all of us, have only twenty-four hours in their day, but they're under greater pressures than most of us to allocate those hours to innumerable subjects. Roosevelt, who tended to play his cards close to his chest or even to keep them in his pocket, has given us hints of his policy preferences in the subjects to which he allocated his hours. On the one hand, for well over a year during the period of the Nazi-Soviet Pact he wouldn't meet with the Soviet Ambassador to Washington. On the other hand, he spent an enormous amount of time during 1941 meeting with Japanese Ambassador Kichisaburo Nomura and then meeting with Secretary of State Cordell Hull about his conversations with Nomura—this at a time when American Ambassador to Japan Joseph Grew complained that he couldn't get to see anyone of consequence in Tokyo. Roosevelt's and Nomura's past acquaintance with each other doesn't explain why they spent so much time together. Roosevelt wanted his conversations with Nomura to succeed, by which he appears to have meant agreement if possible but, in any case, delay and delay until Japan realized that Germany would lose, not win, the war.

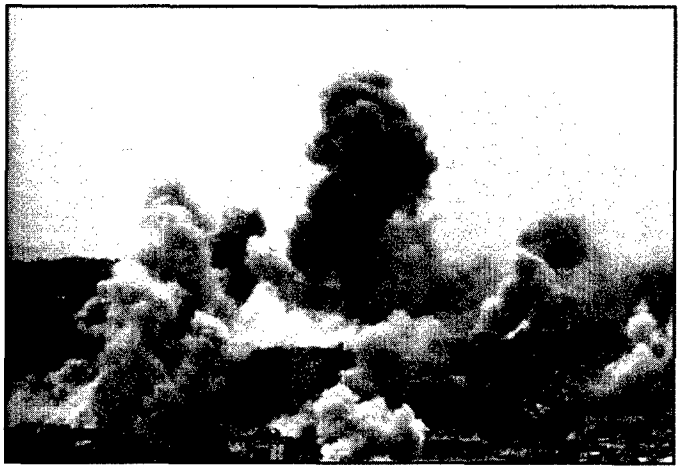
An obvious substantive indication of his preference was a decision in the early summer of 1941, made in agreement with Hull. At Nomura's request, Roosevelt ordered the dropping of charges against high-ranking Japanese naval officers caught developing the largest Japanese spy ring ever uncovered in the United States. Instead of being tried, as legal authorities wanted them to be, the men were expelled. There's certainly very good recent evidence that the American people are inclined to pay attention to dramatic trials in southern California. Nothing could have whipped up anti-Japanese sentiments more than a major espionage trial in Los Angeles in the summer and fall of 1941; but Roosevelt, assured by Nomura that such a trial would ruin relations between Japan and the United States, decided that it wouldn't be held.[2] The point is that President Roosevelt was very much involved in delaying Japan, even appealing, himself, to Emperor Hirohito when MAGIC intercepts appeared to show that the island nation was about to take the plunge.

The second factor in America's strategy in 1941 was a tentative agreement between American and British officers that if the United States was drawn into the war after all and if Japan joined Germany, Germany's defeat would take priority over Japan's. Designed chiefly by Admiral Harold Stark, the agreement was called the "Europe First" strategy, and, while it didn't have Roosevelt's explicit endorsement before Pearl Harbor, it did have, by all signs, his full support.

Although President Roosevelt's stalling of Japan was to fail spectacularly, it should be recalled because it provides some insight into the thinking of policy makers at the time. The United States in 1941

sent a very large proportion of its first B–17 Flying Fortresses accepted by the Army Air Forces to the Philippines in what seems an obvious attempt at what would later be called deterrence, that is, the conspicuous raising of risks by one country to deter the starting of hostilities by another. Although few B–17s were actually sent, there was a faith in their efficacy that experience would soon demolish; but that experience lay hidden in the future. I should add that the transfer of the ill-fated "Force Z," consisting of the *Prince of Wales* and *Repulse*, to Singapore was a part of this deterrence.

What has all this to do with grand strategy in the Pacific War? A great deal: In the first place, President Roosevelt's prior investment of time and energy in trying to avoid war altogether served to reinforce his insistence on unconditional surrender as the aim of American policy once Japan attacked and Germany and Italy joined her. There's some evidence that he'd favored such a demand in 1918 against the Wilson administration's willingness to allow Germany an armistice, but there was no doubt in the President's mind this time.[3] The public proclamation of Roosevelt's demand in early 1943 was related to both domestic and diplomatic circumstances at the time of the Casablanca Conference, but his decision to make this the goal was practically and certainly taken in December 1941. We should recall two phrases in his message to Congress on December 8th: First, that the American people will "win through to absolute victory" and second, that the country will "make very certain that this form of treachery shall never endanger us again."[4]



Japanese invasion of China. In 1937 Imperial Japan began its expansionist depredations, starting with China, near Peking. Having annexed Manchuria in 1932, Japan controlled all of northern China by 1935, the coastline, major cities, and most railways by 1938.

Those whose rather silly habit it is to view the Second World War through the prism of the Cold War have forgotten that the leaders of the time were survivors of the First World War, and their experiences in that war had formed their subsequent view of life. The opinion of Assistant Secretary of State Breckinridge Long, a member of the State Department's Post-War Planning Committee, that "we were in *this* war because we hadn't received an unconditional surrender in the *last* one" surely mirrored that of Roosevelt, who, in any case, approved the recommendation to this effect when it was placed before him by committee chairman, Norman Davis, in May of 1942.[5]

It is frequently repeated that the demand for unconditional surrender was a short-sighted wartime expedient, one that might actually have prolonged the conflict. In fact, it was made by American leaders already looking to the post-World War II world, a world in which American soldiers would not have to fight German soldiers a third, and Japanese soldiers, a second time. These leaders, far from looking at the short-term aim of military victory, looked at long-term American security needs, which, they believed, had so obviously not been met at the end of World War I. There were other aspects to their perception of what had gone wrong in from 1918 to 1920, but the one that would determine strategy in the Pacific was their insistence on an unconditional surrender that would preclude any subsequent delusions by Japan about what war with the United States entailed—and, there-

Triumphant Japanese, Tsinan, China, January 1938. Tsinan, an important center of Chinese commercial, industrial, rail and river transportation, and collection activities for rich agricultural areas to the north was, with its substantial arsenal, a prized target for the seemingly unstoppable Japanese. They were not dislodged from the area until 1945.

with, any temptation to repeat it. Anyway, Japan's extraordinarily stupid way of initiating hostilities with the United States ensured the support of a united American people in the attainment of that goal.

As for the implementation of American policy, that would be conditioned by the Washington conference that followed immediately on the country's having been dragged into the war. At the conference, the Germany First priority was affirmed, and a combined staff system was initiated to harmonize working relationships. The United States would, however, be left very much in charge of the Pacific Theater, though it repeatedly demonstrated its confidence in Britain for sharing information on intended operations. As for the Allies' hopes of containing any Japanese advance reasonably early and quickly, these were dashed in almost no time.

This is not the place to recount the early disasters suffered in the Pacific by the Allies, who certainly hadn't expected Malaya's rapid collapse, Singapore's early surrender, or Japan's quick seizure of Burma. American military planners had tacitly assumed that the Philippines couldn't be defended until relief across the Pacific was possible. American and Filipino troops, nonetheless, put up a very brave fight. However, their efforts were, to a considerable extent, vitiated when General Douglas MacArthur unwisely switched from the original plan, concentrating on the defense of Bataan, to attempting to contain the Japanese at their landing places in what turned out to be a futile operation. When he reinstated the original plan, Bataan was without prepositioned supplies and exhausted, ill, and malnourished troops were compelled to surrender after four months In contrast, Lieutenant General Tomoyuki Yamashita's soldiers held on to parts of Luzon for eight months in 1945 until Japan surrendered.

Be that as it may, in their initial offensive, the Japanese ran out of steam near the Burma-India border and on New Guinea. In the South Pacific, they failed to follow up in the Indian Ocean. They were thwarted by the British landing on Madagascar in March, at Coral Sea in May, and at Midway in June, 1942. By that time, the Americans were beginning to put into place preliminary pieces of what came to be their strategy for the Pacific War under the new circumstances. Each of their three thrusts toward the home islands was at least partly the product of their early defeats at the hands of the Japanese.

Japan's seizure of Burma, which drove out the British-Indian Army and a small contingent under General Joseph Stilwell, brought a sense of urgency to the Americans and motivated them all the more to reopen communications to China that were severed when Japanese troops broke the Burma Road from Lashio to Kunming. Long-term American policy, very much identified with President Roosevelt's own vision of the future, looked to China, first, as an important area in which much of Japan's military might could be tied down and not used

elsewhere and, second, as a staging area from which bombing raids against Japan's home islands and, later on, an invasion could be conducted. Furthermore, Roosevelt saw a reconstructed China friendly to the United States and a major player in a post-World War II world in which there would be no more colonial empires. To that end the United States would obviously have to make efforts to support the Chinese Nationalists in the war, but it would be hampered by three factors that would combine to hinder and, eventually, thwart its strategy.

The first factor was the China-Burma-India Theater's low priority for supplies, shipping, troops, and planes. Nothing shows this more dramatically than America's reaction to Britain's disastrous defeat in North Africa in June 1942. The Middle East became the destination not only of General Lewis Brereton's air force, moved there from India, but also of tanks stripped from the U.S. Army's 1st Armored Division. Also, the air supply route over the Himalayas—"the Hump"—at best carried only limited quantities of materiel into China, however great the effort expended. This brought up the second factor: the use to which these resources would be put.

On this there was a fundamental difference of opinion between the two principal American generals on the spot. Claire Chennault argued that the bulk of the material should support a maximum air efforts against the Japanese. Joseph Stilwell, on the other hand, held that it should be dedicated to the development of an effectively fighting Chinese army, otherwise the Japanese army would drive to seize the air bases from which the Americans could fly to the home islands. Stilwell prevailed, receiving enough supplies to mount a minor offensive in northern Burma that eventually made a connection to the Burma Road possible, but only early in 1945, by which time he'd not only been recalled himself but, as will become clear when the events of 1944 are reviewed, had also been proven all too correct in his prediction about a successful Japanese land offensive.

The third factor that would hinder the Americans' Pacific objectives was the reluctance of the British and the Chinese to do much of anything. The British held this view until 1944 because they preferred to concentrate their effort elsewhere and, in any case, they viewed American political and military projects in the area as crazy. In China, the Nationalists preferred, when the Americans entered the war, to sit it out and husband their resources to crush the Communists after the defeat of the Japanese.

If China was expected to provide one front from which the United States would bring about the unconditional surrender of Japan, the Southwest Pacific was to provide a second. Here, the dismal defeat of the Americans in the Philippines and the successful advance of the Japanese through the Dutch East Indies into the Bismarck Islands and other portions of the South Pacific threatened the Australian con-

tinent as well as the communication lines to it. It was to this area that President Roosevelt ordered General MacArthur to escape from the Philippines, and it was from there that MacArthur expected to return. The area's low priority under the Germany First strategy came to be modified somewhat, ironically at British insistence. Because the British high command wanted to keep as large a proportion as possible of Australian and New Zealand forces in the North African campaign, several American divisions were sent to the Southwest Pacific Theater instead of across the Atlantic. The British would complain about this afterwards, and various historians have drawn up tables to show that in 1943 more American soldiers and planes were deployed to the Pacific than to Europe, but the key point is that much of this was at British insistence and the Australians certainly wanted someone to defend the approaches to their homes.

America's expected third drive toward Japan was across the Central Pacific along lines roughly sketched out in pre-war ORANGE plans, and here, early on, necessity was made a virtue. The temporary loss of the Pacific Fleet's battleships and the survival of the aircraft carriers shifted the Navy's emphasis from the former to the latter, very much to its long-term advantage. Carrier task forces of various types came to be a central element in naval strategy.

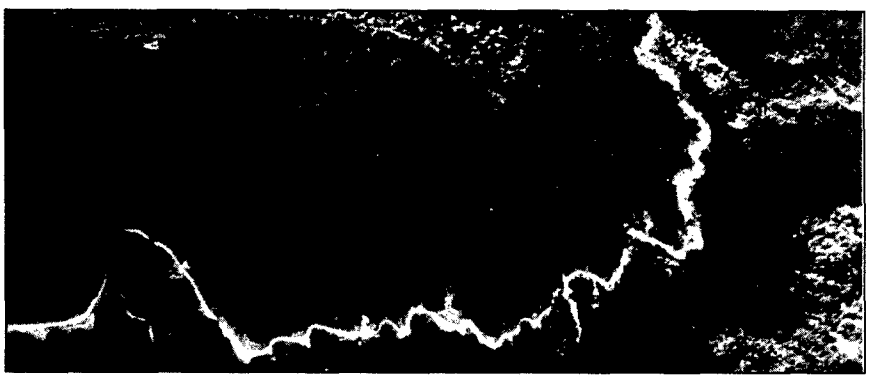
Two other American approaches to striking Japan were considered. The first, theoretically possible, was from the easternmost provinces of the Soviet Union. For most of the war, however, its leaders in Moscow preferred to concentrate on fighting in Europe and remaining neutral in East Asia, reaping in exchange from Japan an unimpeded flow of supplies from the United States across the Pacific. I'll come back to the Soviet Union as it figured in American strategy for 1945. The second other route, considered but dropped, was from Alaska toward the Kuriles and Hokkaido, the northernmost of the home islands. However, atrocious weather and logistical difficulties surrounding the Americans' 1943 campaign to drive the Japanese from the Aleutian Islands that they had occupied since the summer of 1942 rendered this route extremely unattractive.

Without reviewing in detail the Americans' two axes of advance from the Southwest Pacific and across the Central Pacific, I need to touch on each of them and their relationship to each other. As for the Americans in their thrust up from New Guinea, once they halted the Japanese landings on Tulagi and Guadalcanal, they faced two difficulties that complicated their advance. These two difficulties would, in their turn, have unexpected but great advantages for the Americans' strategy in the Pacific War. The first problem was Guadalcanal. The fighting there raged for half a year from August 1942 to January 1943 in what was the longest battle in American history. As I have explained in detail elsewhere, the failure of the Japanese, who could, at a time

when the Americans could not, either withdraw and push elsewhere or put into the fight such reinforcements as offered a real prospect of crushing their adversary, resulted in a lengthy battle of attrition. The Japanese were practically certain to lose it and thus be deprived of the strategic possibilities in the Indian Ocean and India that would otherwise have been open to them.[6] Although assuredly not recognized for what it was by the Marines and soldiers struggling on the island, the Guadalcanal campaign was actually a key element in the Allied turning of the tide against the powers of the Tripartite Pact at a moment in the war when their prospects appeared to be quite good.

The second problem—with strategic implications—complicating the Americans' Southwest Pacific campaign was a shortage of forces that obliged the Joint Chiefs of Staff to order General MacArthur to isolate the great Japanese base at Rabaul rather than to take it by assault. This development began a process of island-hopping in the Solomons and other island chains as well as the bypassing of portions of the New Guinea coast that would make the Southwest Pacific campaign a model of the economic use of forces in a rapid advance over great distances. Like Field Marshal Bernard Montgomery, MacArthur proved flexible in adapting to the exigencies of battle, though also like Montgomery, MacArthur would afterwards pretend that he had planned it the way it came out. He claimed that he invented the procedure originally forced on him; but for the forward movement of the thrust northward, such subsequent posturing had no significance.

Let me now turn to the Americans' Central Pacific thrust. To succeed, it required, first, a fleet train that would enable the U.S. Navy to



Ledo Road, Burma. The building of the tortuous strategic military supply route, the Ledo Road, was begun by the Americans aided by the Chinese in 1942 to link the railheads at Ledo, India to Mogaung, Burma. It was connected via Myitkyina and Bhamo to the Burma Road, the vital corridor to interior China from the outside. Cut by the Japanese when they overran eastern Burma in 1942, it carried war materials from Lashio to Kunming. The Ledo Road and air drops sustained Allies isolated in southwestern China.

operate far from bases and sustain operations in distant waters and off hostile shores without constantly returning to Pearl Harbor or the west coast of the United States. Second, it required the application on the basis of combat experience of the amphibious procedures developed by the U.S. Marines before the war and worked on by the British Combined Operations Command during the war. A fleet train was created and it transformed the nature of naval warfare. As such costly assaults on Tarawa and subsequent operations in the Marshalls and elsewhere showed, amphibious procedures of enormous complexity in some of the most ferocious fighting of the war were mastered by the Americans in what must be considered astonishingly short time.[7]

How did these two axes of advance work in what may look to some like one theater? The customary explanation is that the Army wouldn't subordinate itself to Admiral Nimitz and the Navy wouldn't subordinate itself to General MacArthur, so the Joint Chiefs of Staff, with President Roosevelt's agreement, divided the area into two separate theaters. There may be some truth to this assertion, but I'd like to suggest two others, joined by an unanticipated third.

First, students of the war would be well advised to look not only at their maps but also at the scales that accompany them. They should note that each of the two main theaters in the Pacific included an area substantially larger than the European and the Mediterranean theaters of operations together. The Germans generally made the mistake of assuming that because the countries in their atlases occupied one page each, they must all be about the same size; that is., because Germany, England, France, and Italy appeared on equal size pages as the Soviet Union and the United States, there was little difference between them. We may laugh at this foolishness—it certainly deserves a laugh—but we oughtn't make the same error.

Second, Roosevelt's two energetic and competitive Pacific commanders, each pushing forward as rapidly as possible, would be in position to assist each other's operations. The Japanese would have enormous difficulty adjusting their defensive strategy to two simultaneous thrusts, never able to concentrate on defeating one as they were threatened by the other. The Americans' double-axis of advance strategy was proved dramatically advantageous in the summer of 1944 when the Japanese, hoping to defeat MacArthur's forces struggling on Biak Island off the New Guinea coast, were thwarted by the need to repulse Nimitz's forces on Saipan in the Marianas. It may well be that the two theater commanders were leery of acknowledging the support each was, in fact, providing to the other, but we shouldn't exclude the possibility that both anticipated it even if they couldn't know exactly the details of its application beforehand.

A third element, not present when the double thrust was first developed, entered the picture in 1944, ironically at just about the

time of the Biak and Saipan operations. It was the collapse of the anticipated third axis, via China. Two American successes produced disaster in China. One was a submarine anti-shipping campaign that compelled the Japanese to seek a complete north-south railway connection across the vast country to join with the railways of French Indochina into Thailand and thence into Malaya as well as with the newly-built Thailand-Burma railway, famous for its bridge on the River Kwai, into Burma. The other was the beginning of substantial air activity from airfields built for the Americans by the Chinese. This activity would compel the Japanese deeper inland to seize as many of the fields from which it was being conducted as possible.

Japanese forces thus launched their great Ichigo offensive, before which, as Stilwell had predicted, untrained, ill-equipped, badly-supported, and poorly-led Chinese forces collapsed. The Japanese gained control of the north-south railway and seized most of the American airfields closest to the home islands. Their simultaneous devastating defeat as they attempted to invade India in no way altered their situation in China. The newly opened Ledo Road, appropriately renamed in honor of General Stilwell, couldn't revive a Chinese Nationalist regime that never recovered from the onslaught. Thus, the effort of the United States against Japan from China, Operation MATTERHORN, became an inefficient drain on limited air resources, which could, at that point, have been far more effectively deployed to the Marianas. It also forced a substantial recasting of grand strategy for victory over Japan.

During 1944, it became obvious that there was no realistic prospect of a major American assault on the home islands from the China coast, so the remaining two axes of advance became more important to America's hope for Japan's unconditional surrender. As the transfer of B–29s from China to the Marianas illustrates, the far greater allocation of forces to the two axes at the expense of the now vanished third added a further justification to the creation of two major theater commands. It suggested that the original project, particularly dear to elements in the Navy, for a landing on Formosa, as it was then still called, made less and less sense. This project had been associated with the use of bases in China for the assault on the home islands; if that portion of American strategy had been aborted by the collapse of the Chinese Nationalists, then the Formosa landing lost much of its rationale. It's in this context that we must see the outcome of the July 1944 Pacific strategy conference, which provided for an invasion of the Philippines and the abandonment of the landing on Formosa.

I will not go here into the details of the Philippines operation and the accompanying naval Battle of Leyte Gulf except to raise the obvious question: Why did not MacArthur's staff know that the island had no suitable terrain for the airfields that were to be built on it? Unlike Tarawa's, where hidden reefs weren't on available maps, Leyte's sur-

face had been under American control for decades and there were guerrillas on the island even during the Japanese occupation. Be that as it may, the fundamental question at the beginning of 1945, even as the Americans began the fight for Luzon, was: How do we bring this war to a close with the defeat of Germany finally in sight?

The Army Air Forces and the Navy each had what it considered an obvious answer. The Army Air Forces believed that bombing would do the trick, but it faced two problems. The first was one that most were too polite to mention: Strategic bombing by itself had not defeated Germany, even though it was conducted with larger numbers of planes against closer targets. The second was one that was peculiar to the Pacific Theater: Japanese forces simply did not give up even when by all logic and sense they had been completely defeated. Throughout the Pacific War, Japanese in small numbers surrendered, and then almost only when they were seriously wounded or too undernourished to re-sist. In garrisons long and hopelessly cut off they simply continued to fight, as the Australians discovered on Bougainville and New Guinea. This fact does not mean that bombing could not inflict enormous damage and dramatically reduce the production of weapons, munitions, and spare parts, but there was not the slightest evidence to suggest that it could induce the Japanese deployed throughout the home islands, the mainland of Asia, and the islands of Southeast Asia and the Pacific to lay down their arms.

The same difficulty afflicted the Navy's belief that a continuing blockade, reinforced by the mining of coastal waterways so important to Japan's internal transportation, would lead to surrender. Certainly,

Casablanca Conference. President Franklin Roosevelt, ***seated, center,*** **is flanked by British Prime Minister Winston Churchill on his left and by Chinese Nationalist leader Generalissimo Chiang Kai-Shek on his right at the Casablanca Conference in mid January 1943. Japanese unconditional surrender was the main topic of discussion.**

isolated Japanese on such islands as New Britain in the Bismarcks were no longer receiving what little supplies their submarines had once been able to deliver, but they were showing no signs of surrender. Also, there can be no doubt about the substantial impact of a blockade. The Americans had considerable insight into it from MAGIC, as they did of the damage being caused by air raids from photo reconnaissance. Even so, the Japanese didn't seem likely to surrender, at least not in this century.

The only route for the Americans and the Allies was to continue with operations already planned, which were the landing on Iwo Jima followed by that on Okinawa, both in preparation for landings on the home islands. Additional operations also went forward. These were landings on the island of Borneo, OBOE, and ZIPPER and MAILFIST by the Australians and the assault on the Malay coast and the seizure of Singapore by the British and the Indians. When the Combined Chiefs of Staff had met on Malta in January, they assumed that the war in East Asia would last eighteen months beyond the end of the war in Europe, but they began to fear that it would be even lengthier because of the possibility that Japanese elsewhere would continue fighting to the end of and even after an occupation of the home islands.

It was in this context that the basic strategy for the final campaigns against Japan took shape. The only aspects of OLYMPIC and CORONET that we need to examine vis-a-vis grand strategy relate to the following: the attempt to gain unconditional surrender, the entry of the Soviet Union into the war, the availability and use of atomic bombs, the involvement of other Allies, and the prospect of what were generally referred to as post-CORONET operations.

With five to seven million soldiers and sailors still in service and vast areas still under its control, Japan was in the summer of 1945 very much where Germany had been in September and October 1918. Nothing but an occupation of the home islands, whether by direct invasion or as a product of a surrender before invasion, would make certain that Japan did not, like Germany, come to pretend that defeat hadn't taken place at all. The sooner the Soviet Union acted on Stalin's 1943 promise to go to war with Japan after the defeat of Germany, the better it would be for the Americans landing on the home islands. If Washington was tempted to forget this point, then General MacArthur would forcefully recall it. Because the Americans were reading Japanese diplomatic telegrams about Tokyo's efforts to bring the Soviet Union into the war on its side, or, alternatively, to arrange a negotiated peace, the entrance of the Soviet Union into the war against Japan was expected not only to have significant military impact but also to create a major psychological shock.

The atomic bomb might well provide another shock. We knew that Japanese diplomats in Europe, especially Naotake Sato in Mos-cow,

were urging Japan to surrender and not to follow Germany's bad example. We also knew that Japan had considered this advice and that its leaders had unanimously rejected it. Perhaps something dramatic would motivate them to reconsider and come up with a different answer. If they did not, then the United States always had the option of using some of the atomic bombs coming from its factories in September and October, perhaps even the third one expected to be available still in August in tactical support of OLYMPIC, an option to which General George Marshall appears to have given a good deal of thought.

It would be in CORONET, not OLYMPIC, that the Allies were expected to participate. The British Pacific Fleet, already sharing in operations since the spring of 1945, was expected to continue doing so. Three to five divisions from the British Commonwealth and two from France were expected to be in the follow-up for CORONET, although the initial assault would be by American units. Necessary post-CORONET operations had not been sketched out in any detail by the time the war ended for two reasons. In the first place, just what the situation after CORONET would actually be was almost impossible to tell, and, in the second place, the Americans were exceedingly reluctant to deploy any additional military units on the mainland of Asia. The tacit assumption appears to have been that British, Indian, Australian, Chinese, Soviet, and other Allied troops would do much of the fighting in any post-CORONET period, although obviously, American troops would continue the liberation of the Philippines.

This audience does not have to be told that the war ended on September 2, 1945, with Japan's surrender and obedience by the scattered units all over the remnants of its vast domain to the commands of the Emperor. Only one more broader matter need be recalled to illuminate the conclusion of war in Asia as well as in Europe. As we now know, there was an attempted coup in Japan by those who wanted to continue fighting, a coup that failed by the narrowest of margins. Over a year earlier, at a time when Germany was about in the same situation as Japan was in August 1945, an attempted coup to end, rather than prolong, the fighting had failed in Germany about as narrowly as that in Tokyo. We will fortunately never know what the rest of the war in the Pacific would have looked like had the attempted coup there succeeded. We do know all too well what the rest of the war in Europe looked like after the failure of the attempt in Germany fifty-one years ago today. After that failure the Allies went on with their strategy as before until Germany surrendered. I have no doubt that at an approximately equal cost in lives and destruction they would have done so in the Pacific as well.

Joint Operations

Walter S. Poole

I am going to talk about how command arrangements worked out during the final months of the Pacific War influenced the first unified command plan and carried through a good deal of the Cold War. As we know, the campaigns against Germany and Japan produced two very different solutions for high command arrangements. In Europe, General Dwight Eisenhower headed an Army-dominated theater. His main command and organizational problems involved working out respectable relations with the British that would satisfy both sides. In command arrangements for the final campaign to the Pacific War, the problem of relations with the Allies was not paramount. General Douglas MacArthur had managed to sidetrack the Austral-ians. Divisive issues lay with the Army, the Navy, and what was then the Army Air Forces as all planned either to gain overall command or to establish independent commands in the Pacific.

I believe, however, that the interservice quarrels and compromises of this phase of the Pacific War rather than the better-known example in Europe shaped the post-war unified command plan. Each service was convinced, and I think is still convinced, that there are unique characteristics of ground, sea, and air warfare that simply cannot be amalgamated into a unified command. In the Pacific, of course, there were personal factors that complicated matters, as in the famous case of General MacArthur. In Europe, the personality clashes between General Eisenhower and Field Marshal Bernard Montgomery that have provided the grist for so many books probably created friction. But in the Pacific, I believe that the antagonism by MacArthur toward Admirals Chester Nimitz and William Halsey and theirs toward him were surface symptoms of deeper issues that would continue long after the war ended.

I am going to trace how wartime disputes carried over into post-war debates by looking at Pacific Command and Strategic Air Command and their evolution from decisions made in the final months of the Pacific War. First, I'll look at the problem of the Pacific Command.

Late in 1944, Admiral Nimitz's push across the Central Pacific and General MacArthur's leap-frogging campaign in the Southwest Pacific began to converge. General George Marshall sought agreement among the Joint Chiefs of Staff to put all Army forces in the Pacific under a single commander. At that point, the Philippine Islands marked the northern limit of MacArthur's theater boundary, so that an invasion of Japan and the boundaries then drawn would fall under the

control of Nimitz and the Navy, not MacArthur and the Army. In mid-December 1944, with the liberation of the Philippines underway and the island of Leyte nearly won, MacArthur advocated the splitting of resources in the Pacific along service lines, between one Army commander and one Navy commander. He suggested that the Joint Chiefs of Staff appoint the commander of a specific operation according to what is known as "the principle of paramount interest."

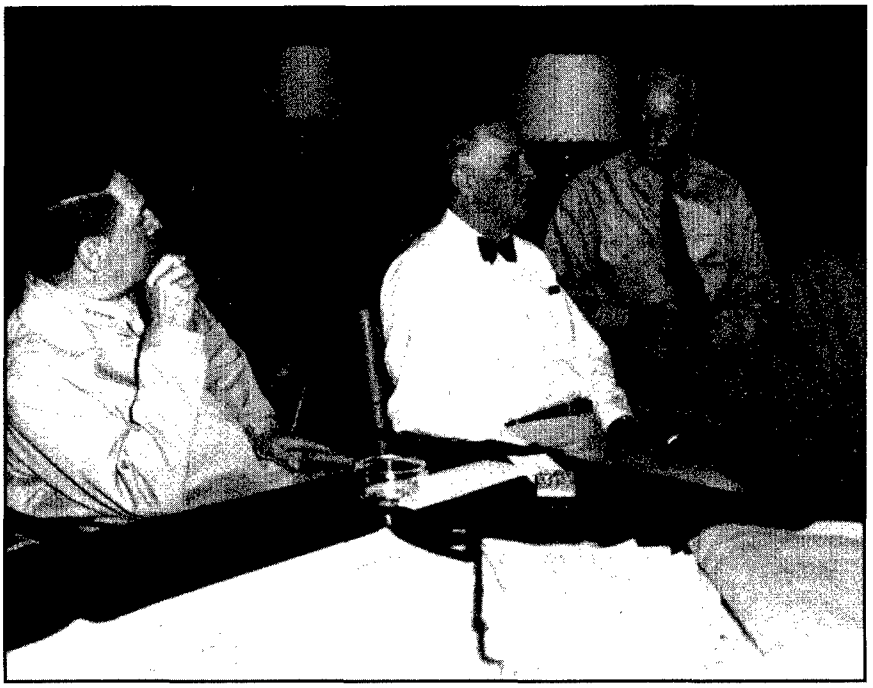
He cabled General Marshal, warning of certain disaster if matters stayed as they were and cited the example of Leyte Gulf, which was on everyone's mind at that point. A near-catastrophe had occurred because Admiral Halsey's Third Fleet had to report to Admiral Nimitz while Admiral Thomas Kinkaid's Seventh Fleet had to report to General MacArthur. Kinkaid, making a run north after enemy carriers, was unaware that Halsey had left Surigao Strait unguarded, and he was surprised by a powerful Japanese surface force that had seen an opening and entered the area. But, if we look back at MacArthur's proposal, we should see that he wasn't advocating anything remotely resembling today's unified command. MacArthur, in fact, gave Marshall his "firm opinion that Naval forces should serve under Navy Command and Army forces should serve under Army Command. Neither service fights willingly on a major scale under the command of the other." That attitude, I think, was to prove a permanent sticking point during the war and after. Even Marshall, who may have been one of the most detached and objective senior officers ever, couldn't completely divorce himself from it.

To the Navy, the MacArthur-Marshall solution threatened to remove from Admiral Nimitz a number of crucial operations. The projected Okinawa campaign, for example, which, ultimately, did fall under him, would likely have been shifted out of his control, and so would operations that the Navy wanted to conduct along the China coast and possibly in the La Perouse Strait if the Soviet Union entered the war. So Admiral Ernest King, Chief of Naval Operations, and Nimitz proposed that the Joint Chiefs of Staff designate a Commander in Chief, Japan Area—obviously General MacArthur—whose sole task would be to conduct the invasion of Japan, and leave everything else in the Pacific Ocean Area to Nimitz.

On April 3, 1945, the Joint Chiefs of Staff approved a compromise under which General MacArthur acquired the additional role of Commander in Chief, Army Forces, Pacific, while Admiral Nimitz remained Commander in Chief, Pacific Fleet-Pacific Ocean Areas. Superficially, the compromise might seem like an Army victory, since it was what Marshall and MacArthur had set out to achieve. Yet, under it, Nimitz and MacArthur each would continue controlling forces from the other service until those forces actually passed to other commands. As it turned out, Nimitz kept the Tenth Army, which fought on Okinawa,

under his control and in his theater until June 1945, when the campaign there actually ended. The more important point is that General Marshall wanted MacArthur to control the assault phase of Operation OLYMPIC, the landing on Kyushu, but Admiral King managed to get a directive from the Joint Chiefs of Staff, issued late in May 1945, that confined MacArthur to controlling the assault phase only in cases defined as "exigencies," but exigencies never were actually defined, so the principle of paramount interest proved impossible to apply in practice. Consequently, each service continued to control its own forces and rely on a spirit of cooperation to resolve differences. So any similarities between the command organization for Operation OVERLORD and the proposed command organization for Operation OLYMPIC, it seems to me, aren't readily apparent.

In post-war debates over the first unified command plan, which started in February 1946, suspicions resurfaced. Admiral Nimitz, who succeeded Admiral King as Chief of Naval Operations, declared himself dissatisfied with the existing arrangement. He proposed the establishment of a single Pacific Command, excluding Japan, Korea, and China, in what was essentially a resurrection of his early 1945 idea for a Commander in Chief, Japan Area. General MacArthur, at



Gen. Douglas MacArthur, *left*, President Roosevelt, *center*, and Adm. Chester Nimitz, *right*, discuss Pacific Area strategy in Hawaii at meetings held in July and August 1944.

that point, was in Tokyo as Supreme Commander, Allied Powers. As soon as he learned of the proposal he warned the War Department that it was "an attempt to secure permanent control by the naval command of the ground and air force in the Pacific basin," which would "render the Army and the Air Force merely adjuncts to and part of a unified defense system known as the Navy." Here, MacArthur demonstrated a long-standing conviction dating from his days as Army Chief of Staff and from a Navy plan that he claimed to have seen back in 1932. The Navy's ultimate aim, he asserted, was to relegate the Army "merely to base training, garrisoning, and supply purposes." Secretary of War Robert Patterson, supporting MacArthur's solution for a Pacific Command if not his rhetoric about the Navy, described the Pacific as a single entity to be organized for the primary mission of controlling Japan. From that perspective, the primary mission in the Pacific was the Japanese occupation, and if there was to be a single commander, it could be none other than MacArthur, who was carrying out that major task.

General Eisenhower had returned to Washington as Army Chief of Staff. His first impulse in February 1946, when unified command plan problems began to surface, was to apply the experiences he'd gained in Europe to solving problems in the Pacific. As Supreme Commander, he'd entered the operational decisionmaking process in the Mediterranean Command during 1943 only when the ground, sea, and air component commanders—all British—presented him with unresolved issues. Building on that precedent, Eisenhower proposed that a single supreme commander in the Pacific exercise only strategic direction, not direct command over ground, sea, and air component commanders. However, during the occupation, he proposed that Japan, Korea, the Ryukyus, and the Philippines constitute an interim separate command under MacArthur. When the occupation ended, a single command in the area would resume, following the Mediterranean precedent of a supreme commander exercising loose control over three component commanders.

General Eisenhower's proposal produced a deadlock among the Joint Chiefs of Staff. It was broken largely because of pressure from Congress and the public, which demanded the elimination of anything resembling the divided command that had existed on December 7, 1941. General MacArthur, who was ten thousand miles away, probably never felt the pressure and never changed his position. But Admiral Nimitz and Eisenhower, through their deputies, worked out compromises and, by September 1946, the War and Navy Departments had agreed to establish a Navy-led Pacific Command under Nimitz and a Far East Command under MacArthur, the latter including Japan, the Ryukyus, the Philippines, and Korea. The final bone of contention, the apportionment of responsibilities for the Bonin and Mariana Islands,

consumed several months as the Army pointed out that MacArthur obviously had to draw on the resources of the islands to carry out his mission and the Navy cautioned against the recreation of the pre-war Pearl Harbor situation with its divided command.

Eventually, the Army and the Navy compromised to split their differences down the middle, but ultimately the naval bid for unity of command by area for the Pacific won out. General MacArthur's Far East Command was purely functional; it disappeared in 1956, after its responsibilities—first, occupying Japan and second, supporting the Korean War—ended. A Navy-led Pacific Command then controlled the whole Pacific basin, but I think it is worth stressing that the CINCPAC's [Commander in Chief, Pacific] domination of command arrangements in the Vietnam War aroused great resentment among senior Air Force and Army officers. Their dissatisfaction recalls MacArthur's observation of 1944 that "neither service fights willingly on a major scale under the command of the other." Field commanders who had to report to the CINCPAC in Hawaii felt that they were, in MacArthur's words, "merely adjuncts to and part of a united defense system known as the Navy."

It seems to me that General MacArthur's reputation has lain in a trough for some years. The school fathered by historian Louis Morton had some very good disciples such as Ronald Spector and Stanley Falk, both of whom have chipped away a good bit of the legend. But, in this instance, MacArthur was probably on the mark about what was driving service attitudes, although it is perfectly clear that he often harmed his own case by personalizing every issue. The style of the following communication to Washington is typical: "If you do this terrible deed of turning the Admiralty Islands over to Nimitz, I have reached the statutory retirement age and I might send in my retirement papers." In spite of an incurable habit of overheating his prose in every message, he, nonetheless, made a sound argument.

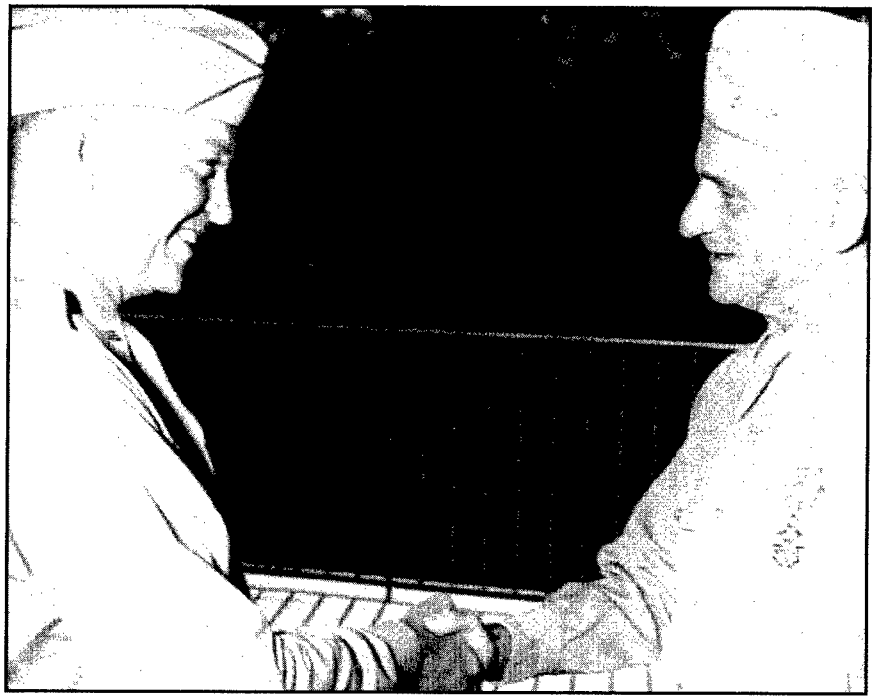
Let us jump to 1974, when Admiral Thomas Moorer, then Chairman of the Joint Chiefs of Staff, privately recorded this feeling: "The Army has vowed . . . never [to] fight a war again for an admiral, and the Air Force has vowed to regain supreme authority over all future air wars." At that time, the Army and Air Force Chiefs of Staff were well-known Vietnam veterans. General Creighton Abrams had served for four years as Commander, U.S. Military Assistance Command, Vietnam, and General George Brown had been Commander, Seventh Air Force. They proposed splitting the Pacific Theater into four geographic commands and turning the Pacific Fleet into a specified command. Moorer believed that the progress of thirty years should not be dumped because the Army and the Air Force had suddenly reversed themselves. He argued effectively that the Pacific was a single strategic entity; whenever any crisis arose, four commands plus a specified

fleet would be endlessly tripping over each other. In fact, he persuaded the Secretary of Defense to keep the Pacific Command intact, and a single Pacific Command still survives, even though the Army, within the last year, has been trying to sell the idea of a separate North East Asia Command. I think it's fair to say that what we have in the Pacific today is in many respects Admiral King's and Admiral Nimitz's idea of a single strategic entity, implemented by General Eisenhower's idea of a supreme commander directing three service components. The CINCPAC acts with a much tighter rein than anything Eisenhower had for-seen—but almost as tight as MacArthur had feared.

Now, I would like to turn to the wartime forerunner of the Strategic Air Command. Just like General Eisenhower, General Henry "Hap" Arnold wanted to apply a European precedent in the Pacific. He drew on the fact that his British counterpart, Sir Charles Portal, acted as executive agent for the U.S.-U.K. Combined Chiefs of Staff in directing the bombing offensive against Germany. In 1944, the Joint Chiefs of Staff approved a charter allowing the Twentieth Air Force to operate directly under them, with Arnold acting as their executive agent in Washington. Arnold was looking toward gaining post-war autonomy for the Army Air Forces and wanted to promote that goal by having a supreme commander in the Pacific with three subordinate commanders, one of whom would coordinate all strategic bombing in Japan. He won the latter point because the Joint Chiefs on July 2, 1945, agreed to organize the U.S. Army Strategic Air Forces in the Pacific under General Carl Spaatz. Spaatz, who had held a similar post in Europe, became the commander and reported to Arnold, who, again, was the executive agent for the Joint Chiefs of Staff. Thus, in the final weeks of the war, there came to be three independent and coequal commanders in the Pacific: MacArthur, Nimitz, and Spaatz. Spaatz, it is worth remembering, commanded a force rather than an area, unlike Nimitz and MacArthur. Consequently, the amount of administrative support required by the Twentieth Air Force and then the Strategic Air Forces from MacArthur and Nimitz remains somewhat murky. The Air Force official history of World War II mentions a series of bureaucratic battles, first between Army and Army Air Forces commanders in Nimitz's theater, then between Spaatz's headquarters and MacArthur's new Army Forces, Middle Pacific, principally over base construction and the assignment of logistical support units.

It is true that the officer representing both Admiral Nimitz's theater and Army Forces, Middle Pacific, was Army Lieutenant General Robert Richardson. Nonetheless, it is clear that a great deal more than Richardson's prickly personality was involved, because in November 1946, when the Joint Chiefs of Staff drafted the first unified command plan, precisely the same question emerged: Exactly who would support whom and under what circumstances? After they resolved the

Pacific Command problem, they still had to deal with the Strategic Air Command. General Spaatz, who'd become Commanding General, U.S. Army Air Forces, proposed that the commanders for Alaska and the Northeast be tasked with "supporting the Strategic Air Commander in his mission." Admiral Nimitz replied that he assumed that any strategic air force outside the continental United States would be assigned to unified commanders. He was applying the long-standing naval concept of command by areas. Spaatz replied that, to the contrary, wartime experience had proved that a Strategic Air Command must be capable of operating globally, which meant applying the Army concept of command by forces or by function. General Eisenhower, again acting as the compromiser, recommended finessing the issue by deferring a decision on what a Strategic Air Command's mission would be. Nimitz agreed to put a Strategic Air Command into the unified command plan, provided it did not control forces normally based in other commands; so the first unified command plan, approved by President Truman and the Joint Chiefs of Staff in December 1946, established the Strategic Air Command responsible to the Joint Chiefs of Staff



Gen. Dwight Eisenhower congratulates Lt. Gen. Carl Spaatz after awarding him the Legion of Merit for outstanding service, September 1943. Spaatz was Eisenhower's top airman in Europe. In July 1945, he arrived on Guam, assuming command of the U.S. Strategic Air Forces in the Pacific, which included the Mariana Islands-based Twentieth Air Force.

and "comprised of forces not otherwise assigned," with its planes normally based in the United States.

Well into the 1950s, the Strategic Air Command stood as a functional single-service command controlling the entire strategic nuclear force. But the advent of Polaris nuclear missile submarines compelled a reexamination of the issues that brought the old disagreement back to the fore. The Air Force wanted to create a functional command, under an Air Force commander in chief, with Navy and Air Force component commanders. But the Navy, ably and forcefully represented by Chief of Naval Operations Admiral Arleigh Burke, argued that the operations of all air, surface, and subsurface Navy forces had to be closely coordinated and controlled. Therefore, Polaris submarines had to be assigned to those area commands that had proprietary interests in naval weapon systems—Atlantic Command, Pacific Command, and European Command. Secretary of Defense Thomas Gates, in August 1960, ruled against creating a unified strategic command. Instead, he gave the Commander in Chief, Strategic Air Command, another job as Director of the Joint Strategic Target Planning Staff, with a Navy deputy under him. Thus, the Air Force's long-standing bid to control all strategic nuclear weapons and their delivery systems failed. Gates' decision certainly was regarded by Air Force officers as a major defeat for them.

Yet, despite the Air Force's disappointment over the way matters turned out, it's worth remarking that the Army and the Navy had to be dragged into participating in the Joint Strategic Target Planning Staff in Omaha, Nebraska. Admiral Burke, in fact, carried his opposition all the way to the Oval Office. President Eisenhower finally had to settle the issue by telling Burke to get on board. Burke responded loyally, sending down orders that he expected whole-hearted cooperation from the Navy. However, it also is fair to say that over the succeeding years the Navy tacitly allowed the Air Force to dominate the Joint Strategic Target Planning Staff. The final outcome, which held throughout the remainder of the Cold War, was really the one that Admiral Nimitz had wanted back in 1946. The Strategic Air Command remained confined to the Air Force and it was largely based in the United States. The exceptions, relatively short-lived, were the rotation of bombers to England and the basing of B–52s on Guam and in Thailand during the Vietnam War. The Navy controlled its fleet ballistic missile submarines through its own naval components of the Atlantic, European, and Pacific Commands.

To summarize, the Pacific experience did in fact prefigure many of the debates and decisions over Cold War command arrangements. The Joint Chiefs of Staff's compromises, first in April and then in July 1945, gave each service its own Pacific-wide command. After the war, the Army and the Navy each wanted a single unified command in the

Pacific, but it had to be one that would protect each service's prerogatives. Admiral Nimitz sought a solution that would keep the Navy unfettered, and certainly over the years the naval position has always been to regard the Pacific basin as a single strategic entity. General Spaatz saw the wartime Strategic Air Forces as the precedent for an independent globe-girdling Strategic Air Command, drawing on the resources of other commands. The Secretary of War favored a single command to support the Army in its task of controlling Japan. General MacArthur tried to bolster the case for such a command by recalling that in the invasion plan for Japan, "the base was San Francisco and the continental United States." General Eisenhower came to recognize that arrangements for leading a coalition in Europe weren't transferable, and he became instrumental in working out compromises that were shaped mostly by precedents set during the last months of the Pacific War.

The Island Campaign

Brig. Gen. Edwin H. Simmons, USMC (Ret.)

My assignment was to cover the island campaigns of the Pacific War, concentrating on the years 1943 to 1945. There is a slight disparity between the program and my topic. According to the program, I am to speak on the island campaign. Obviously, the Pacific War was made up of many campaigns, and 1943 began with the successful ending of the battle for Guadalcanal. The official closing date for that long and brutal confrontation is February 9, 1943. I believe that we are only just now beginning to understand its full importance.

Mine is not the world's greatest map, but it does indicate a major point: There is a great deal of water in the Pacific Ocean, and not much land. It also shows the relative distance between various spaces.

The main point that I'd like to make about Guadalcanal is that it was not just a desperate ground action fought by Marines and soldiers. It was not just an air battle bearing comparison, in both scope and effect to the battle for Britain. It was not just a series of savage sea battles fought mostly at night, pitting American and some Australian ships against Japanese ships in what were largely surface gun and torpedo actions. Guadalcanal was all of those things and much more. No one of the three dimensions—ground, sea, or air—*could* have won that campaign alone, but the failure of any one of them—ground, sea, or air—*would* have lost the campaign for us.

Guadalcanal was the true turning point, in my opinion, of the Pacific War. The Navy, for a long time, looked at Midway because it fit into Mahan's theory of sea power. More and more, however, we have come to realize that the turning point in the Pacific was Guadalcanal. After it, the Japanese never again regained the strategic offensive. The Americans, having fought until that time essentially a defensive war, were ready to assume the strategic offensive, and they did.

The campaign for Guadalcanal tends to overshadow the campaign for Papua, fought concurrently. The Japanese landing at Gona on the northern coast of Papua on July 21, 1942, began the battle for the Kokoda Trail. The Australians stopped the Japanese thirty miles short of Port Moresby, which is painfully close to Darwin, the northern tip of Australia. With American reinforcements, the Australians counterattacked, and, by the end of 1942, they had retaken Gona. The campaign deserves to be remembered. It was a lesser victory than Guadalcanal, but it also marked the end of the Japanese strategic offensive.

We should also remember that in the North Pacific, in August 1942, we occupied Adak in the Aleutians. In May 1943, we landed in

something of a battle at Attu, and by the summer of 1943, the Joint Chiefs of Staff had decided that while a full offensive across the Pacific couldn't be achieved until mid-1944, a limited one could be opened in the Central Pacific in late 1943. Meanwhile, operations northward in the Southwest Pacific would continue.

Early in 1942, the Pacific was divided into four theaters: North; Central; and South Pacific, which, taken together, constituted the Pacific Ocean Area; and the separate Southwest Pacific Theater. Not to diminish the importance of any of these theaters, I feel that it is quite safe to say that the main events of the "big show" to come would take place in two of these theaters, the Southwest Pacific and the Central Pacific; the North and South Pacific theaters withered away in importance as the war progressed. In a very general sense, the Southwest Pacific saw an Army Air Forces war, and the Central Pacific saw a Navy-Marine Corps war.

My title for the big show is, "Two Roads to Tokyo." There is no doubt as to who the leading actor in the Southwest Pacific Theater was. In fact, I would say that General Douglas MacArthur was also the producer and the director. Not everyone, however, would applaud his per-

Gen. Douglas MacArthur, former U.S. Army Chief of Staff. Flamboyant, charismatic, and controversial as leader of U.S. Army Forces in the Far East and Commander, Southwest Pacific Area, MacArthur was often at odds with his naval counterpart, Adm. Chester Nimitz, over service responsibilities in the conduct of the Pacific War.

formance. In the Central Pacific Theater the starring role was less immediately perceptible. Now, Admiral Chester Nimitz was in overall charge, but he did not command the stage the way MacArthur did. If I were to pursue comparing war and the stage, I would say that the Central Pacific was more a repertory company with strong roles played by a number of actors. No single personality completely dominated it.

The script for the Central Pacific was drafted primarily by Navy planners. A scenario had been laid out many years earlier as Plan ORANGE, which foresaw initial losses to Japan and a subsequent westward drive by the United States across the Central Pacific. One who helped draft that scenario was Marine Lieutenant Colonel Earl "Pete" Ellis, who had predicted in 1921 that Japan would attack first:

> It will be necessary for us to project our fleet and landing forces across the Pacific and wage war in Japanese waters. To effect this requires that we have sufficient bases to support the fleet, both during the projections and afterwards.

In 1923, while on a year's leave of absence, Pete Ellis died in the Japanese-held Palaus under still-not-fully-explained circumstances. However, the core of his strategy persisted and found its way into the naval portion of Plan ORANGE.

The script for the Southwest Pacific Theater was much more an improvisation. It was drafted by a staff dominated by the Army, and it was designed to showcase the talents of its star, General MacArthur. I have never much liked the term, "island-hopping," and I do not know if MacArthur ever used it; but it was much used by his admirers, particularly the Hearst and McCormick newspapers, to describe his shrewd selection of landing sites as he advanced up the ladder of islands in the Southwest Pacific. These admirers of MacArthur's tactics—I use the term "tactics" advisedly—were quick to compare them with the presumably thoughtless, headlong actions in the Central Pacific, wherein the Marine Corps and sometimes the Army were thrown against heavily fortified positions in bloody frontal assaults.

The question is: Could it have been any other way? The geography of the theaters themselves, the Southwest Pacific and the Central Pacific, determined which tactics or operational art would be used. The Southwest Pacific offered nearly a land bridge from Australia to Japan, by way of New Guinea, the Philippines, Formosa, and the Ryukyus. By contrast, the Central Pacific was almost all water; its islands were widely separated atolls of coral, each atoll a necklace of tiny islands, most of which were of microscopic size.

The landings conducted in both theaters were amphibious operations in most cases. An amphibious operation as defined by the Joint

Chiefs of Staff was "an attack launched from the sea, involving a landing on a hostile shore." Each word in that definition is important: *an attack launched from the sea involving a landing on a hostile shore.*

However, before we get to the Central Pacific, we must first close out the South Pacific Theater, commanded by Admiral William Halsey. Incidentally, he was always "Bill" to his friends. The nickname "Bull" was invented by the newspapers. After the victory of Guadalcanal, our immediate strategic objective in the South Pacific was to finish the fight for the Solomons. About 560 miles northwest of our airfields on Guadalcanal was the great Japanese air and naval base at Rabaul on the island of New Britain, 445 miles northeast of the Australian and American base at Port Moresby on New Guinea. General MacArthur, in converging advances toward Rabaul, would move along the New Guinea coast; Admiral Halsey would climb up through the Solomons.

In the Southwest Pacific, General MacArthur's domain, our immediate strategic objective was to rid New Guinea of the Japanese. In late June 1943, two separate American regiments, the 112th Cavalry

Adm. William Halsey, Commander, South Pacific Theater, *left*, and Vice Adm. Raymond Spruance, Commander, Fifth Fleet, *right*, on board the USS *New Mexico* off Okinawa in the Ryukyu islands, April 1945.

and the 158th Infantry, took the islands of Woodlark and Kiriwina and gave us bases that put Rabaul much closer to our bombers. At the same time, Australian and American troops pushed out from Buna along the New Guinea coast.

Two Australian units—the 9th Division, in conjunction with a jump by the U.S. 503rd Parachute Regiment on September 4, 1943, and, two days later, the 7th Division—landed successfully near Lae, taking it on September 16th. The U.S. 162nd Infantry and two brigades of Australian infantry took Salamaua on September 12th. A week later, a brigade of the Australian 9th Infantry Division landed at Finschhafen, taking it on October 2nd.

Back in the South Pacific, the next major Solomons operation was on New Georgia in the summer of 1943 primarily by the Army's 43rd, 37th, and 25th Divisions. Then came Bougainville on November 1st. Landing was the 1st Marine Amphibious Corps. It used the 3rd Marine Division in the assault and the 37th Army Division in reserve.

Allied success on Bougainville essentially ended ground fighting in the Solomons. By then, General MacArthur had mounted an attack from New Guinea, across Vitiaz Strait, also known as Dampier Strait, to New Britain. On December 15th, the U.S. 112th Cavalry landed at Arawe, on the southern coast of New Britain, diverting attention from the main landing by the 1st Marine Division at Cape Gloucester, at the western end of the island, on the day after Christmas 1943.

It was a particularly hard, dirty, wet, jungle-fighting battle that went on until the end of April 1944. By then Rabaul, at the eastern end of the island, had been effectively neutralized by air action, and there it was left to die on the vine. Admiral Halsey's line of advance in the South Pacific had merged with General MacArthur's drive up through the Southwest.

Now, for the Central Pacific: It was there that amphibious operations in their purest form took place. The Gilberts and the Marshalls run in a loose chain across the center of the Pacific, little specks of coral arranged in roughly circular atolls. In July 1943, Admiral Nimitz prepared to invade the Gilberts, with a target date of November 15th, and then the Marshalls on January 1, 1944. These operations were to be conducted by the Fifth Fleet under the austere and modest Vice Admiral Raymond Spruance, the victor of Midway. The V Amphibious Force was activated in August 1943 under Rear Admiral Richmond Kelly Turner at Guadalcanal. His alter ego was Marine Major General Holland Smith, commanding the V Amphibious Corps.

The two atolls in the Gilberts group that would be the immediate objectives of the Fifth Fleet were Tarawa and Makin. The landing force for Tarawa would be the 2nd Marine Division. Key to the Tarawa Atoll was Betio Island, two miles long, five hundred yards wide, and in no place more than ten feet above sea level. It was heavily fortified

and protected by a formidable coral reef. The Japanese commander, Rear Admiral Keiji Shibasaki, whose garrison numbered around five thousand troops, confidently announced that the Americans could not take Tarawa with a million men in a hundred years.

The Marines placed their reliance in getting across the reef on their amphibian tractors, or LVTs. Donald Roebling of Florida had invented a tracked vehicle, an "alligator," for rescue work in the Everglades. It became the progenitor of the LVT family of amphibian tractors. The letters LVT stand for "landing vehicle tracked." The thin-skinned alligators had received a brief testing as cargo carriers on Guadalcanal, but had not yet been used as amphibious assault vehicles. The "amtracks" got the Marines across the reef, but at a terrible price. The island was taken in seventy-six hours of bitter fighting. The Mar-ines lost 990 dead and 2,391 wounded. A handful of Japanese were taken prisoner; the rest in the their garrison were dead. To the north, the Army's 165th Regimental Combat Team landed on Makin, garrisoned by around three hundred combat troops, and secured it in three days.

Next on the Central Pacific timetable were the Marshalls, Japanese trust territories since World War I. The first target was Kwajalein, the world's largest atoll. At the northeastern corner of the triangle-shaped atoll were the twin islands of Roi and Namur. These were taken in a three-day battle, beginning on January 31, 1944, by the new

Betio, the key island in the Tarawa atoll, was honeycombed with Japanese defenses. Limited space and flat terrain offered no room for maneuver.

4th Marine Division. Kwajalein Island itself was taken in a four-day operation by the Army's 7th Division. Eniwetok Atoll was occupied by a mixed Army-Marine Corps brigade that landed on February 17th. The rest of the Marshalls were bypassed, to be neutralized by air bombardment for the remainder of the war.

By the spring of 1944, almost anyone with a map could probably have figured out that the next American move in the Central Pacific would be against enemy forces in the Marianas, a distinct chain of islands reaching to the Japanese homeland. On March 12, 1944, the Joint Chiefs of Staff directed Admiral Nimitz to move toward them. His island objectives, to be reached by June 15th, would be Saipan, Guam, and Tinian. Meanwhile, the Japanese base at Rabaul would be isolated and rendered impotent; the South Pacific Theater would be closed out; and the theater commander, Admiral Halsey, would go to sea in command of the Third Fleet.

Guam, the largest and most important of the Marianas, had been American territory since the Spanish-American War. Spain subsequently sold the remaining islands to Germany, which held them until the end of World War I, when they were mandated to Japan. After Guam, the most important islands were Saipan and Tinian. The V Amphibious Corps was to land on Saipan on June 15th and the III Amphibious Corps was to land on Guam on June 18th. A few days later, there was to be a third landing on Tinian, just south of Saipan.

On Saipan, the V Amphibious Corps, then commanded by Marine Major General Holland Smith, had the 2nd and 4th Marine Divisions in the assault. The Army's 27th Division was in floating reserve. The Army's 77th Division was being held in Hawaii in strategic reserve. Saipan was rugged, mountainous, and ringed with coral reefs. The landing was to be on its west coast with the 2nd Division on the left and the 4th Division on the right. American intelligence had estimated that Japanese defenders there numbered about twenty thousand. According to records captured during the operation, there were 25,469 Japanese soldiers and 6,150 Japanese sailors. Saipan was the headquarters of the Japanese Central Pacific Area Fleet under Vice Admiral Chiuichi Nagumo. He was the admiral who had led the raid against Pearl Harbor but had later lost the fleet at Midway. The headquarters of the new Thirty-First Army under Lieutenant General Yoshitsugu Saito was also on Saipan.

The four Marine regiments in the assault landed in seven hundred LVTs behind a wave of new armored amphibians mounting a 75-mm gun. By nightfall, the Marines had established a beachhead about five miles broad and fifteen hundred yards deep. It was clear that they'd be in a much tougher fight than anticipated.

As it happened, by the spring of 1944, the Japanese Navy felt strong enough to once again challenge the American Navy in a deci-

sive battle. On June 15th, D-Day of the Saipan landing, Vice Admiral Spruance received submarine reconnaissance reports that the Japanese fleet had sortied from the Philippines in his direction. Spruance sent out his carriers under Vice Admiral Marc Mitscher to meet them. What resulted was the Battle of the Philippine Sea, better known as "the Great Marianas Turkey Shoot."

A further consequence of the tough going at sea and ashore was the postponement of the landing on Guam, scheduled for June 18th, by the III Amphibious Corps. That unit became the floating reserve for Saipan. The 77th Division was ordered forward from Hawaii.

Saipan, by June 19th, was cut in two, and the Japanese defenders in the southern part of the island were pressed into a pocket. The attack to the north began on June 23rd. The 27th Division had landed and was ordered to move in between the 2nd and 4th Marine Divisions in a shoulder-to-shoulder advance, but it was slow getting started. The lines sagged in the middle, and Marine Major General Holland Smith relieved Army Major General Ralph Smith, who commanded the 27th Division. Repercussions of this Smith vs. Smith relief would keep Holland Smith from having another active combat command for the remainder of the war. His name, Holland M. Smith, invited the nickname, "Howlin' Mad" Smith. This was, again, more a newspaper invention than a true description. Those who knew him best said that

Adm. Chester W. Nimitz, *center* answers questions at a press conference. Attendees included *(left to right)* Marine Lt. Gen. Holland M. Smith, Vice Adm. Raymond Spruance, Rear Adm. Forrest P. Sherman, Admiral Nimitz, and Marine Lt. Gen. Alexander A. Vandegrift, Commandant of the U.S. Marine Corps.

he never really lost his temper. In fact, he told one of his supporters that temper was a tool of command to be used judiciously.

On July 9th, the Marines reached Marpi Point at the northern end of Saipan. Here they witnessed one of the saddest and most gruesome sights of the war. A large number of civilians were persuaded to jump or were pushed over the 220-foot cliff by Japanese soldiers. Some soldiers also jumped, but most preferred the alternative of blowing themselves up with hand grenades. Earlier, both Admiral Nagumo and General Saito had ceremoniously committed suicide.

The battle, except for stragglers, was over. Of more than thirty thousand Japanese defenders, fewer than one thousand had been taken prisoner. Except for a handful of diehard soldiers who hid themselves in jungle-covered hills—and remained there for years—the remaining defenders were dead. American losses in dead and wounded for the land battle were 16,525, of whom 12,924 were Marine.

The retaking of Guam, which had been postponed for a month, came next. The island had formerly been United States territory; thus, its recapture was tremendously important. The III Amphibious Corps, under Marine Major General Roy Geiger, landed on the west coast on July 21st. The 3rd Marine Division and the 1st Provisional Marine Brigade were in the assault, and the 77th Infantry Division, brought forward from Hawaii, was in reserve. The Guamanians now celebrate July 21st as Liberation Day.

Although overshadowed by Saipan, Guam was a tough-fought battle. By August 10th, the Japanese had been pushed to the rim of the northern cliffs overlooking the sea, and the island was declared secured. Japanese losses at Guam were counted at 17,300 killed and 485 prisoners taken. American casualties were 9,041 dead and wounded. Guam was ultimately more valuable as an advance naval base than any of the other islands in the Marianas or possibly in the Central or Western Pacific.

Meanwhile, the landing on Tinian had taken place. Tinian was within easy artillery range of Saipan, lying only three miles away across a channel to the immediate southwest. It was mostly a low, fairly level plateau, densely planted with sugar cane. It offered room for six 8,500-foot B–29 runways. The V Amphibious Corps used the 2nd and 4th Marine Divisions in the assault there, holding the 27th Infantry Division in reserve. There was a good beach on the island's southwest coast, near Tinian Town, but it was too obvious an objective, and reconnaissance showed it to be strongly defended. Two other beaches on the west coast near the island's northern tip were so narrow as to be hardly taken seriously by the defenders.

On July 24, the 2nd Division demonstrated off Tinian Town while the 4th Division made the real landing over the narrow beaches, coming ashore essentially in columns of companies. On the following day,

the 4th Division cleared the beachhead and the 2nd Division landed. Together the 4th Division on the right and the 2nd Division on the left made a shoulder-to-shoulder sweep southward down Tinian's length. By August 1st, all organized resistance had ceased. The death count of Japanese was put at 6,050; there were 235 prisoners. The Marines lost 1,805 dead and wounded. The Americans, with the Marianas in hand, could at last develop the air bases from which the long-range B–29s could reach the Japanese home islands.

As Vice Admiral Spruance moved westward across the Central Pacific, General MacArthur continued his operations in the Southwest Pacific, and, by mid-September 1944, he had completed the long drive up the New Guinea coast. His next objective would be Morotai Island, which lies between New Guinea and the Philippines.

In the Central Pacific, after the Marianas, our next major campaign in the Central Pacific was Peleliu in the battle for the Palaus. The 1st Marine Division landed at Peleliu on September 15, 1944, and what followed there was one of the hardest fought, most brutal battles in the Pacific, one that perhaps was completely unnecessary, as the Palaus had lost their strategic importance. I should point out that the struggle marked the convergence of the two great arms of the Pacific War—MacArthur's, marching northward from the Southwest Pacific and Nimitz's, driving westward across the Central Pacific.

Reconnaissance of the Philippines had indicated that Japanese defenses were much weaker than supposed. Admiral Halsey's Third Fleet seemed able to roam the Philippine Sea at will. A revised timetable moved the reoccupation of Leyte up to October 1944. Under the redoubtable Lieutenant General Tomoyuki Yamashita, "the Tiger of Malaya," the Japanese had 350,000 defenders, but they were scattered among the many islands.

The U.S. Sixth Army, under General Walter Krueger, landed at Leyte on October 20th. General MacArthur had kept his promise; he'd returned to the Philippines. Lieutenant General Yamashita poured in reinforcements. The Japanese Navy planned to annihilate the Third Fleet in an immensely complicated operation, the Battle of Leyte Gulf, which took place between October 23rd and 26th.

In mid-December, U.S. Eighth Army units landed on Mindoro, a small island off Luzon, to set up air strips. General Krueger landed at Lingayen on Luzon on January 9, 1944. The Americans drove south toward Manila, most of which was in ruins before it was cleared. By mid-March, central Luzon was under American control.

Next came Iwo Jima. Think of a bad-smelling pork chop burned black, five miles long, two and a half miles wide, about eight square miles in all. That was Iwo Jima. The bony shank end of the pork chop was Mount Suribachi, at 556 feet, the highest point on the island. Part of the Volcano-Bonin archipelago, a long, skinny string of islands ex-

tending southeast from Japan, Iwo Jima, or Sulphur Island, lay nearly midway on a line drawn from the B–29 bases in the Marianas to Japan, between 650 and 700 miles out. Interceptors from the island's two Japanese-built airfields could threaten the B–29s. The island with its airfields—a third was being built—was well placed as a possible recovery site for B–29s that were damaged or low in fuel after missions over Japan. The B–29s flew at extreme range, facing 200-mile-an-hour headwinds over what their pilots always called "the empire."

Iwo Jima was essentially one huge fortification. Its volcanic rock tunneled easily and its loose black sand combined well with cement to make a first-class concrete. Mount Suribachi, with seven successive defensive galleries, was a fortress in itself. Commanding was Lieutenant General Tadamichi Kuribayashi. His major unit was the 109th Infantry Division. He had tanks, plenty of artillery, everything from mortars to 320-mms to rockets improvised from eight-inch naval shells. In all, Kuribayashi had about twenty-one thousand defenders and a thousand or more heavy-caliber weapons. "Each man will make it his duty to kill ten of the enemy before dying," he told his troops. They had that quotation pasted above the apertures of their pillboxes.

On the American side, the command setup was almost identical to that used for the Marianas. Again, there would be a Fifth Fleet operation under overall command of Vice Admiral Raymond Spruance.

On 23 February, two flags went up over Mt. Suribachi on Iwo Jima.The first, smaller, flag was replaced by a larger flag that could be seen from all over the island. The second flag can be seen being erected in the background, and was the one immortalized by AP photographer Joe Rosenthal.

Rear Admiral Richmond Kelly Turner would again command the Joint Expeditionary Force. Lieutenant General Holland Smith would again be Commanding General, Expeditionary Troops. However, Major General Harry Schmidt, commanding the V Amphibious Corps, would be the actual tactical commander ashore.

The V Amphibious Corps at that point consisted of three Marine divisions. The 4th and 5th would be used in the assault. Both would come forward from Hawaii. The 4th, of course, was composed of veterans of the Marshalls, Saipan, and Tinian. The 5th was a new division, but it was well salted with veterans, including those of the deactivated 1st Marine Parachute Regiment, which had provided a battle-experienced cadre. Floating in reserve would be the 3rd Division, with veterans of Bougainville and Guam.

Because there was no coral reef, landing craft and ships would be able to beach. Because there were prevailing winds from the north, the landing would be across the southeast beaches. H-hour was 0900 on February 19th. The Marines' 5th Division landed on the left, its 4th Division landed on the right. By 0945, all seven assault battalions were ashore. On the left flank, the 28th Regiment turned south toward the slope of Mount Suribachi, enduring four days of fighting before reaching the top. On the morning of February 23rd, a Marine patrol reached the crest, broke out a small flag and tied it to a piece of pipe. Three hours later, the patrol brought up a larger flag, which could be seen all over the island. Five Marines and a hospital corpsman helped put it into position. Joe Rosenthal, an Associated Press photographer, took their picture.

Meanwhile, the main Marine effort had become a slow, grinding advance to the north, with the 5th Division on the left and the 4th Division on the right. The 3rd Division, with the exception of the 3rd Regiment, which stayed in floating reserve, was fed into the center of the line as the island widened and the attack shouldered forward.

Iwo Jima was declared secure on March 26, 1945. In all, 71,245 Marines had been put ashore. American casualties totaled 5,931 dead and 17,372 wounded. The number of Japanese killed was never determined, but of the entire garrison of about 21,000, only 216 prisoners were taken; most of them were Korean conscript laborers.

Was Iwo Jima worth its terrible cost? I suggest that you ask any B–29 crew member, and he will tell you. By the end of the war, 2,251 American heavy bombers, with crews totalling 24,741, had found reason to make emergency landings on the island.

Now, let us move on to Okinawa, the largest and most important of the Ryukyu Islands in another one of those archipelagos. This one stretches from Kyushu eight hundred miles southwest to Formosa, as Taiwan was then called. In 1945, nearly half a million people lived on the island. They did not regard themselves as Japanese at that time.

Okinawa is sixty miles long and from two to eighteen miles wide. The northern part was wild and mountainous. The southern part was more open, given to heavy cultivation, but it was still hilly, with a series of ridge lines cutting across it from east to west.

Landing day would be Sunday, April 1, 1945. Once again, it was a Fifth Fleet operation commanded by Raymond Spruance. Richmond Kelly Turner would again command the Joint Expeditionary Force. One familiar face was missing. Holland Smith was out of this one. He was back in Hawaii, kicked upstairs to the administrative command of the Fleet Marine Corps Pacific as a consequence of the Smith vs. Smith altercation on Saipan. The new U.S. Tenth Army under Lieutenant General Simon Bolivar Buckner would be the landing force. It would have two corps: the XXIV Corps with five Army divisions, and the III Amphibious Corps with three Marine divisions.

Ashore, Lieutenant General Mitsuru Ushijima commanded the Japanese Thirty-Second Army with a strength of about seventy-seven thousand. These, with naval forces present and around twenty-thousand Okinawan conscripts, totaled more than one hundred thousand defenders. The Japanese had learned well a hard lesson: It was futile to defend at the shoreline against overwhelming American strength. Ushijima planned a defense in-depth, his main strength in the south with three major defense lines following the east-west ridge lines: the

Okinawa was the final climactic battle of the Pacific War. Unlike most of the island battles, Okinawa was fought in a populated area. Here Marines go after a Japanese sniper firing from the ruins of a church.

Machinato line, the Shuri line, and a final line in the very south of the island. Ushijima put his headquarters under historic Shuri Castle, once the home of Okinawan kings.

Lieutenant General Buckner planned to land his two corps, each with two divisions, abreast on the western side of the island's narrow waist on Easter Sunday. The first wave hit the beach at 0832, two minutes behind schedule. The Army and the Marines braced themselves for the enemy's reaction, which was nothing more than a few mortar shells and a sprinkling of small arms fire. By noon, two key airfields behind the landing beaches had been captured, Kadena by the Army and Yontan by the Marines. By nightfall, fifty thousand troops were ashore. The expected Japanese counterattack didn't come.

There was no serious resistance during the first week of April. Both corps crossed the island almost without contact. Unknown to the wondering Americans, by Japanese plan, the decisive land battle was to be avoided until the U.S. invasion fleet had been destroyed by combined sea and air action.

On April 6th, the Army's 7th and 96th Divisions ran into the outer rings of the concentric defenses at Shuri Castle. Torrential rains known as "the plum rains" were turning the front into a sea of mud. Lieutenant General Ushijima finally launched his counterattack on the night of April 12th. It went off piecemeal, however, and was easily absorbed by the XXIV Corps. On April 15th, the 27th Division, which you remember from Saipan, moved in on the right flank of the XXIV Corps' front.

Meanwhile, the III Amphibious Corps had been operating in central and northern Okinawa. The Marines had a rather easy time of it. Despite a fairly tough fight for Motobu Peninsula, they encountered nothing much more than counterguerrilla actions. On April 24th, the 1st Marine Division went into the Tenth Army reserve, while the 6th Marine Division continued operations against residual Japanese defenders in the north. At the end of April, the Army's 77th Division, veterans of Guam, having finished up offshore operations, moved into the line to relieve the 96th Division. The 1st Marine Division began to relieve the Army's 27th Division. Lieutenant General Ushijima tried another counterattack to coincide with the fifth major *kamikaze* attack on May 3rd. By nightfall he knew it had failed.

On May 7th, the III Amphibious Corps was given responsibility for the 1st Marine Division's zone of action. The 6th Marine Division came down from the north, moved in on the right, or seaward, flank of the III Amphibious Corps' half of the line. The Tenth Army launched a two-corps attack on May 11th. The Japanese held firm in the center. The Army's 7th Division, on the left flank, reached the town of Yonabaru, and the Marines' 6th Division, on the right flank, reached the outskirts of Naha, the capital of Okinawa.

Lieutenant General Ushijima elected to withdraw to his third and final line on the southern tip of Okinawa. His new position was a pocket of eight square miles, well-laced with natural and artificial caves. By that time, most of his front line units had been used up, but he still had around thirty thousand men.

The Tenth Army launched what was to be the final attack on June 18th. Lieutenant General Buckner came up to watch from the regimental observation post of the 8th Marines, newly arrived from Saipan. Five Japanese shells landed on it at about 1300. A piece of rock was thrown up that hit Buckner in the chest. He died within a few minutes. Major General Roy Geiger, leader of the III Amphibious Corps, moved up to temporary command of the Tenth Army, the first Marine general to do so. Lieutenant General Joseph Stilwell, "Vinegar Joe" of China-Burma fame, arrived on June 23rd, and took over command of the Tenth Army.

American estimates of enemy casualties were 142,000, including 11,000 prisoners of war. In that number of casualties, unfortunately, were a good number of Okinawan civilians. In turn, the Tenth Army lost 7,613 killed or missing in action and 31,800 wounded.

The land campaign to secure the Philippines was still under way. Some of the islands were taken at small cost, but in the southern Philippines, the Japanese put up a stiff fight on the large island of Mindanao and still had significant forces in the back country of Luzon.

Soldiers of the 7th Division and Marines of the 1st Marine Division join in a jubilant celebration of a ceremonial flag-raising atop Hill 89 on Okinawa. The sign reads "Within this hill is sealed the command post of Lieutenant General Ushijima of the Japanese Army, surrounded by his senior officers, made his final stand. This hill was seized by troops of the 7th Infantry Division on 21 June 1945, thus ending the battle of Okinawa.

Before it was over, the Philippines would cost the Americans 62,000 casualties, including almost 14,000 killed. The Japanese loss would be 350,000, counting the large number of prisoners.

The development of Okinawa as a major naval air base had already begun. In prospect, for the fall of 1945, was Operation OLYMPIC, the invasion of Kyushu. It was to be followed by Operation CORONET, which would put us ashore on Tokyo plain in the spring of 1946. These would be the ultimate island campaigns.

Then came news of the atomic bombs dropped on Hiroshima and Nagasaki. On August 10th, the Japanese agreed to accept the terms of the Potsdam Declaration. On August 14th, Admiral Nimitz sent out an order from his headquarters on Guam: "Offensive operations against the Japanese forces will cease at once." For those of us in the ground forces, that was the way the war in the Pacific ended.

Audience Participation

Audience member: My name is Mickey Russell. I'm a former Marine at the Air Force Historical Research Agency at Maxwell [Air Force Base]. My first book was *Iwo Jima* for Ballantine's World War II series, and in my research I discovered that the Joint Chiefs of Staff at one point entertained using poison gas on Iwo Jima. They vetoed the idea as too harsh and cruel. Did they ever consider using poison gas on Okinawa or in the invasion of the home islands?

Brig. Gen. Simmons: The idea of using poison gas was put to rest after Iwo Jima. We'd declared that we wouldn't use it. It was reported that the Japanese had used it in northern China, and then President Roosevelt had categorically said that we wouldn't use poison gas except in an extremist defense. He said it quite early in the war. So we were sort of locked into that. Holland Smith, after the war, argued that we *should* have used poison gas at Tarawa and also at Iwo, that it wasn't necessary to use all of the ground forces.

Audience member: I think that there's a very important distinction in the recommendation for poison gas on Iwo Jima from the other examples you mentioned. The Japanese had evacuated all of the civilians from Iwo Jima. Those who remained before we got there were soldiers. Some were conscripts, but they were all soldiers. Given the size of the island, as the general just indicated, if the gas was blown by the wind, it could go nowhere else but to the ocean.

Okinawa and the home islands were in a fundamentally different situation. Number one, there were lots of civilians around. Number two, if the gas was blown by the wind, it would go not to the ocean, necessarily, but into populated areas. I'm not disagreeing at all with

what you said about President Roosevelt's views, but I think as the military considered the use of gas, this distinction between Iwo and Okinawa on one hand and Japan on the other also was very much on their minds at the time.

Brig. Gen. Simmons: I'd like to build on that. What I said is completely consistent with what you said earlier about the World War I mindset. Holland Smith was a veteran of fighting on the Western Front. Cates, who commanded the 4th Division, was one of the heroes, and Schmidt had also fought on the Western Front. Gas was a known commodity to them. They'd lived through it, considered it a legitimate weapon.

Cates was one of my favorite Marine generals. He was a cigarette smoker and he always used a filter, a long holder, as sort of protection for his gas-damaged lungs. I don't know what killed him, whether it

Mass graves of U.S. Marines, Iwo Jima, March 1945. Although valiantly "softened up" for seventy-five days by Saipan-based U.S. Army Air Forces and Navy bombardment, the well fortified, dug in, and skillfully hidden Japanese, 21,000 strong, were were still able to inflict the most devastating casualties of the island campaign on U.S. Marines battling up Iwo Jima's steep volcanic beaches and ridges. The Marines captured the island, a key objective, after more than a month, against fanatical resistance, but at enormous cost.

was the gas or, eventually, the cigarettes, but he did die of emphysema. A lot of those individuals had emphysema as a result of gas. As to Smith and Cates, why not use gas? But I think the political considerations were much larger, although I agree that this was a perfectly legitimate military target.

I don't want to use up the rest of our time, but I got involved in this in the Vietnam War when we first used CS [tear gas] to get the Viet Cong out of their holes. It was a big thing in the States, that is, poison gas being used against the Viet Cong. Actually, CS *would* kill you, as we found out at Waco. If you pumped enough CS into a bunker with no ventilation, you found Viet Cong as blue as your uniform.

You've touched on a very interesting subject. Incidentally, as you probably know, Joe Alexander has now written a new book on Tarawa in which he brings up the poison gas question and also a lot more information from the Japanese perspective.

Audience member: Apparently there was serious consideration given to our using poison gas in Operation OLYMPIC, not as an aerial weapon but on the ground where you go in and you throw it into a cave and clean out the cave.

Brig. Gen. Simmons: There's a great deal of hypocrisy in war. You *don't* use poison gas, but you *do* use flamethrowers and white phosphorous and napalm.

Audience member: Tell us about "Vinegar Joe."

Brig. Gen. Simmons: Oh, "Vinegar Joe." The clue to him came earlier in something that Walter Poole said about the April 3rd decision on the command structure for the Pacific, which more or less followed MacArthur's desires. It was decided to put all of the naval forces under a Navy commander and to give MacArthur all of the Army forces. There was a big changeover there.

Richardson, as Army forces commander in the Pacific, had only administrative command. MacArthur had operational command, so the Tenth Army would be under him, but not until the end of ongoing operations. That was the way the directive was worded. Okinawa had been underway for three days. MacArthur was rankled by the fact that Buckner, whom he considered to be Nimitz's man, was running the battle and, according to MacArthur's lights, not running it very well.

Stilwell, having come out of Burma, had gone back to Washington as commander of ground forces. He chafed at this desk job and wanted a field command. He persuaded Marshall to allow him to go out to the Pacific, ostensibly for a reconnaissance of sorts to determine the redeployment there. Actually, he went to find a command for him-

self. He met with MacArthur in Manila on June 18th, on the same day, although neither of them knew it, that Buckner was killed. MacArthur wanted Stilwell as his chief of staff. That wasn't what Stilwell had in mind. He held out for a field command. He was even willing to take a division. MacArthur wasn't at all satisfied with what Buckner was doing with the Tenth Army, so he promised it to Stilwell for the invasion of Kyushu. With that promise, Stilwell continued his trip, went on down to the Marianas, and there he learned that Buckner had been killed. He then sent a message to MacArthur, asking, "What are your orders for me at this time?"

MacArthur did a very curious, perverse, but typical MacArthur thing. Marshall asked him which one he wanted to take over the Tenth Army and offered him any of the generals, the greats of the European War—Patch, Patton, Devers, Bradley were all on the list. MacArthur replied that he'd really like to have Griswold, one of his corps commanders in the Philippines. He said, "If I can't have Griswold, I'll have this fellow, Stilwell."

Of course, from the Marine Corps' point of view, the Army wanted to get an Army general out there as soon as possible. Also, from perhaps the Army's point of view, Geiger knew it was going to happen, so he said: "The battle's over."

The Tenth Army was going to Honshu, not Kyushu. But, as soon as Stilwell got it, MacArthur pulled out all of its combat units and assigned them to the two other armies going to Honshu. Therefore, Stilwell would then just be commander of the islands and the administrative and support forces. MacArthur wasn't about to give in to Marshall or have Marshall's man commanding anything in his area.

Intelligence Methodologies in the Pacific War

John Prados

When people think of intelligence in the naval Pacific War, they usually focus on one of two instances, either Pearl Harbor or Midway. The first, Pearl Harbor, is an instance of surprise attack, where United States fleet forces were trapped as a result of poor warning. The debate over whether that warning could or should have been better still goes on. The second, Midway, is an instance where, by means of breaking enemy codes, one side proved able to gain a tactical advantage in battle and went on to decisively defeat its adversary. Both battles occurred within months of each other and during the first period of the Pacific War. Also, both battles, as episodes in an intelligence war, have been known for a very long time—Pearl Harbor since immediately after the war and Midway within about a decade after.

It is high time we reviewed the history of World War II and filled in the record on intelligence's contribution to the fight. Intelligence didn't go to sleep after Midway, and in some respects its role proved at least as important in the later stages of the war as in that particular battle. Moreover, the declassification of documents and other material from the period now makes possible as a practical matter the rewriting of the history of the period. In addition, we need to go beyond codebreaking to see intelligence in the Pacific as an integrated whole.

We have the data and we have the interrogations of people who were captured or deserted. Without aerial reconnaissance and photography, without the other staples of intelligence, codebreaking by itself is much less meaningful than historians often think. I am going to give two examples here—one that shows how analysis is important and one that shows how different kinds of intelligence operate together synergistically—beyond simply codebreaking or any one kind of intelligence operating by itself. Both examples are taken from my book, *Combined Fleet Decoded: The Secret History of American Intelligence and the Japanese Navy in World War II*.

The first example concerns the Japanese land-based air force, the First Air Fleet, that fought us at the Battle of the Philippine Sea. As you probably know, the title First Air Fleet was applied to the Japanese carrier task force that attacked Pearl Harbor in 1941. Two years later, in 1943, the Japanese created a new First Air Fleet, but it would be nothing like the carrier-based air force that preceded it. It would be a land-based air force, part of a big plan to fight a decisive battle against the United States. This new First Air Fleet was formed in Japan in the summer of 1943. We never met it in combat until the

spring of 1944 when Task Force 58 mounted carrier air raids against Palau and the Japanese bases in the western Carolines.

By then, we knew about it because of intelligence. Now, it just so happens that throughout the war Japan was very concerned about its northeastern sea frontier. Maybe because of Doolittle's raid in early 1942 or Halsey's first carrier attack on Marcus Island in early 1943 or because of its lack of a natural defensive line, Japan remained very concerned about that quadrant of its defenses. There was no barrier of islands; Japan had to be defended actively as opposed to passively.

On at least five different occasions during World War II, the United States, striking one of the islands in the northeastern quadrant or just sending a ship out to dispatch messages, provoked a reaction, provoked a positive response, and one of these took place in October 1943. An American cruiser actually had gone out into the Northwest Pacific. As a result, the Japanese fleet command ordered the First Air Fleet, which at that time was training on bases in the home islands, to use its attack elements against this supposed American fleet. If it hadn't happened that the commander of the First Air Fleet, Kakuta Kakuji, had resorted to the radio to send out warning messages to units under his command, we wouldn't have known this, but he did.

On October 17, 1943, the daily radio summary of our Washington command and its combat intelligence unit carried a notation that there was a First Air Fleet in the Japanese order of battle and that it was apparently a new organization. Nothing else happened. There were no other indications about this organization until around Christmas 1943, when a request was put over Japanese command circuits that ships be provided for rescue purposes in the movement of the First Air Fleet to the Philippines.

Because we paid attention to the Japanese air order of battle, when we discovered the numbers of air units associated with the First Air Fleet, we were able to build a better understanding of what the fleet was; and because we analyzed the decrypts and did not just throw them in a pot somewhere, we derived a better understanding of what the intentions and capabilities of the fleet were.

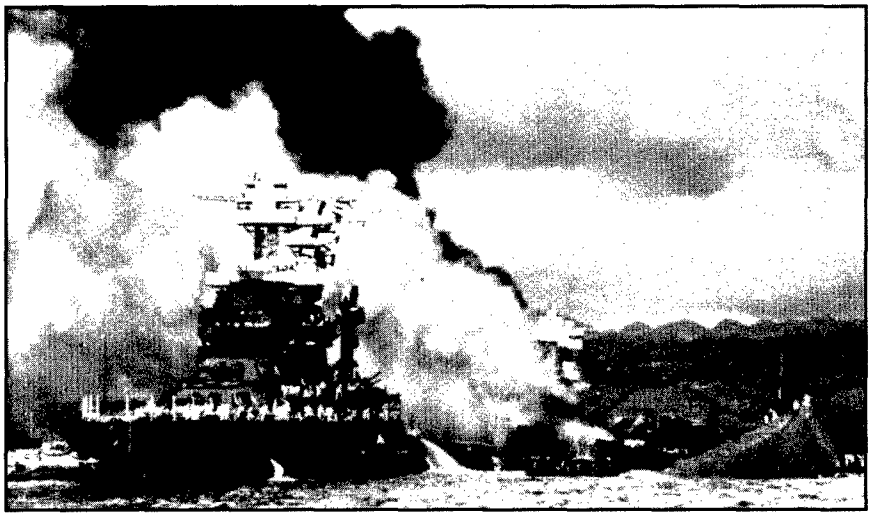
By late January 1944, the Combat Intelligence Center in Washington was on record with its analysis of the Japanese First Air Fleet's proposed move down to the Philippines, giving five different reasons for it and hypothesizing about how the Japanese would use the fleet thereafter. But, that particular analysis was wrong because it still assumed that the First Air Fleet was a training organization, and it was debated by American intelligence agencies in typical American intelligence agency fashion, with a Washington component and a Pearl Harbor component, which basically scrubbed the intelligence.

Within a week or ten days of that wrong appreciation, intelligence at Pearl Harbor put forward another argument, which was actu-

ally correct. It identified nine out of the ten air wings, or, in Japanese terminology, groups, within the First Air Fleet's major component, and it identified them as combat units. It was wrong on only one other unit in the entire air fleet. Intelligence at Pearl Harbor clearly showed that the First Air Fleet was a combat organization that would move to fight the United States. Before its deployment and before they ever met it in combat, the Americans had the drop on the First Air Fleet, not just because they broke, and thus understood the meaning of, a coded message. They had an organic understanding of how intelligence knowledge is developed and how its different parts are put together.

My second example deals with synergism, synergism in different kinds of intelligence. Again, in the Battle of the Philippine Sea we had knowledge of the First Air Fleet. It is often said that Midway was a great intelligence triumph. If you talk to people who've read about the Pacific War, historians excepted, of course, they often point to Midway or Pearl Harbor if you want to know about intelligence and that war. But I would argue that Philippine Sea was an even bigger intelligence coup because of our knowledge, which was even better than it was at Mid-way, and because of this kind of synergism. We knew about the First Air Fleet, a major component in the Japanese operational plan. We had the operational plan, and that was not the result of code-breaking at all; it was the result of guerrilla activities.

When our fleet raided Palau, members of the Japanese fleet command were there and they managed to escape by aircraft, one of which disappeared and was never seen again. The other crashed in the Phil-



Pearl Harbor, December 7, 1941, an American intelligence disaster. A U.S. Navy vessel berthed along Battleship Row, becomes an exploding, fire-ravaged tomb under Japanese surprise aerial attack.

ippines. The Chief of Staff of the Combined Fleet was carrying documents. They ended up in Australia, where they were translated by the Allied Translator and Interpreter Section, which was a part of General MacArthur's intelligence organization.

There was another piece of synergism. A translation of captured documents led us to important knowledge of the Japanese fleet and its planning. We not only learned of its intended general operational scheme, we also got inklings of how it intended to go about doing such things as using part of the force as a decoy and operating a large-scale carrier air group in the American fashion. These were both expressed in the documents that were captured.

There were specific predictions, based once again on analysis in Seventh Fleet intelligence, that is, General MacArthur's intelligence, of how the Japanese would respond when we moved up against Biak or the Marianas. These predictions gave operational commanders and other intelligence officers something to work with when they were to keep their eyes open for specific indicators.

Then, we had mobile radio units, small detachments that sailed on task forces with the ships, and they gave us information. Mobile radio units overheard when Japanese search planes flew over the harbor we had just left and allowed our operational commanders to know that the enemy was aware that we were underway. Mobile radio units overheard when Japanese search planes actually sighted our carrier task forces, so we had knowledge of the first time they learned of our presence. Mobile radio units then overheard Japanese search planes and strike teams on the day of the battle check their communications link so that we had knowledge of when the enemy was actually sending out aircraft missions.

Then, we had reconnaissance from our submarines stationed off the ports from which the Japanese were leaving. The submarines sighted the enemy fleet when it left, gave us progress reports on its steaming up from Tawi Tawi through the Philippines and out into the Philippine Sea, with the result that we had a constant series of progress reports on how the Japanese were coming along.

Then, we had general radio intelligence, when members of the Japanese Combined Fleet Command sent out their orders activating the operation against our Marianas attack. We overheard *that* at the Washington and Pearl Harbor levels. It was decrypted and our forces were informed that the Japanese had activated their major operation.

In other words, in the Battle of the Philippine Sea, we knew their plan; we knew their forces; we knew when their forces left; we knew they knew when our forces left; and we knew when they attacked and when they closed in. These were all different parts of operating forces and intelligence forces cooperating with a synergism that's much greater than the simple decryption or decoding of a document.

So the overall point here, really, is simply that you should not just focus on the records that are coming out right now. You need to keep in mind all of the different aspects of the instrumentality that you think of when you think of the word intelligence. For the few minutes we have left, I will be glad to entertain any questions.

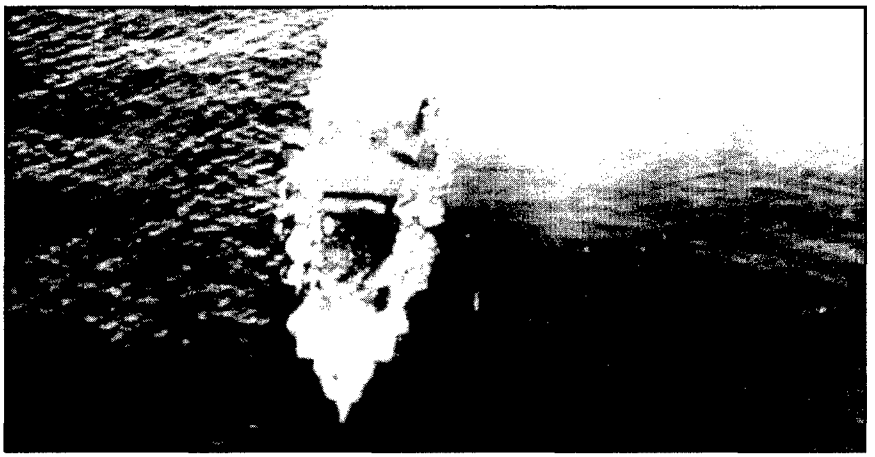
Audience Participation

Audience member: Well, if we did so well in the battle, why a few months later did we do so poorly at Leyte Gulf?

Dr. Prados: Ah, therein lies a tale.

Audience member: Was that a planted question?

Dr. Prados: No, actually that was a misappreciation. Part of the problem was precisely that we'd done so well. The fleet estimate that was put together after Philippine Sea assumed that the Japanese wouldn't be able to undertake another major fleet operation for at least six months. That assumption was based on our understanding of how long it took the Japanese to train carrier air groups. The difference—and this was just the first of the things that went wrong at Leyte—was that the Japanese, understanding that their carrier force had really come to the end of the road, changed their operating plan and decided to make a surface gunnery attack. Our intelligence estimate, thinking *air*, therefore was wrong; and, at the first level, our intelligence people had less good knowledge of what indicators to look



The Battle of Midway, June 1942, an American intelligence triumph. The *Hiryu*, pride of the Japanese First Carrier Striking Force, mortally wounded by the USS *Enterprise* Dauntless dive-bomber attacks, begins to sink.

for. That was number one, and number two was the question of the Japanese approach to the battlefield. We made pretty good plans, actually, to see the Japanese approach in the Philippines and even though we didn't expect a major sea battle, we did expect a Japanese naval reaction to the Philippine operation. So, there was an air plan and there was a submarine plan, just as at Philippine Sea, to detect Japanese forces coming up into Leyte Gulf. We did detect them, but something was wrong with the message. When the Kurita fleet steamed up from Singapore, it stopped at Brunei, on the northern coast of Borneo, on its way to the Philip-pines. Apparently, just as the fleet reached Brunei, it was sighted by American aircraft, and that sighting report went up the chain of command and was lost somewhere.

I've yet to discover what actually happened to the sighting report, but it *is* there, and there *is* evidence of it from both Japanese sources and in Franklin Roosevelt's presidential papers. So the report was clearly in the U.S. command chain, but nobody did anything about it. When the Kurita fleet continued and actually went through the Philippines, there was another one of those miscarriages where at the last moment it could've been sighted by a Catalina flying boat doing its nightly reconnaissance up the eastern coast of the Philippines. That night, the plane turned back a little bit short, so we missed the fleet's going through the San Bernardino Strait; and then it was out there next to the escort carriers the following morning.

And there are other aspects to Leyte Gulf as well, including a bit of a surprise—those hybrid battleships, *Ise* and *Hyuga*. In fact, we knew about them. We'd captured a sailor from a Japanese light cruiser who told us about them and they were in our regular reporting months before the battle, but nobody noticed them that day.

Audience member: In the research for your book, how about photo reconnaissance intelligence? Is that difficult to access relative to the codebreaking or other information out there? How did you find it?

Dr. Prados: It's difficult to access if you're looking for photography, but information about photo intelligence isn't that difficult to find. We actually did a study of Japanese photo intelligence at the end of the war. I found it quite interesting. Their photo intelligence was, as you might expect, much less developed than ours. Our standard for combat planning was to take pictures on a scale of one to five thousand, and most of their pictures were one to fifteen thousand, one to twenty-five thousand, maybe one to fifty thousand. Only their very special emergency requests went down to one to eight thousand, which already wasn't up to our standards. And, they produced fewer than five hundred cameras throughout the whole war for aerial pho-

tography. You can see that although they began to service that function, they never gave it the emphasis necessary, and I think their intelligence suffered as a result.

Audience member: How about our aerial photography? Were you able to use it?

Dr. Prados: I didn't use pictures. I compared their systems and I talked about our systems to some degree and I mentioned specific instances where photography was of some importance, but I didn't go into a detailed analysis of our aerial photography.

Audience member: Was it simply that we didn't know what they were going to do?

Dr. Prados: That must be another planted question. As a matter of fact, there's a very interesting question there, and not the one you might suppose, either. The officer of the mobile radio detachment on Vice Admiral Spruance's flagship recalled to me that on the afternoon of that battle, he'd gone to Spruance and said, "You know, sir, we're trying to chase these Japanese ships; this is really what we're about here. Then he said, "Why don't we leave a couple of the light carriers behind to pick up all the guys from the strike and press on with the rest of our force?" So the question was actually posed to Spruance, but he rejected that recommendation. We still don't know why he did so.

Audience member: What other sets of data are about to come to light that you know of and what still remain secret?

Dr. Prados: The photography itself is probably the next major source that will become available to historians. Up until now, mainly codebreaking material has been kept back. To a great degree, a lot of the other stuff is in the record and has been in the record for a long time. In fact, I made major use of documents that had been in the record since 1946, but apparently hadn't been consulted since then. Now that the CIA [Central Intelligence Agency] has, in fact, declassified reconnaissance satellite photography up to 1972, I don't see where there's going to be much more of an obstacle to releasing standard combat photography from World War II.

Audience member: Can anybody use it?

Dr. Prados: Well, yes, Dino Brugioni can use it.

The Sea War against Japan

William S. Dudley

The Pearl Harbor attack of December 7, 1941, awakened the United States to both the ruthlessness of Japan and the importance of carrier aviation in mid-twentieth century warfare. The capital ship of World War II would be the aircraft carrier, not the battleship. Less heralded was the American submarine, which would also change the nature of warfare in the Pacific. Operating independently for the most part, these dark, silent vessels would eventually cut off Japan from its sources of supply.

Simultaneously with the Pearl Harbor attack, the Japanese set in motion operations to seize Wake Island, a tiny American possession about 2,300 miles west of Honolulu and 2,989 miles from Japan. Within hours of the attack on Pearl Harbor, Japanese land-based planes subjected Wake to the first of what would be almost daily bombings. On December 11th, Commander Winfield Cunningham's garrison very soundly repulsed a Japanese invasion force, sinking two destroyers and damaging six other ships. For almost two weeks, Americans thrilled to the news of "the magnificent fight" displayed at Wake. Admiral Husband Kimmel and his interim successor, Vice Admiral William Pye, planned a relief expedition to be supported by three American aircraft carrier task forces. Rear Admiral Frank Jack Fletcher would command one force, formed around the carrier *Saratoga*, which was delivering reinforcements. Vice Admiral Wilson Brown, Jr.'s, *Lexington* force and Vice Admiral William Halsey's *Enterprise* force would execute diversionary missions.

When news of a Japanese predawn landing, unfolding on December 23rd, reached Pacific headquarters, however, Vice Admiral Pye ordered Rear Admiral Fletcher to return to Pearl Harbor. Covered by planes from the Japanese carriers *Soryu* and *Hiryu*, the enemy landing force of a little over nine hundred men overwhelmed the gallant defenders. Pye's decision not to engage the Japanese at Wake proved wise, in view of the lack of hard evidence as to their strength. The U.S. Navy hadn't yet learned to deploy its carriers en masse.

Another tragedy befell the U.S. Navy soon after Pearl Harbor. Admiral Thomas Hart's Asiatic Fleet, composed of obsolete and outnumbered ships and virtually denuded of land-based air cover by the early destruction on the ground of the Far East Air Force, fought a gallant delaying action in concert with fleets of the American, British, Dutch, and Australian Command. Although they met with limited success at both Makassar and Badoeng Straits, the Allies suffered major

defeats at the Battles of the Java Sea and Sunda Strait at the end of February 1942. Soon, the Japanese controlled the Dutch East Indies.

Admiral Ernest King, the Chief of Naval Operations and Commander in Chief, U.S. Fleet, and Admiral Chester Nimitz, the new Commander in Chief, Pacific Fleet, after Pearl Harbor, pursued a strategy to throw the Japanese off balance. At the same time, they worked to strengthen U.S. naval forces on the communication line between Hawaii and Australia via the island groups of the South Pacific. The Japanese had established bases on the Caroline, Marshall, and Gilbert Islands, but not yet on the Solomons.

To protect the vital United States-Australia line of communication, Admiral Nimitz pursued a carrier covering and raiding strategy. After Vice Admiral Halsey's *Enterprise* task force and Rear Admiral Fletcher's task force, formed around the carrier *Yorktown*, had escorted transports carrying U.S. Marines to American Samoa, the two carrier forces raided the Marshall and Gilbert Islands on February 1, 1942. Halsey's task force then hit Wake Island on February 24th and Marcus Island on March 4th. On March 10th, another task force under Vice Admiral Brown, formed around the carriers *Lexington* and *Yorktown*, launched aircraft that flew over the daunting Owen Stanley Mountains, battered a Japanese invasion force off Lae and Salamaua on New Guinea's north coast, and intruded boldly into the area that the Japanese thought they controlled.

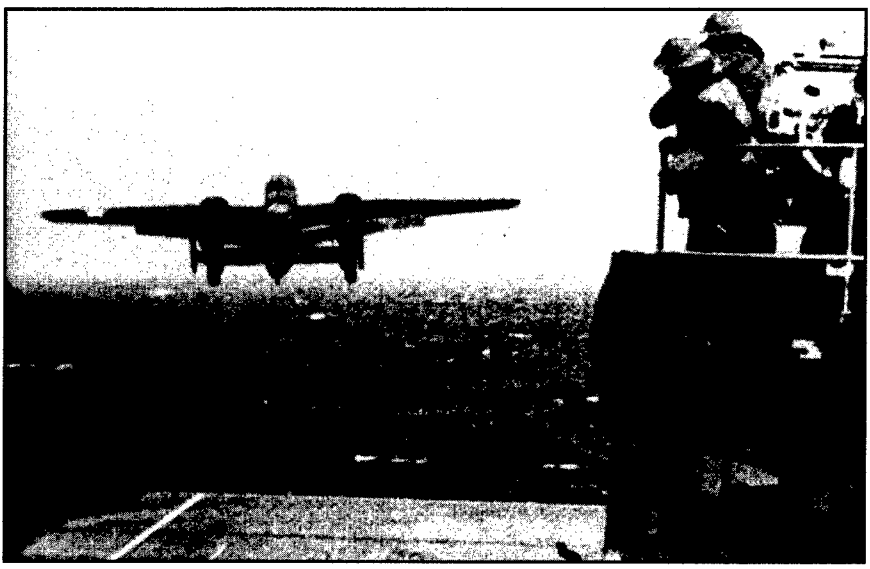
This hit-and-run strategy reached its climax with the dramatic and innovative Halsey-Doolittle raid. In late March, sixteen U.S. Army Air Forces B–25 medium bombers were lifted on to the flight deck of the carrier *Hornet* in San Francisco. Departing in complete secrecy, *Hornet* rendezvoused with Vice Admiral Halsey's *Enterprise* in the North Pacific. Halsey ordered the launch of Lieutenant Colonel James Doolittle's bombers earlier than planned when Japanese picket vessels reported sighting the task force six hundred miles from Japan. While the raid on Tokyo did little damage, it caused acute embarrassment to the Japanese high command and diverted Japanese defense forces into fruitless search activities. It also boosted American morale at a critical time. The psychological effect of the raid on the Japanese proved profound. Having failed to protect the home islands, Admiral Isoroku Yamamoto, Commander in Chief of the Combined Fleet and architect of the Pearl Harbor attack, regarded the raid as a personal defeat. The Japanese Navy and Army staffs quickly united in favor of an attack on Midway.

Meanwhile, Admiral King's cryptanalysts learned by deciphering the Japanese naval code that the enemy was planning a major fleet penetration of the Coral Sea and an attack on New Guinea's Port Moresby. This endeavor would pose a grave threat to American bases on Samoa and New Caledonia and to the United States-Australia line

of communication. American intelligence also learned that the enemy planned to establish an air base at Tulagi in the Solomons.

In response, Rear Admiral Fletcher's task force, formed around *Yorktown* and *Lexington*, advanced into the Coral Sea. *Yorktown*'s planes hit a small Japanese force off Tulagi on May 4th. On May 7th, planes from *Yorktown* and *Lexington* sank the small carrier *Shoho*. Japanese carrier planes, however, crippled an oiler and sank a destroyer. On May 8th, however, the first aircraft carrier battle in history occurred. Japanese planes damaged both *Yorktown* and *Lexington*, the latter so badly she had to be scuttled by an American destroyer. U.S. carrier planes, though, damaged the carrier *Shokaku* and severely battered the carrier *Zuikaku*'s air group, effectively knocking both flattops out of action for some time. Most important, the battle set back the Japanese effort to capture Port Moresby from the sea.

Before the Battle of the Coral Sea, Admiral Yamamoto had decided to lure Admiral Nimitz's fleet into the Central Pacific and destroy it in a major fight. He planned to attack Midway Island by air, seize it with amphibious forces, and, thereby, induce Nimitz to countermove in force. Simultaneously, other Japanese units would attempt to divert American attention by thrusting toward the Aleutian Islands in the North Pacific. Thinking that *Yorktown* as well as *Lexington* had been



First Tokyo Raider off the deck. Lt. Col. James Doolittle's U.S. Army Air Forces North American B–25 medium bomber leads a pack of 16 from the U.S. Navy carrier USS *Hornet*, taking the Pacific War to Japan itself for the first time. Doolittle and his airmen launched daring surprise attacks against military targets on Honshu in the cities of Tokyo, Yokohama, Kobe, Nagoya, and Yokosuka, suffering heartbreaking losses in the process, April 1942.

sunk in the Battle of the Coral Sea, Yamamoto was convinced that he could destroy the fighting power of the U.S. Navy in the Pacific and resume the South Pacific offensive that American carriers had so rudely interrupted.

The U.S. fleet was outnumbered at Midway but, once again, American intelligence evened the odds. Initially, however, Nimitz's and King's cryptanalysts differed in their perspectives of enemy moves. Admiral King's staff thought the Japanese planned to attack south toward the United States-Australia line of communication, while Admiral Nimitz thought they intended to strike at Midway. Fortunately for the Pacific Fleet, the latter interpretation, bolstered by irrefutable intelligence, held sway.

Anticipating when and where the Japanese fleet would arrive off Midway and in what strength, Nimitz reinforced Midway, which would serve essentially as a fourth unsinkable aircraft carrier, and sent three carriers under the overall command of Rear Admiral Fletcher to intercept the Japanese. Vice Admiral Halsey, on his return from the Southwest Pacific, was hospitalized with a debilitating case of shingles. To command in his place, Halsey recommended that Vice Admiral Raymond Spruance, a "black shoe" sailor in command of Halsey's cruiser screen since the Pearl Harbor attack, be given command of the *Enterprise* and *Hornet* task force. Spruance, the opposite of Halsey, was quiet, precise, and prudent. Some historians have contemplated on what might have happened at the end of the battle had Halsey been in command instead of Spruance.

Admiral Yamamoto's fleet was formidable. It was made up of Vice Admiral Chiuichi Nagumo's four carriers, and, 350 miles be-hind, a main body formed around the battleship *Yamato*, five smaller battleships, ten cruisers, twenty destroyers, and two light carriers for air defense. To the south, a third battle group, the Midway Invasion Force, made up of troop transports, steamed parallel toward Midway Atoll.

Intelligence had identified Midway as the enemy target and June 4th as the intended attack date, so CINCPAC's [Commander in Chief, Pacific] planners prepared an ambush for Vice Admiral Nagumo's carriers. On that day, U.S. Army, Marine Corps, and Navy planes operating from Midway Atoll struck at his task force. While they didn't hurt it, they upset the timing of his attack on Midway. His air strikes destroyed the Marine Corps fighters there but failed to damage the installations. When this was reported, Nagumo started to prepare a second wave to bomb Midway. In the interval, Japanese scouts reported American ships within striking distance but failed to indicate their types. Nagumo ordered his planes armed with ordnance for a second raid at about the time Midway planes attacked his task force.

American carriers *Enterprise* and *Hornet* launched their planes, which were followed an hour later by *Yorktown*'s. American torpedo

planes, flying low and slow, failed to hit any Japanese carriers and took heavy losses. However, because they drew the carriers' fighters down to their altitude, American bombers arriving high over the battle scene initially faced little air opposition. *Akagi*, *Kaga*, and *Soryu* blazed amid fuel and ordnance explosions and sank in hours. Planes from *Hiryu*, located twenty-five miles to the north and therefore not attacked, followed the American bombers back to *Yorktown* and damaged her severely. Their ship, however, was soon spotted by American pilots and sent to the bottom.

Japanese losses at Midway can't be reduced to planes and ships only; Admiral Yamamoto lost many of his best naval aviators. In addition, Japanese industry could not easily replace any carriers lost. Conversely, while the Americans lost *Yorktown*, their industrial plants were just beginning to produce a series of larger and faster carriers. Thus, even though much vicious fighting remained ahead, the Battle of Midway marked the major turning point in the Pacific War.

In the immediate aftermath of victory at Midway, American leaders determined to keep the Japanese off balance. The Joint Chiefs of Staff decided to mount limited counteroffensives through New Guinea and the Solomon Islands. The ultimate goal of Operation WATCHTOWER was the destruction of the vital Japanese air and naval base at Rabaul on the far western end of the Solomon Island chain. The campaign's first task was the seizure of the enemy seaplane base at Tulagi and the nearby airfield on Guadalcanal. American intelligence knew these

Japanese light carrier *Shoho* after attack by air units of the USS *Lexington* and the USS *Yorktown* in the Battle of the Coral Sea, May 1942. Built as a submarine depot ship, it was fitted with a flight deck, but to remain fast and maneuverable, it received no protective armor. Struck by bombs, torpedoes, and a crashing aircraft, it capsized and sank in just ten minutes.

facilities would soon be used by the Japanese to continue their advance toward Australia.

Admiral King appointed Vice Admiral Robert Ghormley to lead the Navy and Marine forces involved in WATCHTOWER. Under him were Rear Admirals Richmond Kelly Turner, who was to command the naval amphibious forces, and Frank Jack Fletcher, who commanded the covering carrier task force. The bloody seizure of Tulagi and the unopposed occupation of the Japanese airfield on Guadalcanal on August 7, 1942, heralded the beginning of the deadly seven-month struggle for the southern Solomons.

The Marines and the shore-based planes of the so-called "Cactus Air Force" fought valiantly to protect Henderson Field and repel the Japanese reinforcements that continued to arrive on the island. Navy ships and planes struggled to interdict the Japanese troop transports and warships that repeatedly pushed down "the slot" to attack the Allies. When short of fuel or needing repairs, Navy planes frequently put down on Henderson Field. On the morning of August 9th, two days after the Americans landed, the Japanese responded, sinking one Australian and three American cruisers at the Battle of Savo Island. In so doing, they demonstrated a clear superiority in night fighting. Months of bloody jungle fighting and three more naval battles later, the enemy finally pulled his remaining troops off the island. Despite the loss of two more carriers, *Wasp* and *Hornet*, the American fleet, its shore-based air units, and the Marines won the day.

Pacific operations proceeded with thin naval resources in 1942; the Battle of the Atlantic and the North African invasion had higher priorities. It is also a fact that more heavy combatants were scheduled for Pacific deployment. Hence, Operation CARTWHEEL, the follow-on to Operation WATCHTOWER, involved another half year of combat as forces under General Douglas MacArthur and Vice Admiral Halsey, Vice Admiral Ghormley's replacement, advanced doggedly on Rabaul.

The Allied conquest of the Japanese-held islands of New Georgia, Rendova, Kolombangara, Vella Lavella, and Bougainville didn't come quickly or cheaply. In naval actions accompanying their operations at Kula Gulf, Kolombangara, Vella Gulf, Vella Lavella, Empress Augusta Bay, and Cape St. George, young naval commanders bested the Japanese at their own night fighting game. Much of the credit for their success goes to Rear Admiral Aaron "Tip" Merrill, who gave his squadron commanders the freedom to revise their destroyers' tactics, perfect the use of radar, and improve the coordination of torpedo and gunfire attacks. But the major figure in the most stunning destroyer victories was a relatively unknown Captain Arleigh Burke, who later became Chief of Naval Operations.

By March 1944, forces under Vice Admiral Halsey and General MacArthur isolated and neutralized the Japanese bastion at Rabaul.

As Halsey prepared for another campaign, MacArthur pushed along the northern coast of New Guinea toward the Philippines. His naval forces were at that point under Vice Admiral Thomas Kinkaid; his amphibious force was under Rear Admiral Daniel Barbey. As there were no carrier task forces assigned to Kinkaid's Seventh Fleet, the troops had to move in careful stages, coordinated with the Army's control of air bases, so as to give cover to the troop ships and their escorts. On occasion, however, Kinkaid asked Admiral Nimitz for a fast carrier task force strike from the Central Pacific, as he did during the invasion of Hollandia on New Guinea in April 1944.

Even before the end of the Solomons campaign, Admiral King proposed to the Joint Chiefs of Staff that Admiral Nimitz's carrier and amphibious forces begin a Central Pacific campaign. By mid-1943, the carrier Navy reigned supreme in the Pacific. One of the leaders most responsible for the ascendancy of naval aviators was Vice Admiral John Towers, Nimitz's Commander, Air Force, Pacific. He took pains to move naval aviators into influential flag rank positions on fleet staffs to counteract the conventional views of "black shoe" admirals, who, until 1943, commanded carrier task forces. By early 1944, he'd won Admirals King and Nimitz over to his view that "naval aviators should be assigned as deputies or chiefs of staff to all non-air admirals, and vice versa." So in February 1944, Nimitz designated Towers Deputy CINCPOA [Commander in Chief, Pacific Ocean Area].

Pacific Ocean commanders. Vice Adm. Raymond Spruance, *left*, Adm. Ernest King, *center*, and Adm. Chester Nimitz, *right*, off Saipan, Mariana Islands, 1944.

For the Central Pacific campaign, Admiral Nimitz appointed Vice Admiral Spruance Commander, Fifth Fleet; Rear Admiral Turner would command amphibious forces; Rear Admiral Charles Pownall would command the carrier strike force; and Marine Major General Smith would command the Marine amphibious force. Because Navy and Marine Corps units had little experience mounting amphibious assaults against heavily fortified islands, Nimitz decided to hit the Gilberts rather than the more heavily fortified Marshalls.

The battle for Tarawa Atoll's Betio Island was a harsh baptism of fire for Admiral Nimitz's amphibious team. The lack of accurate local tide information and up-to-date charts, failures in communication, inadequate preinvasion bombardment, and curtailed gunfire support were only a few of its problems. Five thousand Japanese defenders fought to almost the last ditch and killed or wounded more than three thousand of the 2nd Marine Division. The Navy's losses off Makin Island, which was seized by the Army's 27th Division, included seven hundred fifty officers and men of the escort carrier *Liscombe Bay*; it was sunk by a Japanese submarine-launched torpedo.

After Tarawa, there was a change of command in Fast Carrier Task Force 58. Admiral Nimitz was critical of Rear Admiral Pownall's lack of aggressiveness in failing to press home a raid on Kwajalein

A Japanese military base on Marcus Island after raids by aircraft of Vice Adm. Halsey's task force with the USS *Enterprise* and the USS *Yorktown*, March 1942. Marcus Island and Wake Island were targets of Adm. Nimitz's early retaliatory raids against the Japanese after Pearl Harbor.

Island in December 1943. He replaced Pownall with Rear Admiral Marc Mitscher and got the results he wanted. From January 29th to February 6th, 1944, Mitscher's pilots flew more than six thousand sorties from twelve carriers and came close to annihilating Japanese air power in the Marshall Islands. The lessons learned at Tarawa were applied by American naval task force commanders in landings on the Marshall Islands.

Marine and Army troops, supported by close-in naval gunfire, assaulted the vast Kwajalein Atoll and, within just three days, overwhelmed the Japanese defenders. American casualties, that time, amounted to only 400 killed and 1,800 wounded, while the enemy lost 8,800 men. Before Vice Admiral Spruance sent his amphibious forces against the next Marshalls objective, Eniwetok, he sent Rear Admiral Mitscher's carriers to bomb Japanese bases at Truk in the Caroline Islands. Mitscher's pilots took a heavy toll, destroying more than two hundred planes and sinking thirty-six ships. Freed from enemy air opposition, Marine and Army forces seized Eniwetok. The ease of this operation and the neutralization of the Japanese forces at the strategic base at on Truk prompted naval leaders to by-pass the Caroline Islands and focus their attention on the Mariana Islands of Saipan, Tinian, and Guam twelve hundred miles to the northwest.

The Marianas were critically important to the enemy. They had Japanese civilian populations, and in American hands would pose a serious threat to Japan itself, only twelve hundred miles away. From there, American B–29 bombers could execute a bombing campaign against the home islands. For various reasons, the American attack on Saipan turned into a bloody affair both ashore and afloat. It involved more than seven hundred vessels and over 127,000 troops belonging to three and a half Marine divisions and one Army division.

This large American task force, despite its strength, took weeks in hand-to-hand combat to destroy the Japanese garrisons on Guam, Tinian, and especially Saipan; it was not allowed to operate unmolested by the defenders. Vice Admiral Jisaburo Ozawa, commanding the First Mobile Fleet, advanced on the Marianas with nine carriers, six battleships, eleven heavy cruisers, and thirty light cruisers and destroyers. His carriers embarked over four hundred planes, even though they were manned by relatively inexperienced, lightly-trained pilots.

American submarines shadowing Vice Admiral Ozawa's force warned Vice Admiral Spruance that the enemy was on its way. However, Spruance, unaware that it was intent on striking his carriers, remained concerned that some of its elements would get around him and strike the amphibious shipping off Saipan. He therefore refused to allow Rear Admiral Mitscher to move toward Ozawa's force and attack at dawn. To defend the invasion force, Spruance stationed Mitscher's carriers and Rear Admiral Willis Lee's battleship group 180

miles to the west of Saipan. At 0830 on June 19th, Ozawa launched the first of four strikes against the waiting American carriers. His pilots were no match for them, though. By the end of the day, the seasoned American carrier pilots, in what became known as "the Great Marianas Turkey Shoot," destroyed 315 Japanese planes, while losing 30 of their own. American submarines, which by then had been equipped with torpedoes that worked, hit and sank Ozawa's flagship *Taiho* and the carrier *Shokaku*.

Perhaps the most dramatic part of this battle occurred next. As the Japanese fleet withdrew to the west, Vice Admiral Spruance unleashed Task Force 58. By mid-afternoon of the next day, scouts reported the enemy 275 miles to the northwest. At that late hour and extreme range, Rear Admiral Mitscher launched two hundred planes against the retiring enemy fleet. The pursuing Americans sank light carrier *Hiyo* and damaged several other units. In his concern to assist the pilots making it back to the carriers, Mitscher ordered his ships to illuminate the sky with search lights, despite the danger of attracting Japanese submarines. Fortunately, no ships were attacked during recoveries. Returning after dark and running out of gas, eighty American planes were lost because of insufficient fuel or recovery accidents, but many of their pilots were pulled from the water.

A Japanese torpedo bomber explodes off Kwajalein in the Marshall Islands after being hit by a 5-inch carrier shell. Fighting on the tiny Central Pacific island in the world's largest atoll of the same name, and others, was furious. In a four-day onslaught, the Americans routed entrenched Japanese from their camouflaged caves and bunkers, taking control in February 1944.

Vice Admiral Spruance was afterward criticized for not having released his fast carriers earlier, but he felt that protecting the amphibious task force was his first priority. Admirals John Towers, Marc Mitscher, and Frederick Sherman criticized Spruance as a battleship admiral who should not have been allowed to command a fast carrier task force. Nimitz defended Spruance, but still, one must observe that of the five leading American admirals of World War II—Leahy, King, Nimitz, Spruance, and Halsey—only Spruance failed to get a fifth star.

The need for increased pressure on the Japanese from two directions, the Central and Southern Pacific, and the increased availability of carriers, planes, and aviators allowed Admiral Nimitz and Vice Admiral Towers to keep the fleet constantly in action by rotating commanders and staffs. Thus, Vice Admiral Spruance, Commander Fifth Fleet, and his staff would be replaced by Vice Admiral Halsey, Commander Third Fleet, and his staff in late August 1944.

Meanwhile, American submarines operating from Pearl Harbor and Fremantle, Australia, put increased pressure on Japanese sea lines of communication. During the first year and a half of the war, these submarines carried torpedoes that ran below their preset depth and often failed to explode. Faulty peacetime testing procedures had failed to reveal that their magnetic exploders did not work. Eventually, in September 1943, the problem was corrected and the submarines' kill ratios steadily improved. American submarines, coordinating their patrols with information from ULTRA intercepts, put increased pressure on the home islands. Ultimately, sixteen hundred submarine war patrols sank over a thousand merchant ships and several major units of the Japanese Imperial Fleet, losing fifty-two American boats.

Following the Marianas battle, the Joint Chiefs of Staff and the Combined Chiefs of Staff backed General MacArthur's proposal to seize the island of Leyte in the central Philippines. The Japanese, responding vigorously to the landing and hoping to reverse the course of the war in the Pacific, spared no effort. The resulting Battle of Leyte Gulf was one of the largest naval confrontations ever fought in terms of numbers of participants and combatant units. The Japanese had preserved their resources for what they hoped would be a crushing American reversal. The result was an overwhelming American victory, although not without tragic losses.

Vice Admiral Kinkaid's Seventh Fleet landed invasion troops on Leyte's beaches while Vice Admiral Halsey's Third Fleet operated in the Philippine Sea as a covering force. To break up the invasion, the Japanese sent four task forces toward Leyte. Vice Admiral Ozawa was sent south toward Halsey's fast carriers to lure them away from the invasion beaches. A Japanese fleet led by Vice Admiral Takeo Kurita steamed from Brunei Bay, Borneo, through the Philippine archipelago, hoping to break through and devastate the American landing force.

Kurita's group of five battleships, ten heavy and two light cruisers, and fifteen destroyers was badly damaged by air attacks in the Sibuyan Sea, but it continued through San Bernardino Strait, entered the Philippine Sea, and steamed south toward the invasion beaches. Vice Admiral Shoji Nishimura's smaller force of two battleships, one cruiser, and four destroyers split off from Kurita's, and headed across the Sulu Sea where it, too, was battered by air attacks, yet, it kept going, into Surigao Strait.

On the evening of October 24th, Vice Admiral Nishimura, reinforced by Vice Admiral Kiyohide Shima and his Ryukyu Islands-based cruiser-destroyer group, entered Surigao Strait between Leyte and Dinagat Islands. They found their way blocked by elements of Vice Admiral Kinkaid's Seventh Fleet. These elements were led by Rear Admiral Jesse Oldendorf's old battleships, some salvaged from the mud of Pearl Harbor, deployed in the classic "T-crossing" formation, while American destroyers and PT boats attacked Shima's flank. The enemy's Southern Force was shredded by torpedoes and gunfire and turned back, suffering heavy losses.

Vice Admiral Kurita's Center Force was the most lethal threat to the Leyte landing force. Early in the morning of October 25th, having emerged from San Bernardino Strait, Kurita dealt harsh blows to

The flagship USS *Yorktown*, under Japanese air bombardment in the Battle of Midway, June 1942. The smoke of its anti-aircraft fire smudges the sky as the carrier blasts away during its last ordeal. Having survived a wounding at the Battle of the Coral Sea in May 1942, it had to be abandoned at Midway. It was sunk only after being hit by an enemy torpedo.

Rear Admiral Thomas Sprague's lightly armed and weakly defended escort carriers off Leyte's beaches. Apparently ignorant of the area's weak defenses, Kurita turned back after sinking the escort carrier *Gambier Bay* and three escorting destroyers that doggedly attacked the battleship *Yamato* and her escorting heavy cruisers.

Meanwhile, the Japanese strategy to divert Vice Admiral Halsey had succeeded. On the night of October 24th, having received reports of the presence of an enemy force comprised of six enemy aircraft carriers—the veteran fleet carrier *Zuikaku*, the three light carriers *Chiyoda*, *Chitose*, and *Zuiho*, and two converted battleship carriers *Ise* and *Hyuga*—Halsey pursued Vice Admiral Ozawa's Northern Force with three carrier groups before being informed that he'd left Leyte's invasion beaches without naval air cover and vulnerable to surface attacks from Vice Admirals Kurita and Nishimura. Halsey had earlier announced his intention to form Task Force 34, comprised of Admiral Lee's fast battleships, which would ostensibly be detached to guard San Bernardino Strait. When he learned that Ozawa's group was protected by battleships, Halsey decided not to detach Lee's battleships. He kept Task Force 34 with his carriers, intending to use them against Ozawa's heavy combatants, as his planes attacked the carriers. He hadn't counted on Kurita's recovery or course reversal toward San Bernardino Strait. After hearing of Kurita's attack, Halsey ordered Vice Admiral John McCain's carrier group, refueling south of the Philippines, to go to assist the escort carriers under attack off Samar.

Imperfect command and control arrangements between two virtually autonomous American task forces that had not worked in concert previously caused the close call at Leyte. General MacArthur had ordered Vice Admiral Kinkaid not to communicate directly with Vice Admiral Halsey. Even when he attempted to do so, the message, "Is TF 34 guarding San Bernardino Strait?" took almost three hours to be delivered by a convoluted route through an Army relay station on Manus Island. Halsey was later questioned for his failure to anticipate the Japanese threat and for his delayed decision to send assistance to Kinkaid when Vice Admiral Kurita carried out his attack. The Battle of Leyte Gulf was the beginning, not the end, of a struggle for the Philippine Islands that would last another eight months and cost hundreds of thousands of casualties.

Meanwhile, the B–29 Superfortresses on Saipan and Tinian had mounted an aerial campaign against the Japanese home islands. The campaign was difficult because of two problems: the lack of American fighter support and the presence of enemy fighters on the volcanic island of Iwo Jima. The seizure of the island, only 650 miles from Japan, would solve both problems. In addition, it would provide flank protection for the approaching invasion of Okinawa. The strangely named Operation DETACHMENT against Iwo Jima was one of the most

savagely fought battles of a bitterly contested war. Naval command of the fast carriers and amphibious forces had again reverted to Vice Admiral Spruance and his Fifth Fleet team. Vice Admiral Turner, heading the Expeditionary Force (Afloat), had 495 ships of all descriptions under his command. Despite more than two months of high altitude bombing by the U.S. Army Air Forces and only three days of heavy gunfire from the battleships and cruisers in the Amphibious Support Forces, the assault of February 19, 1945, failed to destroy the enemy garrison.

The Japanese defenders had done an excellent job of concealing and hardening their defenses. Their suicidal fighting from redoubts and interconnected tunnels made Iwo Jima absolute hell for the invaders. Fighting lasted about five weeks but mopping up continued for another month. Of 21,000 Japanese defenders, only 216 were taken alive, while 6,800 men of the 3rd, 4th, and 5th Marine Divisions died and 20,000 were wounded. In the end, Iwo Jima was "the supreme test and pinnacle of American amphibious capabilities in the Pacific War."

As Allied forces closed on Japan, its defenders took desperate initiatives and gave every indication that they'd fight to the death. The Americans' coordinated use of sea blockade and air power increasingly denied the Japanese resupplies of fuel, raw materials, and food. A "divine wind," or *kamikaze*, had saved them from invading Mongols centuries before. The Japanese hoped that a new divine wind would save them as hundreds of young aviators, mostly untrained, were prepared to crash their planes into American ships and so sacrifice their lives for the Emperor.

The *kamikazes* would wreak their greatest havoc on the Allied fleet that was poised to seize the island of Okinawa, where a hundred thousand well-provisioned defenders, like those on the island of Iwo Jima, had taken the time and trouble to dig deep into limestone caves and build miles of interconnecting tunnels. The attackers codenamed this Operation ICEBERG, an ironic choice when one considers the inferno that Okinawa became.

Under the overall command of Vice Admiral Spruance, the naval support force and invasion fleet numbered twelve hundred vessels. The 90,000 Marines and 93,000 Army troops participating found little opposition when they began going ashore on April 1, 1945. In four days, they reached objectives planners thought would take two weeks of fighting to acquire; but the enemy was merely biding his time. Beginning on April 6th, the Japanese launched fifteen hundred *kamikazes* and other aircraft in ten large-scale suicide attacks against the Fifth Fleet. This aerial onslaught sank 30 naval vessels, damaged 368 others, and killed or wounded nearly ten thousand American sailors.

At the onset of the invasion, the Japanese Navy prepared a special treat for the attackers. In another suicide mission, the gigantic

battleship *Yamato*, her cruiser escort *Yahagi*, and eight destroyers sortied from the Inland Sea on April 6th to break through American naval pickets around the island, ground themselves, and so use their guns in support of the dug-in defense force. The suicide flotilla, carrying only enough fuel for a one-way voyage, never made it to Okinawa. Soon after being spotted by an American submarine, it was pounced on by three hundred aircraft of Rear Admiral Mitscher's Task Force 58. The mighty *Yamato*, *Yahagi*, and four destroyers were sent to the bottom in one afternoon.

The Battle of Okinawa cost the Tenth Army 65,631 casualties, the Marine Corps 19,231, and the Navy 10,000. The Japanese suffered more than 110,000 killed, an impressive figure for what it tells of their dedication to "death in defense of country" and the fanaticism that they could bring to the field in a great last effort.

The final assault on the Japanese empire brought an intensified naval war of blockade by submarines, mines, and carrier air strikes. Submarines by war's end had accounted for more than 50 percent of all enemy losses at sea, sinking more than thirteen hundred Japanese ships. Task Force 38's fast carriers, again under Vice Admiral Halsey, began a series of raids against Japanese cities on July 2nd. Navy carrier pilots ranged along the coasts for nearly two months, hitting targets of opportunity, particularly enemy planes, but few fighters rose to meet the challenge; they were being held back in expectation of an amphibious invasion.

Plans for assaults on the Japanese home islands of Kyushu and Honshu were, indeed, underway. Operation DOWNFALL combined Operation OLYMPIC, against Kyushu, and Operation CORONET, against Honshu, and promised to be extremely costly. As we know, the nuclear destruction of Hiroshima and Nagasaki made these operations unnecessary. During the long Pacific War thousands of American sailors gave their lives in the fight against tyranny and aggression. In large measure, their sacrifice has enabled the Pacific peoples to live for half a century without a Third World War.

Military Technology and the Pacific War

Richard P. Hallion

In the twentieth century, several radically transforming scientific and technological revolutions have led to the mechanization of warfare at virtually all levels. The internal combustion engine, for example, revolutionized locomotion on, above, and under the earth's surface. In particular, the submarine and the airplane gave warfare a three-dimensionality it never previously had. Additionally, communications and detection technologies took warfare well beyond the visual range limitations of previous conflicts. Commanders now possess situational awareness and exercise the nuances of real-time command and control over hundreds, indeed, thousands of miles. Although they were manifested imperfectly in the First World War, by the Second World War, communications, intelligence, and the leverage offered by new military technologies and capabilities were combined to generate synergies that resulted in improved military performance overall.

Nowhere was this improvement more apparent than in the Pacific during the Second World War. There, across intercontinental distances, opposing forces fought, using a variety of refined, as well as new, weapon technologies. The Second World War witnessed the interplay of technologies that shaped and dramatically influenced the post-Second World War defense environment. In this environment came wide-ranging evolution, from precision munitions to atomic weapons. Although it's often difficult to separate out technologies specifically accelerated or employed in the Pacific, since most were equally applicable to other theaters of combat, there were, nevertheless, some peculiar circumstances there—the great ranges, the extensive need for surface fleet operations, and the terrible *kamikaze* threat—that forced the evolution of specific technologies. These included the very long-range land-based strategic bomber, the large fleet submarine, shipboard air defense systems, and amphibious warfare technologies.

Indeed, well before the Second World War, the challenge of Pacific operations had influenced the technological choices of American, Japanese, and other military planners. These choices had profound significance in four key areas: maritime aviation, submarine warfare, very long-range strategic bomber development, and amphibious warfare.

Between the First and Second World Wars, the United States, Great Britain, and Japan developed specialized naval aircraft for observation, air superiority, dive bombing, torpedo bombing, and flying from specialized through-deck aircraft carriers. Because of internal cultural, political, and organizational problems with Great Britain's

approach to naval aviation, however, only the United States and Japan possessed truly robust naval aviation forces on the eve of Pearl Harbor. Such aircraft, at least in American and Japanese service, grew from fixed-landing gear, open-cockpit, metal-and-fabric biplanes at the beginning of the 1930's to types that by the end of the decade had all of the nuances of then-modern aircraft technology: streamlining, all-metal construction, enclosed cockpits, radio communication, retractable landing and navigation gear, blind flying instrumentation, radial engines, and controllable-pitch propellers, etc. The carrier itself had evolved into a relatively standardized vessel, with basically similar deck layouts, an offset "island" bridge and stack arrangement, and arrester cables with which an approaching aircraft would engage its landing tailhook. All three nations had developed specialized multi-engine long-range seaplanes—exemplified by the American Consolidated-Vultee PBY Catalina, the British Short Sunderland, and the Japanese Kawanishi Mavis—to support the fleet and conduct anti-submarine operations.[1]

Of the three nations, Japan and Great Britain had operated carriers in war, although in different areas of conflict. By December 7, 1941, The Japanese Navy's air arm had acquired great experience in both land- and carrier-based operations largely against land targets in China. Given its sophistication and its tremendous and perceptive investment in aviation technology, typified by the Mitsubishi A6M2 Type O fighter—the infamous Zero, the finest carrier-based fighter in the world at the time of Pearl Harbor—the Japanese Navy, not surprisingly, had the confidence to put together a six-carrier battle group and take on the United States Pacific Fleet.[2]

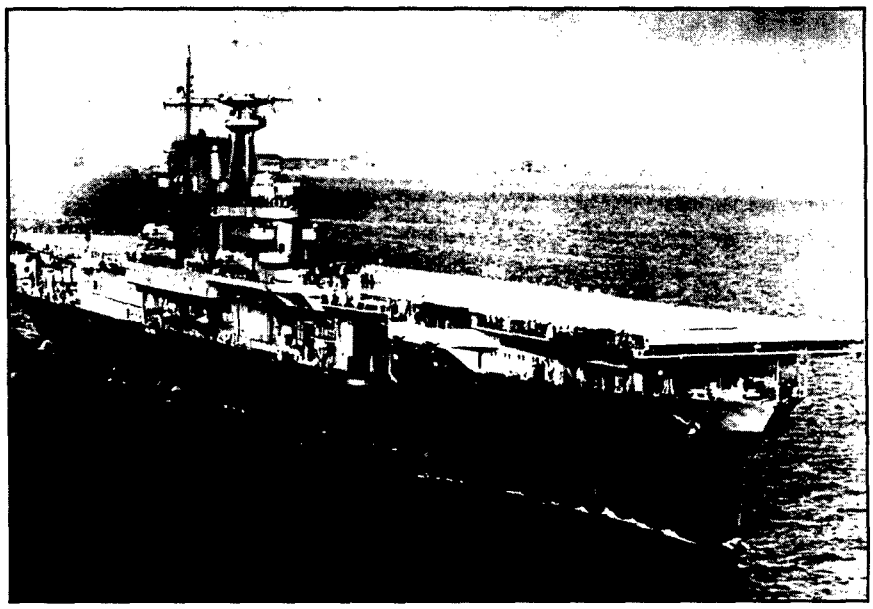
The Royal Navy's Fleet Air Arm, the FAA, had actually been in combat operations against German and Italian naval forces. Although the FAA had scored impressively with obsolete open-cockpit Fairey Swordfish biplane torpedo bombers at Taranto in a raid that greatly influenced Japanese planning for Pearl Harbor, Great Britain's naval air arm suffered from technological unsophistication as well as weak internal support. One Royal Navy captain, for example, discouraged a junior officer from joining the FAA because aviation was "poppycock" and doing so would "ruin his career." The captain was Tom Phillips who, as an admiral a decade later, was lost when land-based Japanese torpedo bombers sank the *Prince of Wales* and the *Repulse*.[3] So desperate was the Royal Navy to improve its lot that it initially made do with hasty and not altogether satisfactory modifications of land-based Hawker Hurricane and Vickers-Supermarine Spitfire fighters, the Sea Hurricane and the Seafire, until large numbers of genuine carrier aircraft purchased from the United States—the Grumman Wildcat, Hellcat, and Avenger and the Vought Corsair—arrived in the United Kingdom. With these aircraft, Great Britain revamped its naval aviation

and vigorously prosecuted the war against both Nazi Germany and Imperial Japan.[4]

On the eve of Pearl Harbor, a certain optimism and a self-confidence unwarranted by actual circumstances afflicted America's military establishment. However, its naval aviation was at heart healthy and, to the Japanese, extraordinarily dangerous. Fleet exercises before the war had stressed the interaction of fighter, dive bomber, and torpedo squadrons to such a degree that the switch to wartime practice came relatively smoothly. Already, the U.S. Navy was committed to a radar-based command and control future. There's one nagging unanswerable question, though: Had the two flying aircraft carriers, Goodyear-Zeppelin airships *Akron* and *Macon*, been deployed more imaginatively, would they have revolutionized Pacific Fleet operations by, much like the AWACS [Airborne Warning and Control System], using scout aircraft for early warning and, perhaps, been themselves equipped with growingly sophisticated radars, as were post-war Navy AEW [Airborne Early Warning] blimps? Because both of these large, rigid airships were lost to bad weather, the answer must remain unknown. It seems that the Navy was unable to use them as anything more than offensive platforms operating directly over enemy fleet units, where, as trials indicated, they were vulnerable to being shot down. Thus, very few, except enthusiasts, mourned their loss.[5]

Likewise, all, but particularly the United States and Japan, had invested extensively in submarine technology to fight long-range submarine wars—the United States to decimate Japanese naval traffic around the home islands, and Japan to hinder American fleet movements toward the home islands. The anticipation of a fight with Japan had also forced the Netherlands to emphasize long-range submarine operations as well. Pre-war thinking resulted, occasionally, in peculiar design choices. the United States downplayed using submarines in surface warfare gun duels, actually imposing limits on the size of deck guns carried; Japan overemphasized using submarines to lay mines and to launch small scouting or attack aircraft. Wartime experience forced both countries to rapidly address the limitations imposed by their respective doctrines.[6]

Certainly, Pacific range issues forced significant changes in the development of American strategic bombers: the Boeing B–29 Superfortress, the less-advanced Consolidated-Vultee B–32 Dominator, which was the USAAF's hedge against the failure of the B–29, and the gargantuan six- and later ten-engine Consolidated-Vultee B–36. The B–36 also owed much to a "Fortress America" mind-set among American military planners, particularly after the rapid collapse of Western Europe, with the notable exception of the United Kingdom, to the Nazi onslaught. Quite simply, without President Roosevelt's pre-war interest in striking at Japan from bases in China, the B–29 would



Flight deck of the USS *Hornet*. One of a new, more durable breed of U.S. Navy aircraft carriers, it was smaller and faster than previous models but accommodated larger air units, like sister ships *Yorktown* and *Enterprise*. Its 4-inch thick hull plating withstood withering gun and torpedo attacks.

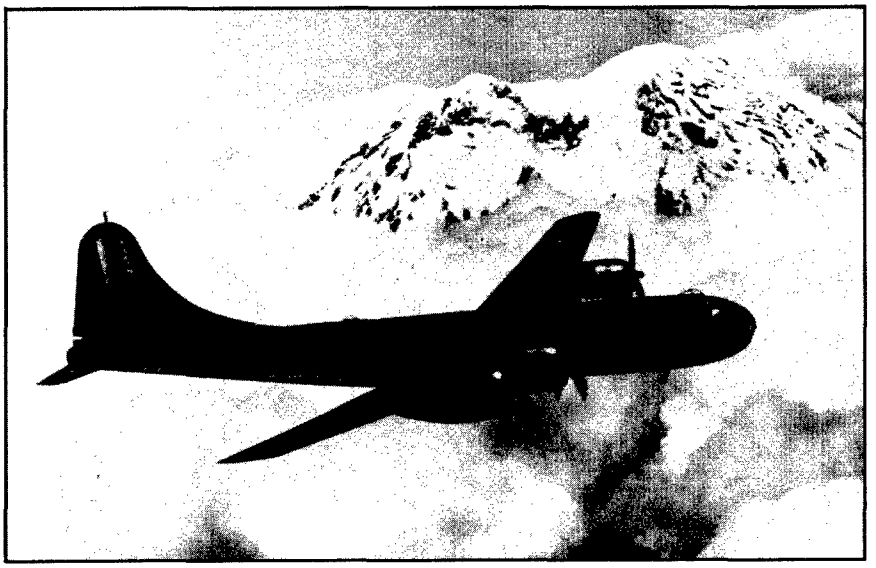
never have existed. Without it, the United States could only have begun such strategic bomber operations once it had occupied and secured Okinawa and Iwo Jima, and then at much greater cost with the far more vulnerable, and less capable, Consolidated-Vultee B–24 Liberator and the Boeing B–17 Flying Fortress.

Pre-war Pacific concerns thus drove explicit technological choices made by the U.S. Army Air Forces, and those choices themselves had far-reaching consequences. For example, the B–29, designed as a conventional bomber, was the only American aircraft in existence during the war that could have carried the atomic bomb. Further, because of the intensive investment made by the USAAF and Boeing into equipping it with state-of-the-art aerodynamics, avionics, and propulsion technology, at least in the pre-jet era, the B–29 served as the progenitor of America's post-war nuclear bomber fleet. It was, in many ways, America's first "systems" airplane. Indeed, because of examples that served as pattern aircraft for a Soviet copy, the Tupolev Tu 4, the B–29 filled this same role for the Soviet Union's and Peoples' Republic of China's long-range aviation forces as well![7]

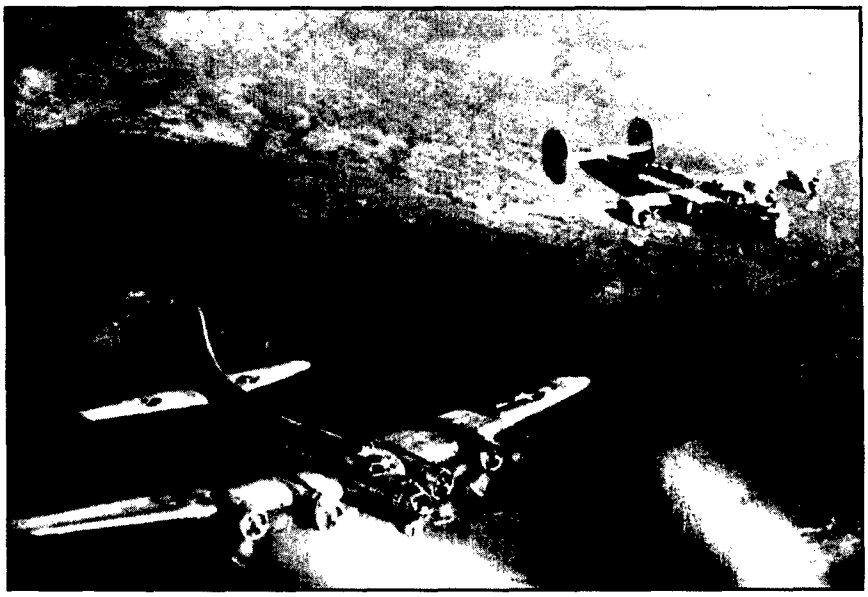
As early as January 1920, in response to the Navy, the Marine Corps had begun developing amphibious war-fighting capabilities to use against Japan's burgeoning Pacific empire, particularly in the

Marshall and Caroline Islands. Thus, over two decades prior to Pearl Harbor, the Marine Corps had anticipated seizing enemy islands under fire by amphibious means. This long-standing mission drove the Corps to fashion a series of exercises and acquisition strategies that, eventually, gave it by the eve of Pearl Harbor, the basic tools it needed to conduct an island campaign.[8]

In early 1921, the Corps realized that an island campaign would require a force of special shallow-draft landing craft, operating from off-shore transports, with naval gunfire and battlefield air support. Once ashore, the Marine landing force would need light, high-angle artillery, light armored vehicles, and, particularly, large numbers of mortars and pack howitzers for beachhead fire support. Because of subsequent combat experience in China and Nicaragua, chiefly, that of its aviators, and, already wedded to the notion of precision dive bombing in aid of friendly ground forces, the Corps became increasingly interested in amphibious assault. Air attack promised to offset the deficiencies in flat-trajectory naval gunfire support against an enemy shielded by hills from conventional artillery fire.[9]



Boeing B–29 Superfortress, the bomber that broke the back of Imperial Japan. Reserved for action in the Pacific and rushed to completion, the prototype first flew in September 1942. It had the long reach needed for the enemy's home islands, first from China and more successfully from the Mariana Islands. It was pressurized for high altitudes and had a range of 4,100 miles, a top speed of 585 miles per hour, remotely-controlled guns, and a carrying capacity of 5,000 pounds. After modifications it finally entered service in 1944. It was phased out in the late 1950s.



The Boeing B–17 Flying Fortress, *left*, and the Consolidated B–24 Liberator, *right*. Both types were the mainstays of of World War II's heavy bomber forces in all theaters. They soldiered through hard duty in the Pacific until the "high tech" Boeing B–29 Superfortress brought the fighting to a close.

By the mid-1930s, the Corps had developed a tentative amphibious operations doctrine and had established the Fleet Marine Force, which was tailored explicitly to amphibious assault. To embark the force, the Corps began developing suitable landing craft, the techniques for which constituted its most significant technological challenge, and by the end of the decade, it had adapted a civilian bayou boat, the Higgins craft. This craft together with elements of Japanese boats, carefully studied, gave the Corps separate watercraft designs tailored for Pacific amphibious operations—the LCVP for personnel, and the LCM for vehicles. By 1941, nearly a full year before Pearl Harbor, the Corps was well on its way to developing a tracked amphibious assault vehicle, the LVT, based on pre-war civilian swamp-crossing rescue tractors. All three—the LCVP, LCM, and LVT—would be key in the war with Japan and forerunners of more specialized craft.[10]

The crucible of war forced those fighting to adopt many changes as they discovered what worked, what didn't, and what they really needed. Lessons abounded in virtually all combat and combat support areas. If nothing else, the staggering success of the Japanese carrier assault that sank Battleship Row at Pearl Harbor announced the arrival of a new era in warfare. If surface ship advocates could take some comfort in the fleet's having been at anchor, their remaining illusions were cruelly shattered scant weeks later by the sinking at sea of the

battleships *Prince of Wales* and *Repulse*, the carrier *Hermes*, and the aircraft carrier-turned-transport *Langley*, as well as numerous smaller vessels. The Battle of the Coral Sea, the first clash between fleets in which opposing ships never came within sight of each another, and the Battle of Midway confirmed the total vulnerability of ships to air attack, particularly by precision dive bombers. At Midway, for example, Japan lost four carriers and one cruiser. As the obvious value of aircraft carriers rose, the value of battleships declined. Based on its Coral Sea and Midway experiences, the Navy curtailed plans for further developing battleships after the *Iowa* class and, instead, emphasized building a variety of aircraft carriers.[11] Later, heavily armed land-based commerce raiders devastated Japanese supply convoys, most notably in the Battle of the Bismarck Sea in 1943 and in operations off the China coast in 1944 and 1945.

Early Pacific combat clearly indicated that the United States and its Allies could not just assume that their forces would enjoy air superiority. Indeed, exposure to Japanese aircraft brought three immediate comparative technology lessons. First, Japanese fighters had superb maneuverability, especially in hard, "furball"-style dogfights. Second, Japanese fighters and bombers generally had exceptional range and could thus operate deep into Allied territory, but at the expense of defensive armor plate and rugged structures. Third, Japanese land-based twin-engine bombers were alarmingly effective as antishipping attackers armed with both bombs and torpedoes.

U.S. Marines landing supplies ferried by an amphibious LCVP from the USS *Leonard Wood* on the coast of Leyte, held by the Japanese in the Philippine Islands, October 1944.

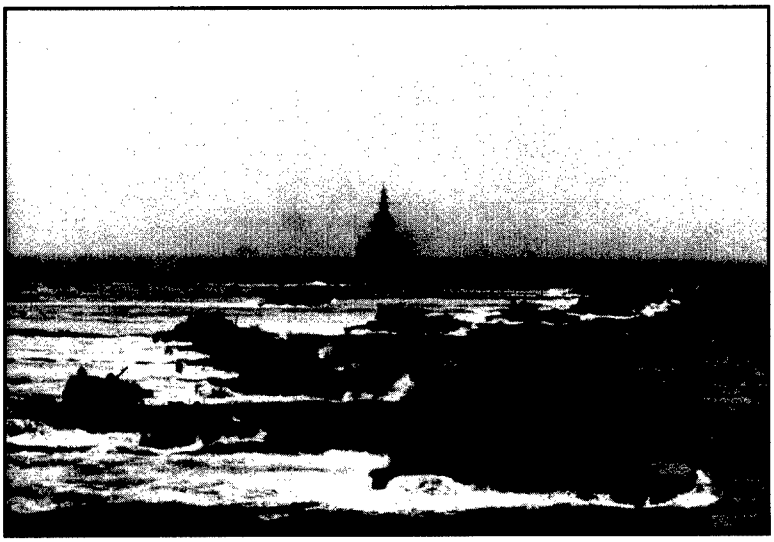
An amphibious LCM behind U.S. Army troops marching up the beach on Adak, from which they have driven the Japanese, in the Aleutian Islands during pre-invasion loading for operations in Kiska, August 1943. The LCM is from the USS *Zeilin*.

Both the Japanese and the Americans learned that lack of agility, slowness, and poor or inadequate defensive armament rendered carrier-based dive bomber and torpedo aircraft often fatally vulnerable to defending fighter aircraft. As a rule, American aircraft, with more rugged structures as well as crew protection features, tended to be far more survivable. But at Midway, the lack of fighter protection for attacking American torpedo aircraft resulted in the destruction of one squadron and the virtual destruction of two others. Eventually, by war's end, the Navy would have a multipurpose attack aircraft under development. Capable of both dive bombing and torpedo attacking, it would evolve into the supremely versatile Douglas Skyraider of Korea and Vietnam fame.

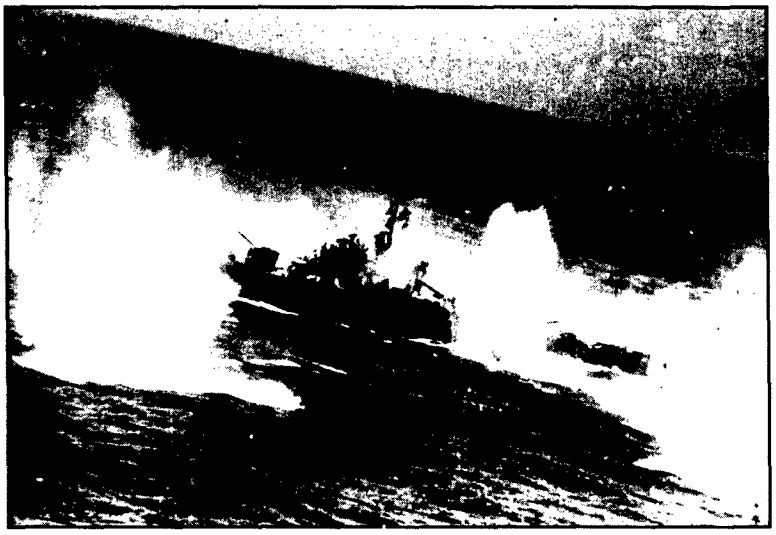
But, most shocking in the early days of the Pacific War were the comparative weaknesses of most American fighters. The Army Air Forces' Bell P–39 Airacobra and the Navy's Brewster F–2A Buffalo were obviously deficient in performance, while the slightly later Curtiss P–40 Warhawk and the Grumman F–4F Wildcat, dubbed the "Housecat" for its tameness, were useful in the hands of a good pilot. When the Navy had the opportunity to examine and flight test a captured Mitsubishi A6M2 Zero, it redesigned the projected Grumman F–6F Hellcat as a much lighter and more maneuverable aircraft, which entered service in 1943 and generated more fighter aces than any other American type in the war. For its part, the Army Air Forces' Lockheed P–38 Lightning, introduced to combat late in 1942, proved a

valuable long-range strike fighter, as did their P–47 Thunderbolt and the the Marines' F–4U Corsair. The latter three benefited from the work of Charles Lindbergh, who studied and greatly improved their performance. In particular, Lindbergh greatly assisted the Marines and the Army Air Forces in operating the F–4U and P–38. While flying as a wartime consultant to the aircraft industry in the United States and overseas, he taught combat pilots how to extract the maximum long-range cruise performance from both aircraft. By mid-1943, the United States, with combined land- and sea-based air power, had clear air superiority in the Pacific Theater and kept it throughout the end of the war.[12]

Beyond these were other lessons. Pre-war American naval radar development, although not up to the prolific standard of Great Britain's, nevertheless, was at such a level as to significantly enhance the ability of the fleet to defend itself from enemy air attack. Although airborne early warning radars, which would, of course, have greatly increased the stand-off detection ranges of enemy aircraft, were still in the future, radar clearly had made its mark on the U.S. Navy during the great carrier battles of 1942 and in the surface actions around Guadalcanal. At Midway, for example, Japan's lack of radar warning enabled a small force of dive bombers to arrive unannounced over the fleet and quickly sink three of four carriers; the fourth succumbed later that day. In surface warfare around the Solomons, the U.S. Navy was



A wave of invading Okinawa-bound LVTs. The versatile amphibians plow past the bombardment line in front of a looming Idaho Class battleship that fires over the landing beaches at hidden Japanese soldiers on shore.



North American B-25 Mitchell medium bombers, deadly and effective strafers and commerce raiders, bearing down on a Japanese destroyer, one in a stream of supply convoys plying the waters of the South China Sea off the French Indochina coast, March 1945.

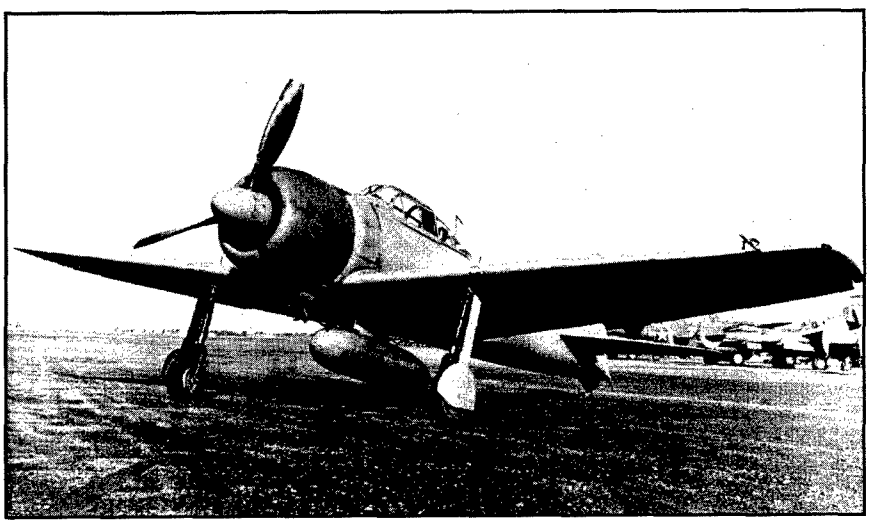
able, because of its advantage in radar, to offset a general night warfare superiority that had given the Japanese Navy an up-to-then unprecedented ability to launch undetected long range, nocturnal torpedo attacks of the kind that had characterized, for example, the disastrous Battle of Savo Island on August 9, 1942. Although its radar development lagged behind that of the Allies throughout the Pacific War, Japan, by 1945, nonetheless, made extensive use of land- and sea-based radar, sending radar-equipped patrol aircraft against American submarines. Although radar countermeasures are most often associated with the European War, they were intensive in the Pacific War. In one case, for example, American-developed detection enabled the submarine *Bat-fish* to locate, home on, and then sink no fewer than three Japanese submarines betrayed by their own radar emissions.[13]

Surface ships were not only vulnerable to aircraft; they were vulnerable to submarines as well. For example, a Japanese submarine torpedoed and damaged the fleet carrier *Saratoga*, rendering it unavailable for combat, particularly during the crucial Battle of Midway, which, had shipyard workers not turned *Yorktown* in time, might very well have had a different outcome. At Midway, *Yorktown* herself fell victim to a submarine. Later, in the fight off Guadalcanal, *Saratoga* was torpedoed and seriously damaged for a second time and again removed from combat at the worst possible moment for the U.S. Navy.[14]

Throughout the Pacific War, between the airplane and the submarine, both weapons of three-dimensional war, a symbiotic partner-

ship existed; and it worked in America's favor notably during operations against Japanese supply ship convoys between Southeast Asia and the home islands. Airplanes and submarines, both land- and sea-based, together took a massive toll. Aircraft attacks, particularly by heavily armed land-based North American B–25 Mitchell commerce raiders, forced shipping into deeper waters where submarines lay in wait. Also, since aircraft were better suited against escort vessels, submarines were able to concentrate their efforts against merchant vessels. Finally, the combination of submarine and aerial attacks, including the extensive B–29 mining campaign in its home waters, bottled up Japan's remaining shipping, so that by the late summer of 1945, it was already on the edge of collapse.

Thus, within the opening months of the Pacific War, the three-dimensionality of air and submarine war had already proved decisive over combat exclusively between two-dimensional surface vessels. Limited surface warfare would occur in the Pacific in night destroyer actions around Guadalcanal, for example, or in cruiser actions in the Solomons, or in Surigao Strait during the Philippine campaign, but these were more echoes of a rapidly passing era than harbingers of the future. The really significant naval actions took place in the air or



Mitsubishi A6M2 Type O fighter, the infamous Japanese Zero or "Zeke." The Zero was the finest shipboard fighter in the world in the first year of the war, scoring stunning victories over all types of land- and carrier-based adversaries. It was legendary for its long range, speed, climb rate, and maneuverability, best demonstrated in dogfights, but it had no protective armor or self-sealing fuel tanks. The Zero was eventually matched by sturdier, if less nimble, American fighter types with more firepower whose pilots devised flying tactics to counter its startling performance.

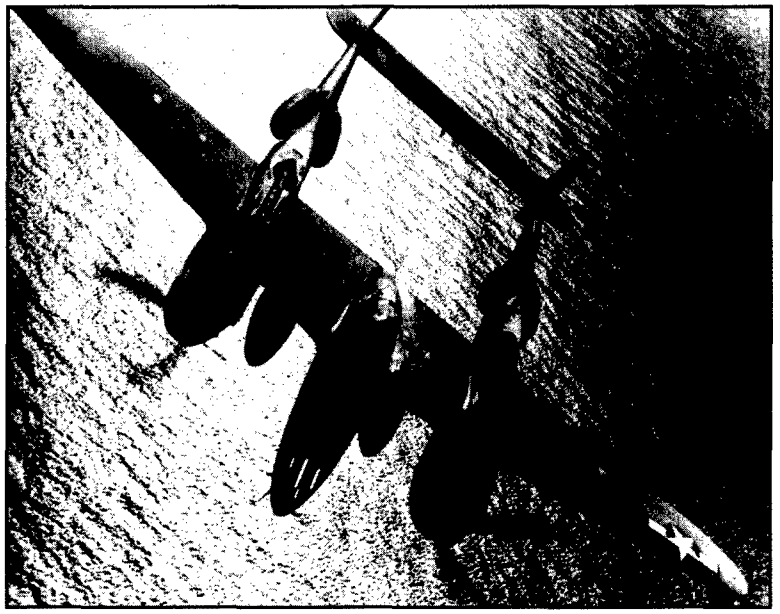
Grumman F6F Hellcat fighters, June 1943. The arrival of the U.S. Navy's F6F Hellcat put the brakes on Japanese air superiority, unbroken throughout the Pacific since 1937. The fighter, with two 20-mm cannon, matched the Mitsubishi A6M2 Zero and with a 2,000 horsepower engine, outclassed it. In just two years, Hellcats accounted for 75 percent of all U.S. Navy aerial combat kills.

under the sea, often within the same battle. In the Battle of the Philippine Sea, for example, submarines sank two Japanese aircraft carriers, the *Taiho* and the veteran *Shokaku*. Later, another sank the massive *Shinano*, sister ship to the two largest battleships ever built, *Yamato* and *Musashi*, both of which sank under withering aircraft attacks. For their part, Japanese submarine successes against American ships throughout the war, including carriers and, perhaps most forcefully, against the cruiser *Indianapolis* in 1945, posed special problems for the U.S. Navy, although aggressive air and sea antisubmarine patrols, aided by good intelligence, a key factor also in the destruction of Nazi Germany's U-boat menace, mustn't be forgotten.

Much as American jet fighters in the Vietnam War were hindered by the poor performance of air-to-air missiles, the unexpected inadequacy of American torpedoes well into the Second World War severely constrained the value of initial submarine patrols. In marked contrast was the superb performance of Japanese torpedoes, which had been so effective at Pearl Harbor, during combat on the open seas from aircraft against ships, and, especially, during vicious night battles in the Solomons in 1942 and 1943.

Sadly, in fact, at war's outbreak, a torpedo shortage afflicted the U.S. Navy, preventing submarines from firing full spreads to guarantee hits. Then, operational problems further eroded naval confidence. They involved deep running, fragile contact firing pins that broke up before detonating a warhead even with a hit, especially a good hit, normal to the side of the vessel, and defective magnetic influence fuzes. Such disturbing facts taught an important lesson, unfortunately not well learned in the post-war world: Peace-time training and testing must be so realistic that wartime performance matches as nearly as possible peacetime results. In the pre-war era, unfortunately, cost constraints limited much operational testing and analysis as well as second sources of torpedo production.[15]

During the Second World War, the U.S. Navy's submarines fired 14,748 torpedoes, sinking approximately thirteen hundred vessels, for an average of 11 torpedoes per sinking. Overall, this performance isn't as impressive as it appears; these launches came after long stalking approaches at the moment judged best for attack and often at great risk to the submarine. The frustration of submarine crews is certain-



Lockheed P-38 Lightning. Flown throughout the far-flung Pacific War, the Lightning proved ideally suited to the challenges of varied climbs. It was strong, durable, well armed, and, with drop tanks and twin engines, had the greatest range over vast reaches of water and jungle of any American fighter. It outperformed Japanese opponents and was deadly against the more maneuverable Zero at high altitudes where it was faster at diving and zooming.

A U.S. Marine amphibious DUKW towing jeeps ashore during unloading operations for the invasion on Guam, July 1944. A 31-foot-long DUKW could carry more than 2 tons over land and sea. It had a 6-wheel drive, a water propeller, and a 10-ton winch. The DUKW attained a top speed of 55 miles per hour over most terrain but only 6 miles per hour in the water.

ly understandable. On average, given the number of torpedoes carried, this ratio indicates that under the best of circumstances every torpedo launched achieved only two sinkings per patrol. That the numbers are as good as they are indicates just how successful submarines were later in the war when the torpedo problem was overcome. Late war results were often remarkable. *Archerfish*, for example, scored six explosions for six torpedoes expended when it sank *Shinano*. Truly, as Clay Blair has written: "The torpedo scandal of the U.S. submarine force in World War II was one of the worst in the history of any kind of warfare."[16]

Amphibious warfare, too, was not without its own particular lessons. Troop mobility remained a key problem, and it demanded newer, more capable amphibious vehicles. The National Defense Research Council sponsored the development of two novel utility craft that subsequently saw widespread service, the tracked M–29 Weasel and the wheeled DUKW. To facilitate its disembarking of wheeled and tracked vehicles on a beachhead, the Navy developed the specialized LST, or Landing Ship Tank, a shallow draft medium-capacity transport with bow loading doors and a ramp. The ubiquitous LST subsequently served in virtually all theaters as a maid-of-all-work, used for island assaults, casualty evacuation, and, in some cases, when it was outfit-

ted with a rudimentary flight deck for takeoffs and an ingenious cable-and-hook landing system, as a carrier of light artillery spotter aircraft. Other multipurpose amphibious landing craft also appeared, such as the LSM, or Landing Ship Medium, and the LSD, or Landing Ship Dock, as well as specialized assault ships, the attack troop ship, or APA, and the attack cargo ship, or AKA. All of these required massive construction programs as the pace of the island campaign accelerated after Guadalcanal. By September 1944, for example, the APA program had the Navy's highest labor priority.[17]

Another program was begun by the California Institute of Technology in response to the Navy's need for improved gunfire, which, for all its strengths, lacked the high angle, high volume of fire needed during troop landings. The institute developed a family of spin-stabilized battlefield support rockets, the 3.5-inch-diameter, ten thousand-yard-range solid fuel barrage rocket, most notably, and a slightly larger 5-inch variant. The Navy could subsequently fire its barrage rockets from landing craft, vehicles, fixed ground launchers, and, in one case, from the submarine *Barb* against Japanese surface targets, and with great effect in the remaining Pacific campaign. Such surface-launched weapons complemented the larger and later 5-inch-diameter fin-stabilized High Velocity Aerial Rocket, the HVAR, which, carried by Navy, Marine, and Army Air Forces fighters and light attack aircraft, provided the broadside punch of a light cruiser with better accuracy. At war's end, the Navy had an even larger, though far less accurate, rock-

LSTS and LSMs crowding an invasion beach on Okinawa with other amphibious shipping offshore, April 1945. LST-55 is at left. In the center are LCT-1270 and LSM-31. LST-776 is second from right.

LSM(R)–196 with LSM(R)–190 and LSM(R)–199 firing devastating 5-inch barrage rockets at deeply dug-in Japanese positions on Tokishishiki Jima, near Okinawa, March 1945. LSM (R) stands for Landing Ship Medium (Rocket).

et in service, the 18-inch-diameter "Tiny Tim." In an unfortunate turnaround, rockets of this kind nearly destroyed the carrier *Franklin* after it was hit by an enemy dive bomber off the coast of Japan. In an aside, the development of barrage rocket technology, coupled to depth charge technology, produced the forward-firing "Mousetrap" antisubmarine defensive system, inspired by the British "Hedgehog" antisubmarine mortar, which scored successes in later Pacific combat.[18]

Finally, research proceeded on new weapons to give the infantry an edge as it worked to overcome the tremendous difficulty of reducing Japanese defensive positions without incurring unacceptable losses. Although undeniably useful, the 2.36-inch anti-tank "Bazooka" was not as popular or as useful in the Pacific as it was in the European and Mediterranean theaters. Instead, incendiary weapons, such as the air-dropped napalm bomb, a wartime creation using a jellied gasoline filler in a droppable fuel tank, and the man-portable or tank-mounted flame thrower seemed best at dislodging a well-dug-in enemy. These were horrifyingly effective weapons, particularly the tank-mounted flame thrower. First installed in the light Stuart tank and then in the Sherman tank and the assault tractor, the mechanized flame thrower was prominent in amphibious operations from Saipan to Okinawa.[19]

An interesting example of just how disparate technologies came together to produce a workable, if not always completely effective, defense involves the *kamikaze*. There is quite a strong similarity between the defeat of the *kamikaze*, a piloted airplane usually carrying a

bomb or a torpedo, and the defeat of the German V–1 "buzz bomb" in roughly the same time period. Both were defeated by the combination of surface-to-air artillery firing proximity fuzed shells, timely radar detection, and airborne interception The *kamikaze* and the V–1 were cruise missiles, the latter a traditional "launch and leave" preset unguided weapon, the former a much more dangerous guided weapon. The *kamikaze* posed a significant threat; indeed, it was the progenitor of the modern antishipping missile—the Styx, Exocet, or Harpoon of its day. It had an adaptive terminal flight control system and a highly motivated pilot and thus, in some ways, was more of a precision system than some later weapons.

As a rule, *kamikaze* pilots tended to reflect the communities they came from. Torpedo pilots would bore in on the target at water level. Dive bomber pilots would approach the target high and then peel-off and dive. Fighter pilots would approach the target at low altitude, execute a "pop-up," and then roll and pull through into a vertical dive. Also, there were a few special *Ohka*, or Cherry Blossom, rocket-boosted *kamikazes* that were air-launched from twin-engine bombers as "stand-off" weapons. Altogether, the U.S. Navy lost 34 ships sunk and 368 damaged from approximately 2,800 *kamikaze* attacks, which cost the lives of over 4,900 sailors and wounded over 4,800.

A Mitsubishi A6M2 Zero or "Zeke" bent on a suicide attack against the USS *Missouri*, April 1945. Caught desperately trying to position itself over the battleship's deck by a U.S. Navy cameraman, the *kamikaze* failed in its mission and crashed into the sea. *Kamikazes* were among the gravest dangers faced by Allied naval forces in the Pacific War.

As an aside, at war's end, the Japanese had, by actual count, a total of 16,397 aircraft still available for service, including 6,374 operational fighters and bombers, and if they had used only the fighters and bombers for *kamikaze* missions, they might have realized, additionally, 900 ships sunk or damaged and 22,000 sailors killed or injured. In fact, however, the Japanese had outfitted many aircraft, including trainers, as potential suicide attackers. As intelligence estimates indicated, the Japanese believed that they could inflict at least 50,000 casualties to an invasion force by *kamikaze* attacks alone.[20]

The detection of incoming *kamikazes* was measured in minutes, and the "endgame" in seconds. Here, the integration of technologies was critical, and nowhere in the Pacific were the capabilities of late-war integrated American technologies better demonstrated. Data from radar picket destroyers detecting incoming strike flights or from airborne observation by roving fighter pilots was passed to a shipboard Combat Information Center and warnings were issued. Incoming attackers were tracked and airborne fighters were then vectored to intercept. As surviving *kamikazes* approached the fleet within antiaircraft artillery range, the onus of defense passed to the deck crews. In theory, the fleet's combat air patrol broke off combat at that time. In practice, pilots often pressed on, attacking *kamikazes* even in the face of friendly antiaircraft fire.[21]

When *kamikazes* entered gun range, they met intense fire from medium-size naval artillery and light, rapid-fire cannon. Fortunately, the Navy had three eminently suitable weapons in service, more by fortuitous circumstance and last-minute decision than by insightful long-range planning. The first, a dual anti-surface anti-aircraft 5-inch, 38-caliber cannon, fired up to fifteen rounds per minute. It entered service in 1934 and nearly 2,900 were in Navy hands by mid-summer 1945. The second and third, late acquisitions, were license-built copies of foreign light rapid-fire cannon: the superlative 40-mm Swedish Bofors and the Swiss-developed 20-mm Oerlikon. These latter two stemmed from frenzied Navy purchases in 1939 and 1940. By mid-summer 1945, the Navy had more than 5,100 dual- and quad-mounted 40-mms in service and more than 12,500 single-mount 20-mms. Approximately 75 percent of Japanese aircraft destroyed in 1944 and 1945 fell before these two foreign-designed weapons.[22]

The development of the small radar-keyed proximity fuze greatly enhanced the effectiveness of shipboard antiaircraft fire by a factor of three or four. The "prox fuze," a small radar fuze developed by a combined U.S. Navy-Office of Scientific Research and Development-Johns Hopkins University team, was one of the great technological innovations of the Second World War, a notable attempt to develop "smart" artillery. When *kamikazes* entered gun range, they first encountered prox-fuzed 5-inch fire; if they survived the 5-inch barrage, they faced

intensive prox-fuzed 40-mm fire. Closer in were banks of individual 20-mm cannon whose shells used contact fuzing. Thus, a *kamikaze* had actually to fly through a storm of fire as it closed on its target in a far cry from the early days of the Pacific War, when it faced less formidable, awkwardly designed 1.1-inch antiaircraft guns and 4- or 5-inch guns equipped with cut-fuze technology under "guesstimates" provided by inadequate fire directors.

Indeed, more and more sophisticated fire-control directors were key to the dramatically improved performance of shipboard antiaircraft artillery. The first major advance, first employed in 1942, had been the Sperry Mark XIV gyro-stabilized lead-computing optical fire-control director developed at the Massachusetts Institute of Technology by Charles Stark Draper. One notable fire control pioneer, Ivan Getting, has written that the Mark XIV and 40-mm gun "were the only meaningful close-in defense of the fleet against air attack," and the combination proved its worth during the Battle of Santa Cruz, when the battleship *South Dakota* shot down numerous Japanese attackers trying to bomb the aircraft carrier *Enterprise*.[23] In 1944, the Mark LVII director, developed by Eastman Kodak, appeared in time to counter the *kamikaze* menace. More sophisticated directors were under development by war's end, but they didn't see service.[24]

For all of this, however, the *kamikaze* campaign was dangerous, one that left the Navy profoundly disturbed. The best that can be said of the integration of diverse technologies is that it allowed the pace and tempo of the Pacific War to be maintained. Technology, training, and, not least, courage enabled the United States to cope with the threat, as numbers won out over opponents. The results of the campaign did little to comfort shipboard defense designers. On average, one in every seven *kamikazes*, 14.3 percent of the total, survived to sink approximately 8.5 percent of ships hit. Losses occurred even after the attacking force had been detected by radar, thinned in long-range flights, and threatened by concentrated defensive gunfire. Casualties that might have resulted in a closer-range war off the Japanese coast against *kamikazes* obscured in ground clutter can only be imagined.

During the crisis, the Navy's Bureau of Aeronautics authorized the development of America's first two surface-to-air missiles, the *Lark* and the *Little Joe*, the latter specifically to counter the *Ohka* suicide missile.[25] The bureau also sponsored the trials and production of a more powerful derivative of the F–4U Corsair, designated the F–2G. This "sprint" fighter was too late to see wartime service, but it indicated how seriously the Navy took the *kamikaze.* Unimpressed with the apparent inability of the standard package of six .50-caliber machine guns to drop a *kamikaze* in timely fashion, the Navy emphasized the installations of four more powerful 20-mm cannon, which, in the pre-missile era, set the new standard in naval fighter design.[26] Bey-

ond this, the service pressed for increased warning time by airborne early warning aircraft and achieved a navalized airborne warning version of the B–17 Flying Fortress, as well as subsequent land- and sea-based early warning aircraft. Thus, the origins of modern-day AWACS aircraft can be tied directly to the *kamikaze* campaign, as can the origins of both of America's first operational air-to-air missiles, the *Sidewinder* and the *Sparrow*. The recognition of a fleet's vulnerability to land-based aircraft attack is evident today in the great emphasis the U.S. Navy rightly puts in fleet air defense. Of course, hand-in-hand with this is the danger equally posed by another three-dimensional opponent, the submarine.

The story of technology in the Pacific War is necessarily complex and cannot be done justice in a brief presentation. America won the Pacific War because of the skill, courage, and dedication of its soldiers, sailors, airmen, and the tremendous effort by the home establishment. But these would not have sufficed, at least so quickly, had it not been for elements of the broad technological and industrial base available to America's military. These included the most robust and respected national research establishments—the Naval Research Laboratory, the Bureau of Standards, and the National Advisory Committee for Aeronautics—and internationally renowned academic centers of science and technology such as the University of Chicago and the Massachusetts and California Institutes of Technology. Pacific combat had shaped the nature of military forces, particularly those involving air, submarine, and amphibious warfare. Rapidly maturing technologies, in, for example, radio and electromagnetic detection, chemicals, and high-speed and long-range aircraft made manifest in new fuels, explosives, and weapons, were enfolded into these forces as ever newer and more useful military systems.

War's end in the Pacific was very different from its beginning. In December 1941, military power was locked firmly into the era of the propeller-driven airplane, the "dumb" bomb, pre-set artillery and torpedoes, manned weapons, and relatively primitive, if surprisingly effective, submarines. The war opened in what was, in every sense, a "conventional" world.

The world of V-J Day was an "atomic" world. American physicists had won the atomic race over their Nazi and Japanese rivals, and, in lieu of a costly invasion, two cities had been sacrificed on the altar of Japanese militarism before their leaders reluctantly surrendered. Just how America coped with the atomic future that lay before it would radically transform the world in which we live today.[27]

In many ways the world of V-J Day still resembled nothing so much as a 1930's science-fiction fantasy. When the *Missouri* sailed into Tokyo Bay, the American military was already built around then-"high" technology: radio communications down to squad level, rudi-

mentary smart weapons, and radar-equipped ships and aircraft, to name just a few. The U.S. Navy had already sunk Japanese ships with TV-guided air-to-ground glide bombs, undertaken combat trials of propeller-driven TV-guided drones with some startling successes, and operationally tested smart homing torpedoes in combat.[28] Smart artillery, at least with respect to the proximity fuze, was a reality. For its part, the Army Air Forces had dropped the first primitive smart bombs and had arranged to produce both an air- and surface-launched American version of the V–1 cruise missile, but equipped with a guidance package to make it a quasi-precise weapon. American strategic airpower had gutted Japan. For the military, the era of the jet had opened. Both Army Air Forces and Navy fighters—some crude blends of propeller-and-jet technology—were under development or already in service. Ahead lay the supersonic breakthrough, which would radically transform world aviation. In December 1941, the United States still had some biplane fighters in military service; in December 1945, the United States had the first supersonic airplane, the Bell XS–1, on the verge of its first flight. The Navy was digesting technical lessons from the Germans and the Japanese, getting ready to adapt certain features of the Type XXI U-boat and to apply them to the first true American *submarine*, as opposed to *submersible*. Visionaries conceived of joining cruise and guided missiles, atomic weapons, and possible atomic power generation to the submarine to make it a weapon of truly global war. The rest of the story, of course, is well known.

Half a century after our fathers and our grandfathers won victory over the Axis, we can say that the technology imagined, designed, refined, and applied to the Pacific War undoubtedly helped shape the nature of the world we now occupy. Those technologies first explored, promulgated, and implemented in support of America's Pacific War bore their most recent fruit not quite five years ago, in the six-week Persian Gulf War.

Strategic Intelligence and War Termination

Edward J. Drea

Unlike the other presenters, I don not have a script. That does not mean I am not prepared, though. Today we have heard very fine general overviews of military developments during World War II. Beginning with a strategic overview of the war, speakers described U.S. Marine Corps and U.S. Navy operations, joint command relationships, and technology. Finally, here I am with the intelligence aspect of the war. I don't intend to discuss the development of intelligence from Pearl Harbor to V-J Day. Rather, I would like to concentrate on the state-of-the-art intelligence that was available to American and Allied decisionmakers in the fateful summer of 1945. I will describe the influence of strategic intelligence on the evolution of American planning for the invasion of Japan, codenamed Operation DOWNFALL.

When I talk about state-of-the-art intelligence, I mean signals intelligence, that is, intelligence obtained from analyzing, deciphering, and decrypting Japanese military and naval encoded radio messages. This type of intelligence was codenamed ULTRA. Allied ability to read Japanese code systems, especially those of the Japanese Army, waxed and waned during the war. In 1944, Australian forces in New Guinea captured a set of Japanese code books. This find enabled Allied cryptanalysts to solve the Japanese Army's most secret communications with accuracy and celerity. The Japanese took a great many security precautions, including switching their main Army code book. These rendered their codes temporarily unreadable.[1] Nevertheless, by the late spring and early summer of 1945, American and Allied cryptanalysts were routinely solving a dazzling variety of Japanese military and naval code systems and making the resulting intelligence available to decisionmakers at the highest level.

As I mentioned, the Japanese relied on a wide variety of code systems to gain secure communications. There was the Army administrative code, the Army Air Forces code, the Army water transport code, a communications code, an air-ground code, a weather reporting code, and so forth. The code books used for these systems were compact and portable, about seven and a half inches by six and a half inches by half an inch, designed functionally for field units, and easy to use. The code book bore a red cover and had green, yellow, red, and brown dividers to demarcate organizational listings. These were four-digit code systems, meaning that a four-digit group replaced names, terms, units, and numerals. Thus, "MacArthur" was encoded as 2395, "Stalin" as 0184, and "Washington, D.C." as 1935. Each page of the

code book contained a hundred entries with a hundred total pages giving 9,900 meanings, a hundred spaces being left blank to accommodate new terms or to confuse would-be codebreakers.

Japanese radio operators transmitted these encoded four-digit messages, which were the central nervous system of Tokyo's far-flung armies, in International Morse Code. The brain in Tokyo dispatched impulses that activated field units at the extremities, and, by 1945, too often the extremities were bombarding the brain with radio waves of shock, pain, and suffering. Every day thousands of messages flashed through the airwaves. And every day, thousands of Allied radio operators, scattered along an arc of intercept sites stretching from Dutch Harbor through the west coast of the United States to Pearl Harbor and on to Australia and India, intercepted Japan's radio message traffic. For eight- or twelve-hour shifts, intercept operators copied four-digit groups of otherwise meaningless numbers. The site commander sent the results to Allied cryptanalysts located at Arlington Hall Station in Washington, D.C.'s Virginia suburbs, or to Central Bureau, General Douglas MacArthur's independent cryptanalytic agency.

By the spring of 1945, Allied cryptanalysts were solving these Japanese radio puzzles with precision and speed. The resulting deciphered military messages became the most important source of intelligence on preparations for the defense of the home islands or, as the Japanese put it, "the decisive battle of the homeland." We were reading, for instance, radio messages dispatched by the Japanese Army harbor master in Pusan, Korea. His office was coordinating the shipment of thirty thousand to sixty thousand troops redeploying from Manchuria for Kyushu via Korea.[2] We were reading weather codes that tipped off our air forces on weather over Japanese cities and benefited our targeteers and planners. We were reading the main four-digit Japanese Army code that I described earlier. We were reading the Japanese Air Force code so that we could track major deployments of aircraft, locate otherwise secret air bases, and analyze air tactics for the decisive battle of the homeland. We were reading air-ground codes, so that we could literally follow Japanese pilots from takeoff to landing. We were listening in on Japanese pilots training off southern Kyushu for low-level attack runs against transports and landing craft. We were also reading the Japanese Navy's five-digit code systems, so that we were well aware of the suicide tactics of *kamikaze*, or divine wind, air and *kaiten*, or human torpedo, naval units.

Because we were routinely reading Japanese codes, we knew that the Japanese military was working feverishly to transform Kyushu into a bastion for homeland defense. It was Tokyo's top priority. ULTRA sources provided the Allies with unimpeachable intelligence on the state of Japan's defense preparations and provided it straight from the enemy's own lips!

Now, I will describe how the knowledge we obtained from this intelligence applied to our planning for the invasion of Japan and how it shaped our perceptions of what form the Japanese reaction to an amphibious assault might take. Over the spring and summer of 1945, our planning and perceptions changed significantly as ULTRA enabled us to monitor and evaluate what was happening on Kyushu.

Operation DOWNFALL was the overall plan for the invasion and defeat of Japan.[3] It was a two-stage operation. Operation OLYMPIC was the first phase, the codename for the invasion of southern Kyushu to occur on November 1, 1945. The second phase, Operation CORONET, the invasion of the Tokyo Plain, would follow on March 1, 1946. In the spring of 1945, American planners estimated that only a final, climactic battle on the Tokyo Plain would force the Japanese to surrender.

The Japanese, of course, were expecting an invasion of the home islands. In January 1945, the Emperor approved, and the Japanese Army promulgated, a vast mobilization for homeland defense. Their goal was to raise forty new divisions to defend Japan itself. Four regular divisions, redeployed from Manchuria, would augment the newly formed units, many of which were slated to fight and die on Kyushu.

Japanese counterinvasion plans called for the extensive use of the same suicide tactics that had taken such a heavy toll on American

Pacific War intelligence gatherer, March 1943. Somewhere in Asia a U.S. Army Air Forces airman listens for electronic signals whose decoding might reveal possible enemy plans and movements. To his left is a transmitter; to his right is a rectifier.

ships and sailors off Okinawa. For the decisive battle, the Japanese expected to discover the main American fleet when it was about 250 miles off the homeland's coast. At that time, single-wing fighters and bombers, plus conventional submarines, would attack the invading fleet, relying on *kamikaze* air and *kaiten* naval suicide units to start the bloodletting. Once the fleet approached the homeland's shores for the actual invasion, monoplanes, biplanes, midget submarines, and suicide frogmen would assail the fleet, singling out troop transports and landing craft for their deadly attacks. The Japanese high command in Tokyo, however, hedged its bets about confronting the actual amphibious assault. Was defending on the water line as had been tried early in the war on Tarawa better or was defending in depth as had been tried later in the war on Okinawa better? Fighting a protracted land battle on the defensive denied the spirit of the offensive held so dear by the Imperial Army and regarded as the defining characteristic of the Japanese infantryman. Could an offensive stand up to overwhelming Allied firepower? Staff officers in Tokyo studied and struggled over the pros and cons of each doctrine in the spring and early summer of 1945.

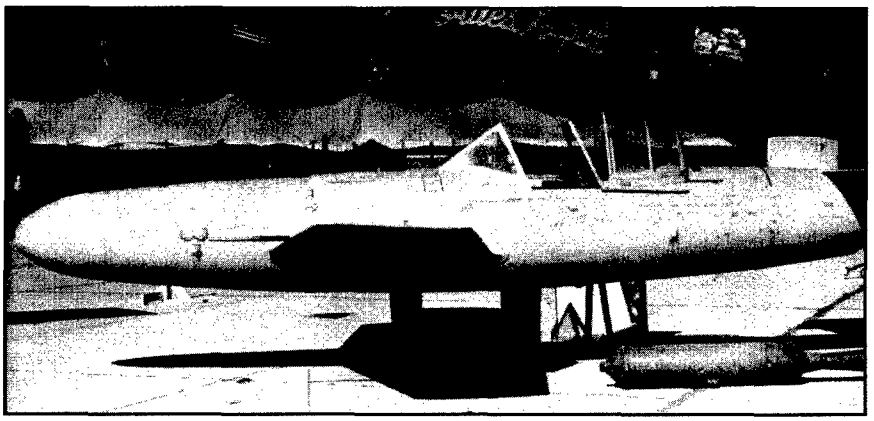
Meanwhile, General Douglas MacArthur's planners set to work mounting a massive invasion of Kyushu. They devised Operation OLYMPIC under which the Americans would seize the southern third of Kyushu to develop the necessary air and naval staging bases for Operation CORONET. Operation CORONET was a tremendous undertaking and displayed the combination of technology, logistics, intelligence, and combat expertise that the United States had built up in three long and terrible years of war against a determined foe.

General MacArthur's initial intelligence estimate to accompany the first plans for the invasion of Japan appeared on April 25, 1945.[4] It showed one operational Japanese division, the 86th, in Kyushu, along with a couple of training or depot divisions. But it also showed a very good division, the 57th, in transit. Recall the Japanese harbor master in Pusan's radio messages. ULTRA told us that the 57th was in the middle of redeploying to Kyushu. It was clear that the Japanese intended to strengthen the island. It was not clear what a massive reinforcement they had in mind.

Major General Charles Willoughby, General MacArthur's intelligence chief, factoring Japanese reinforcements into his initial plans, made three assumptions concerning Operation OLYMPIC. His assumptions underpinned subsequent planning and decisionmaking in the summer of 1945. The first assumption was that the Japanese would defend Kyushu by reinforcements before the November 1st invasion date. The second assumption was that the Japanese could sustain no more than ten combat divisions—about 350,000 troops—on the entire island; its transportation and logistics infrastructure was insufficient-

ly developed. Kyushu was mountainous, rugged, and heavily forested. It contained only one main north-south rail line and only one north-south road, never considered first class. Furthermore, Allied, mostly American, air and naval might, particularly submarines and surface warships, would be able to choke off additional reinforcements and seal off the battle area. The third assumption was that, even if they had ten divisions, the Japanese would have to defend the entire is-land. Not knowing where we intended to land, they'd have to divide their forces equally between northern and southern Kyushu. Defend-ing everywhere, they would have to disperse their forces and, consequently, be weak everywhere. So if the three assumptions held true, then it followed that wherever American marines and infantrymen landed, they would fight at a three-to-one superiority, the ideal ratio, of course, for a successful amphibious assault. Willoughby's assumptions went forward from MacArthur's theater to the War Department and the Army Chief of Staff, General George Marshall. They constituted the intelligence estimate available for the June 18, 1945, meeting between the Joint Chiefs of Staff and President Harry Truman in the White House.

This historic meeting has been well described and analyzed elsewhere. The military chiefs wished, first, to gain the President's approval for the continuation of Operation OLYMPIC and, second, to answer any questions he might ask. I merely point out that the President did ask General Marshall how many Japanese defenders were expected on Kyushu by the invasion date. Marshall replied that an estimated 350,000 Japanese troops were expected. The President then asked about the possibility of further enemy reinforcement of Kyushu, and



Side view of a Japanese suicide bomb, an Ohka "Baka," type, shown at a post-Pacific War exhibit. Such weapons were a constant danger to U.S. Navy ships of all types. The prettily-named Ohka, meaning Cherry Blossom, was in essence a piloted flying bomb, rocket-powered, and discharged from under a medium or heavy bomber. Despite the best intelligence, Japanese suicide weapons were difficult to thwart.

Marshall replied that further reinforcement was unlikely because our air and naval strength would sever Kyushu's line of communication. In short, there would be no way for the Japanese to get more troops to the island.

One problem OLYMPIC planners faced was Kyushu's restrictive terrain. They envisioned three simultaneous, corps-size amphibious assaults against three different landing beaches. Just three beaches in all of southern Kyushu were capable of sustaining a landing force of such magnitude. Moreover, they were backed by rugged bluffs. Only a few roads led to higher ground. The Japanese, having surmised that Kyushu or Tokyo was the next Allied invasion target, opted, after considering the Americans' need for naval and air staging bases because of the technological limits of their land-based aircraft and the previous patterns of their amphibious assaults, to throw most remaining resources into the defense of Kyushu. Since the Americans invariably did things on a grand scale, planners at Imperial Headquarters zeroed in on the three large beaches on southern Kyushu. There, they gambled, was where the Americans must land! Both adversaries were gearing up for a decisive battle to be fought at their location of choice. The Americans, courtesy of Japanese military radio messages, were privy to Japanese intentions and thus had the advantage.

Here is what ULTRA told us in the summer of 1945, according to the U.S. War Department, G–2, Military Intelligence Summary for June 7, 1945.[5] At that time, American intelligence estimated a Japanese troop strength of 281,000 on Kyushu. Major identified ground units included the 86th and 25th Divisions in the south and the 57th in the north. ULTRA, through the Army water transport code, told us that the 25th had recently arrived from Manchuria. Revealed reinforcement numbers fell within American planning estimates. Two Army-level headquarters, the Fifty-Seventh in the south and an unidentified one in the north, indicated that the Japanese would, indeed, divide their forces between the northern and southern halves of the island. This was the best available strategic intelligence on Kyushu's defenses by June 18th, when General Marshall and the other Joint Chiefs met with President Truman.

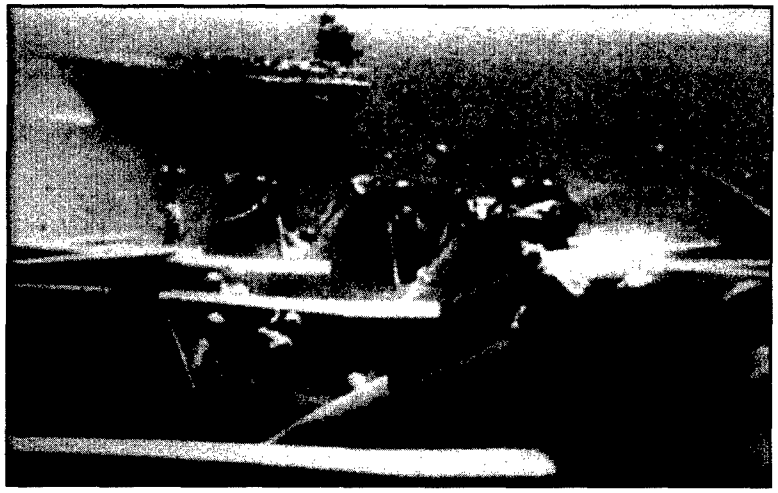
Meanwhile, ULTRA also told us that the Japanese had a predilection for suicide weapons. The commander of the 12th Naval Air Flotilla, for instance, reported to Tokyo that he was preparing his nine hundred available planes for *kamikaze* missions.[6] ULTRA also told us that the Japanese were holding back their planes, in effect hoarding them, for the decisive battle. Japanese Army and Navy air forces used fly-away tactics to avoid B–29 raids. We listened as their ground controllers vectored pilots toward distant dispersal areas, not toward incoming bombers. ULTRA was accurate. In July, for instance, it counted 1,885 Japanese planes on Kyushu. U.S. Army Air Forces planes then

photographed every airfield on the island. Photo interpreters counted 1,805 Japanese planes caught on film.[7] ULTRA provided exceptionally reliable strategic intelligence, by any stretch of the imagination.

The Military Intelligence Summary of July 9, 1945,[8] indicated by that time, 350,000 Japanese troops defending Kyushu. Still another division, the 77th, had moved into the south. So then two Japanese divisions were athwart our intended landing beaches. The 206th Division was in central Kyushu. Three divisions were in the south, two were in the north. Command and control arrangements remained the same. Recall the 350,000 figure. It was supposed to be the maximum number of Japanese on Kyushu by November 1, 1945.

The Military Intelligence Summary of July 13, 1945,[9] indicated 375,000 Japanese on Kyushu. Another new division, the 212th, had deployed along the Miyazaki beaches. The Japanese had reinforced all three landing beaches OLYMPIC. Command and control arrangements, however, remained intact, suggesting that the Japanese still intended to divide their for-ces between northern and southern Kyushu.

The Military Intelligence Summary of July 21, 1945,[10] estimated 455,000 Japanese troops on Kyushu. Two unidentified divisions had moved astride the beaches where the U.S. Army I Corps was supposed to land. Another unidentified division had settled near the beaches that the V Marine Amphibious Corps had to cross. There were seven Japanese divisions on the southern half of Kyushu, only two on the northern half.



Dangerous elements of a powerful Japanese carrier fleet, June 1943. "Val" dive bombers are lined up neatly, ready for launching at a moment's notice to seek out and assail Allied ships, aircraft, and land targets. Allied intelligence analysts and codebreakers worked diligently to track enemy carrier operations.

The Military Intelligence Summary for August 2, 1945,[11] indicated that there were 545,000 Japanese defending Kyushu. ULTRA had unmasked the previously unidentified divisions in the south as well as two more, the 312th and 145th, in the north. There were eleven divisions on Kyushu and another division expected soon in the south. Both in terms of manpower and major units, the Japanese had surpassed initial American intelligence predictions.

But, more significant was the discovery of Fortieth Army Headquarters on southwestern Kyushu. There were now three Japanese Army-level headquarters on the island, and the existence of two of them in the south was especially ominous. Like a flashing red light, Fortieth Army Headquarters signaled intelligence analysts that the Japanese had made a major operational decision. The new command and control relationship divided the southern third of Kyushu in half. The Japanese were deploying so many troops to the south that one headquarters couldn't direct them all; they needed another to keep pace with reinforcements. This meant, in stark terms, that the Japanese high command had decided to commit the bulk of its forces on Kyushu to the southern part of the island, where its troops intended to fight the decisive battle of the homeland. Indeed, the Americans' intended landing beaches seemed more like magnets, steadily drawing Japanese combat units toward them.

So American intelligence assumptions were wrong. Instead of 350,000 troops on Kyushu by November 1st, the Japanese by August 2nd had already deployed 545,000 and the number was going up. Instead of a maximum of eight to ten divisions, they already had eleven. Instead of defending equally between northern and southern Kyushu, they decided to concentrate their forces in the south along the beaches earmarked for the OLYMPIC amphibious assault. Instead of attacking at a three-to-one superiority, American troops faced the prospect of attacking one-to-one. This was not, as Major General Willoughby put it, "the recipe for success."[12] Indeed, these intelligence revelations had ramifications. In late July, General MacArthur's headquarters ordered the air campaign against Kyushu moved forward. Originally set for September 1st, it began on August 1st. Meanwhile, the steady and disconcerting appearance of still more Japanese reinforcements on Kyushu played heavily on General Marshall's mind.

The Military Intelligence Summary of August 7, 1945,[13] one day after the atomic air attack on the Japanese city of Hiroshima, indicated that there were an estimated 560,000 troops on Kyushu. In other words, in less than a month, the Japanese high command had thrown 210,000 reinforcements onto the island. At least nine and possibly ten divisions were defending its southern half. They were massed along the beaches selected for the American invasion. So how reliable was

ULTRA? Remarkably so; its discovery of the massive Japanese reinforcement effort was a singular intelligence triumph of World War II. ULTRA correctly identified thirteen of the fourteen Japanese divisions deployed to Kyushu and tracked them as they moved into their assembly or deployment areas. It also correctly identified command and control arrangements and provided accurate locations and order of battle intelligence. ULTRA also did more.

Beyond basic order of battle intelligence, ULTRA disclosed the Japanese high command's plans to repel, or at the very least, bloody any invader. On June 20, 1945, the Vice Chief of Staff, Imperial Japanese Army, ordered a major shift in counteramphibious doctrine, and his radio message was intercepted, decrypted, and available to Allied planners and decisionmakers by July 7th. It described the new tactics to be employed in the decisive battle of the homeland. The gist of the message, as published in the Military Intelligence Summary of July 7, 1945, provides some of the flavor of the thinking in Tokyo during those desperate days in the summer of 1945.[14]

> (1) The battle will be, literally, the decisive battle, a fight to the finish. It is fundamentally contradictory

A Japanese soldier well camouflaged by jungle foliage on one of the many Pacific islands that he and his comrades overran and occupied as they expanded their nation's defensive perimeter, August 1944. Many thousands of fighters as tenacious as he would have defended the home islands to the death if Allied plans for the invasion of Japan had been carried out.

> for Japanese forces disposed along the coast—whatever tactical difficulties may arise—to count on continuing the struggle by retreating.
>
> (2) If a landing on Japan proper is attempted, a full scale offensive will be launched with the intention of utterly destroying Allied forces at sea or on beaches.
>
> (3) Japanese troops must in no event resign themselves to the defensive, no matter what points may be taken by Allied forces.
>
> (4) For the High Command on down, emphasis must be laid on (i) prompt decisions, (ii) strategical concentrations wherever there is a major operation of decisive battle, and (iii) bold offensive action.
>
> (5) Japanese air and sea forces must make every effort to annihilate the Allied invading forces at sea.

The Japanese high command had decided on counteramphibious tactics. It reversed accepted doctrine and demanded that Japanese soldiers fight and die holding their positions along the beaches. And we knew from ULTRA what any tactical implications would be. A Tokyo staff message of July 17th addressed to, among others, Second General Army Headquarters, Hiroshima, stressed the proper use of antitank tactics on the invasion beaches. The decrypted message appeared in translation in the July 20th to 29th ULTRA Intelligence Summary:[15]

> We are emphasizing that the cardinal point of land warfare during Operation HOMELAND consists of annihilating enemy tanks, which are the backbone of his [Allied] battle force... anti-tank operations will consist of destroying enemy tanks by systematic penetrations of defenses in depth, extending from the water's edge inland.... To carry this out, the coastal roads will be demolished.... In anti-tank warfare, the main reliance will be on close-in attacks of special attack units using suicide tactics. For this purpose officers and men of the entire Army will carry out close-in attacks regardless of their branch or line of service.

In other words, we knew not only where the major Japanese units were deployed, but also how they intended to fight. Any invasion of Kyushu promised to be frightful, at least according to ULTRA.

I have thus far sketched out the state-of-the-art intelligence available to senior American decisionmakers by August 1945. Another

decrypted Japanese message, this one from Kure, added an entirely new dimension of horror to an already ferocious struggle.[16] Naval authorities in Kure, located across the bay from Hiroshima, sent a message to the Navy Ministry late in the evening of August 6th and retransmitted it to the same addressees on August 8th. It was decrypted and in Allied hands after the atomic destruction of Nagasaki on the morning of August 9th. It's very striking and I speculate that it reached President Truman. If so, it confirmed for him the tremendous destruction and loss of human life. On August 10th, according to his Secretary of Commerce, the President told his cabinet, "The thought of wiping out another one hundred thousand people is too horrible. [I don't] like the idea of killing all those kids."[17] Why did he use the figure one hundred thousand, why not fifty thousand or some other round number? He did so, I believe, because he saw the ULTRA message and realized what the United States had wrought. I admit that this is conjecture; however, it's *no* conjecture that the United States was fully aware of the massive Japanese effort to reinforce Kyushu and to fight the decisive battle of the homeland on its beaches.

It is true that Japanese diplomats had been using their own channels for some time to obtain a negotiated end to the war. Because American cryptanalysts solved the Japanese Foreign Ministry's cipher in 1940, the United States read Japan's diplomatic cables throughout the war. Intelligence analysts, soldiers, and statesmen read about how the Foreign Ministry was trying to broker a deal through Moscow. In short, Japanese diplomats sought to achieve a compromise settlement while Japanese militarists prepared to go down fighting. To an intelligence analyst, say, in Washington, D.C., in December 1941 who was still plying his craft in July 1945, the scenario of Japanese diplomats saying one thing, while Japanese warriors were doing just the opposite would probably have taken on special meaning. If nothing else, it would probably have appeared all too familiar.

In conclusion, I offer one statement and pose one question: All of this state-of-the-art intelligence was available to American decision-makers throughout the summer of 1945. If you had been in their shoes and had had all of this intelligence, what would *you* have done?

Revolutionizing Submarine Warfare

Rear Adm. Eugene B. Fluckey, USN (Ret.)

World War II began for American submarines in Panama during mid-November 1941, when the U.S. Navy received orders from the President to put on warheads and seek out and destroy German submarines off Central and South America.

I was the new engineer officer of *Bonita*, built with the prototype B class in 1925 and decommissioned in 1927 because of chronic fuel oil leaks and hull design and stability problems. She was recommissioned in 1941, calling back as many of her former crew as possible. The average age of my chiefs was sixty-two. Ship's orders stated that the ship went totally out of control at a two-degree dive angle. Diving time was over five minutes, which ensured our being sunk if we ever made contact while on the surface.

I convinced the skipper to let me experiment using three degrees; so we went to five degrees, with him shouting. The nose squeezed in, but by pumping aft she did well. Then, to seven degrees, then to ten and we had no problem, finally, to fifteen and then to twenty degrees. We dived in less than a minute. My chiefs helped by kneeling in a row behind me with hands in prayer, saying, "Each dawn we die." Five patrols after Pearl Harbor, *Bonita* was the only operable submarine and alone protected the Panama Canal from Japanese bombing by being stationed seven hundred miles out at Cocos Island. A line of tuna boats filled in the former submarine search line, and, when they sighted the enemy fleet, they notified *Bonita*, which leaked 10 percent of her fuel on each patrol. What odds!

Later, after getting out of the backwaters of the war, I was invited for a PCO [Prospective Commanding Officer] run in *Barb*, which hadn't sunk an enemy submarine in six patrols. "Hide and ambush" was an approved method of conducting a patrol. It was a wasted, exasperating patrol, trying to get the skipper to get up on the surface to seek and destroy. We finally chased and sank a lone ship at night and made the first double bombardment with *Steelhead* on a small island phosphate plant.

As skipper, I studied every patrol report assiduously and made my building blocks for *Barb*'s strategy and tactics, keeping in mind that the area coverage of a three-foot periscope exposure to the horizon of two miles r^2 is 12 square miles. Whereas, on the surface with high periscope up fifty feet, the horizon is at 8.1 miles and covers an area of over 206 square miles. Add to this a daily ration of fuel for speed and a search plan. *Voila*! You spot and sink more ships. You also

get sighted and receive more bombs, depth charges, shots, and shells from ships and shore batteries.

Barb was in competition only with herself. We were determined that each of her patrols would be better than the last. Our minds were open to everyone's ideas. Thus began the revolution. First, when a torpedo hit in the bow of a ship, she came to a shuddering halt and other torpedoes missed ahead. So we shifted to an aft-forward spread and the important bigger ships sank.

Second, a normal surface wolfpack attack was an end-around the convoy to get ahead. One submarine attacked from the starboard bow of the convoy, then another came in from the port bow to repeat the attack. This gave some advantage, increasing the differential speed escaping after the attack. The disadvantage, I noticed, was that torpedoing the lead ship of a column often resulted in a scramble of ships with violent course changes so that one had to wait until the convoy settled down to get a sure set-up without wasting torpedoes.

Finally, I got a chance to try a new attack system I had been playing with on paper. We were in wolfpack formation, bottling up the Formosa Strait during the Philippine invasion, and *Barb* had chosen a search position in shallow water off the China coast. We spotted a large convoy leaving the protection of the coast. I held off attacking for five hours until my mates had made contact. We then drove them away from the coast. Two destroyers held us down in 120 feet of water as night came on. Once clear, I surfaced astern of the convoy in the strait. There was no time to end around, so we tried our new attack, coming up from the rear and joining the escort line 1,500 yards to starboard of the two columns of remaining ships. All eight escorts had radars. My mates attacked from the bows in turn. Now, *Barb's* turn came as we joined the escort line.

Turning 20 degrees toward the convoy, we fired at the last ships in both columns. The closest one sank and the farthest one was hit, beached, and abandoned. JANAC [Joint Army-Navy Assessment Committee] gave that credit to the U.S. Army Air Forces. On firing, *Barb* moved out and passed the escort ahead at 500 yards and up the escort line, again about 1,400 yards between escorts, without searchlights or opposition. Once in position, we turned our nose in and fired. Again, we nosed out and headed up the escort line. The *Sanyo Maru* erupted like a volcano as we positioned *Barb* for the last ship. There was one difference this time: Every escort raced off, leaving *Barb* to "guard" the last ship as we readied to fire. An urgent message came from the wolfpack command boat, *Queenfish*, "Hey! Save one for me!"

The third revolution was at Namkwan Harbor, on the China coast. One of our great mistakes in World War II was failing to provide area language interpreters to every submarine on patrol. As a French interpreter for the Navy, I tore a one-page Japanese language guide

out of a BUPERS [Bureau of Personnel] bulletin in 1941. On my first patrol as skipper, I rescued a prisoner from a naval transport we had sunk. No officers survived. Once the prisoner was convinced that *he* lived only if *we* lived, I made him, in writing, an official member of the torpedo reload crew. Then, at my prodding, he showed me where all of the minefields were in our area and in adjacent areas, and he admitted that he know when some of them were laid. My pack mate, *Golet*, started her patrol smack in the midst of one of those fields, which had been laid only two months before, and was never heard from again. So it was in the East China Sea. The SACO [Sino-American Cooperative Organization], under Admiral Milton "Mary" Miles, who was COMNAVGRP [Commander Naval Group] CHINA, based in Chungking, was so secret that submarine skippers weren't informed of American coast watchers, assisted by Chinese pirates, providing the contact information sent to our neighboring wolfpacks.

The high seas were barren, and we had several messages of convoy courses and speeds leaving ports, but no joy. We thought that the contacts were coming from planes who might be confused. At my request, my pack commander assigned me a shallow water search area

A U.S. Navy submarine on Pacific War patrol, May 1945. The standard American Gato/Balao Class submarine such as the one pictured stalked and struck enemy ships and harried occupied coastal areas. American submarines in the Pacific were, until hard-won island air bases could send out long-range U.S. Army Air Forces bombers, vital obstacles to Japan's expansion, destroyers of the vessels that helped carry the necessary raw materials from her conquered lands to her industrial sites at home and supplies to her armed forces throughout Asia.

twenty-six miles from the coast. I felt sure that the enemy was running the coast and anchoring at night. Studying our biggest charts, I found that going from Amoy to Shanghai was impossible, due to a ten-mile stretch of tidewater as little as a foot deep, behind Haitan Island. I sent a message to Admiral Miles stating our dilemma and asking if it was possible that the channel had been dredged. He replied, "Yes, coast watcher reports that even major battleships use it."

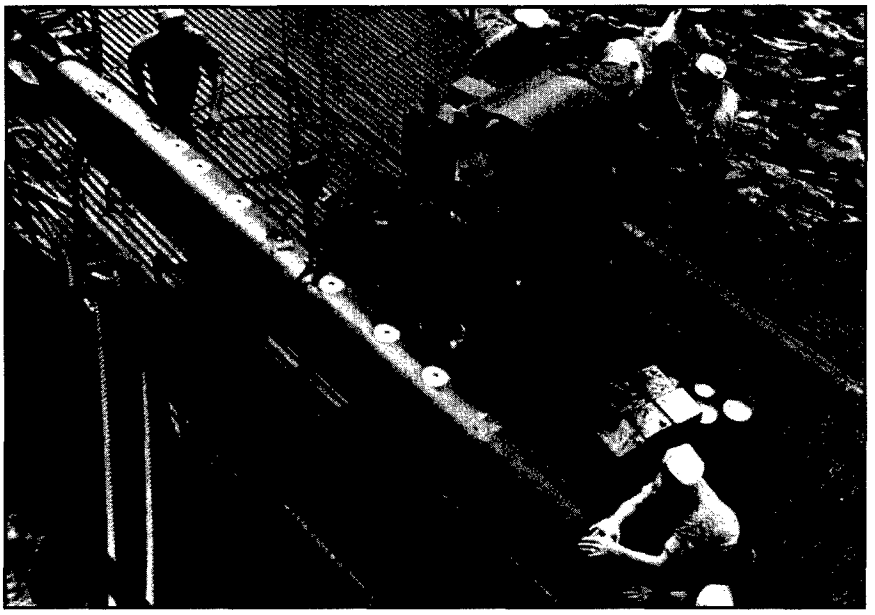
Now, I knew, but how could we know where the ships were? A large fleet of junks came out across the twenty-fathom curve to fish until noon every day, then turned back to the coast. Would they report us? We could not speak to them to find out about the convoys. We mingled with them in their midst, in diving water. They were amused. No bombs or aircraft came, so there were no spies. The next day we repeated the tactic. Turning shoreward, we stayed with the junks and crossed the ten-fathom curve. Two hours and twenty minutes later, in forty feet of water, we sighted the smoke of a convoy coming down the coast. We checked its speed and headed out to ambush it on the surface that night. The convoy did not show, however, so we knew that it had anchored. I asked my packmate to join me in searching the coast for it; he replied, "Drop dead!" So we searched alone and found twenty-seven ships anchored and shielded by three destroyers. We sank four ships, damaged three, and set a new 23.5-knot submarine surface speed record. With two destroyers astern two thousand yards chasing us, we departed with governors tied down and 150 percent overload on the engines. The engineers were yelling, "The bearings are getting hot." My reply was, "Hell, let 'em melt!" We were saved by running into a large fleet of darkened junks. As smoke from the exploding ships covered everything, the destroyers, with their inferior radar, could not differentiate between a submarine and a junk. So they stopped and shot up the junks for the next ten hours. Marine Sergeant William Stewart, the top coast watcher, who often rode his pirate junk, reported four ships sunk and three damaged to his relay, Navy radioman Robert Sinks. The pirates also reported innumerable bodies of soldiers washing ashore. Sinks passed these reports on to Chungking. Stewart was awarded the Legion of Merit and then was sent back to the United States for endangering himself.

The records of this attack disappeared in the United States, and JANAC gave *Barb* credit for only one ship, based on an unknown originator's message ten minutes after the attack, saying, "*Taikyo Maru* blew up and disappeared from the earth at this time and place." That message was intercepted in Tokyo and Commander Sogawa, on operations watch, put it in his personal diary, which I now have. Both Admiral Miles' and coast watcher Stewart's reports were ignored. I started researching this attack as COMSUBSWESTPAC [Commander Submarines Western Pacific] in 1955 when Admiral Fenno, the mili-

tary liaison to Chiang Kai-Shek in Taiwan, invited me to visit. At that time, Chiang's intelligence chief, General Ti Lee, knew the details of the attack, and verified our reports. In 1991, Bob Sinks, the coast watcher radioman who passed my request for minefields information, got my wife and me visas to revisit the harbor as agricultural experts. He's now the head of an agronomy company. Our Beijing Embassy and I had been denied visas for seven years. When we arrived at the harbor, some old fishermen testified to the Chinese officials that the harbor was used for anchorage every day, but after the attack, no ships anchored there again. They also showed us where the four ships were sunk, and much more. This lengthy harbor penetration on the surface was a first and last.

The mostly forgotten SACO group members are unsung heroes. In addition to coast watching, they boarded and sank a ship, surveyed beaches for invasion, and wiped out an island garrison, signal station, and lighthouse. They marched north to rid Foochow, Matsu, and Sharp Peak of Japanese and ended up in Hangchow, where they convinced an enemy major general to surrender thirty five thousand armed troops.

For my fifth and final patrol I was permitted to engage in harassment tactics in the Hokkaido area of the Okhotsk Sea. Traffic in this



A Mark XVIII electric torpedo being hoisted on board a U.S. Navy submarine, September 1944. The deck gun is a 5-inch/25 wet mount. Until 1943, American submarines scored fewer hits than they might have because of defective torpedoes that failed to explode or passed beneath their targets. Until 1942, before they were equipped with radar, American submarines worked virtually "blind."

240,000-square-mile sea was controlled principally by cable messages. I knew a prime link was located on Etorofu Island so I verified it with our U.S. Pacific cable experts on Midway Island, who estimated the equipment inside was worth $2 million. On my first patrol, I'd tried to bombard it, but it was always in a fog pocket. So I guaranteed $1 million worth of damage for one hundred rockets. Also, I wanted some experimental homing torpedoes to go after four frigates guarding the La Perouse mine lines. My idea on harassment was simply to divide and destroy and thus denude other areas so we could launch some special operations. These included clandestine landings and the overwhelming of small local forces to destroy radar stations, or, even to locate where the Japanese had hidden important elements of their remaining fleet, perhaps in Patience Bay, on Karafuto Island, where a vast new air base was being set up. Jasper Holmes, our ULTRA expert, supported my objectives.

After entering our patrol area, COMSUBPAC gave us a first assignment: Raise a rumpus and draw all frigates off La Perouse Strait so that "Hydeman's Hellcats," the first nine submarines to enter the Sea of Japan in two years, could exit on the surface at night over the minefields. This was right up our alley. On the surface, we sank luggers close ashore at dawn in order that we would be seen and reported by people on Large Kunashiri Island, bordering Hokkaido. We then left at full speed and took up a visible position off the large air base on Hokkaido. We watched the Japanese load planes with bombs and come after us. At night, we launched our first rocket attack on the big factory district in Shari. We then sped across the sea to Karafuto, showing ourselves to their lookout stations. We sank a double-decked trawler in their full view. Now, we had a message from COMSUBPAC:

> ULTRA warning X Special airgroup equipped [with] mad ordered search for submarines southeast Okhotsk Sea. X When evading, degaussing experts recommend east-west courses. X Avoid north south courses.

Now, we were harassing in Patience Bay, Karafuto Island, as a different wolfpack. COMSUBPAC radioed again:

> X ULTRA hunter-killer group three frigates de-parted La Perouse area. X Ordered sweep north coast Hok-kaido. X Careful X.

Barb was off the big air base at Shikuka, in Patience Bay, as far as we could get away from La Perouse, when the Hellcats passed through on the surface with zero opposition. They thanked us later.

COMSUBPAC put a professional photographer on board to get movies from start to finish of ship sinkings. We made a lone attempt to capture Kaihyo Island, a convoy turning point with a large new naval radar station. Kaihyo was originally a seal rookery. Our intelligence information was from *National Geographic*. Usually, one Japanese Army company protected the island during the summer. Due to the demand for air pilot sealskin suits, we now faced three Japanese Army companies, a Japanese Navy radar division, and double the rookery workers, with numerous new buildings. Arriving at dawn, we destroyed and set afire all buildings, boats, fuel, and supplies. Lying off for two hours to see if help arrived, we went in to land, only to spot a line of concrete pill boxes above the beach. So I cancelled our flag raising on little Iwo Jima.

Trains running along the coast of Japan fascinated me, especially where three sets of tracks joined to become a single set, due to the mountains. I wanted to blow up a train and destroy the tracks at the same time to hamper their war effort. We had three scuttling charges on board to blow up *Barb* if we grounded irretrievably or were captured. These were timed charges that would explode after everyone left. We could do this with two, so we had a charge for the train blowing. Due to rail sag we could use a microswitch, which would blow

A sinking Japanese merchant ship, photographed through a periscope, settling by the bow after being torpedoed by a U.S. Navy submarine, December 1943. With improved torpedoes, information from codebreakers, and radar, American submarines could use bolder tactics or hunt in "wolfpacks" of three to five. They dramatically reduced Japanese convoy ships and oil tankers, wreaking particular havoc around East China, the Yellow Sea, and the frigid waters off the Kurile Islands.

when the train sat on top. A self-trained saboteur squad of eight men in two rubber boats did the job. It's a fascinating story. We launched them at midnight, eight hundred yards off the beach and darkened houses. I knew that we could be seen as a blob, and, since there was no sense in a submarine's being that close to shore, we must be a patrol boat. We then closed to six hundred yards with our nose in the mud. At 0132 hours the boats started their return and were three hundred yards offshore when another train came in sight. Everyone stopped to watch, including everyone below, except the helmsman, radarman, and those on maneuvering watch. All of the hatches were open. We knew the train would derail, but when the engine got on top, the charge blew, the boilers blew, and parts of the engine went two hundred feet up the air. Sixteen cars smashed forward like a trash compactor, the last three leapfrogging and crashing down on the cars ahead. It was a military train, and 152 soldiers were killed. Lights went on in the houses, fires started in the wreckage, and soon military vehicles with screaming sirens came roaring down the highway. Air search radar came on. Our saboteurs were lifted aboard by a hundred helping hands, and we backed out of the harbor at two knots, quietly watching the pandemonium. I'm told that ours was the only landing on Japanese soil in World War II.

The only merchant ship sinking by a Cutie Mark XXVII homing torpedo was done by *Barb*, although I must say, firing at seventy-five yards was a bit disconcerting. The ship went down vertically so fast that we had to scramble clear. We picked up seventeen charts, all stamped with the name of the ship, showing a track from the Inland Sea to where we sank her. Our respective positions had our navigators agreeing. The data base of their charts in meters was from 1936, whereas the data base, which was Swedish, of our freshly-printed U.S. charts was from 1894. From then on, we used the Japanese charts, which also included insets showing ports. The ship's pilot house snapped off, but before it sank, its large running lights were salvaged and are in my home today. The ship was a 1,000-class cargo type, which JANAC ignored. Japanese archives show four in this ship class lost, position unknown.

Torpedoes other than the Cutie were mostly erratic Mark XVIIIs running deep, although with them we did sink a frigate and another, larger merchant ship. The experimental large Mark XXVIII homers were nearly disastrous. They hadn't been tested in shallow water eighty feet deep, and a battle with a *Terutsuki*-class destroyer and three other escorts involving "down the throat" and "up the kilt" shots, caused me to fire our seventy-six evasive devices to save *Barb*. Later, I found out that in shallow water the sound path from the bottom echo was twice as strong as in the direct path, so the Mark XXVIIIs headed for the bottom.

At the end, we were out of torpedoes and had expended our remaining ammunition, bombarding and completely destroying thirty-six brand new sampans and their building yard. We also attacked a large trawler with rifle grenades, cleaning out our magazine. She caught fire but wouldn't sink. She was the only trawler that we dispatched by ramming.

Our four ballistic missile rocket attacks ushered in a new era. The first attack on Shari precipitated a call for the preparation of the northern coast of Hokkaido for invasion. The second attack on the Shikuka air base was attributed to a night bombardment by five warships, the deepest penetration of Japanese waters by a section of Vice Admiral Halsey's fleet. The third attack on Shiritori blew up the biggest paper factory in Japan and set fires up and down the coast that raged out of control for three miles and three days. There was no comment on the fourth attack on the factories at Kushiho other than we must change policy from attack by the Soviets to invasion by the Americans of northern Japan. My final report on my harassing patrol stated:

> The day of the torpedo is passing. S/ms [submarines] must look to new main battery ballistic missiles with much greater range. What tremendous advantage we possess, each submarine a submersible task force! Let's make the rocket our final, devastating blow against the Japanese with one idea in mind: destroy and pulverize!

Barb's hallmark was stealth, stupefying surprise, and a sprinkle of serendipity.

The Strategic Air War against Japan

William M. Leary

> Nothing can be clearer than the fact that modern war resolves itself into an attempt to throttle the nati-onal life. Waged by the whole power of the nation, its ultimate object is to bring pressure on the mass of the enemy people, distressing them by every means possible to compel the enemy government to submit to terms.
>
> —*British Naval Staff to the Committee of Imperial Defense, 1921*[1]

In the fifty years since the end of the strategic bombing campaign against Japan, two questions have preoccupied historians of the air war. Initially, attention focused on the role of strategic bombing in bringing about the surrender of Japan. Was strategic bombing, as claimed by the *U.S. Strategic Bombing Survey* in 1946, the "major factor which determined the timing of Japan's surrender and obviated any need for invasion?"[2] And, could the same results have been obtained by daylight precision bombing instead of urban incendiary attacks, as Major General Haywood Hansell suggested?[3]

More recently, some historians have questioned the morality of the urban incendiary campaign waged against Japan in 1945. In the wake of the Vietnam War, which raised fundamental questions about the morality of war and the conduct of the U.S. government, scholars such as Michael Sherry[4] and Ronald Schaffer[5] have seen the bombing of Japan as a case of "technological fanaticism" or "technological amorality." Even General Curtis LeMay, writing during the Vietnam War, found it necessary to devote several pages of his memoirs to justifying his conduct in terms of morality versus military necessity.[6] Needless to say, he reached a different conclusion than Sherry and Schaffer!

Before considering the two sets of questions around the strategic bombing of Japan, we might first find it useful to review the course of the air war. What follows is essentially a summary of material in volume five of Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, which remains the best source of basic factual information on the subject.[7]

In many ways, the origins of the strategic air war against Japan can be traced to a decision by the War Department on December 2, 1939. On that date, the department approved a proposal from General

Henry H. Arnold, Chief, U.S. Army Air Corps, to develop a long-range four-engine bomber. The evolution of this bomber, which was later designated the B–29, became one of the most dramatic technological success stories of World War II. An engineering marvel, the giant bomber first flew on September 21, 1942. Ten months later, the first production model rolled off the assembly line. Thanks to the vision and determination of General Arnold, who gambled scarce resources on the project, the U.S. Army Air Forces had an aircraft capable of flying thirty-five hundred miles with a four-ton bomb load.[8]

With the appearance of the B–29, geography no longer protected the Japanese home islands from sustained air attack. Early in 1943, as his staff looked into ways to best deploy the new bomber, General Arnold asked the Committee of Operations Analysts, the COA, a group of military planners and civilian consultants assembled the previous December, to prepare a list of targets whose destruction would cripple the Japanese war effort. President Franklin Roosevelt, searching for ways to support a flagging Chinese ally, came to favor the use of B–29s against Japan from bases in China. By the end of the year, a compelling combination of geography and politics led to Operation MATTERHORN, the beginning of the strategic air war against Japan.

As construction started on a series of airfields in western China, the COA compiled a list of potential targets. The six most critical targets were contained in the committee's final report to General Arnold on November 11, 1943. They were merchant shipping, the steel industry, urban industrial areas, aircraft plants, the anti-friction bearing industry, and the electronics industry. The steel industry seemed especially vulnerable. The COA pointed out that two-thirds of all Japanese steel was produced from coke that originated in a limited number of ovens in Kyushu, Korea, and Manchuria. "Those coke ovens," the COA emphasized, "are prime economic targets and they should be attacked as soon as the forces necessary to destroy them in rapid succession become available."[9] Arnold couldn't have wished for more tempting targets. They were essential to steel production and in range of the B–29s from western China. Most important, their destruction would represent a golden opportunity for the U.S. Army Air Forces to demonstrate the effectiveness of daylight precision bombing, the central tenet of air force strategic bombing theory.[10]

General Arnold, however, feared that the B–29s in China might be diverted from their strategic role if subject to the authority of the China-Burma-India, or CBI, Theater Commander. A theater commander was the ultimate authority over an air force unit. So, in a novel restructuring of the bombing force, in April 1944, the Joint Chiefs of Staff, the JCS, established the Twentieth Air Force, which reported directly to them. Arnold acted as executive agent for the JCS and thus had effective operational control of the bombing force.

If the question of command was resolved to Arnold's satisfaction, the problem of logistics remained to plague the four groups of B–29s dispatched to China under the designation of XX Bomber Command. As Major General Hansell observed, "The logistic requirements were staggering and the logistic plan was horrendous."[11] Ferrying supplies across the huge distances from the United States to India was the easy part. Hauling them, once they reached India, above the Himalaya Mountains on the infamous "Hump" air route was treacherous. Any tonnage flown to China over the Hump by Air Transport Command supported vital theater operations, so XX Bomber Command had to move its own supplies in a slow, tedious process, stockpiling gasoline, bombs, and other vital material before it could launch any missions. For the command, the beginning of the strategic air war against Japan couldn't have been more trying.

The campaign against Japan's steel industry got underway in June 1944. XX Bomber Command's first target was the Imperial Iron and Steel Works at Yawata on Kyushu. The complex included three coke plants. It produced 24 percent of Japan's rolled steel and ranked as the single most important objective of the campaign. Each carrying eight 500-pound general purpose bombs, seventy-five B–29s took part in the nighttime attack on Yawata. However, their results were disappointing; the factory suffered little damage.

In late July, after waiting for supplies to build up in China, XX Bomber Command launched a daylight precision attack against the Showa Steel Works at Anshan, Manchuria. This was another crucial objective, as Anshan's plant accounted for one-third of Japan's metallurgical coke. In ideal weather the B–29s obtained better results. Still, Anshan's coke production remained far from crippled.

Over two more months the U.S. Army Air Forces conducted one additional strike against Yawata and two more against Anshan. In all, Yawata received 221 tons of bombs; Anshan received 550. Although steel production at Anshan fell significantly, Yawata suffered little from the aerial assault. Overall, the strategic bombing campaign had only a limited impact on the steel industry.

In October, under orders from Twentieth Air Force Headquarters in Washington, XX Bomber Command shifted its industrial targeting from steel to aircraft. Targets within range of the China-based B–29s included production and repair facilities on Formosa, in Manchuria, and on Kyushu. Top priority went to the Omura Aircraft plant on Kyu-shu. XX Bomber Command struck five times, dropping around five hundred tons of bombs. As a result, the plant lost a little over five months of production. These attacks posed few problems to the aircraft industry. Omura, for example, was not Japan's most important facility; it was only the most important within range of the B–29s.

The bombing of Showa Steel Works in Anshan, Manchuria, by 60 Boeing B–29 Superfortresses of XX Bomber Command from Chengtu, China, July 1944. China seemed a promising base from which the Allies could strike at Japan itself, but, political and logistical troubles prompted a shift of B–29 operations to the Mariana Islands once the enemy was driven out.

Before the first B–29 arrived in the CBI, the Joint Chiefs of Staff, recognizing the limitations imposed on the strategic bombing force by inadequate logistical arrangements throughout the theater, approved plans for the seizure of the Mariana Islands as bases for the giant aircraft. In January 1945, XX Bomber Command left the CBI and joined XXI Bomber Command in the Marianas.

The U.S. Army Air Forces were disappointed by OPERATION MATTERHORN, and although they gained operational experience, their stra-tegic bombing campaign had little impact on Japanese industries. The Air Force's official history acknowledges that the B–29 attacks "did little to hasten Japanese surrender or to justify the lavish expenditures poured out on their behalf." Born as much out of political as strategic purposes, Operation MATTERHORN was founded, according to one of its commanders, "on an utterly absurd logistical basis." Air Force historians have concluded that it "achieved no significant results of a tangible sort" and that "intangible effects were obtained at a dear price."[12]

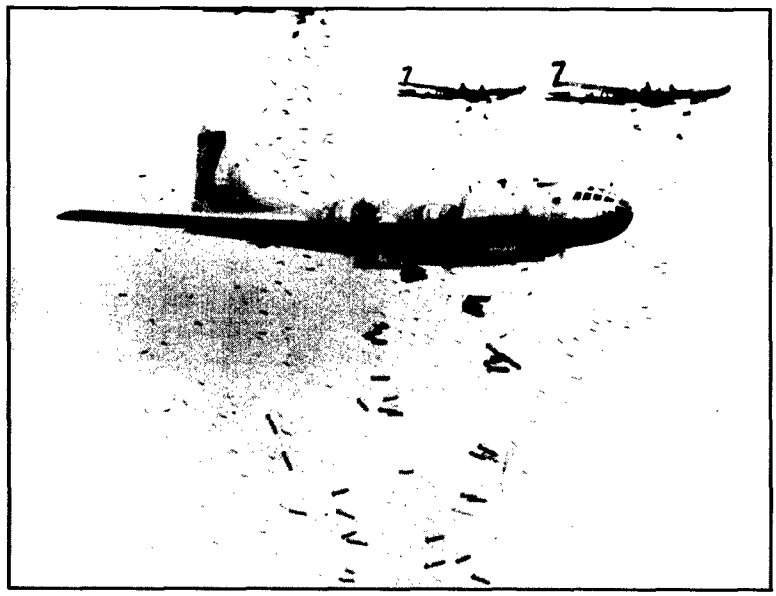
While XX Bomber Command suffered its trials and tribulations in the CBI, the operational focus against Japan shifted to the Central Pacific. On October 12, 1944, the first B–29 of XXI Bomber Command landed at the newly constructed runway on Saipan. At the controls of *Joltin' Josie, the Pacific Pioneer* was the bombing force's commander, Brigadier General Haywood Hansell. A strong advocate of daylight precision bombing, Hansell had played a central role in developing the plan for the strategic air campaign against Japan. He'd soon have the opportunity to execute it.[13]

The strategic bombing force's most pressing task was to neutralize the Japanese Air Force. After that had been accomplished, XXI Bomber Command would wage an air offensive against Japan's economic system "to undermine and destroy the capability and will of the Japanese people to wage war by destroying the supporting industries and systems upon which the war industries and the civilian economy of Japan depended."[14]

Japan's aircraft industry, Brigadier General Hansell's first target. had grown significantly since the outbreak of the Pacific War. In 1942, Japanese factories produced 8,861 aircraft; by 1944, over 28,000. The industry was concentrated in Tokyo, Nagoya, and Osaka, where Mitsubishi, Kawasaki, and Nakajima produced three-quarters of all combat aircraft. On November 11, 1944, Brigadier General Lauris Norstad, Chief of Staff, Twentieth Air Force, transmitted to Hansell a directive from the Joint Chiefs of Staff identifying Nakajima's Musashino plant as XXI Bomber Command's first target. Located in the northwestern part of Tokyo, it was a key producer of aircraft engines.

SAN ANTONIO I, the first strategic attack on Japan by XXI Bomber Command, was scheduled to take place on November 17, 1944. Bad local weather, however, delayed the mission until November 24th. One hundred and eleven B–29s lifted off Saipan for the long flight to the Japanese home islands; seventeen aircraft turned back due to fuel problems, while another six aborted due to mechanical problems. The

General Henry "Hap" Arnold, Commander, U.S. Army Air Forces. In the Pacific War, General Arnold had "executive direction" of the B–29 bomber force against Japan. Acting for the Joint Chiefs of Staff, which had "operational control," he created the Twentieth Air Force, designated the XX Bomber Command in China and the XXI Bomber Command in the Mariana Islands.



XXI Bomber Command Boeing B–29 Superfortresses of the 500th Bomb Group, 73rd Bomb Wing, unleashing incendiaries in a daylight raid over Japan. Their targets were military installations on Honshu Island in the port city of Yokohama, May 1945.

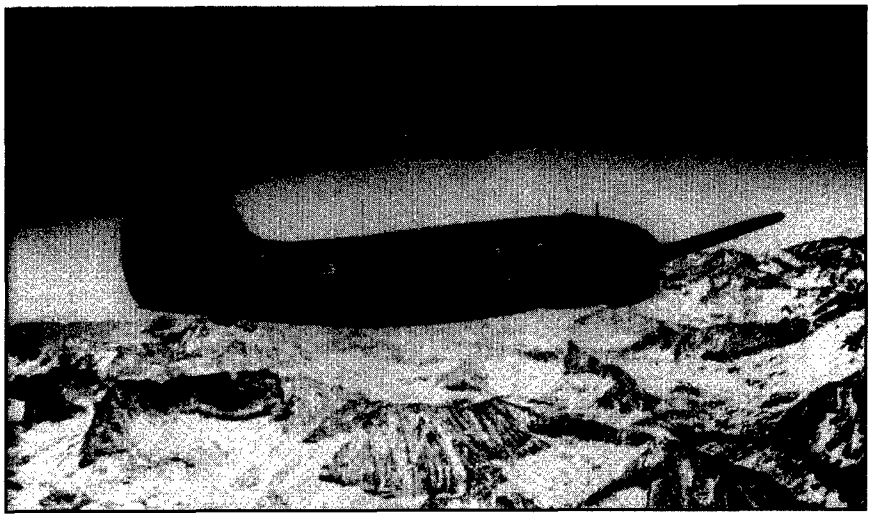
remaining aircraft found the target cloud-covered. Only twenty-four B–29s attacked the primary target; those remaining dropped their bombs on dock areas. Forty-eight 500-pound bombs hit the Nakajima factory complex but caused minimal damage. As the Air Force's official history observes, the results of the first attack by XXI Bomber Command were "not encouraging."[15] The B–29s returned to the same target on November 27th, but bad weather over Japan obscured the Nakajima plant. Eighty-one B–29s ended up dropping their bombs by radar on secondary targets.

Arnold was displeased with the strategic bombing campaign's inauguration from the Marianas. On December 7, 1944, Norstad wrote to Hansell that the Chief was growing impatient. Although Norstad tried to reassure Hansell that Arnold had no intention of "putting the heat" on his field commander, he made it clear that unless results were forthcoming, Hansell's days in command were numbered.[16]

Hansell certainly had his share of problems. Weather over Japan proved far worse than expected, and bombing accuracy had been de-plorable. In response, he set up a lead crew school and connecting AN/APQ–13 radar bombing equipment to the Norden optical bombsight. The abort rate was far too high—over 20 percent as time went on. The main problem was the B–29's Wright R–3350 engine. As Gen-eral Curtis LeMay pointed out, "Those engines overheated . . .

cylinder heads often blew out the moment an engine started turning over; ignition was faulty; oil leaked excessively; fuel transfer systems gave endless trouble." LeMay summed it up: "B–29's had as many bugs as the entomological department of the Smithsonian Institution."[17]

So Hansell soldiered on. Seventy-four B–29s attacked the Mitsubishi engine plant in Nagoya on December 13th, with encouraging results. Production fell from sixteen hundred to twelve hundred units per month. On January 19, 1945, XXI Bomber Command achieved its greatest success to date when sixty-two B–29s hit the Kawasaki plant, twelve miles west of Kobe. Thanks to accurate bombing, production at the plant was cut by 90 percent. The two raids were exceptions, however. Overall, precision attacks by XXI Bomber Command were, in the words of the official Air Force history, a "litany of failure."[18] Hansell later maintained that strategic bombing would, given more time, have worked. While President Roosevelt, himself a staunch advocate of bombing, refrained, unlike some of his successors, from micromanaging military operations, he pressed Arnold for better results. Arnold, in turn, while prepared to give his field commanders wide latitude in the conduct of operations, demanded improvement. Hansell simply ran out of time. On January 6, 1945, Lauris Norstad arrived on Tinian and informed the harassed commander that he would be relieved, effective January 20th. His replacement would be Curtis LeMay, the



A sturdy Curtiss-Wright C–46 Commando transport hauling essential supplies over the Himalaya Mountains, or, "the Hump." When the Japanese cut China's overland supply route through Burma, they forced the Allies to fly above the Hump's vast and soaring ranges from bases in India to troops in China. This activity taxed human and material resources to the utmost.

Brig. Gen. James Doolittle is awarded the Medal of Honor by President Roosevelt for leading the Tokyo Raiders in their North American B–25 Mitchells from the deck of the USS *Hornet* to Japan itself, May 1942. His feat cheered the Allies but much hard fighting lay ahead until longer-range Boeing B–29 Superfortresses finished the job. Looking on with Mrs. Doolittle are Generals Henry Arnold, Commander, U. S. Army Air Forces, to her right, and George Marshall, Chief of Staff, U.S. Army, to her husband's left.

current commander of XX Bomber Command, then in the process of relocating from the CBI to the Marianas.

If anyone could retrieve the failing strategic bombing campaign against Japan, LeMay could. As a highly decorated Eighth Air Force group commander, he'd earned a reputation as one of the U.S. Army Air Forces' most aggressive, and effective combat leaders.[19] "LeMay's an operator," Norstad observed, "the rest of us are planners."[20] His-torian Michael Sherry, no fan of strategic bombing, said of LeMay, "He got the best out of weak men, and more out of the best men."[21]

Under LeMay, the daylight precision bombing campaign against Japan's aircraft industry continued, but even with improved maintenance and decreased abort levels, its results remained disappointing. On March 4, 1945, for example, 192 B–29s hit the Nakajima factory complex, the same target that Hansell had attacked at the beginning of the offensive in November. This eighth strike produced another fiasco. Bombs had to be dropped by radar through heavy clouds over the area and most landed on metropolitan Tokyo.

From November 24, 1944, to March 4, 1945, XXI Bomber Command B–29s flew 2,148 sorties in twenty-two missions against Japan's aircraft industry, dropping around 5,398 tons of bombs on primary targets, with only meager results. The Air Force's official history states: "The effort to knock out the Japanese aircraft industry by high-altitude precision bombing of carefully selected targets had failed."[22]

The bombing campaign's early problems had forced the planners in Washington to seriously consider a shift in priorities from precision attacks on factories to incendiary attacks on cities. Tests of incendiary bombs had taken place in 1942, 1943, and 1944. In June 1944, the Committee of Operation Analysis established a subcommittee to study the question. Four months later, the COA recommended that targeting priorities for the strategic air campaign against Japan include a provision for urban incendiary attacks as part of the general plan.

At about the same time, Vannevar Bush, director of the Office of Scientific Research and Development, sent General Arnold a memorandum from Raymond Ewell, a chemical engineer and member of the National Defense Research Committee. Ewell, a foremost advocate of

XXI Bomber Command chiefs, January 1945. Maj. Gen. Curtis LeMay, *left*, and Brig. Gen. Haywood Hansell, *right*, his predecessor, on Tinian in the Mariana Islands. Hansell established XXI Bomber Command and LeMay increased its effectiveness in a campaign of Boeing B–29 Superfortress incendiary aerial raids against military targets on Japan's home islands.

Isley Field on Saipan, Northern Mariana Islands. Parking areas hold Seventh Air Force Consolidated B-24 Liberators on orders to attack the Bonin Islands, August 1944. After fighting and seizing the 14-mile long, 2-to 5-mile wide island and naval and air facilities from the Japanese in June and July, the Army Air Forces and Navy quickly developed advance air bases from which to put American heavy bomber squadrons within range of the Japanese home islands.

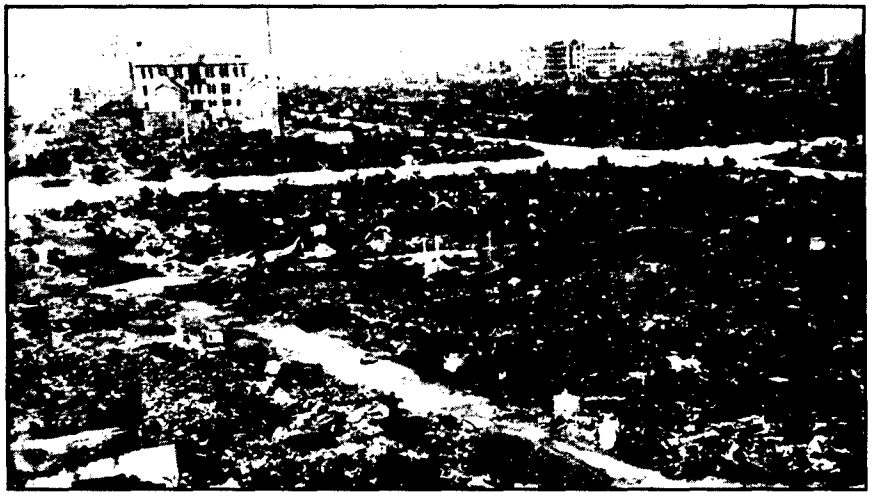
incendiary bombing, argued that the technique could be "the golden opportunity of strategic bombing in this war—and possibly one of the outstanding opportunities in history to give the greatest damage to the enemy for a minimum of effort." He estimated that 180 B–29s, flying from the Marianas and carrying six thousand tons of incendiary bombs, could destroy significant portions of six major Japanese cities: Tokyo, Kawasaki, Yokohama, Osaka, Kobe, and Nagoya; their attacks could be "key to accelerating the defeat of Japan" and could shorten the war by months to save "many thousands of American lives."[23]

In mid-December 1944, Norstad asked Hansell to conduct an incendiary attack on Nagoya. Hansell protested that precision bombing was improving, but he flew a test mission on December 22nd. Results were inconclusive. A second mission on January 3, 1945, also failed to prove or disprove predicted effects. Norstad continued to press for a major incendiary attack. Finally, on February 25, 1945, LeMay sent 231 B–29s against Tokyo in a high-level, daylight incendiary raid. There was no question about its effects. Post-strike photographs revealed that one square mile of Tokyo had been destroyed or damaged.

Despite the incendiary attack's success, LeMay continued precision attacks against the aircraft industry, but the failure of one against the Nakajima factory complex on March 4th caused him to make a major change in the air campaign. On March 8, 1945, coincident with Norstad's arrival in the Marianas for a conference, he cut orders for the beginning of an urban area incendiary assault. His plans called for low-level, nighttime attacks by individual aircraft. The B–29s were to be disarmed, with 8,000 rounds of machine gun ammunition converted to an additional 3,200 pounds of bomb load. "It was a calculated risk," the Air Force's official history notes, "and, like most such decisions, it required great courage on the part of the commander. If losses should prove as heavy as some experts feared, the whole strategic campaign would be crippled and LeMay's career ruined."[24]

The incendiary campaign began on the night of March 9th and 10th, when 334 B–29s dropped two thousand tons of bombs on a very densely populated area of Tokyo. Results were devastating. Approximately 15.8 square miles were burned out; 267,000 buildings were destroyed; 84,000 people were killed; over a million people were rendered homeless. The Air Force's official history observes: "No other air attack of the war, either in Japan or Europe, was so destructive of life and property."[25] XXI Bomber Command losses, contrary to numerous

Japanese aerial attack against XXI Bomber Command Headquarters on Saipan, Northern Mariana Islands, November 1944. Powerful Boeing B–29 Superfortresses sit, vulnerable to enemy strikes. B–29 missions on the Japanese homeland continued in the face of constant enemy harrying at every step. The foreground shows the wreckage of a Japanese fighter brought down by antiaircraft fire.



Tokyo after a Boeing B–29 Superfortress fire bombing raid. Imperial Japan's capital took its first such attack in February 1945. Industrial targets were distributed throughout the city. Incendiary raids, carried out at lower altitudes below the force of the jet stream, were more accurate than higher altitude precision raids. B–29s were stripped of all armament but tail guns, flew over 15-hours from the Northern Marianas, and could be rammed by *kamikaze* defending fighters. Incendiary raids were carried out day or night.

pessimistic predictions, were light. Fourteen B–29s had gone down, with the crews of five aircraft retrieved by air-sea rescue.

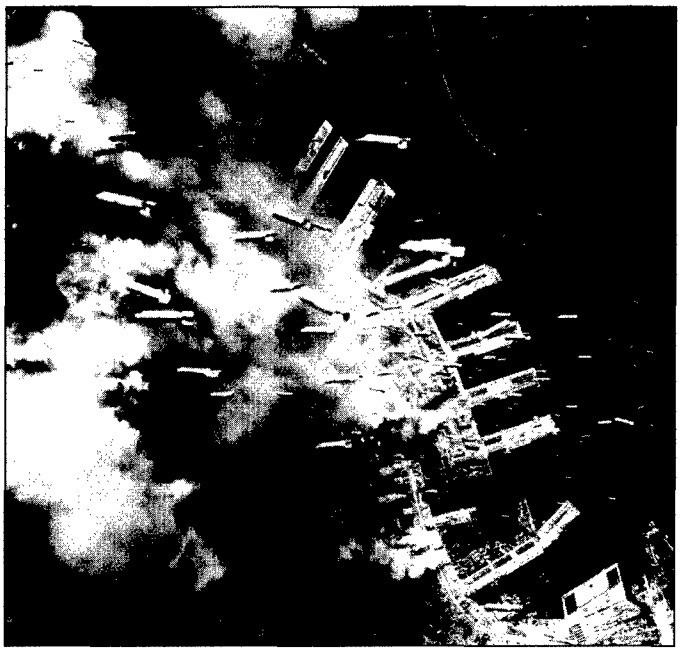
On March 11th and 12th, 313 B–29s attacked Nagoya, burning out 2.05 square miles of the city. On March 13th and 14, 300 bombers hit Osaka, destroying 8.1 square miles. It was Kobe's turn on March 16th and 17th, as 307 B–29s burned out 2.9 square miles. The first stage of the incendiary campaign concluded on March 19th and 20th, when 313 B–29s returned to Nagoya. In ten days, XXI Bomber Com-mand had flown 1,595 sorties, dropped 9,365 tons of bombs, and des-troyed 32 square miles of four key cities. Losses had been less than 0.9 percent. LeMay was elated. He informed Norstad that, for the first time, the U.S. Army Air Forces had the opportunity to prove the power of strategic bombing, provided the maximum capacity of the B–29 force was exert-ed over the next six months. He said that the destruction of Japan's abil-ity to wage war lay "within the capability of this command."[26]

The campaign, however, soon stalled, in part because incendiary bombs were unavailable in the Marianas and, in April, operational control of the B–29s passed temporarily to Admiral Chester Nimitz, Commander in Chief, U.S. Pacific Fleet, who wanted them to support the invasion of Okinawa. Although LeMay managed to squeeze in a couple of incendiary attacks as bombs became available, XXI Bomber Command's major effort was directed against airfields on Kyushu and Shikoku. "Day after day," an unhappy LeMay recalled, "we had to go

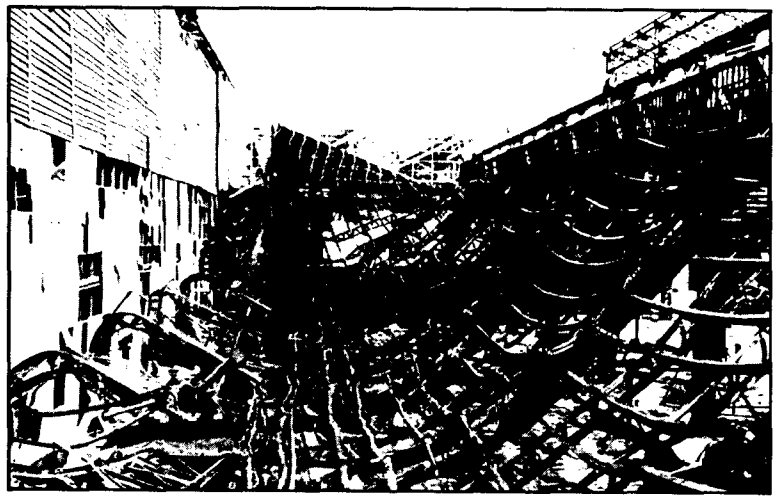
out and bomb Target Nothing."[27] Then, on May 11th, Nimitz finally released the B–29s, and LeMay got back to strategic bombing.

The urban area incendiary campaign resumed on May 14th with a daylight attack on Nagoya. Over the next month, LeMay's B–29s hit Tokyo, Yokohama, Osaka, and Kobe. The end of Phase I left Japan's six major industrial cities in ruins. The *U.S. Strategic Bombing Survey* concludes: "Although an effort was made to direct these attacks toward targets the destruction of which would do damage to industrial production, the preponderant purpose appears to have been to secure the heaviest possible morale and shock effect by widespread attack upon the Japanese civilian population."[28]

Between mid-June and mid-August, the growing B–29 effort was directed in four directions. Precision bombing, which never entirely stopped after incendiary bombing began, continued on a small scale, and, although it was more accurate, it had only a marginal effect on Japan's economy as fewer and fewer important targets were left to attack. In addition, on June 24, 1945, the 315th Wing of XXI Bomber Command began a campaign against Japan's oil industry. Equipped with improved



Kobe, Imperial Japan's sixth largest city, under a torrent of deadly incendiaries from Boeing B–29 Superfortresses of XXI Bomber Command, June 1945. The busy port and commercial center was the site of a dozen factories. Its neutralization helped cripple Japanese shipping, from vessel manufacture to resupply.



A Mitsubishi aircraft assembly plant in the southern Honshu city of Nagoya, destroyed by XXI Bomber Command Boeing B–29 Superfortresses, November 1944. Its steel roof collapsed and melted, this important military target has been taken out of commission.

AN/APQ–7 bombing radar, B–29s flew fifteen missions against refineries and oil storage facilities over the next two months. Results were good as they destroyed an estimated 6 million barrels of tank-storage capacity and cut Japan's refining capacity from 90,000 to 17,000 barrels a day.

Even more successful was a mining campaign conducted by AN/APQ–13 radar-equipped B–29s of the 313th Wing. General Arnold had been unenthusiastic about their use for mine laying, but he was afraid that the Navy might develop its own long-range aircraft capability unless the Army Air Forces agreed to do the job. The campaign opened on March 27, 1945, when ninety-two B–29s dropped acoustic and magnetic mines in the Shimonoseki Strait, the crucial bottleneck for shipping on the Inland Sea. Although slowed by the commitment of B–29s to the Okinawa campaign, the mining offensive was renewed in May. In all, 1,528 B–29 sorties dropped 12,000 acoustic, magnetic, and pressure mines in what has been described as "the heaviest aerial mining campaign ever waged."[29] Mines accounted for half of all tonnage sunk in four and a half months and paralyzed Japan's shipping.

Finally, XXI Bomber Command continued incendiary bombing against medium-size cities. From mid-June to mid-August, LeMay's B–29s struck fifty-eight targets throughout Japan. "In general," the Air Force's official history reports, ". . . incendiary attacks on smaller cities were highly successful."[30] This judgment might seem modest, in one case at least, for on August 1, 1945, B–29s destroyed 99.5 percent of the built-up area of Toyama, a city with a population of 127,860.

August 1945 saw in the final stage of the strategic bombing campaign against Japan the use of atomic bombs against two cities that had escaped incendiary attacks relatively unscathed. The employment of atomic bombs will be covered in detail in another paper. From the perspective of this account, their use represented a natural and logical extension of the strategic bombing campaign.

Let me now return to the questions I posed at the beginning of this presentation. What was the impact of the strategic bombing campaign on Japan? What role did the strategic bombing campaign play in Tokyo's decision to surrender? And, could a continuation of daylight precision bombing have produced the same results?

The last question seems easiest to deal with. Haywood Hansell wrote extensively in support of daylight precision bombing. According to air power theories that he and others refined during the 1930s, the most effective use of bombers resulted from their employment against specifically selected vulnerable elements of an enemy's economy. Although Hansell saw the results of XXI Bomber Command's incendiary campaign against Japan's urban areas as "a magnificent success," he asked: "Wasn't there some way to curb war production and civilian economic subsistence without destroying sixty-six cities?"

He answered his own question in the affirmative. "Japanese electric power was a vital and critical target system," he argued, "not in

The ruins of a prized target, a crude oil refinery in the southwest Honshu city of Tokuyama, Japan, after another XXI Bomber Boeing B-29 Super-fortress attack, November 1945. Oil-poor Japan had, in expanding its imperial borderline, captured and occupied oil-rich Indochina in 1941 to feed its hungry war machine. The Allied destruction of crude oil refineries on her mainland hastened her defeat and her territorial ambitions.

addition to urban incendiary attack but as a substitute." Had XXI Bomber Command conducted a daylight precision campaign against Japan's power industry, the urban incendiary attacks and the two atomic bombs might have been avoided.[31]

"What if . . ." questions, of course, have no definitive answer. The weight of historical evidence, however, suggests that the switch from daylight precision bombing to urban incendiary bombing in March 1945 was significant. Precision bombing simply had failed to achieve much. As Stephen McFarland points out in a recently published study on the subject, the most direct reason for the switch was "the simplest and most pragmatic. From high altitudes, Twentieth Air Force bombardiers could not hit a nail on the head or the broad side of a barn. They aimed at what they could hit—cities."[32]

While there might not have been anything wrong with precision bombing in theory, the air forces lacked the technical means to implement it, at least against Japan. General LeMay, a pragmatic commander if there ever was one, came to this conclusion only after failing to achieve significant results in the precision bombing of Japan's aircraft industry. "General Arnold," he recalled, "was absolutely determined to get results out of this weapon system."[33] LeMay produced the results. The destructive effects of the urban area incendiary campaign could easily be seen in aerial photographs. The *U.S. Strategic Bombing Survey* concluded that by August 1945 "the Japanese war economy was bankrupt."[34]

Was Japan defeated by strategic bombing? The obvious answer is no. Strategic bombing didn't really begin to have a major impact on the Pacific War until March 1945. The Pacific War had been essentially naval; and the defeat of Japan had been most significantly brought about by the U.S. Navy. The *U.S. Strategic Bombing Survey* acknowledges that fact. "While the outcome of the war was decided in the waters of the Pacific and on the landing beaches of invaded islands of the outer and inner perimeters, well in advance of the strategic bombing offensive against Japan's home islands," it argues that "the air offensive against Japan proper was the major factor in determining the timing of Japan's surrender."[35]

The conclusion of the *U.S. Strategic Bombing Survey*, I believe, has stood the test of time. Japan likely would have been forced to surrender as a result of the blockade alone and if the planned invasion of the home islands had occurred. But the timing of the surrender, although the product of a number of factors, resulted primarily from the devastating impact of a strategic bombing campaign that culminated in the use of atomic bombs against Hiroshima and Nagasaki.[36]

The Vietnam War has raised troubling moral questions for many Americans about war in general and bombing in particular. Ironically, one of the first individuals to dwell on the morality of the strategic

bombing campaign against Japan was General Curtis LeMay. In his memoirs, published in 1965, LeMay devoted several pages to expressing, in his usual blunt way, why he had been and remained unconcerned with moral questions during the bombing of Japan. Citing history, he contended that there was nothing new about the massacre of civilian populations. The past was full of examples of cities sacked and populations decimated. His task had been to shorten the war by any means necessary. He concluded, "But, to worry about the morality of what we were doing? Nuts! A soldier has to fight. We fought."[37]

Increasingly, however, historians have taken issue with General LeMay's pragmatic position on bombing. To Michael Sherry, for example, the bombing of Japan represented a triumph of what he's termed "technological fanaticism." The United States, intent on revenge for Pearl Harbor and placing a lower value on Asian lives than American, launched a campaign of annihilation on innocent civilians that could only be described as "evil."[38]

In a recent essay on the use of the atomic bombs against Japan that also applies to the entire strategic bombing campaign, Barton Bernstein reviews strategic and moral questions that have come to the fore in the past few years. Even if we don't accept his estimate of projected American casualties for the planned invasion of Japan itself, his reflections on the redefinition of morality during the war are worth our attention. He argues that World War II saw an erosion of moral codes. While the Axis powers were responsible for the worst atrocities, Germany for the murder of the Jews and Japan for the rape of Nanking, etc., all nation-states bore some responsibility. "By 1945," he observes, "there were few moral restraints left in what had become virtually total war." Pre-war concerns about sparing "innocent civilians" were muted. Cities and their populations became targets. "In the new moral climate," Bernstein concludes, "any nation that had the A-bomb would probably have used it against enemy peoples. British leaders, as well as Joseph Stalin, endorsed the act. Germany and Japan surely would have used it on cities. America wasn't morally unique, just technologically exceptional."[39]

General LeMay took pains to place his actions in historical context, citing among other examples the destruction of Carthage. He probably hadn't read Polybius's account of the Punic Wars, but if he had, he might well have recalled the comments of Scipio Africanus at the burning of the city: "A glorious moment, Polybius, but I have a dread foreboding that some day the same doom will be pronounced upon my own country."[40]

On the fiftieth anniversary of the defeat of Japan, we can take pride in our "glorious moment." But, lest we fall victim to the sin of hubris, we should also pause to reflect on the fate of ancient Rome.

The Decision to Drop the Atomic Bomb

Theodore H. McNelly

Japan embarked on a war against the United States and Great Britain without any clear plans for terminating it.[1] There was, nonetheless, in Japanese court circles the vague idea that after suffering great losses, the Anglo-American powers would be weary and thus willing to negotiate a peace that would permit Japan to retain its conquests. As early as February 1942, there was the thought that Japan should negotiate a peace settlement as soon as possible while it was winning the war; however, its intoxication with military victories and the determination of the Allies to defeat the Axis meant that for several years neither side was in the mood to talk peace.

Before leaving for Yalta in January 1945, President Franklin Roosevelt told Major General Leslie Groves that if the European War wasn't over before we had our first atomic bombs he wanted us to be ready to drop them on Germany.[2] Popular author, Studs Terkel, once asked Philip Morrison, a leading scientists of the Manhattan Project, "Would the A-bomb have been dropped in Germany?"

Morrison answered, "Oh, you bet. We all would have struck if it hadn't been used. The libido of the physicists was to drop it on Germany. Every physicist believed this."[3] The atomic bomb was not ready to use before the European War ended, of course, so we don't know with absolute certainty whether United States would actually have used it against Germany. After the European War ended on May 8, 1945, there arose among atomic scientists in America a faction that opposed the use of the bomb against Japan. Leo Szilard and James Franck, emigre scientists from Europe, led this faction.

While the democracies, including the United States, resisted or forbade the immigration of Jewish refugees from Europe,[4] Japan's policy toward them was friendly. The Japanese consul in Kavno, or Kaunas, Lithuania, issued six thousand transit visas to Jews fleeing the Nazis in the summer of 1940.[5] Shanghai, which was then controlled by the Japanese-dominated government of Nanking, "became home to more Jewish refugees, twenty-five thousand, than Canada, Australia, New Zealand, South Africa, and India combined."[6] The Japanese had a policy of admitting Jewish refugees to Japan and Manchukuo, or Manchuria, in spite of German protests.[7] The Jews in Kobe guaranteed to the Japanese government that the refugees would not be a financial burden on Japan, and they got help from the American Jewish Joint Distribution Committee.[8] It seems unlikely that any European emigres among atomic scientists would have been unaware of Japan's

benign policy toward Jewish refugees. Leslie Groves suggested that to them, "Hitler was the supreme enemy, and, once he had been destroyed, they apparently found themselves unable to generate the same degree of enthusiasm for destroying Japan's military power."[9]

Some scientists expressed concern that using the bomb against Japan, especially without prior explicit warning or demonstration in a remote area, would provoke lasting hatred against the United States. Unless international controls of the weapon were first established, they held, the Soviet Union would distrust the United States and a postwar arms race might ensue. They did not express similar concern when using the bomb against Germany seemed possible. "It is doubtful," they asserted, "whether the first available bombs, of comparatively low efficiency and small size, will be sufficient to break the will or ability of Japan to resist, especially given the fact that major cities like Tokyo, Nagoya, Osaka, and Kobe already will largely have been reduced to ashes by the slower process of ordinary aerial bombing."[10]

On the other hand, American policy makers were concerned that if the new weapon were demonstrated and failed Japan would be encouraged to resist further or send aircraft to sabotage it. In addition, if the new weapon were demonstrated in a remote area its full destructiveness wouldn't be illustrated.

The collapse of Germany in May 1945 made it clear to just about everyone that Japan's defeat was inevitable. The Japanese people had been suffering over many months from severe shortages of foodstuffs; American aircraft and warships were navigating unchallenged in Japan's skies and seas; and city after city was being destroyed by incendiary bombs. Court officials had become fearful that the suffering caused by the war might cause the Japanese people to blame the Emperor, in whose name the war was being fought, for their plight and thus lead ultimately to the destruction of the system that supported him. Yet, a peace settlement that didn't assure the future of Japan's "national structure" or *kokutai*, the emperor system, would be unacceptable even to the nascent "peace party." By peace party, I mean a tiny group of senior statesmen and their advisors, not a popular mass-based political party like William McGovern's Democrats. Japanese fighting men and even civilians seemed to accept the idea of battling to an honorable death, or *gyokusai*, a shattered jewel, with no thought of surrender in a final decisive battle on the homeland.

The prospect of a large number of American casualties in the Pacific War and the apparent inevitability of Japan's ultimate defeat impelled American policy makers to consider modifying their demand for unconditional surrender to bring about Japan's early capitulation and thus eliminate the need for invading the home islands.

On the day of Germany's collapse, May 8, 1945, President Harry Truman called for Japan's surrender and he gave assurance that its

people would not be enslaved. However, he did not give assurance that its emperor system would be maintained. When he left Washington for the Potsdam Conference in July he took with him a draft declaration that did include such a provision, strongly advocated by Secretary of War Henry Stimson and Under Secretary of State and former Ambassador to Japan Joseph Grew. Just before Truman departed for Potsdam, former Secretary of State Cordell Hull criticized this provision as risky, likely to provoke "terrible political repercussions" in the United States."[11] The Potsdam Proclamation that was issued later, on July 26, 1945, didn't include the controversial provision.[12] It did mention that Allied occupying forces would leave Japan when "there has been established in accordance with the *freely expressed will of the Japanese people* a peacefully inclined and responsible government" and when Allied objectives in Japan had been met.

A policy of unconditional surrender may have inhibited movement toward peace but it was difficult to reverse once it was declared. It was a policy agreed upon by all of the Allied powers and supported by the American people. Any softening of its provisions would represent a breach of faith and be taken as a sign of Allied weakness such that the Japanese might surrender but continue their fight with renewed confidence. In addition, the divine-right emperor system was, according to many Allied critics, the very core of Japanese militarism and dictatorship. Its preservation would inspire the Japanese after their defeat to once again justify war-making. A policy of unconditional surrender would be necessary to the Allies as they established military government in Japan, disarmed the people, and introduced political and social reforms that were sufficiently democratic and thoroughgoing to prevent the revival of Japanese belligerence.

Assistant Secretaries of State Archibald MacLeish and Dean Acheson, like most American liberals, and the governments of the Soviet Union and Australia took a hard line on Emperor Hirohito. Similarly, American public opinion tended to equate him with Adolph Hitler and supported his being tried as a war criminal.[13] Thus, although a policy of unconditional surrender may have hindered the initiation of Japanese peace efforts, it was very difficult to alter in the final stage of the war. The propaganda broadcasts of Admiral Ellis Zacharias, which had the official blessing of the United States, gave assurance to Japan that its surrender would be advantageous.[14]

In retrospect, it seems clear that the rational thing for Japan to do after V-E [Victory in Europe] Day was to put out a serious peace feeler through the Swiss or Swedish governments. The Japanese government could have used the German government's capitulation as a credible face-saving pretext for initiating negotiations. Any peace feeler could have requested an assurance concerning the emperor system, just as Japan's later conditional offer to surrender, on August 10th,

finally did. Its decision to surrender ought rationally, in Western terms, to have followed from the prospect of inevitable defeat. However, the decision had to be made, not by peace-loving logicians, responsive to sweet reason and mild inducements, but by the Imperial Japanese government, which was dominated by the Imperial Japanese Army until August 10, 1945.

For several reasons, it may be a myth that the policy of unconditional surrender lengthened the war with Japan. First, on December 11, 1941, Axis ambassadors signed a supplement to the Tripartite Pact pledging the Axis powers to make no separate peace with England and the United States.[15] As a matter of honor, Japan couldn't quit the war until May 8, 1945, when Germany surrendered.

Second, the militarists who *completely controlled* Japanese policy until August 9, 1945, were opposed to surrender of any kind. They wanted, if not victory, a negotiated peace that met their unrealistic standards and advocated a decisive final battle for the homeland in order to extract from the American invaders the best possible terms.

Third, any Japanese who even talked about peace, on virtually any terms, was regarded by the military as a defeatist and a traitor, subject to arrest by the *kempeitai*, or military police. Shigeru Yoshida, a diplomat who advised Prince Fumimaro Konoye, was arrested by the *kempeitai* in 1945 and may have been saved from a more severe punishment only because War Minister Korechika Anami was a friendly neighbor.[16] In any event, Japan surrendered unconditionally, scarcely three months after Germany surrendered.

It is relevant here, I think, to discuss Premier Joseph Stalin's view. On May 28, 1945, two months before the Soviet Union entered the Pacific War, he told Harry Hopkins, President Truman's personal representative, that he favored unconditional surrender in order to prevent Japan from fighting a war of revenge. However, he suggested that the Allies accept first a conditional surrender and then impose successively harsher terms to cope with Japan's military potential. That is to say, unconditional surrender by stages.[17] Hopkins commented, "it seems to us that he [Stalin] proposes . . . to agree to milder peace terms but once we get into Japan, to give them the works."[18]

Bruce Lee has pointed out: "As of July 30, 1945, the Japanese government has no plan for ending the war."[19] On the basis of impressive Japanese documentation, Herbert Bix has asserted: "It was not so much the Allied policy of unconditional surrender that prolonged the Pacific War, as it was the unrealistic, incompetent actions of Japan's highest leaders."[20]

The peace feeler, while sometimes useful, may not necessarily be serious. For example, in May 1945, Martin Quigley, an agent in Rome of the U.S. Office of Strategic Services, put one out to Japanese diplomats through a Vatican official, but it was certainly not an American

offer to surrender.[21] His peace feeler touched on the possible modification of "unconditional surrender" and the preservation of the imperial throne. However, in reporting to Tokyo, the Japanese ambassador to the Vatican apparently failed to convey these critical points.[22] Too many intermediaries may have been involved or the ambassador may have wanted to avoid being labeled a defeatist. In any case, most Japanese peace feelers were no more than well-intentioned efforts by those who had no authority to speak for the Japanese government.[23]

It is sometimes alleged that the Japanese government was trying to surrender before the Hiroshima bomb was dropped. However, it's simply not true that it was trying to surrender before August 9, 1945. Japan's only concerted official peace effort was a pathetic attempt to open discussions with the Soviet Union, in order to get assurances about the continuance of the Japanese-Soviet Neutrality Treaty,[24] Soviet help in the war against the United States, and Soviet mediation aimed at a negotiated peace on terms acceptable to Japanese military leaders. The Japanese sought to persuade the Soviets to receive former Prime Minister Prince Fumimaro Konoye as the Emperor's personal representative to discuss Japanese-Soviet relations. For tactical reasons, they tried initially to hide their hope for Soviet good offices in a peace settlement. The Soviet Union complained about Japan's failure to specify terms for peace. Once or twice Japan strongly hinted at a military and naval alliance with the Soviet Union.[25]

American policy makers were fully informed of Japan's initiatives toward the Soviet Union by cryptanalysts who reported on the content of telegrams exchanged between Foreign Minister Shigenori Togo and the Japanese ambassador in Moscow, Naotake Sato. These intercepts described former Prime Minister Koki Hirota's talks with the Soviet Ambassador, Jacob Malik, in Japan and Sato's attempts in Moscow to arrange a Konoye-Stalin summit. In addition, they touched on the strategy behind Togo's efforts and Sato's desperate warnings of the danger Japan faced if it did not surrender immediately to the Allies.

Unfortunately for the Japanese, their attempts to arrange the Konoye-Stalin summit meeting coincided with the Potsdam Conference of July 7th through August 2nd, where the Potsdam Declaration was issued on July 26th. The declaration very specifically spelled out peace terms, unlike Japan's nebulous proposals to the Soviet Union, and the Anglo-Americans had already at Yalta enlisted the Soviets to go to war with the Japanese. At Potsdam, Stalin mentioned to Truman the proposed Konoye mission and suggested that the Soviets could reject it because its purpose was unclear. Truman agreed.[26] When informed of the powerful new American bomb, Stalin recommended that it should be put to good use against Japan.

Robert Butow has suggested that the Americans, informed by their cryptanalysts of the Konoye summit proposal, might have modi-

fied the draft Potsdam Declaration to mollify the Japanese about the Emperor and give Konoye a week's grace to get his government's support for peace.[27] However, they would probably have found obtaining the concurrence of the Allies to soften the unconditional surrender policy in so short a period of time very difficult, if not impossible; and the hardliners in Tokyo would probably have pressed for more than the one concession on the Emperor, as is evident from their stance even after the atomic bombs were dropped.

In this connection, we have noted that the Potsdam Declaration, issued only eight days after Stalin told Truman of the Japanese initiative, referred to the establishment of a Japanese government based on the "freely expressed will of the Japanese people." The Potsdam Declaration served as the American, British, and Chinese reply to the proposal for a Konoye mission, and was later subscribed to by Stalin.

It appears that Stalin had no use for a meeting with Konoye and was eager to see Japan finished off. Just before leaving for Potsdam, and after conversing with T.V. Soong, he confirmed that the Chinese had consented to the rewards that he had been promised by Roosevelt for Soviet participation in the war against Japan. If the Potsdam Declaration or the atomic bombing had been postponed, Stalin would likely have continued to put off the Japanese; a summit with a loser like Konoye could scarcely have appealed to him and would have been an insult to his American and British Allies. Or, even if he had met with Konoye, he probably would not have obtained from the Japanese a better deal than he was getting from the Americans: revenge for Russia's humiliating defeat by Japan in 1905 and the complete expulsion of the Japanese from Manchuria, Korea, Taiwan, and China as provided in the Potsdam Declaration.

When, at Potsdam, Truman and the American delegates learned of the successful test of the atomic bomb, they lost interest in the Soviet Union's commitment to join the war with Japan. They began to hope for war's end before the Soviets got into it. On the Soviet side, it appears that Stalin wanted to get into the war. He would thus have been motivated to frustrate the Konoye summit proposal, which he could very easily have done, and which he did. At the same time, he could have interpreted a softening of the American surrender policy to end the war before the Soviet Union entered it as an anti-Soviet strategy.[28] Meanwhile, given the failure of Japan to propose specific terms, the only substantive item on the peace agenda—the only game in town, so to speak—was the Potsdam Declaration.

Just as Roosevelt had rebuffed a proposed summit with Konoye in 1941, so also did Stalin in 1945. Japan's basic diplomatic problem in both cases was her failure to convince her counterparts that she had anything of value to bring to the negotiating table.[29] The civilian branch of the Japanese government could not persuade the military

branch to agree to the serious concessions necessary for successful negotiations. While Japanese diplomats may have been sincere and diligent in their search for peace in 1941 and 1945, the Imperial Japanese Army and Navy, which until August 9, 1945, had the final say, frustrated their efforts.

The Potsdam Proclamation, or Potsdam Declaration, was an ultimatum that gave Japan "the opportunity to end this war." It summarized the terms for Japan's surrender, which included the removal of her militaristic leaders, her demilitarization, the elimination of her overseas empire, the trial of her war criminals, and the occupation of her territory. But, Japan wouldn't be enslaved; its soldiers could return to peacetime activities; and the occupation would end when terms had been fulfilled and a peace-loving government established.

On July 26th, the Potsdam Proclamation was published. It called on Japan "to proclaim now the unconditional surrender," the alternative being its "prompt and utter destruction." Shigenori Togo, the Foreign Minister, didn't find the proclamation completely unacceptable, but his strategy was to delay an official response to it. He preferred to await the Soviet Union's reaction to Japan's request for a Konoye-Stalin summit. On July 28th, Baron Kantaro Suzuki, the Prime Minister, announced his intention to "ignore" the proclamation, and, with the government, called for an intensification of the war effort. We now know, of course, that the Japanese had nine days between July 28th and August 6th, when the bomb was dropped, in which to change their minds and accept the Potsdam Declaration as a basis for negotiations.

Japan's scornful rejection of the Potsdam Declaration provoked the President not to rescind his decision to use the atomic bombs. On July 24th, two days before publishing the declaration's terms, Truman had ordered that "after about August 3rd" atomic bombs be used in succession as available to impress on Japan that the United States had the capability to manufacture and deliver more than one of the powerful devices. The exact timing and location of the bombing would depend on the weather at proposed targets.[30] The list was necessarily short; after five months of intensive fire bombing, few virgin cities were left, although several had been reserved for attack. The ideal target was a military or industrial city not already devastated, one that was large and flat enough to demonstrate the full force of a nuclear explosion. Secretary of War Henry Stimson personally vetoed Major General Leslie Groves' favorite, Kyoto, because of its cultural importance.[31] With the deletion of Kyoto, the remining were, in order of priority, Hiroshima, Kokura, and Niigata.[32] Hiroshima was the ideal target, having not suffered any heavy bombing; it was large and flat; and it served as a principal military and naval base.

Every new day of war saw more American boys being killed and wounded and more Allied prisoners of war being underfed, tortured,

used as slave labor, or executed. The American POW [Prisoner of War] death rate was 34 percent in Japanese prison camps, as compared to 4 percent in German prison camps.[33]

Let us recall that the systematic aerial bombing of Japan began in November 1944 and that the use of incendiary bombs on large urban areas began in March 1945, with the bombing of Tokyo. In that raid, some eighty thousand people are estimated to have been killed and many more were wounded or left homeless. Massive incendiary raids on Japanese cities had been going on for five months before August 6th, and although the Japanese were weary, they were apparently wil-ling to continue the struggle and defend the country against an invasion with bamboo spears, if necessary.

It has been said that with a naval blockade and/or aerial bombing, Japan would surrender without having to be invaded. In the summer of 1945, Japan was already almost completely cut off from supplies from Southeast Asia, its people were threatened by starvation, the war had taken a huge toll, but its government still refused to surrender. Germany hadn't surrendered until the Allied armies had virtually overrun all of it. Most likely Japan, whose people fought bitterly to the death as on Okinawa, would not surrender before their homeland was invaded. However, with a great shock, such as a new weapon or a Soviet declaration of war, Japan's military masters might be compelled to sue for peace. This was apparently on Truman's mind when he failed to rescind his July 24th order to drop the bombs.

General Dwight Eisenhower, Admiral William Leahy, and other American military men have been quoted as deploring the use of the atomic bombs. However according to Barton Bernstein, "In fact, there is no evidence that any military adviser ever told Truman, or clearly believed, before Hiroshima, that the use of the A-bomb was unnecessary, or that the weapon shouldn't be used, or both."[34]

On July 30th, American planes dropped leaflets over Hiroshima announcing that "if the war goes on Japan will be destroyed." Neither in the Potsdam Declaration nor in the leaflets dropped on Japan was there a warning of the use of a revolutionary new weapon. According to General George Marshall, "It's no good to warn them. If you warn them there's no surprise, and the only way to produce shock is to surprise."[35] Moreover, the new weapon night not work, thus discrediting the American ultimatum. After several days of delay because of inclement weather, on August 6th, the B–29 *Enola Gay* dropped a uranium bomb, *Little Boy*, on Hiroshima.[36]

Between the publication of the Potsdam Proclamation on July 26th and the dropping of the first atomic bomb on August 6th, eleven days elapsed during which time Japan could certainly have initiated negotiations via the Swiss or Swedish governments with the Allied powers that had issued the proclamation, to raise, if it wished, the

subject of imperial prerogatives, as indeed it finally did only after the bomb was dropped. Foreign Minister Togo was still awaiting a reply from Moscow concerning the Konoye summit.

On August 8th in Moscow, Soviet Foreign Minister Molotov summoned Japanese Ambassador Sato, who expected to hear a reply concerning his request that the Soviets receive a Konoye mission. But Sato heard from Molotov that as of the next day, Japan and the Soviet Union would be at war.[37] At Yalta, Stalin had agreed to enter the war against Japan within three months of V-E day, and he lived up to his agreement.

The Potsdam Declaration had warned the Japanese of "utter destruction" if they did not promptly surrender. In his announcement of the bombing, President Truman referred to Hiroshima as an "important Japanese Army base."[38] A government edict had inducted schoolchildren over thirteen years into war work, and "almost every man, woman and child in the city was actively engaged in the war effort."[39] The atomic bomb demolished Second General Army Headquarters, which commanded the defense of all of southern Japan.[40] American cryptanalysts soon learned that the blast had killed 30 percent and wounded another 30 percent of headquarters personnel.[41]

More than a third, or 135,000, of Hiroshima's usual inhabitants, mostly small children and oldsters, had previously been evacuated to the countryside.[42] Unfortunately, for 245,000 remaining in the city, because of an inadequate warning system and the fact that the bomb was dropped in the morning when many people were headed for work or school, casualties far exceeded the earlier estimate of Robert Oppenheimer, the bomb's principal designer, that the uranium bomb would kill 20,000 people. Included among the killed were 23 American POWs[43] and possibly 10,000 Koreans, most of them conscripted laborers. As of November 30, 1945, Hiroshima prefectural police reported that 92,133 civilians had been killed or lost in the city's bombing.[44] In subsequent years, tens of thousands of people died of wounds or illnesses, many stemming from the bombs' radioactivity. Oppenheimer hadn't expected that when the bomb exploded 1,850 feet above the target, its radioactivity would reach the ground.[45]

While Soviet forces poured into the Japanese puppet state of Manchukuo, or Manchuria, on August 9th, a B–29, unable to deliver a plutonium bomb on Kokura because of clouds, dropped it on Nagasaki, an alternative target.[46] Nagasaki, like Kokura, is located on Kyushu Island, which the Japanese were preparing to defend, and Nagasaki is seventy miles north of one of the landing sites for the proposed November invasion of the island.[47]

Even after two atomic bombs and a Soviet declaration of war had descended on Japan, the six-member Japanese Supreme War Council was still unable to agree on how to reply to the Potsdam Declaration.

The Prime Minister and the Foreign and Navy Ministers favored accepting its terms with the sole condition that the Emperor's position be preserved, while the War Minister and the Army and Navy Chiefs of Staff insisted on three additional conditions: a minimal occupation force; the trial of war criminals by the Japanese, not the enemy; and the demobilization of Japanese troops by Japanese officers. Normally in Japan, when the Minister of War disagreed with the rest of the cabinet on fundamental policy, he submitted his resignation. Because of the power of the Imperial Japanese Army, his resignation would bring about the fall of the entire cabinet and the formation of a government acceptable to the military. However, Japanese military and political leaders had agreed when the Suzuki government was established that it would remain in office until the war ended. So to break the deadlock they called an imperial conference.[48] There, the Emperor gave his strong opinion that the Potsdam Declaration be accepted with the sole condition that imperial prerogatives be preserved. His desire became the policy of the government, and, on August 10th, Japan sent its reply to the Allied powers via the Swiss and Swedish governments.

On August 11th, the Japanese government filed an official protest against the atomic bombing to the U.S. State Department through the Swiss Legation in Tokyo:

> Combatant and noncombatant men and women, old and young, are massacred without discrimination . . . the bombs in question, used by the Americans, by their cruelty and their terrorizing effects, surpass by far gas or any other arm, the use of which is prohibited. . . .[49]

The United States welcomed Japan's offer, but considered a retreat from the unconditional surrender policy at so late a stage of the war unnecessary and unacceptable to the American people and those Allies who regarded the Emperor as a war criminal. Secretary of State James Byrnes' reply to Japan finessed the issue of imperial prerogatives and stated simply that after surrendering the Japanese government and Emperor would be subject to the authority of the Supreme Commander, Allied Powers.

Critics of the policy of unconditional surrender have asserted that because, after all, Byrnes permitted Japan to keep the Emperor, the Allies should have committed themselves to preserving the monarchy before the atomic bombing. However, we should note that Byrnes' reply subordinated the Emperor and his government to the Supreme Commander, Allied Forces, whose orders they would have to carry out before surrender terms could be effectuated. Unconditional surrender involved a great deal more than the treatment of the imperial institu-

tion. It affected military occupation, war crimes trials, the complete disarmament of Japan, the liquidation of her overseas empire including Korea, Taiwan, and Manchukuo, and the political and economic reforms necessary to prevent her from ever again becoming a threat to peace-loving countries. Also, any unqualified commitment to the continuance of the monarchy could have permitted the Japanese, after surrender, to prevent the democratization of the constitution and possibly to veto other Allied occupation policies they didn't like by citing theoretically absolute authority of the Emperor.

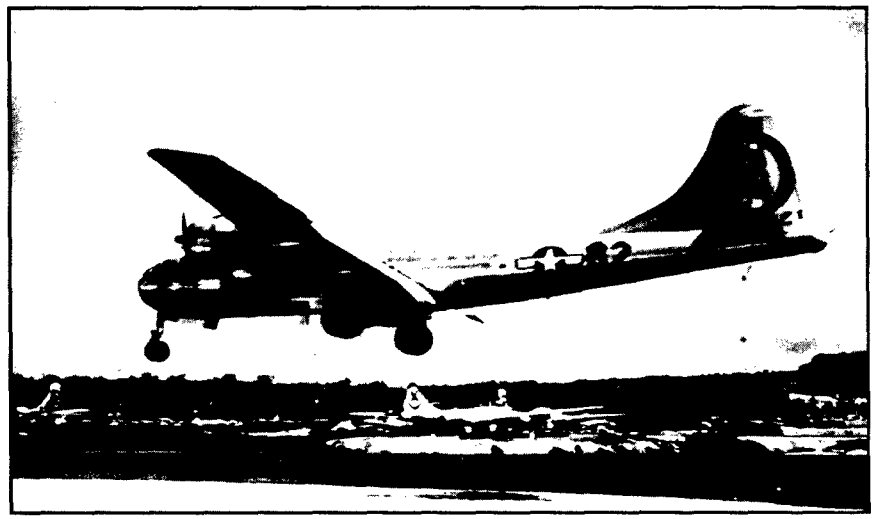
Byrnes' message provoked a second crisis in Tokyo. Its mention that the "ultimate form" of Japan's government would be established by the freely expressed will of the Japanese people became the object of sophisticated exegesis. Baron Kiichiro Hiranuma, President of the Privy Council and a former Prime Minister and leading ideologist of the divine right of imperial rule, held that the terms of Byrnes' reply would violate the national structure, or *kokutai*, and, for a while, he seemed even to have persuaded Premier Suzuki to this view. However, at one point Suzuki urged Japan's immediate acceptance of the Potsdam Declaration while the United States was her principal adversary, before she was invaded by the Soviet Union.[50] Foreign Minister Togo again found it necessary to resort to an imperial council, where the Emperor advocated the acceptance of the Potsdam provisions and Byrnes' reply, but this time without the demand for a guarantee of his prerogatives. Japan sent a second message indicat-

President Harry Truman, *second from right*, **accepting from servicemen on the staff of the the U.S. Army newspaper,** ***Stars and Stripes*****, the Germany edition of the publication, July 1945. President Truman is about to depart for Berlin and the Potsdam Conference, held from July 7th through August 2nd, on the Allied demand for the unconditional surrender of Japan.**

ing its acceptance of the Potsdam terms to the Allies via the Swiss and the Swedes.

The call for an end to the war by the Emperor became the basis of an imperial rescript that was modified, approved, and signed by all of the members of the cabinet. The Emperor made an audio recording of the rescript, which announced Japan's acceptance of the terms of the Potsdam Declaration, the preservation of the national structure, and a call on Japanese armed forces to end the fighting. The recording was to be broadcast at noon the next day, August 15th, Japan time, August 14th, Washington time.

Meanwhile, many junior officers at the War Ministry were outraged at the news of Japan's imminent capitulation, and openly talked of rebelling. They held that the decision to surrender had been made by traitorous advisers of the Emperor and that anyone who was truly loyal to him should not bow to their evil will. Major Kenji Hatanaka, a protege of War Minister Korechika Anami, hoped that once a coup began, Anami would support it. Hatanaka's fellow conspirators included Anami's brother-in-law, Colonel Masahiko Takeshita, and the son-in-law of former Prime Minister Hideki Tojo, Major Hidemasa Koga. Hatanaka demanded that General Takeshi Mori, head of the Imperial Guards Division sanction the coup. When Mori temporized, Hatanaka shot him and fabricated a division order authenticated with the dead



Boeing B-29 Superfortress *Enola Gay* of the 509th Composite Squadron, August 1945. *Enola Gay* delivered the first atomic bomb on Japan over the city of Hiroshima on Honshu Island on August 6th. The B-29 was the only aircraft capable of carrying the bomb, but had to be specially modified nonetheless. *Enola Gay* is shown landing at its base on Tinian in the Northern Mariana Islands.

general's seal. In a short time, the conspirators got complete control over the six hundred troops of the Imperial Guards Division occupying the palace grounds without betraying to the rank and file that anything had gone wrong. The troops then captured court officials and cut off telephone communications between the palace compound and the outside world. They looked for but were unable to find the Emperor's recording and temporarily captured the headquarters of the Nippon Broadcasting Corporation. After a number of hours, the coup was finally suppressed when the Eastern District Army intervened. At the same time, extremists attempted to assassinate Privy Seal Kido, Premier Suzuki, and Privy Council President Hiranuma. The men escaped death, but their homes were set afire.[51]

In several cities, attempted occupations of radio stations or government offices were suppressed in a few days. More serious was the determination of some in the military to continue the war. Admiral Matome Ugaki, former aide to Admiral Isoroku Yamamoto, planner of the attack on Pearl Harbor, led a group of *kamikaze* bombers to Okinawa against American ships. He and his group were lost at sea. Pilots at Atsugi Air Base were still in turmoil until a few days before General MacArthur landed there. For a while, it was conceivable that a military mutiny could provoke a civil war just as the Japanese government was endeavoring to negotiate a peace with the Allied powers.

At the time of the surrender, there were still six million Japanese soldiers, sailors, and airmen under arms in Japan, Asia, and Southeast Asia. The Emperor's call that they give up the fight was absolutely critical to the successful effectuation of surrender. They had available, among other things, more than nine thousand airplanes, many of which were trainers that could be effectively used for *kamikaze* attacks against the Allied invaders. Although the Japanese people may have been willing to continue the fight if the Emperor had asked them to, their war weariness apparently disposed them to obey his order to quit rather than follow the lead of the bitter-enders.

The Emperor's rescript did *not* use the word surrender. Instead, it stated that "our Empire accepts the provisions of the Joint Declaration." The war situation, he said, "has developed not necessarily to Japan's advantage, while the general trends of the world have all turned against her interest."

Concerning the atomic bomb, the Emperor took the high moral ground, asserting:

> . . . the enemy has begun to employ a new and most cruel bomb, the power of which to do damage is indeed incalculable, taking the toll of many innocent lives. Should we continue to fight, it would not only result in

> an ultimate collapse and obliteration of the Japanese nation, but also it would lead to the total extinction of human civilization. Such being the case, how are we to save the millions of our subjects; or to atone ourselves before the hallowed spirits of our imperial ancestors? This is the reason we have ordered the acceptance of the provisions of the Joint Declaration of the Powers.

The Emperor reassured the militarists and advocates of imperial rule that he had "been able to safeguard and maintain the structure of the Imperial State," thus relieving his loyal subjects of the need to continue the war in order to preserve the national polity.

It is, I believe, significant that nowhere in his rescript does the Emperor explicitly mention the treacherous Soviet declaration of war on Japan. The atomic bombs had struck the Japanese mainland itself and had threatened, in his words, the "obliteration of the Japanese nation." The confession of a captured American airman had led the Japanese War Minister to believe that the United States had one hundred additional atomic bombs immediately available for use.[52] This was a gross exaggeration, but Truman's use of two atomic bombs in quick succession lent verisimilitude to the POW's artful prevarication.

Taking the Emperor at his word, "the reason" Japan surrendered was that the enemy had "begun to employ a new and most cruel bomb, the power of which to do damage" was "indeed incalculable." According to Akira Irie, "Defeat could be accepted as a material military failure of the nation against a wealthier foe, without questioning the moral basis of the Pacific War."[53]

The atomic bombs were apparently far more shocking than the Soviet declaration of war, which, although treacherous, wasn't a complete surprise. The Soviet Union had, after all, announced that it would not renew its neutrality treaty with Japan and that it had cooperated closely in military matters with Japan's enemies in Europe. Both the discussions within the Japanese government and the thrust of the imperial surrender rescript strongly support the view that the atomic bombs were of much greater immediate importance than the Soviet declaration of war in bringing about Japan's surrender.

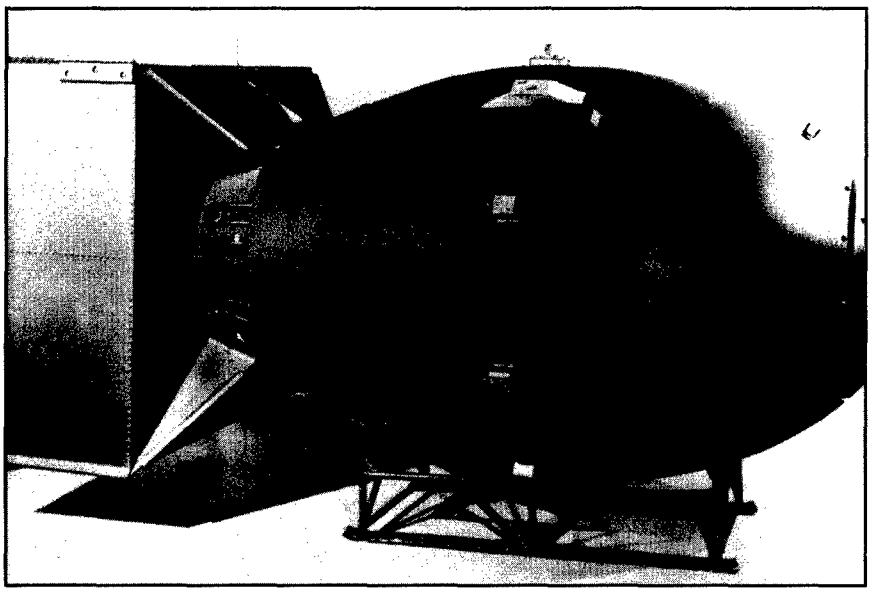
Even if we assume that the Soviet declaration was the more critical factor in Japan's surrender, we could then ask whether the Hiroshima bomb might not have expedited the Soviet declaration. At Yalta, Stalin promised to enter the war against Japan within three months after V-E Day, a period that turned out to end on or before August 8th. He told Truman at Potsdam that he intended to attack Japan on August 15th. Of course, he was no paragon of probity. If he had not been convinced by the Hiroshima bombing of Japan's imminent collapse, he might have chosen a later date to attack, or not to attack, or to cut a

deal, or possibly make an alliance with the Japanese, as they were suggesting. Senator Alexander Wiley commented, "Apparently the atomic bomb which hit Hiroshima also blew 'Joey' off the fence."[54]

Immediately, the United States sent bombers to drop food and clothes on POW camps and expeditions to liberate Allied prisoners. In some instances, the prisoners were executed by their captors in accordance with prior Japanese directives, but in most cases the Japanese or Korean guards peacefully yielded to the new order.

Millions of Japanese were still under arms throughout the home islands, Asia, and Southeast Asia, and they continued fighting at full blast in Manchuria. Meanwhile, MacArthur ordered a delegation of Japanese military officials to Manila to settle the technical aspects of the formal surrender with his staff. He ordered that there be no local ceremonies until the instrument of formal surrender was signed under his direction in Tokyo.

We must credit the Soviet Union with the most efficient diplomacy of the Allied powers. On August 14, 1945, only six days after it had gone to war with Japan, it concluded a treaty of alliance and other agreements with Nationalist China, thus gaining control over the railroads and key ports in Manchuria, all promised as its reward for joining the Allied cause. Although the area had been historically ruled by



A nuclear weapon of the type dropped over the city of Nagasaki, Japan, on the island of Kyushu, the likely area of the proposed invasion of the enemy homeland. Inner Nagasaki was destroyed by the plutonium bomb *Fat Man* on August 9, 1945; about 40,000 people were killed.

Chinese and its people were overwhelmingly Chinese, economic dominance over it passed from Japan to the Soviet Union, not to China.[55] China also had to recognize self-determination for Outer Mongolia.

Because of various delays, including a typhoon, the formal surrender aboard the USS *Missouri* was postponed until September 2, 1945, over two and a half weeks after the Emperor's famous surrender rescript. General Douglas MacArthur, appointed Supreme Commander, Allied Powers, by President Truman with Premier Stalin's personal concurrence, presided. The Allied powers were represented by their top military commanders. Prince Naruhiko Higashikuni, relative of the Emperor and Japan's new Prime Minister, didn't wish to be humiliated at the event and designated the crippled Foreign Min-

Not just one but two atomic bombs had to be sent against Imperial Japan before her intransigent leaders were persuaded to surrender. The blast shown is the second one over Nagasaki, an important military port and shipbuilding center.

ister, Mamoru Shigemitsu, to sign on behalf of the Emperor and the Imperial Japanese Government. General Yoshijiro Umezu signed on behalf of the Japanese Imperial General Headquarters. The representatives of the civilian and military branches of the Imperial Japanese Government, by their signatures, committed their country to accepting the terms of the Potsdam Proclamation and the "unconditional surrender" of its armed forces.

The day after the signing, participants in a hastily-called conference, requested by Shigemitsu, with MacArthur's staff, determined that there would not be direct military government in Japan, such as existed in defeated Germany, but that the Imperial Japanese Government would remain in authority to carry out the terms of surrender under the direction of the Allied Supreme Commander.[56] The political implication of this decision was extremely important as the Emperor, who already had proven effective in bringing about the surrender of the Japanese state and military forces, could, as head of the Imperial Japanese Government, prove useful as General MacArthur's principal collaborator in both governance and reform. In 1946, the Emperor's signature legitimized the pacifistic constitution promulgated by his government under MacArthur's direction. The constitution preserved the Emperor as the "symbol of the state" but declared that sovereignty resided with the people.[57] Herbert Bix was probably on the mark when he observed:

> If Grew and the Japan crowd had gotten their way and the principle of unconditional surrender had been contravened, it is highly unlikely that Japan's post-war leaders, now the "moderates" around the throne, would ever have discarded the Meiji constitution and democratized their political institutions.[58]

American policy, over the objections of some of the Allied powers, prevented the trial of the Emperor as a war criminal, and he remained in office until his death in 1989.[59]

The Allied policy of unconditional surrender had undergone significant pragmatic modifications from the time of its promulgation to the time of Japan's final surrender. To clarify to General MacArthur the scope of his authority in Japan, on September 6, 1945, the Joint Chiefs of Staff reiterated to him that the Japanese Emperor and government were subordinated to the Allied Supreme Commander. They emphasized clearly that unconditional surrender, not a contract relationship, underlay Allied dealings with Japan.[60]

On September 2nd, General MacArthur commanded the Japanese Imperial Government and Japanese Imperial General Headquarters to issue General Order No. 1. The order specified to which Allied

commanders Japanese military and naval units in particular geographic areas were to surrender.[61] The manner in which this partitioning of the de facto Japanese empire was carried out would have momentous immediate and long-term consequences for East Asia and the world. Japanese forces in China, excluding Manchuria, and in French Indochina north of 16 degrees north latitude were directed to surrender to Generalissimo Chiang Kai-Shek, i. e., the Chinese Nationalists. But many Chinese Communists were scattered throughout central, northern, and coastal China, where Japanese forces were concentrated. The United States, in order to forestall Communist seizures of these areas, immediately after V-J Day transported about five hundred thousand Nationalist forces to these critical areas, while fifty thousand U.S. Marines landed in northern China to help out. Thus, most of 1.2 million Japanese surrendered to Chinese Nationalists.[62]

By dint of prompt and deft maneuvers, the British, rather than the Chinese, accepted the Japanese surrender in Hong Kong. In early 1946, fighting broke out between the Chinese, Nationalists against Communists, with the ultimate result that the Communists came to control the entire mainland of China in 1949.

Japanese forces in Manchuria, Korea, north of 38 degrees north latitude, Karafuto, and the Kurile Islands were ordered to surrender to the commander of Soviet forces in the Far East. The Soviets took 594,000 Japanese prisoners of war.[63] They retained many for years after the war, subjecting them to slave labor and Marxist indoctrination. They also seized the best equipment from Manchurian factories and shipped it back to the Soviet Union. They further permitted the arms of the surrendering Japanese to fall into the hands of the Chinese Communists in Manchuria and thus helped frustrate later efforts by the Chinese Nationalists to claim control over that region. The Soviets saw the Kurile Islands as inclusive of Kunashiri; Etorofu, from which the Japanese launched their attack on Pearl Harbor; Habomai; and Shikotan. These four island areas, the "Northern Territories," according to Japan, pertain to her and aren't part of the Kurile Islands.

Japanese forces in Burma, Malaya, Singapore, the Dutch East Indies, and French Indochina south of 16 degrees north latitude were ordered to surrender to the Supreme Allied Commander, South East Asia Command, Admiral the Lord Louis Mountbatten. In Indochina and the East Indies, the British directed Japanese troops to maintain order over the natives, pending the return of Dutch and French forces.

Truman rebuffed Stalin's request for an occupation zone in Hokkaido, to prevent the division of Japan proper into occupation zones for each of the major Allies, as in Germany. Japan proper went under the control of the Allied Supreme Commander, General MacArthur.

In the context of the Korean and Cold Wars, forty-eight Allied nations signed a peace treaty with Japan in San Francisco on Septem-

ber 8, 1951, to become effective in April, 1952, when Japan regained its sovereignty and the Allied occupation formally ended. Separate peace treaties were made with Nationalist China in 1952 and Communist China in 1978. Because of the territorial dispute between Japan and the Soviet Union and/or Russia, no formal peace treaty has been contracted between those two countries, although a joint peace declaration was published in 1955.

It is often said that if the atomic bombs had not been used, the alternative was the invasion of the Japanese main islands, Operation DOWNFALL. The invasion of Kyushu, Operation OLYMPIC, was scheduled for November 1st. The invasion of the Kanto plain on the main island of Honshu, Operation CORONET, was scheduled for March 1, 1946. The Allies hoped that a successful OLYMPIC would cause Japan's surrender and thus obviate the need for CORONET. If the war hadn't ended on August 14th, two and a half months would have elapsed between that day and the landings on Kyushu. After August 14th, six and a half months would have passed before the Kanto landing. During these periods, American troops would move from South-east

A battle scene, Numfoor Island, off northwestern Indonesia. Japan was determined to fight to its last man. An invasion of its homeland and the prolonged suffering of Allied military personnel wherever the enemy was dug in, at one of thousands of Pacific sites, such as the one shown, would have been inevitable without the atomic bombs.

Asia and Europe to the staging points for the invasion in the Philippines and the Marianas. These troops in many instances were survivors of deadly combat and neither they nor those who loved them looked forward with pleasure to a repeat of the horrors of the Okinawa campaign.[64] The nation's leaders in Washington worried about the possibility of a political backlash if the war dragged on too long.

The Americans, while awaiting the invasion, would make a naval blockade of Japan impenetrable, and subject Japanese cities, towns, and villages to merciless bombing from land and sea. Even before the dropping of the atomic bombs, Japanese cities had suffered air raids in which nearly three hundred thousand people had been killed.[65] It seems likely that during preparations for the American landings, tens or hundreds of thousands of Japanese would be killed. George Feifer has pointed out:

> Any estimate of lives saved by the atomic bombs must include the hundreds of thousands of combatants and civilians in China, Manchuria, and other territories still fought for and occupied, often viciously, by Japan. There would have been tens of thousands of British

***Kamikaze* damage to a U.S. Navy carrier, September 1944. This inferno was caused by Japanese pilots willing to die for the Empire. Their ferocity was typical at all levels of the military establishment. The atomic bombs helped put an end to such horrific determination by the enemy. However, word or acceptance of surrender did not reach the remotest reaches of the enemy's battlegrounds. As recently as the 1970s, aging Japanese soldiers were being flushed from the jungles islands of Indonesia and the Philippines.**

> casualties among the two hundred thousand set to invade the Malayan Peninsula to retake Singapore on September 9th, a month after Nagasaki.[66]

Enduring almost unbelievable hardships while working on the Siam-Burma railway were 30,000 British, 18,000 Dutch and Indonesian Dutch, 13,000 Australian, and 650 American POWs.[67] After the fall of Okinawa, Field Marshal Count Hisaichi Terauchi ordered that his prison camp officers kill all of their captives the moment the enemy invaded his Southeast Asia Theater.[68] Premier Stalin had promised President Truman to go to war with Japan on August 15th. Thus, it seems probable that the Japanese surrender on August 14th, prompted by the atomic bombings, saved many lives that would have been lost *even before the American invasion actually began*. Then, after the landings had commenced, tens or even hundreds of thousands of both Japanese and Americans would likely have been killed.

On June 18, 1945, President Truman conferred with his advisers about the proposed invasion of Japan. General George Marshall expected that 350,000 Japanese troops would be defending Kyushu. The frequently-cited casualty estimates by American planners in June 1945 were based on their assumption that about 766,000 Americans would be attacking 350,000 Japanese in November.[69]

However, in early August 1945, American cryptanalysts discovered that around 560,000 troops were *already* deployed in southern Kyushu to defend against the American invasion.[70] By November 1st, the Japanese might have in place numerically superior forces in Kyushu. American cryptanalysts had a fairly clear notion of the disposition of specific Japanese units in Kyushu as well as the tactics that the units planned to use,[71] and they learned that the Japanese had a remarkably accurate understanding of the places on Kyushu where any American landings would take place.

Land warfare in mountainous Kyushu would be horrible in the extreme. On the island of Honshu, scheduled for American landings in March 1946, conscripted Korean laborers had built enormous underground quarters for the government, general headquarters, and the Emperor in the mountains west of Mount Fuji.[72] With a breakdown in military communications, the Japanese might have difficulty waging war effectively and arranging orderly military truces. The usefulness of the Emperor to order a cease-fire could be so greatly reduced that the Allies would feel less inclined to spare him.

John Ray Skates has pointed out: "Unlike many post-war historians, the Joint Chiefs never regarded the options of invasion, blockade, and bombing as discrete and mutually exclusive choices." Their argument over invasion versus blockade and bombing, he says, was "one of emphasis, not exclusion."[73] Had the atomic bombs not been

dropped in early August, they might have been in the pre-invasion softening up or the invasion, had it occurred.[74] In other words, the concept of "alternatives" to the use of the atomic bombs seems to be largely the product of academic theory rather than historical reality.

As Commander in Chief, President Truman, an artillery officer in World War I, no doubt felt under strong compulsion to use *the most effective weapons available* to win the war as soon as possible with the minimum of casualties to his troops. On the Commander in Chief's responsibility, Robert James Maddox points out:

> One can only imagine what would have happened if tens of thousands of American boys had died or been wounded on Japanese soil and then it had become known that Truman had chosen not to use weapons that might have ended the war months sooner.[75]

The atomic bomb was one of a number of "secret weapons," including death rays, with which the Japanese hoped to win the war. Beginning in 1944, the Japanese launched over 6,000 large hydrogen balloons bearing incendiary and shrapnel bombs designed to ride high-altitude winds that would ignite forest fires and create havoc in North America. Of 286 known to have landed in the Western Hemisphere, a single balloon killed six picnickers in Oregon.[76] Large-scale experiments by the Japanese on live prisoners of war in order to develop biological weapons were long kept secret by the U.S. Army, which wanted to study the results.[77]

General Minoru Genda, a leading planner of the Pearl Harbor attack, said in response to a question at a conference in Annapolis in 1969 that if the Japanese had built an atomic weapon, they would have used it. For his candor he was forced to resign his chairmanship of the Defense Policy Board of the ruling Liberal Democratic Party, but he managed to keep his membership in the Parliament.[78] Shortly after President Truman announced the bombing of Hiroshima, Yoshio Nishina, who directed the Japanese atomic project, wrote an associate:

> If the Truman statement tells the true story, I think it is time that we, the responsible staff of the NI [Nish-ina] Project, should commit harakiri. . . . the researchers of the U.S.A. and England won a big victory over the Japanese and the scientists of Riken Laboratory No. 49. . . . Their character exceeded the level of our character.[79]

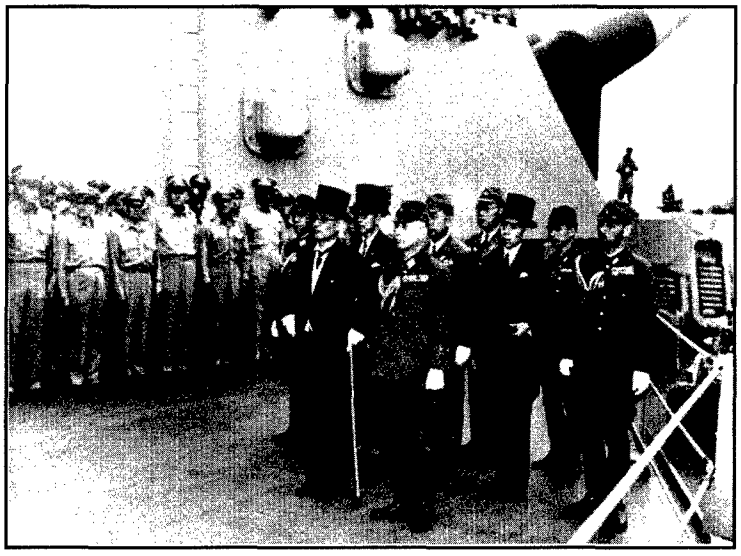
The probability that the Japanese themselves would have used an atomic bomb had they been able to build one is not irrelevant to the moral and strategic calculations of the Americans who used the bomb.

Almost immediately, the use of the atomic bomb became a topic of controversy in the United States, heightened especially by the publication of John Hersey's *Hiroshima* in 1946.[80] Eleanor Roosevelt, a famous humanitarian, in 1953, had this to say to a Japanese critic:

> I don't agree with your opinion that the use of the atom bomb itself is not justified once war is started. You might just as well say that bombing of any kind is not justified because precision bombing over a long period of time will do exactly what the atom bomb does in a few seconds.[81]

As Arthur Holly Compton has pointed out: "If the bomb were not used in the present war the world would have no adequate warning as to what was to be expected if war should break out again."[82] In other words, the use of the atomic bomb in the war with Japan would constitute a very great deterrent to the outbreak of wars in the future. For nearly fifty years, the "balance of terror," which prevented war between the United States and the Soviet Union, both nuclear powers, was maintained by the world's awareness of the frightfulness of nuclear war so vividly demonstrated by the atomic bomb in 1945.

In April 1995, the *Washington Times'* managing editor asked President Clinton, "Does the United States owe Japan an apology for



Japanese Foreign Minister, Mamoru Shigemitsu, Japanese Army Chief of Staff, General Yoshijiro Umezu, and their entourage on board the battleship USS *Missouri* waiting solemnly to sign formal surrender documents, September 1945. American army, air, and naval officers and enlisted men look on.

Hiroshima and did President Truman make the right decision to use the bomb?" Clinton responded, "No, and yes, according to the information he had at the time." So conceivably, if Truman had known what Clinton now knows, he might *not* have used the atomic bomb.[83]

If an American President were to declare that the use of an atomic bomb in any case whatever was immoral, he would undermine the credibility of the deterrent power and the nuclear umbrella of the United States, including the nuclear umbrella over Japan. Any country with the atomic bomb, conceivably North Korea, could feel free to atomize Japan or the United States, without fear of retaliation.

A *Washington Post* editorial on April 15, 1995, in effect, defended Truman's decision to bomb, putting the case simply: "The nuclear bombs were a success in the crucial sense that they were followed by an immediate end to the fighting and no further American deaths."

According to Dr. J. Samuel Walker, who's made a thorough review of the literature, there's a dichotomy between the "revisionist views" of professional historians specializing in the study of the Hiroshima bombing on the one hand and the traditional views expressed by members of the Truman administration and the writers of textbooks and popular history on the other hand. Walker has written:

> . . . the scholarly consensus holds that the war would have ended within a relatively short time without the atomic attacks and that an invasion of the Japanese islands was an unlikely possibility. It further maintains that several alternatives to ending the war with-

General Douglas MacArthur signing the Japanese surrender document in ceremonies on board the battleship USS *Missouri* in Tokyo Bay, September 2, 1945. After other Allied representatives signed, a thundering 2,000-plane flyover officially ended the Pacific War.

> out an invasion were available and that Truman and his close advisers were well aware of the options.[84]

I do not share in this "scholarly consensus." The war would possibly have ended sooner, and without the atomic bombs, if, immediately after Germany's collapse, Japan's rulers had agreed among themselves to peace on realistic terms and then promptly opened communications with the powers with which they were at war. Instead, they entertained the chimeras of an *entente* with the Soviet Union and a Stalin-mediated settlement even as they feverishly prepared for the "decisive battle" in the Japanese homeland.

One objection to the use of the atomic bombs is based on the notion that the Soviet declaration of war on Japan, expected by President Truman to occur on August 15th, would alone have been a sufficiently powerful shock to force Japan to a prompt surrender. However, in actuality, even after Japan had suffered two atomic bombings *in addition* to the Soviet declaration, the Suzuki government took five days to agree on peace.

At a banquet in Potsdam on July 23rd, Stalin, with waiters and orderlies still present, proposed that the next meeting of the Big Three be conducted in Tokyo.[85] He planned to land troops on Hokkaido two months before the scheduled American landings in Kyushu.[86] Not inconceivably, the United States might then be faced with the spectacle of Soviet troops marching into Tokyo while American and Japanese troops slaughtered one another in the mountain fastnesses of Kyushu. The political result could have been the establishment of a large Soviet occupation zone in Japan, perhaps including Tokyo, with many of the grave complications that such an arrangement was beginning to create in Germany. The post-war history of East Asia might well have been very different had the battle of Japan not been averted.

I remain convinced that the use of the atomic bombs saved tens, if not hundreds of thousands, of Japanese, Chinese, Korean, British, Dutch, Russian, and American lives by providing Japan's ruling elite with both a powerful motive and a face-saving pretext for ending the war. During the three months preceding the planned American landings, scheduled for November 1945, B–29s and American battleships would almost have completely destroyed what remained of Japanese cities, towns, and villages. Thus, *even before any American invasion*, many thousands of Japanese would've been killed. The British liberation of Malaya would've gone forward with thousands of casualties. Had Japan not surrendered before November 1st, the "decisive battle" on its mountainous, cave-pocked home islands would likely have been as horrible as the fighting on Iwo Jima and Okinawa. In preparation for or during the invasion of the Japanese homeland, nuclear weapons would quite possibly have been used. General Marshall had told Pre-

sident Truman that "taking the two islands [Kyushu and Honshu]" might cost "a quarter of a million men and possibly as many as a half million."[87] After the war, when General MacArthur viewed the planned suicidal defenses around Tokyo Bay, hole on hole, tunnel on tunnel, he said: "Those bombs that ended the war saved us about five hundred thousand casualties. . . . the Japanese would have sacrificed as least a million."[88] No doubt, among those whose lives were spared were men destined to become the fathers and grandfathers of some of the critics of President Truman's Solomonic decision. Albert Einstein wrote in the *Atlantic Monthly* in 1947:

> It should not be forgotten that the atomic bomb was made in this country as a preventive measure . . . to head off its use by the Germans, if they discovered it. The bombing of civilian centers was initiated by the Germans and adopted by the Japanese. . . . the Allies responded in kind, as it turned out, with greater effectiveness, and they were morally justified in doing so.[89]

A Japanese research team has concluded that "Japan's final struggle was not against the enemy but against herself."[90] Its struggle was between the Imperial Japanese Army, which had dominated the nation since the Manchurian incident and wanted to fight to the bitter end, and a small group of senior statesmen who believed that Japan's and the imperial dynasty's only salvation was to end the war. The atomic bombs deprived Japan's ruling militarists of any plausible rationale for continuing the war, and at the same time gave them a face-saving excuse to lay down their arms.

By ending the war promptly and without abandoning a declared policy of unconditional surrender, the Allies avoided making compromises that could have permitted the continued existence of Japan's military dictatorship, her overseas conquests, and her dangerous military establishment.

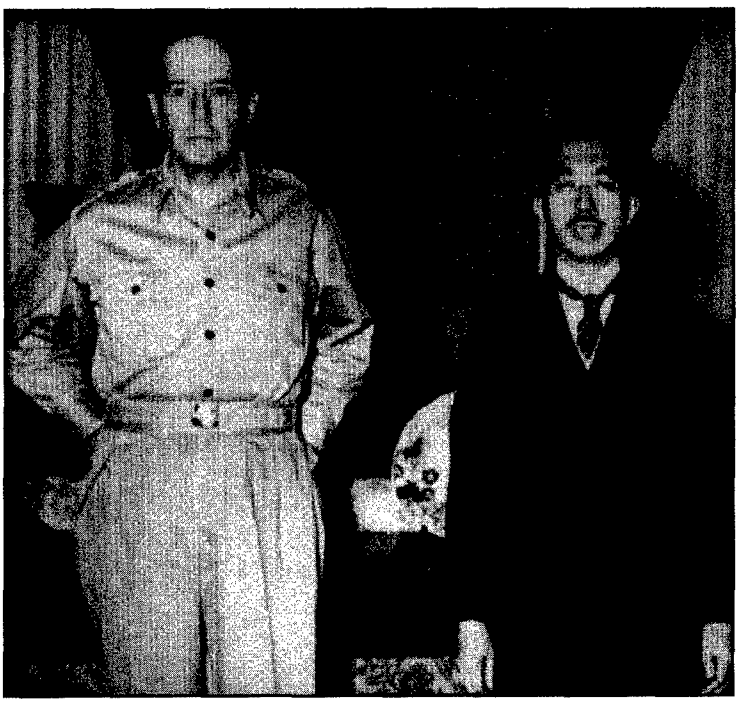
Audience Participation

Dr. Hallion: This is going to be a free-form discussion. We've had an extraordinarily successful symposium over the last day and a half. Quite frankly, I can't recall a symposium I've attended recently that was quite so intense and interesting. I believe we've illuminated the fact that the Pacific War was very complex and doesn't lend itself to very easy characterization. The Pacific War had very profound challenges, certainly in terms of the tasks the military services were asked to confront. Certainly, it was complex in the extreme, in every aspect from grand strategy through key military decisionmaking. In many

ways, this war was unlike other wars. However, it shared a characteristic with those in Europe and in the Mediterranean in that it had a very strong moral dimension. The nations against which we and the Allies fought in the Second World War weren't merely nations with which we had policy disagreements. In nothing like the Napoleonic era, we were dealing with formidable foes; had they won, I daresay, a great number of the people in this room wouldn't be here right now, myself included. Again, I believe that this symposium has very successfully illuminated many of the issues that, fifty years after the fact, haven't received as much attention as they deserve.

Now, I'd like to turn over the discussion to our audience. We have a number of speakers still with us and we'll be happy to address any questions and comments.

Audience member: My question concerns a term that's been used a couple of times, and you just used it, the "moral issue." Dr.



Gen. Douglas MacArthur, President Truman's newly appointed Supreme Commander, Allied Powers, greeting Japanese Emperor Hirohito, September 1945. A formally attired Hirohito has traveled to the office of a somewhat disheveled MacArthur. MacArthur has not traveled to the imperial palace. Such an image of their Emperor, who had, until war's end, been considered a god, would have shocked the Japanese people.

Leary, I think, mentioned "innocent civilians." I still have a problem putting . . . into perspective . . . what we were trying to do in an all-out war, without losing our own people and being criticized by some of our own American citizens over whatever this moral issue was.

Dr. Hallion: Well, there are multiple moral issues. Speaking to the one that I was addressing, we've lost sight of the fact that our foes supported a cause that wasn't merely opposed to the Allied cause, but was absolutely perverse and evil. If we look at what was happening within the Third Reich and Japan and examine policies devised by their governments toward captured peoples, or for that matter, captured Allies—some of the experimentation, for example—we must, I believe, conclude that the moral dimension in the Pacific War is one that, while given a great deal of attention at the time, has been, over time, lost sight of.

Dr. Leary: I face a somewhat different situation than many of the people in this room, when they discuss these things. Two months from now I'll be lecturing about World War II to three hundred students from various parts of rural Georgia. There, I constantly have to remind myself that my students were born in about 1978.

I myself have a child's memories of World War II. I was seven years old when the United States entered the war and I was eleven years old when it ended. Some of the most vivid impressions I have were of such things as the first gold star that went up in the window

United States Military Cemetery, Yokohama, Japan, 1945. Most of these graves contain the remains of American B-29 crew members, shot down while on missions over Japan. The Graves Registration had a formidable task in locating their remains, which lay in Japan but were later moved to permanent rest in the United States Military Cemetery, Manila, Philippines Islands.

of one of the neighbors. I thought it was sort of neat because it gave that family status and prestige, but, it became much less neat when I learned that the son of the lady who lived next door to us had been killed in North Africa. I can remember her wails and the whispered comments of my parents about how this lady, our neighbor, in her grief had bitten off her tongue. I can remember when the Western Union telegraph messenger boy rang the doorbell at our house. I can remember that the first thing that one looked for on a telegram was a star and whether it was blue or gold. If it was blue, the telegram had news that the loved one at war had been wounded, not killed, and I can remember the enormous sense of relief that my grandmother felt when she found out that my uncle had only been wounded in the Battle of the Bulge.

I bring these memories to my treatment of the war. I'm of the generation that felt the war very meaningfully. On the other hand, as a historian, I deplore the slippery slope that military affairs seemed to be on in the nineteenth and twentieth centuries. It seemed that each war was worse and that the distinction between combatant and noncombatant was increasingly blurred. The possibility certainly existed for many years that any distinction would ultimately be totally obliterated in a nuclear war between the two superpowers.

As a historian, I can only be appalled at that prospect. Therefore, when I talk to my students in Georgia about World War II, I do so with a note of ambiguity. Yes, we did the right thing. Yes, we did what we had to do. Yes, it's better that we won than that we lost. But the cost, the toll, not only in American lives, but in the lives of those against whom we fought . . . well, nobody can take any pleasure at the sight of a burned Japanese baby. We could say, "It was necessary. They started it, didn't they?" That kind of insensitivity, I believe, certainly doesn't wash with somebody born in 1978; it probably doesn't wash with most of you. So I understand why we did what we did. I understand why it was necessary and I'm prepared to defend what we did. But again, I hesitate about all this. I'm part of the human race and I don't like what we as human beings did to each other at that time.

Audience member: My question is directed primarily at Professor Weinberg. I've read that after the war some Japanese said that the real *kamikaze*, the real divine wind, was the atomic bomb, because it saved them so many lives. What evidence is there that the Japanese recognized that the United States ended the war in the Pacific in perhaps the most effective and least painful way?

Dr. McNelly: Of course, the Japanese government took its time informing the Japanese people of the use of the atomic bombs. Even after their use became generally known, MacArthur's headquarters

exercised a kind of censorship over subjects relating to Hiroshima and Nagasaki. The Japanese people generally weren't highly conscious of them. Hundreds of thousands of people had been killed or wounded. Perhaps millions of people had lost their homes. It's curious; as we watched the daily Japanese news, on cable television. We got twice a day, once in Japanese and once in English, all of the news about the recent earthquake in Kobe. But that earthquake was kind of "small potatoes" compared with what we did in our incineration bombing. Since that time, a lot of Japanese as well as Americans have come to look at some of the problems of the war differently. I don't look at them any differently than I did in 1945, although, there are, I must admit, many people who do look at them differently today.

Audience member: It's my understanding that Nagasaki was an alternate target. Can you discuss the Nagasaki bombing? There seemed to be a question yesterday about whether as compared to Hiroshima, Nagasaki was a militarily viable target. We never hear much on that.

Dr. McNelly: Of course, the original target was Kokura, and Niigata was also a target.

Dr. Hallion: I mentioned an exhibit that's opening in the Pentagon this Monday. There, we have two documents directly related to the target area of Nagasaki. We have a planning overlay and a photograph after the bombing. Nagasaki had extensive arms manufacturing capabilities. It had several power plants and military depots. It had extensive docks. It would have been a major transshipment point. It had an aircraft engine manufacturing complex. It was essentially an almost untouched target. A previous raid against one of the aircraft manufacturing complexes outside the city had been conducted, but Nagasaki itself and the military complex within it were untouched.

On the morning of the raid, the weather was closing in so badly over the primary target that visual bombing became impossible. A rule of engagement was that the bombing had to be visual. Ironically, Nagasaki almost missed it, but multiple runs over the city and, finally, a very small, clear window that had opened up allowed the dropping of the bomb. So it was really not Nagasaki's day, frankly. If memory serves, the backup target, I think, was Niigata.

Audience member: Just a quick note, for those of you who may not have seen it, there's a personal account, an op ed piece, by Major General Sweeney, who flew that particular mission.

Dr. Hallion: Oftentimes, I think we don't pay enough attention to what might be termed "buff" literature as sources of information,

but the latest issue of *Aviation Magazine*, which used to be called *Aviation Heritage* and which you can get on most newsstands, is devoted to the atomic bombings. It has an excellent account by Carroll Glines, a well-known and very authoritative popular writer on aviation matters. It has an excellent account of the Nagasaki mission, and an excellent interview with Paul Tibbets. It's first-rate, not to be missed.

Audience member: There's a point we might want to consider here. It was that Allied decisionmakers didn't want to have to do this again in twenty years, as we had done in Germany. They wanted to make sure that the Japanese knew they were defeated. This was apparently one of the things on their minds when we were bombing Germany. They wanted everybody in Germany to know that the war would impact them directly. One way to do this was to burn down their houses. My question basically is this: To what degree did we want the Japanese to know specifically that they lost the war?

Dr. Hallion: My own reading on this—you might want to check some of the more recent accounts by Bruce Lee, Robert Newman, the work I cited yesterday by Norman Polmar, or accounts on Operation DOWNFALL, things like that—my own reading is that the atomic bombs weren't dropped in lieu of an invasion. They were dropped as a *necessary precursor* to an invasion. We still felt that an invasion would be required, but if Japan collapsed, we had our fingers crossed. If it collapsed, so much the better. Frankly, there was no either/or situation, no choice about whether to invade or to drop the atomic bomb.

In fact, we had a schedule for delivering the bomb. News of the Nagasaki mission came in the midst of a Japanese cabinet meeting, which, of course, pressed ahead with very inflammatory statements by General Inami and others on continuing the war right to the very end. Afterwards, when the Emperor got involved, as we all heard from Professor McNelly, there was a controversy over just how Japan should surrender. We actually had a third atomic bombing mission scheduled, a night drop on Tokyo. The idea that we really wanted to get across was: "Here's the power you're up against." We wanted to turn night to day, literally, to give a visual demonstration, so to speak, where everybody was suddenly enveloped in sunlight at 2:00 a.m. Although Tokyo had already been utterly flattened, the third mission would've been a Tokyo mission. We were very concerned, I think, about the casualties that were likely if we went ashore. This bombing aimed at trying to bring the enemy population to reason.

There was the feeling among Allied planners that, at that point, what was needed wasn't so much action by the Japanese government as action by the Japanese people. From the summer of 1944 onward, Nazi Germany and Imperial Japan held their own people hostage. The

argument I would make is this: From D-Day onward, it was obvious that Nazi Germany couldn't win the war. Yet, the bombing campaign continued into 1945; there was a heavy requirement for land combat and an intense war at sea. All of the attributes of combat ran from June 6, 1944, through the end of the war.

In the Pacific Theater, Japanese military leaders themselves recognized that after the Marianas battle, barring an absolute miracle, the war was lost. In fact, to them the key battle was for Saipan. When Saipan was lost, they recognized instantly that their own country was going to be open to the very kind of attack that it was ill-prepared to defend against. As a result, we see them shifting their policy toward continuing the war and making it so very costly that the Allies would *have* to come to terms. So, to a degree, we were dealing with terrorist states that, ultimately, put their populations in front of their leaders as hostages to be used against Allied action.

Dr. Weinberg: I don't think that quite engaged the question that was asked: "Wasn't it the purpose of the bombing of Japan to bring the war home to them so that they wouldn't, like the Germans after the First World War, see war as something that happens to other people and not to them?" The concept of unconditional surrender involving the requirement of an occupation was, I think, the key element here. In the case of the bombing of Japan, I've seen evidence indicating that the decision to shift from precision to aerial bombing at the end of February or early March 1945 wasn't related to this. The political consideration was effective because of the demand for unconditional surrender, which assumed a complete occupation of the country. We were going to get to it and the Japanese by destroying their factories or destroying their cities or, if necessary, killing every one of their soldiers or sinking every one of their ships. We were going to do it somehow or other, but the methodology in a sense wasn't pitched, as far as I can tell, to show the Japanese what we could do.

There's another element to this that I don't think has been mentioned, and that is the Army Air Forces' project in the summer of 1945 of dropping leaflets on Japanese cities and telling the people, including the people of Hiroshima, to be smart and get out of town because the city would be levelled to the ground. Now, that project can be read in any number of ways. However, it was clearly not part of a program to kill everybody that we possibly could; it was, rather, an attempt to disrupt the whole system to such an extent that unconditional surrender would come more quickly.

Dr. Hallion: I agree completely. I have no problem whatsoever with that statement. The change in tactics was driven by technology and the use of the B–29. Because of range, payload, and high altitude

wind problems, bombing raids went to lower altitudes for greater effect. Obviously, when we consider the differences between German and Japanese cities in terms of general layout, situation of industrial facilities, and building design and construction, we see that Japan was ideally suited for the kind of raid we put against it.

Audience member: There was an interesting editorial this morning in the *Washington Post*. Charles Krauthammer, addressing the immorality of nuclear warfare, wrote that people get things twisted, that there's little difference in the morality of a civilian's being killed by a nuclear bomb or a fire bomb or a napalm bomb. At the same time, the perspective through which the issue is being addressed is very different. Dropping atomic bombs in 1945 didn't threaten the survival of mankind, whereas in the 1970s and 1980s, proliferation seemed, to a good part of mankind, a threat to survival. Therefore, nuclear warfare isn't seen today as it was in Harry Truman's day.

Dr. Hallion: Exactly; it's very interesting that you bring that up. I haven't seen the Krauthammer essay, but I'd be interested in reading it. We now have relatively perfect knowledge of the circumstances involving the use of atomic weapons. We certainly have perfect knowledge of their effects. In Truman's day, we didn't. Look at the risks we exposed our own people to unwittingly. For example, Groves and Oppenheimer, a week or so after the atomic bomb blast, stood on and photographed the Trinity site. My God, imagine the latent radiation effects; how long did it take for them to die? We simply didn't understand the destruction that was possible. I think, certainly, in military terms, that we were astonished at how much destructive power the Hiroshima and Nagasaki bombs had.

In fact, just a couple of days ago, at a Department of Energy conference held on the fiftieth anniversary of the Trinity test, a participant remarked that he'd briefed General Spaatz on the atomic bomb. Spaatz basically said, "I'll believe it when I see it." Your comments lead kind of naturally into my introduction of a very distinguished member of the audience with us today, Wilcomb Washburn., who directs the American Studies Program at the Smithsonian Institution. Before any of you "hack and haw," I have to let you know that he had nothing to do with the *Enola Gay* exhibit. More's the pity, because it could've benefitted from him. But he wrote a very fine article on the Smithsonian and the *Enola Gay* that appeared in the Summer 1995 issue of the *National Interest*. If you haven't seen it, get in touch with Whit and get a copy, because, frankly, it's outstanding. It traces exactly what happened, who did what to whom, and points out some of the implications of looking at the issue through the perspective of the post-1960s.

Audience member: What about the question of atomic versus incendiary? As far as I can tell, there was little debate on the morality of incendiary bombings in the United States in the summer of 1945. There was some in certain church groups, but basically there was a broad consensus within the United States that they were necessary to save American lives and that, anyhow, the Japanese deserved them. But with the atomic bombings there was the beginning of a debate. Now, this wasn't something that came in the 1960s and 1970s; this came almost immediately. Should we have dropped the bombs? President Truman himself, shortly thereafter, began to have questions. The idea that atomic attacks were significantly different from incendiary attacks was apparent very early. Debate began almost coincident with the dropping of the atomic bombs.

Dr. Hallion: I think the key factor there was the publication of the *New Yorker* piece by John Hersey. It had a profound impact.

Audience member: Well, I hope you'll be indulgent and allow me to comment further on morality. If the Axis had won, I wouldn't be sitting here either. The issue really bothers me. The United States always has a moral position. Britain, when it made its empire, never had a moral position. The United States, I think, was quite correct in the way it conducted World War II. It carried out the requirements of national defense, and morality came second. I accept that because I was in Dayton, Ohio, working with the U.S. Air Force as a geopolitical analyst planning aircraft and associated missiles ten to fifteen years hence. At that time, in our group, we very casually mentioned that if a certain plane went over so many millions would be incinerated.

Talking to Professor Leary this morning, I found the term "technological immorality" very interesting. I thought after I left that job: "My God, we just threw these things around as if they were toys, nonchalantly." We didn't think about morality. We thought only about the requirements of the United States confronting the Soviet Union.

Japan had a "moral position." You may not agree, but from its point of view the war was moral. In my own experience, in the U.S. Air Force, there was no moral discussion at all. Any discussion dealt strictly with what we needed to do in order to safeguard our national interests, which I think is quite legitimate.

Dr. Weinberg: It seems to me that something's being left out here. If one wants to discuss the moral issues in the summer of 1945, one has to take, it seems to me, an inescapable position. That is, that it was more moral for more people to die, maybe different people, but for very much larger numbers of people to die than very much small-

er numbers of people to die. Curiously enough, in war, people always die. That wasn't a new discovery of the summer of 1945. Furthermore, in wars of modern times, the numbers who die increase every month a war lasts. That isn't a peculiarity of American, Japanese, German, Italian, or Russian wars. The longer a war lasts, the more people die.

We know that in 1944, when the coup in Germany to end the war failed, over four million people died thereafter. If that war had ended, never mind how, in July or August of 1944, perhaps four million people would have lived. Maybe not very well, but they would have lived. We know that the coup to keep the war going in Japan in August 1945 failed. We don't have to speculate as to how many people—I didn't say Americans, Japanese, Australians, or Malayans; I said people—would certainly have died if that war had gone on. Obviously, to judge by the European experience, the numbers are in the millions.

If we want to talk about morality, we cannot limit it to American lives. We must consider Japanese lives and anyone's life. The longer the war lasts, the more people die; all kinds of people. If one wants to take the position that it's better for more people to die than for atomic weapons to be used, that's a position one can argue. One can say that atomic weapons are inherently so terrible that *it doesn't matter* how many more people would have died, if you'd been able to prevent or preclude them from dying in that particular way.

This has to be the case, it seems to me, that those who object have to make, because what they're *really* arguing for is the morality of very much larger numbers of different people dying. They'd be more honest than those who hold to the pretense that the war would have evaporated, that nobody would have been killed, that all of those people in Hiroshima and Nagasaki and everywhere else would have lived happily ever after. That was never a choice.

Audience member: As a former psychological operations officer, I wish to expand on the discussion of the leaflets dropped on Hiroshima before the raid itself took place. They suggest at least some sensitivity on the part of the planners to prevent the larger numbers of casualties among those people not associated with military targets. Whether or not those people availed themselves of an opportunity is one issue. I 'd argue that there was at least the recognition on the part of the planners that they had to try to do something right by the people who were there

The issue of morality may be immaterial as a nation pursues its objectives. The fact remains that when a nation such as ours proposes the things we believe in, we have to do certain things, for example, drop leaflets to warn people of terrible events to come. That's a responsibility we accept, not one imposed by others. We accept a certain moral responsibility to try to mitigate the results of our actions.

Dr. Drea: The problem is, of course, that wasn't why the leaflets were dropped. Evidence suggests that the leaflets were dropped not because we were anxious to save Japanese lives. They were dropped in a tactic to disrupt Japanese society.

Audience member: I don't challenge that for a second, because it was something that psychological operations campaigns attempt to do. They don't kill anybody, they attempt to cast a seed of doubt to disrupt the normal functioning of society. Nonetheless, that particular method, as opposed to a bullet, suggests a distinction that can and should be drawn. Therefore, it had a moral effect but not a moral motive. In order to know the motive, we have to question the people involved. Take the definition of moral. It means the custom of people for the last several thousands of years to kill each other. I want to take over Bill's territory or he wants to take over mine, so we have a confrontation. Bill objects to that, so he fights back. What's changed since Cain and Abel?

Dr. Hallion: I think we've seen a change recently. The Gulf War brought it home. With the revolution in precision weapons, planners can now exert military force in much more focused ways. For example, it was inconceivable to them on the eve of the Gulf War to undertake carpet bombing, say, over Baghdad. Interestingly enough, the visual images that people had of air war on the eve of the Gulf War, from television, were of World War II devastation. In point of fact, the Gulf War was very different but does this mean that there were no collateral kills or damage? No, actually, it doesn't because there were. But in this war, collateral kills were infrequent—from, say, a bomb that lost its tail fins after being dropped or a cruise missile that went awry. We weren't deliberately sowing bombs over a large area.

Audience member: I've learned much from this symposium and I'm sure that everybody who's attended has also. There are two themes that come out for me. One I got and one I didn't get. The one I got is the magnitude of the war. We all know that this was the largest war and most terrible war in all of human history. The various contributors have underscored the hugeness of American operations and the operations of other countries, too. It's just beyond my comprehension that they did so much in such a comparatively short time.

The theme I didn't quite get—yet it ties into what everybody's been saying—is the really human element. During the war, we'd read of figures of a thousand or ten thousand killed, and so on. We've been using figures here clear up to a million. But Dr. Leary came closest to the theme of the human element in his comments about his neighbor lady cutting her tongue as she knew the terror of the death of her son. When you talk about ten thousand dead, that's a number. Yet, the war was

about bodies blown up, lives shattered, and families so ruined they could never be reconstructed. I guess it's good that we can't recreate that in this symposium or any other; it would drive us all mad. However, that's a part of the reality that I didn't quite get, in spite of all of the numbers and the references to morality. I don't know how you do recreate it.

Dr. Hallion: I don't know either. We came to grips with this in trying to put together our exhibit in the Pentagon. You read of numbers that are almost incomprehensible. When you look at the total casualty figure of World War II, it's something approaching sixty million people killed. That number just boggles the mind. After a while, it's like looking at budget figures. The zeros don't matter. You just know you have a big number. But if you think of sixty million people and repeat Bill Leary's story sixty million times, you realize you're dealing with profound misery. That misery does relate to a moral issue here. We can directly relate that misery to aggression. We can directly relate it to aggressors undertaking policies that they have no legitimate right to pursue, and we can directly relate it to the suffering people who have to prevent those policies from being carried out. That misery brings the moral question into some better focus.

Audience member: We have to ask when we're confronting a fully mobilized totalitarian state at war, at what point does morality become a selfish goal?

Audience member: The most moral thing we can do once war has begun is to bring it to an end.

Audience member: I was born on the same day the Berlin Wall went up. To me, the great lesson of World War II is that it's the responsibility of every citizen—and nuclear weapons bring home that responsibility—to try and prevent war more than anything else. I dislike the idea that military men are less valuable than innocent civilians because we're all culpable; we all have responsibility and we all want to live. I've never been able to separate World War II from World War I because if [the nations that fought in them] ever go to war again, each citizen would have to bear some responsibility. There were people who didn't want us to go fight in the Vietnam War and they focused their protests in ways that perhaps none of us would at the time have appreciated. But, like it or not, every citizen in this room, every citizen of the world, is going to be either the victim or the aggressor in any war. We're all on a single planet. We can never escape by sending armies off to a far flung area and be innocent by-standers because we're either all guilty or all innocent. There's no way after World War II that we can look at war the same way again.

Dr. Hallion: You raised a very interesting point. That is, the relative merit of soldiers' lives versus civilians' lives. The point came up in a discussion that Herman Wolk and I had with one of the curators at the Smithsonian. We were talking about casualties in the Pacific War and he said to me, "Yes, but those were soldiers." The thing that we must remember is that nine or ten months before the war, those people weren't soldiers. They were shopkeepers and farm boys.

Dr. Wayne Cole flew in the war and was very much taken away from whatever plans he had for a couple of years. It was as if, suddenly, those people become faceless entities in uniform. Therefore, we didn't have to worry about them. It's one of the more disturbing things that we hear. It shows, really, an insensitivity and a total lack of awareness of the larger picture.

Audience member: At a meeting on June 18th, before President Truman was about to decide whether there was going to be an invasion, General Marshall was the first speaker He said that it was the duty of a leader sometimes to make a terrible decision that would lead to the deaths of many people. He was bracing Truman for the decision. What was discussed there was responsibility, not morality. That's what Truman said. He wouldn't, I think, have put the word "morality" on his decision, but he would certainly have put the word responsibility on it. When we talk about the nation state, the head be-comes a kind of actor who says at moments, "*I* am the state and *I* am taking responsibility for the actions of the state." I think that was the view that Truman and other planners had of responsibility.

Dr. Hallion: That's true. It's quite obvious that these men really believed what they were about. President Roosevelt certainly worked very hard in the late 1930s to get us involved in the war in China, and he certainly did once war broke out in Europe. But what drove him wasn't so much China's vast potential for dealings with the United States, what drove him was outrage over Japanese military bombing and combat practices on the ground.

What happened, I think, was that, by 1945, in the minds of the Allied leaders, certainly in Britain and the United States, the moral dimension had already been so fixated for so long, it wasn't even a matter for discussion. If somebody had raised the subject of morality, he would likely have been looked at by those leaders as if he were an idiot, because, by then, they were well beyond that, far down the track.

Audience member: I'd just like to note again, without handling the moral context too hard, that the same Twentieth Air Force that carries the legacy of having dropped those two bombs is currently the

keeper of the nation's ICBM fleet and is capable of creating a horror far beyond what Nagasaki or Hiroshima enlightened the world to. It has therefore kept a great many millions of people from dying.

Audience member: It's interesting that the world views of both Roosevelt and Churchill were formed by Edwardian society. There was a certainty about their beliefs and values; they didn't go through life questioning everything they did. I think Truman acted in a similar way, a little bit later on. I'm not a big fan of William Manchester, but he wrote one good book in which he describes his experiences as a marine in World War II. Manchester goes back and visits the sites he knew overseas and he talks about the fundamental grounding of the kids who served. We'll never have that again. Manchester wrote very eloquently, when he talked about sitting on the front porch with his girlfriend, watching the fireflies. We've lost all of that; we'll never have it again; we'll never again be able to make that level of sacrifice or those decisions, without agonizing.

Audience member: There's always been an element of morality in the way our nation has viewed the world. From our very beginnings our diplomatic history has always been concerned with right and wrong, as well as the nation's best interests—sometimes to the nation's detriment, Vietnam possibly being a good example. But the question, Shall we do right? has always been there and still is. We wouldn't care about Bosnia today if we were concerned solely with our national interest. Bosnia has become a question of right and wrong.

Dr. Hallion: That's a very good closing comment. You certainly brought us up to the present. I'd just like to thank you all for coming to the symposium. It benefitted tremendously by the interchange we had after the presentations. I extend to our panelists, those who are here and those who aren't, our very grateful appreciation. Thank you all, again, very much for attending.

Panelists

Gerhard L. Weinberg is Kenan Professor of History, University of North Carolina, Chapel Hill. He received a Ph.D. from the University of Chicago in 1951 and has taught at several universities, including Chicago, Kentucky, and Michigan. Dr. Weinberg was awarded a George Louis Beer Prize and a Guggenheim Fellowship, both in 1971, and a Fulbright Scholarship in 1983. He has held numerous leadership positions in the American Historical Association and has served on many editorial boards, including those of the *International History Review, Journal of Modern History,* and *Central European History.* His history on World War II, *A World at Arms*, published in 1994, has received universal acclaim.

Walter S. Poole is chief of the Joint Staff Historical Branch, Joint History Office. He received a Ph.D. from the University of Pennsylvania in 1968, served in the U.S. Army during 1969 and 1970, and has worked as a historian with the Joint Chiefs of Staff since 1970. His major publications include *The Joint Chiefs of Staff and National Policy: Volume IV, 1950–1952; Volume VIII, 1961–1964; Volume IX, 1965–1968;* and *Volume XI, 1973–1976.*

Brig. Gen. Edwin H. Simmons, USMC (Ret.) is director of the Marine Corps History and Museums Division; a founder of the Marine Corps Historical Foundation; a past president of the the 1st Marine Association, the Council on America's Military Past, and the American Military Institute; and a past vice president of the U.S. Commission on Military History. He served in combat in World War II, the Korean War, and the Vietnam War. Among his decorations are the Distinguished Service Medal, Silver Star, three Legions of Merit, the Purple Heart, two Bronze Stars, and the Meritorious Service Medal. A widely published historian, his best known work is probably his short history, *The United States Marines; 1775–1975.*

John Prados is an authority on national and international security affairs. He is also a designer of strategy board games, including the award-winning classic, *Third Reich*, now in its fourth edition. Dr. Prados received a Ph.D. from Columbia University. He is a prolific writer with several books to his credit. Among them are *Presidents' Secret Wars, Keepers of the Keys, The Soviet Estimate*, and *The Hidden History of the Vietnam War.* His latest work is *Combined Fleet Decoded: The Secret History of American Intelligence and the Japanese Navy in World War II.*

William S. Dudley is director of the Naval Historical Center. He served on active duty in a destroyer-escort based in Newport, Rhode Island. In 1963, he received a Ph.D. from Columbia University and

taught at Southern Methodist University before entering government service in 1977. In 1981, he authored *Going South: U.S. Navy Officer Resignations and Dismissals on the Eve of the Civil War*. From 1982 until 1990, he headed the Navy's Early History Branch, editing three documentary history volumes, one on the American Revolution and two on the War of 1812. Dr. Dudley's articles and book reviews have appeared in numerous professional journals. His latest work, published in 1994, is an essay on the War of 1812 in *Encyclopedia of the American Military*. He is past president of the Society for History in the Federal Government, the Military Classics Seminar, and the American Revolution Round Table of the District of Columbia.

Richard P. Hallion is the Air Force Historian. He earned a Ph.D. from the University of Maryland in 1975 and is a specialist in the history of aerospace technology. He has held numerous positions in government and academe, including the Harold Keith Johnson Visiting Professorship at the U.S. Army War College and the Charles A. Lindbergh Visiting Professorship at the National Air and Space Museum of the Smithsonian Institution. Dr. Hallion has written fourteen books on military history and technology. His latest work is *Storm Over Iraq: Air Power and the Gulf War*.

Edward J. Drea is chief of the Research and Analysis Division at the U.S. Army Center of Military History in Washington, D.C. After military service in Japan and Vietnam, he received an M.A. from Sophia University, Tokyo, and a Ph.D. from the University of Kansas. A specialist in modern Japanese history, Dr. Drea has taught at the U.S. Army Command and General Staff College and the U.S. Army War College. He has written numerous articles on the war in the Pacific and is the author of *MacArthur's ULTRA: Codebreaking and the War Against Japan*.

Rear Adm. Eugene B. Fluckey, USN (Ret.) has an unsurpassed record for valor. During World War II, as captain of the submarine USS *Barb*, he received the Medal of Honor and four Navy Crosses. His book, *Thunder Below*, is a riveting account of wartime heroics. Rear Adm. Fluckey retired as NATO commander in chief of the Iberian Atlantic Area, based near Lisbon, Portugal. His headquarters were bombed twice and Portuguese authorities reported that he was personally targeted. He has served on the Executive Council of the Boy Scouts of America and the Transatlantic Council and was knighted by the Sovereign Military Order of St. John of Jerusalem for this and anti-Communist activities. On September 2, 1995, the fiftieth anniversary of V-J Day, Admiral Fluckey represented the World War II U.S. Navy at ceremonies with President Clinton at Pearl Harbor.

William M. Leary served with the U.S. Air Force in the Korean War and worked as a flight operations officer with KLM Royal Dutch Airlines in Gander, Newfoundland. He received a Ph.D. from Prince-

ton University in 1966, has been a professor of history at the University of Georgia since 1973, and was the Charles A. Lindbergh Chair at the National Air and Space Museum of the Smithsonian Institution for 1996–1997. Dr. Leary has written histories of the China National Aviation Corporation, Civil Air Transport, and the U.S. Mail Service. Dr. Leary is the editor of *We Shall Return! MacArthur's Commanders and the Defeat of Japan, 1942–1945*, and the author of *Fueling the Fires of Resistance: Army Air Forces Special Operations in the Balkans in World War II*.

Theodore H. McNelly is professor emeritus in the Government and Politics Program at the University of Maryland, College Park. During World War II, he was an analyst in the Army Security Agency and served under General Douglas MacArthur in the Civil Intelligence Section in Tokyo. He earned a Ph.D. in political science from Columbia University in 1952. Professor McNelly is the author of *Government and Politics in Japan*; and the co-author or contributor to: *Introduction to Comparative Government*; *Democratizing Japan*; and *Framing the Constitution of Japan*. Recently, he translated Seishiro Sugihara's *Japanese Perspectives on Pearl Harbor*. Professor McNelly was a Japan Foundation Fellow in 1973 and a Fulbright Research Scholar in 1980.

Notes

pages 1–13

1. Jürgen Rohwer, "Die USA und die Schlacht im Atlantik," Jürgen Rohwer and Eberhard Jäckel, eds., *Kriegswende Dezember 1941* (Koblenz: Bernard and Graefe, 1984), pp. 81–103, especially 97, 99, and 101.

2. Pedro R. Loureiro, "Japanese Espionage and American Counter-Measures in Pre-Pearl Harbor California," *Journal of American-East Asian Relations*, no. 3 (Fall 1994), pp. 205–207.

3. Raymond G. O'Connor, *Diplomacy for Victory: FDR and Unconditional Surrender* (New York: Norton, 1971), pp. 4–5.

4. *Foreign Relations of the United States, Japan: 1931–1941,* vol. 2 (Washington, DC.: U.S. Government Printing Office, 1943), p. 794.

5. O'Connor, pp. 37–38.

6. I review the issue in detail in *Germany, Hitler, and World War II* (New York: Cambridge University Press, 1995), pp. 108–110, and *A World at Arms: A Global History of World War II* (Cambridge: Cambridge University Press, 1994), chapter 6. The latter book also contains the documentation for other statements in this piece.

7. Jeter A. Isley and Philip A. Crowl, *The U. S. Marines and Amphibious War: Its Theory and Its Practice in the Pacific* (Princeton, N.J.: Princeton University Press), remains the best introduction to the subject, although it was published in 1951.

pages 69–89

1. See Charles M. Melhorn, *Two-Block Fox: The Rise of the Aircraft Carrier*, 1911–1929 (Annapolis, Md.: Naval Institute Press, 1974); Geoffrey Till, *Air Power and the Royal Navy, 1914–1945* (London: Jane's, 1979); Paul Dull, *A Battle History of the Imperial Japanese Navy, 1941–1945* (Annapolis, Md.: Naval Institute Press, 1978); Clark G. Reynolds, *The Fast Carriers: The Forging of an Air Navy* (Annapolis, Md.: Naval Institute Press, 1992 ed.); and William Trimble, *Wings for the Navy: A History of the Naval Aircraft Factory, 1917–1956* (Annapolis, Md.: Naval Institute Press, 1990).

2. Dull, *A Battle History*, pp. 3–19; Jiro Horikoshi, *Eagles of Mitsubishi: The Story of the Zero Fighter* (Seattle: University of Washington Press, 1981); Horikoshi was the designer of the A6M.

3. Till, *Air Power and the Royal Navy*, p. 47.

4. *Ibid.*; *passim.*

5. Reynolds; for a more detailed discussion of the airship issue, see Richard K. Smith, *The Airships* Akron *and* Macon*: Flying Aircraft Carriers of the U.S. Navy* (Annapolis, Md.: Naval Institute Press, 1965).

6. Interwar submarine development was built on the combat experience of the "Great War"; see William Jameson, *The Most Formidable Thing: The Story of the Submarine from its Earliest Days to the End of World War I* (London: Rupert Hart-Davis, 1965). For an excellent introduction on submarine development to the end of World War II, see Norman Friedman, *Submarine Design and Development* (Annapolis, Md.: Naval Institute Press, 1984).

7. The development of the B–29 was anything but easy; see Carl Berger, *B–29: The Superfortress* (New York: Ballantine Books, 1970); and Curtis E. LeMay and Bill Yenne, *Superfortress: The B–29 and American Air Power* (New York: McGraw-Hill, 1988). In no way the least problem was the production of such a sophisticated weapon for the time. Historian Irving B. Holley, Jr., has called it "the most complex joint production undertaking of the war;" see his *Buying Aircraft: Materiel Procurement for the Army Air Forces,* a volume of the *United States Army in World War II* Special Studies series (Washington, D.C.: Center for Military History, 1989 ed.), p. 547. B–29 clones soldiered on into the 1980's; one, equipped with an AWACS-style radome and four turboprop engines, resides today in the Beijing Aviation Museum, Peoples Republic of China.

8. One commentator has called this "a remarkable case of doctrine pushing system development, wherein assault ships and craft of World War II were the fruits, not the seeds, of the Marines' vision." See Wayne P. Hughes, Jr., "The Power in Doctrine," *Naval War College Review* 48, no. 3, (summer 1995), p. 16. See also Allan R. Millett, *Semper Fidelis: The History of the United States Marine Corps*, a volume of *The Macmillan Wars of the United States* series (New York: Macmillan, 1980), pp. 320–341.

9. See Edward Johnson, *Marine Corps Aviation: The Early Years, 1912–1940* (Washington, D.C.: Marine Corps History and Museums Division, 1977). See also Millett, Sherrod, and others.

10. These landing craft were the products of a remarkable southern boat builder, Andrew Higgins, dubbed by Hitler, "the New Noah." See Millett and Jerry Strahan, *Andrew Jackson Higgins and the Boats that Won World War II* (Baton Rouge: Louisiana State University Press, 1994).

11. Robert H. Connery, *The Navy and the Industrial Mobilization in World War II* (Princeton, N.J.: Princeton University Press, 1951), pp. 296–297.

12. See Richard P. Hallion, "Charles A. Lindbergh and Aviation Technology," in *Charles A. Lindbergh: An American Life*, ed., Thomas D. Crouch (Washington, D.C.: National Air and Space Museum, 1977), for further coverage of Lindbergh's wartime activities; see also Charles A. Lindbergh, *The Wartime Journals of Charles A. Lindbergh* (New York: Harcourt Brace Jovanovich, 1970). Donald S. Lopez, *Fighter Pilot's Heaven* (Washington, D.C.: Smithsonian Institution Press, 1995), p. 42; Edwards Park, *Nanette* (New York: W.W. Norton, 1977); Saburo Sakai with Martin Caidin and Fred Saito, *Samurai* (New York: Dutton, 1957); Walter D. Edmonds, *They Fought With What They Had: The Story of the Army Air Forces in the Southwest Pacific, 1941–1942* (Boston: Little, Brown, 1951); and John B. Lundstrom, *The First Team: Pacific*

Naval Air Combat From Pearl Harbor to Midway (Annapolis, Md.: Naval Institute Press, 1984), offer excellent accounts of early World War II air combat in the Pacific.

13. Although the history of radar has received only sporadic treatment, its importance to the Allied war effort cannot be overemphasized. A good brief treatment is James Phinney Baxter, III, *Scientists Against Time* (Cambridge: MIT Press, 1968 ed.), pp. 136–169. Alfred Price, *The Years of Innovation: Beginnings to 1946*, vol. 1 of *The History of U.S. Electronic Warfare* (Arlington, Va.: The Association of Old Crows, 1984), is an indispensable reference for both American and Japanese radar development; the *Batfish* story is on pp. 208–212. See also Louis A. Gebhard, *Evolution of Naval Radio-Electronics and Contributions of the Naval Research Laboratory*, NRL Report 8300 (Washington, D.C.: Naval Research Laboratory, 1979); and David K. Allison, *New Eye for the Navy: The Origin of Radar at the Naval Research Laboratory*, NRL Report 8466 (Washington, D.C.: Naval Research Laboratory, 1981); Admiral Eugene B. Fluckey's *Thunder Below! The U.S.S.* Barb *Revolutionizes Submarine Warfare in World War II* (Urbana, Ill.: University of Illinois Press, 1992) offers good insights on the value of radar countermeasures to defend against Japanese air attacks.

14. See *Coral Sea, Midway, and Submarine Actions, May 1942–August 1942*, pp. 10n–11n and 155–156, and *The Struggle for Guadalcanal, August 1942–February 1943*, pp. 110–113, vols. 4 and 5 of Samuel Eliot Morison, *The History of United States Naval Operations in World War II* (Boston: Little, Brown, 1949).

15. Morison, *Coral Sea, Midway, and Submarine Actions*, pp. 221–222, 230–233.

16. Clay Blair, Jr., *Silent Victory: The U.S. Submarine War Against Japan*, vol. 2 (Philadelphia: J.B. Lippincott, 1975), p. 853.

17. Vannevar Bush, *Modern Arms and Free Men: A Discussion of The Role of Science in Preserving Democracy* (Cambridge: MIT Press, 1968 ed.), pp. 34–36; Harry C. Thomson and Lida Mayo, *The Ordnance Department: Procurement and Supply*, a volume of *The United States Army in World War II*, Technical Services series (Washington, D.C.: Office of the Chief of Military History, 1960), pp. 284–286; Baxter, *Scientists Against Time*, pp. 76–82, and 243–251; and Connery, *The Navy and Industrial Mobilization*, pp. 296–298.

18. Baxter, *Scientists Against Time*, pp. 74–76, 201–211; Bush, *Modern Arms and Free Men*, p. 34; Albert B. Christman, *Sailors, Scientists, and Rockets: Origins of the Navy Rocket Program and of the Naval Ordnance Test Station, Inyokern*, vol. 1 of *History of the Naval Weapons Center, China Lake, California* (Washington, D.C.: Navy History Division, 1971), pp. 138–140; J. D. Gerrard-Gough and Albert B. Christman, *The Grand Experiment at Inyokern*, vol. 2 of *History of the Naval Weapons Center, China Lake, California* (Washington, D.C.: Naval History Division, 1978), pp. 82–86, 97–108, and 194–196. The *Barb*'s use of rockets for shore bombardment is highlighted in the previously cited memoir of Eugene Fluckey.

19. Baxter, *Scientists Against Time*, pp. 294–296; Brooks E. Kleber and Dale Birdsell, *The Chemical Warfare Service: Chemicals in Combat*, a volume of the *United States Army in World War II*, Technical Services series (Washington, D.C.: Office of the Chief of Military History, 1966), pp. 534–591.

20. Japanese air order of battle, USAFHRA Doc 704.6311–1 (Aug. 15, 1945), Plate 24. The larger number raises the figures to 2,300 ships sunk or damaged and an additional 57,000 sailors killed or injured, obviously far too high as the pace of the war made such losses unacceptable but indicative of what kinds of casualties, without the other *kamikazes* (speedboaters, human torpedoes, and swimmers), Japan could still have produced had the home islands been invaded. Thanks to Edward Drea of the U.S. Army Center for Military History for furnishing the Japanese estimate of 50,000 casualties based on his analysis of wartime ULTRA intelligence intercepts. The best single history of the *kamikaze* phenomenon remains Rikihei Inoguchi, Tadashi Nakajima, and Roger Pineau, *The Divine Wind: Japan's* Kamikaze *Force in World War II* (Annapolis, Md.: Naval Institute Press, 1958).

21. Baxter, *Scientists Against Time*, pp. 59–60.

22. Kenneth P. Werrell, *Archie, Flak, AAA, and SAM: A Short Operational History of Ground-Based Air Defense* (Maxwell AFB, Ala.: Air University Press, Dec. 1988), pp. 51–52.

23. Ivan A. Getting, *All in a Lifetime: Science in the Defense of Democracy* (New York: Vantage Press, 1989), p. 166; Baxter, *Scientists Against Time*, pp. 229–241.

24. Baxter, *Scientists Against Time*, p. 237.

25. DCNO (Air Warfare) and Naval Air Systems Command, *United States Naval Aviation, 1910–1980*, NAVAIR 00–80P–1 (Washington, D.C.: U.S. Navy, 1981), pp. 142–144. Trimble, *Wings for the Navy*, pp. 284–287, contains a detailed discussion of the Navy's efforts to develop surface-to-air missiles.

26. Navy fighters were later enabled by the cannon to cope effectively against the MiG–15 in Korea even though they were, in most other respects, clearly outclassed by the Soviet fighter.

27. There are several works on the development of the atomic bomb. Baxter, *Scientists Against Time*, has a good short introduction on pp. 419–447. F.G. Gosling, *The Manhattan Project: Making the Atomic Bomb* (Washington, D.C.: Department of Energy, 1994 ed.), is an excellent summary account, while Richard Rhodes, *The Making of the Atomic Bomb* (New York: Simon and Schuster, 1986) is the best full-length account. See also Richard G. Hewlett and Oscar E. Anderson, Jr., *The New World, 1939–1946*, vol. 1 of *A History of the United States Atomic Energy Commission* (University Park, Pa.: The Pennsylvania State University Press, 1962). Japan's atomic bomb effort is detailed in Robert K. Wilcox, *Japan's Secret War* (New York: William Morrow, 1985).

28. The best overall reference to the development of guided weapons is Kenneth P. Werrell, *The Evolution of the Cruise Missile* (Maxwell AFB, Ala.: Air University Press, 1985). Frank Ross, *Guided Missiles: The Rockets and*

Satellites of Today and Tomorrow (New York: Lothrop, Lee and Shepard, 1959 ed.) is surprisingly complete and useful. Navy assault drone history is highlighted in D.S. Fahrney, "Guided Missiles: U.S. Navy the Pioneer," *Journal of the American Aviation Historical Society* 27, no. 1 (spring 1982), pp. 15–28. See also Trimble, *Wings for the Navy*, pp. 258–287; and Gebhard, *Naval Radio-Electronics*, pp. 223–239. The smart homing torpedo, dubbed "Cutie" was not, alas, a great success.

pages 91–101

1. See Edward J. Drea, *MacArthur's ULTRA: Codebreaking and the War against Japan, 1942–1945* (Lawrence, Kans.: University Press of Kansas, 1992), for a description of these developments.
2. War Department, Military Intelligence Service, "'MAGIC' Summary, Far East Supplement," April 13, 1945, SRS series, RG 457, National Archives and Records Administration, Washington, D.C. Hereafter cited as MSFES.
3. See John Ray Skates, *The Invasion of Japan: Alternative to the Bomb* (Columbia, S.C.: University of South Carolina Press, 1994), for a description and analysis of Operation OLYMPIC.
4. General Headquarters, U.S. Army Forces, Pacific, Military Intelligence Section, G–2, "G–2 Estimate of the Enemy Situation with Respect to an Operation against Southern Kyushu in November 1945," April 25, 1945, RG 4, USAFPAC, Intelligence, General, MacArthur Memorial Bureau of Archives, Norfolk, Va. Hereafter cited as G–2 Estimate.
5. MSFES, June 7, 1945.
6. General Headquarters, Southwest Pacific Area, Military Intelligence Section, "ULTRA Intelligence Summary," June 11–12, 1945, SRH–203, RG 457, NARA. Hereafter cited as UIS.
7. UIS, July 7–8, 1945.
8. MSFES, July 9, 1945.
9. MSFES, July 13, 1945.
10. MSFES, July 21, 1945.
11. MSFES, August 2, 1945.
12. General Headquarters, U.S. Army Forces, Pacific, Military Intelligence Section, GS, "Amendment No. 1 to G–2 Estimate of the Enemy Situation with Respect to Kyushu (Dated April 25, 1945)," July 29, 1945, MMBA.
13. MSFES, August 7, 1945.
14. MSFES, July 7, 1945.
15. UIS, July 14–15, 1945.
16. "Translations of Cypher Messages, 1945–1946," Defence Signals Directorate, Australian Archives, Victoria: Commonwealth Record Series B5555, File no. 10.
17. Cited in Barton J. Bernstein, "The Perils and Politics of Surrender:

Ending the War with Japan and Avoiding the Third Atomic Bomb," *Pacific Historical Review* 46, no. 1 (February 1977), p. 10.

pages 113–129

1. Quotation in Michael Howard, "Temperamenta Belli: Can War Be Controlled?" in Howard, ed., *Restraints on War: Studies in the Limitations of Armed Conflict* (London: Oxford University Press, 1979), p. 10.

2. United States Strategic Bombing Survey, *The Effects of Strategic Bombing on Japan's War Economy* (Washington, D.C.: U.S. Government Printing Office, 1946), p. 59.

3. Haywood S. Hansell, Jr., *Strategic Air War Against Japan* (Maxwell AFB, Ala.: Air War College, 1980).

4. Michael S. Sherry, *The Rise of American Air Power: The Creation of Armageddon* (New Haven: Yale University Press, 1987).

5. Ronald Schaffer, *Wings of Judgment: American Bombing in World War II* (New York: Oxford University Press, 1985).

6. Curtis E. LeMay with MacKinlay Kantor, *Mission with LeMay* (Garden City, N.Y.: Doubleday, 1965).

7. Wesley Frank Craven and James Lea Cate, *The Army Air Forces in World War II*, 7 vols. (Chicago: University of Chicago Press, 1948–1955). For an excellent brief account of the air war against Japan, see Stanley L. Falk, "A Nation Reduced to Ashes," *MHQ: The Quarterly Journal of Military History* 7 (spring 1995): pp. 54–61.

8. On the development of the B–29, see Jean H. Dubuque and Robert F. Gleckner, *The Development of the Heavy Bomber, 1918–1944* (Maxwell AFB, Ala.: U.S. Air Force Historical Research Division, 1951); Carl Berger, *B–29: The Superfortress* (New York: Ballantine Books, 1970); and Curtis E. LeMay and Bill Yenne, *Superfortress: The Story of the B–29 and American Air Power* (New York: McGraw-Hill, 1988).

9. Craven and Cate, *The Pacific: Matterhorn to Nagasaki, June 1944 to August 1945*, vol. 5 of *Army Air Forces*, p. 28.

10. On the development of an air force strategic bombing theory, see Robert Frank Futrell, *Ideas, Concepts, Doctrine: A History of Basic Thinking in the United States Air Force, 1907–1964* (Maxwell AFB, Ala.: Air University Aerospace Studies Institute, 1971); and Thomas H. Greer, *The Development of Air Doctrine in the Army Air Arm, 1917–1941* (Maxwell AFB, Ala.: Air University Press, 1955).

11. Hansell, *Strategic Air War Against Japan*, p. 20.

12. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, pp. 171 and 175; LeMay, *Mission with LeMay*, p. 322.

13. On Hansell's career, see Charles R. Griffith, "The Quest: Haywood Hansell and American Strategic Bombing in World War II," doctoral dissertation, University of Tennessee, 1994.

14. Hansell, *Strategic Air War Against Japan*, p. 15.

15. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 559.

16. Quoted in *ibid.*, pp. 556–557.

17. LeMay, *Mission with LeMay*, p. 321.

18. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 565.

19. For an admiring biography of LeMay, see Thomas M. Coffey, *Iron Eagle: The Turbulent Life of General Curtis LeMay* (New York: Crown, 1986).

20. Quotation in Conrad E. Crane, *Bombs, Cities, and Civilians: American Airpower Strategy in World War II* (Lawrence, Kans.: University Press of Kansas, 1993).

21. Sherry, *Rise of American Air Power*, p. 270.

22. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 573.

23. Quotation in E. Bartlett Kerr, *Flames Over Tokyo: The U.S. Army Air Forces' Incendiary Campaign Against Japan, 1944–1945* (New York: Donald I. Fine, 1991), p. 86.

24. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 614. See also, Crane, *Bombs, Cities, and Civilians*, p. 131.

25. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 617. See also Hoito Edoin, *The Night Tokyo Burned* (New York: St. Martin's Press, 1987); and U.S. Strategic Bombing Survey, *Effects of Air Attack on Urban Complex Tokyo-Kawasaki-Yokohama* (Washington, D.C.: U.S. Government Printing Office, 1947).

26. LeMay, *Mission with LeMay*, p. 373.

27. *Ibid.*, p. 372.

28. U.S. Strategic Bombing Survey, *Effects of Strategic Bombing on Japan's War Economy*, p. 38.

29. See Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 674; and Frederick M. Sallager, *Lessons from an Aerial Mining Campaign* (Santa Monica, Calif.: RAND, 1974).

30. Craven and Cate, *The Pacific: Matterhorn to Nagasaki*, p. 657.

31. Hansell, *Strategic Air War Against Japan*, pp. 75–79.

32. Stephen L. McFarland, *America's Pursuit of Precision Bombing, 1910–1945* (Washington, D.C.: Smithsonian Institution Press, 1995), p. 205.

33. LeMay, *Mission with LeMay*, p. 338.

34. U.S. Strategic Bombing Survey, *Effects of Strategic Bombing on Japan's War Economy*, p. 41.

35. *Ibid.*, p. 59. On the post-war debate over which branch of the military contributed most significantly to defeating Japan, see David MacIsaac, *Strategic Bombing in World War II: The Story of the United States Strategic Bombing Survey* (New York: Garland, 1976).

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terpretation," *Diplomatic History* 19 (spring, 1995): pp. 197–225, argues that the major factor delaying Japan's decision to surrender was "the unrealistic and incompetent actions" of its "highest leaders."

37. LeMay, *Mission with LeMay*, p. 383.

38. Sherry, *Rise of American Air Power*, especially chapters 7 and 8. See also John W. Dower, *War Without Mercy: Race and Power in the Pacific War* (New York: Pantheon Books, 1986).

39. Barton J. Bernstein, "The Atomic Bombings Reconsidered," *Foreign Affairs*, 74 (January–February 1995): pp. 135–152.

40. Polybius, *Histories*, book 38; quotation in Gerard Chaliand, ed., *The Art of War in World History* (Berkeley, Calif.: University of California Press, 1994), p. 46.

pages 131–169

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1. Seishiro Sugihara, *Japanese Perspectives on Pearl Harbor: A Critical Review of Japanese Reports on the Fiftieth Anniversary of the Pearl Harbor Attack*, trans. Theodore H. McNelly (Hong Kong: Asian Research Service, 1995), p. 110.

2. Leslie Groves, *Now It Can be Told: The Story of the Manhattan Project* (New York: Harper and Row, 1962), p. 184.

3. Studs Terkel, *"The Good War": An Oral History of World War II* (New York: Pantheon Books, 1984), p. 514.

4. Only 21,000 refugees were allowed to enter the United States during the three and a half years the nation was at war with Germany, according to David S. Wyman, *The Abandonment of the Jews: America and the Holocaust, 1941–1945* (New York: Pantheon Books, 1984), p. x.

5. David G. Goodman and Masanori Miyazawa, *Jews in the Japanese Mind: The History and Uses of a Cultural Stereotype* (New York: Free Press, 1995), p. 133.

6. Goodman and Miyazawa, *Jews in the Japanese Mind,* p. 114.

7. *Ibid.*, pp. 112–113.

8. Martin Gilbert, *The Holocaust: A History of the Jews in Europe during the Second World War* (New York: Holt, Rinehart and Winston, 1985), pp. 117–118, and 124.

9. Groves, *Now It Can Be Told*, p. 266.

10. For example, see "The Franck Report," extensively reprinted in Martin J. Sherwin, *A World Destroyed: Hiroshima and the Origins of the Arms*

Race (New York: Vintage Books, 1987), pp. 323–333.

11. *Foreign Relations of the United States: The Conference of Berlin (Potsdam), 1945* (Washington, D.C.: U.S. Government Printing Office, 1960), vol. 2, p. 1267. Hereafter cited as *FRUS, Berlin.*

12. For a detailed overview of the policy of unconditional surrender and its relevance to the Potsdam Proclamation, see Makoto Iokibe, "American Policy towards Japan's Unconditional Surrender," *Japanese Journal of American Studies* no. 1 (1981), pp. 19–53.

13. Senator Richard Russell proposed a joint resolution calling for the trial of the Emperor. The text is provided in Theodore H. McNelly, ed., *Sources in Modern East Asian History and Politics* (New York: Appleton-Century-Crofts, 1967), p. 174.

14. Ellis M. Zacharias, *Secret Missions: The Story of an Intelligence Officer* (New York: Putnam's, 1946), pp. 399–424.

15. Carl Boyd, *Hitler's Japanese Confidant: General Oshima Hiroshi and MAGIC Intelligence, 1941–1945* (Lawrence, Kans.: University Press of Kansas, 1993), p. 44. The English version of the agreement is in *The Orient Year Book, 1942* (Tokyo: Asia Statistics Co., 1942), p. 397.

16. Shigeru Yoshida, *The Yoshida Memoirs: The Story of Japan in Crisis*, trans. Kenichi Yoshida (Boston: Houghton Mifflin, 1962), p. 28.

17. Bohlen memorandum, in *FRUS, Berlin*, vol. 1, p. 44.

18. Hopkins cable to Truman, in Robert E. Sherwood, *Roosevelt and Hopkins: An Intimate History* (New York: Harper and Brothers, 1948), pp. 903–904.

19. Bruce Lee, *Marching Orders: The Untold Story of World War II* (New York: Crown Publishers, 1995), p. 533. See also Herbert Feis, *The Atomic Bomb and the End of World War II* (Princeton, N.J.: Princeton University Press, 1966), p. 86.

20. Herbert Bix, "Japan's Delayed Surrender: A Reinterpretation," *Diplomatic History* 19, no. 2 (spring 1995), p. 223.

21. Martin S. Quigley, *Peace without Hiroshima: Secret Action at the Vatican in the Spring of 1945* (Lanham, Md.: Madison Books, 1991), p. 80.

22. *Ibid.*, p. 138.

23. On abortive Japanese peace feelers, see Robert J.C. Butow, *Japan's Decision to Surrender* (Stanford, Calif.: Stanford University Press, 1954), pp. 103–111, Allen Dulles, *The Secret Surrender* (New York: Harper and Row, 1966), pp. 255–256, and *FRUS, Berlin*, vol. 2, pp. 1588–1590.

24. On April 5, 1945, the Soviet Union informed Japan that it did *not* intend to renew the neutrality treaty that had existed between them since April 13, 1941, because of "altered circumstances." The pact, according to its terms, would remain in effect for five years, after which its signatories could renew it; a signatory not wishing to renew would give the other a year's notice. Thus, it remained valid until April 1946. Its text is included in *The Orient Year Book, 1942*, pp. 387–388.

25. Talks between former Prime Minister Koki Hirota and Soviet Am-

bassador to Japan Jacob Malik are described in Butow, *Japan's Decision*, p. 122, and detailed in a MAGIC Diplomatic Summary dated July 3, 1945, reprinted in Bruce Lee, *Marching Orders*, p. 579.

26. *FRUS, Berlin,* vol. 2, p. 1588.

27. Butow, *Japan's Decision*, pp. 133–141.

28. *Ibid.*, p. 135.

29. Togo was Japan's Foreign Minister in 1941, when the war broke out, and, again, in 1945, when the war ended.

30. Truman wrote: "I also instructed Stimson that the order would stand unless I notified him that the Japanese reply to our ultimatum was acceptable," Harry S. Truman, *Memoirs by Harry S. Truman* (Garden City, N.Y.: Doubleday, 1955), vol. 1, pp. 420–421. The *Washington Post*, July 11, 1995, p. A14, refers to "Truman's handwritten order here [Potsdam] July 31, 1945, to drop the first atomic bomb on Hiroshima." There has been some confusion as to whether Truman issued a special separate order to drop the first bomb, in addition to the July 24 order to General Spaatz. See Herbert Feis, *The Atomic Bomb and the End of World War II* (Princeton, N.J.: Princeton University Press, 1966), p. 125. Probably part of this confusion was Truman's note replying to an inquiry dated July 30, referring to a proposed public statement, "Release when ready but not sooner than August 2 HST." See Thomas B. Allen and Norman Polmar, *Code-Name Downfall: The Secret Plan to Invade Japan and Why Truman Dropped the Bomb* (New York: Simon and Schuster, 1995), p. 270, and Stanley Weintraub, *The Last Great Victory: The End of World War II, July–August 1945* (New York: Truman Talley Books/Dutton, 1995), p. 332.

31. Otis Carey, *Mr. Stimson's "Pet City": The Sparing of Kyoto, 1945* (Kyoto: Doshisha University, 1975).

32. *FRUS, Berlin*, vol. 2, 1374.

33. Gavan Daws, *Prisoners of the Japanese: POWs of World War II in the Pacific* (New York: William Morrow, 1994), pp. 360–361.

34. Barton Bernstein, "Understanding the Atomic Bomb and the Japanese Surrender: Missed Opportunities, Little-Known Disasters, and Modern Memory," *Diplomatic History* 19, no. 2 (spring 1995), p. 267.

35. Peter Lowe, "Hiroshima: A Strategy of Shock," Saki Dockrill, ed., *From Pearl Harbor to Hiroshima: The Second World War in Asia and the Pacific, 1941–1945* (New York: St. Martin's Press, 1994), p. 200, which cites L. Giovannitti and F. Freed, *The Decision to Drop the Bomb* (London: Methuen, 1967), p. 36.

36. The bomb was dropped on Hiroshima on August 5, at 7:15 p.m., Washington time, and on August 6, at 8:15 a.m., Hiroshima time. It seems customary among American writers to use the date August 6. The vagaries of time zones and the international date line are a constant plague to historians of the Pacific War and sometimes even seem to have confused military strategists on both sides of the ocean.

37. Text of Soviet declaration of war is in *FRUS, Berlin*, vol. 2, 1474n.

38. In a memorandum dated April 24, 1954, Truman wrote, "In 1945, I ordered the A-Bomb dropped on Japan at two places devoted almost exclusively to war production." Robert H. Ferrell, ed., *Off the Record: The Private Papers of Harry S. Truman* (New York: Harper and Row, 1980), p. 304.

39. Gordon Thomas and Max Morgan Witts, *Ruin from the Air: The* Enola Gay*'s Atomic Mission to Hiroshima* (Chelsea, Mich.: Scarborough House, 1990), p. 17.

40. Committee for the Compilation of Materials on Damage Caused by Atomic Bombs in Hiroshima and Nagasaki, *Hiroshima and Nagasaki: The Physical, Medical, and Social Effects of the Atomic Bombings* (New York: Basic Books, 1981), map on pp. 58–60.

41. Edward J. Drea, *MacArthur's ULTRA: Codebreaking and the War against Japan, 1942–1945* (Lawrence, Kans.: University Press of Kansas, 1992), p. 224.

42. John Hersey, *Hiroshima*, rev. ed. (New York: Vintage Books, 1989), p. 4.

43. Peter Wyden, *Day One: Before Hiroshima and After* (New York: Simon and Schuster, 1984), p. 269.

44. Committee, *Hiroshima and Nagasaki*, p. 617.

45. Thomas and Witts, *Ruin from the Air*, p. 254.

46. About confusion concerning the nature of Truman's "order" to drop the second atomic bomb, see Feis, *The Atomic Bomb*, p. 125.

47. See map in John Ray Skates, *The Invasion of Japan: Alternative to the Bomb* (Columbia, S.C.: University of South Carolina Press, 1994), fourth unnumbered page following p. 133.

48. Junichi Kyogoku, *The Political Dynamics of Japan*, Ike Nobutaka, ed. (Tokyo: University of Tokyo Press, 1987), p. 71.

49. Kyoko Selden and Mark Selden, *The Atomic Bomb: Voices from Hiroshima and Nagasaki* (Armonk, N.Y.: M.E. Sharpe, 1989), p. xxix.

50. Weintraub, *The Last Great Victory*, p. 571.

51. For a detailed account of the attempted coup d'etat, see the Pacific War Research Society, comp., *Japan's Longest Day* (Tokyo: Kodansha International, 1968). This is the English translation of a book originally published in Japanese, *Nihon No Ichiban Nagai Hi* (Tokyo: Bungei Shunju, 1965).

52. Dockrill, "Hiroshima: A Strategy of Shock," p. 207. William Craig, *The Fall of Japan* (New York: Dial Press, 1967), pp. 73, 116, and 134.

53. Akira Iriye, *Across the Pacific: An Inner History of American-East Asian Relations* (New York: Harcourt, Brace and World, 1967), p. 232.

54. Feis, *The Atomic Bomb*, 128, which cites *New York Times*, August 9, 1945.

55. W. Averell Harriman and Elie Abel, *Special Envoy to Churchill and Stalin, 1941–1946* (New York: Random House, 1975), pp. 493–498.

56. Mamoru Shigemitsu, *Japan and Her Destiny: My Struggle for Peace* (New York: Dutton, 1958), pp. 375–377.

57. Theodore H. McNelly, "General Douglas MacArthur and the Constitutional Disarmament of Japan," *Transactions of the Asiatic Society of Japan* 17 (October 1982), pp. 1–34.

58. Bix, "Japan's Delayed Surrender," pp. 222–223.

59. The fate of other members of the peace party was much less pleasant. Prince Konoe committed suicide the night before his arrest as a suspected war criminal. The court of the Tokyo war crimes trial, the International Military Tribunal for the Far East, sentenced Kido to life imprisonment, Shigemitsu to seven years imprisonment, Togo to twenty years imprisonment, and Hirota to hanging.

60. Text in Truman, *Memoirs*, vol. 1, p. 457.

61. Government Section, Supreme Commander, Allied Powers, *Political Reorientation of Japan: September 1945 to September 1948* (Washington, D.C.: U.S. Government Printing Office, [1949?]), vol. 2, pp. 442–444.

62. Department of State, *United States Relations with China with Special Reference to the Period 1944–1949* (Washington, D.C.: U.S. Government Printing Office, 1949), p. 312.

63. Stanley Weintraub, "The Three-Week War," *MHQ: Quarterly Journal of Military History* 7, no. 3 (spring 1995), p. 95.

64. George Feifer, *Tennozan: The Battle of Okinawa and the Atomic Bomb* (New York: Ticknor and Fields, 1992).

65. John Dower, "The Bombed: Hiroshimas and Nagasakis in Japanese Memory," *Diplomatic History* 19, no. 2 (spring 1995), p. 282n. The figure given by Dockrill, "Hiroshima: A Strategy of Shock," p. 208, is 665,000. The latter author cites S. Hayashi, *Taiheiyo Senso* [The Pacific War] (Tokyo, Chuokoron, 1980), pp. 405–406.

66. Feifer, *Tennozan*, p. 573.

67. Daws, *Prisoners of the Japanese*, p. 184.

68. Feifer, *Tennozan*, p. 573.

69. "The President Discusses Invasion Plans, Excerpts from White House Meeting, 18 June 1945: Extracted from Minutes of Meeting Held at the White House 18 June 1945 at 1530," in Martin J. Sherwin, *A World Destroyed: Hiroshima and the Origins of the Arms Race* (New York: Vintage Books, 1987), p. 359.

70. Edward Drea, "U.S. Army Codebreakers and the War against Japan," in Dockrill, ed., *From Pearl Harbor to Hiroshima*, p. 102.

71. For example, see the map on p. 221, in Drea, *MacArthur's ULTRA*.

72. Masako Yamane, "The Emperor's Retreat," in Haruko Taya Cook and Theodore F. Cook, eds., *Japan at War: An Oral History* (New York: New Press, 1992), pp. 432–437.

73. Skates, *The Invasion of Japan*, p. 253.

74. Allen and Polmar, *Code-Name Downfall*, pp. 259–261, 278–279, and 293.

75. Robert James Maddox, "The Biggest Decision: Why We Had to Drop the Atomic Bomb," in *American Heritage* 46, no. 3 (May–June 1995), p. 73.

76. Lisa Murphy, "One Small Moment," *American History* 30, no. 2 (June 1995), pp. 66–73; Tetsuko Tanaka, "Making Balloon Bombs," in Cook and Cook, eds., *Japan at War*, pp. 187–192.

77. Peter Williams and David Wallace, *Unit 731: Japan's Secret Biological Warfare in World War II* (New York: Free Press, 1989) and Sheldon H. Harris, *Factories of Death: Japanese Biological Warfare 1932–1945 and the American Cover Up* (London: Routledge, 1994).

78. *Washington Post*, August 16, 1989, p. B6. The present author is acquainted with the questioner involved, who first told him about this incident.

79. Wyden, *Day One*, p. 298. John Dower, *Japan in War and Peace: Selected Essays* (New York: New Press, 1993), emphasizes the small scale and failure of the Japanese atomic bomb effort but concedes, "It is no doubt true that Japan would have used the A-bomb if it had been available," p. 56.

80. This was first published in the *New Yorker*, and later in book form. See John Hersey, *Hiroshima*, rev. ed. (New York: Knopf, 1985).

81. Letter, Mrs. Roosevelt to Shinoba [*sic*] Tabata, June 13, 1953, printed in full in Nobuya Bamba and John F. Howes, eds., *Pacifism in Japan: The Christian and Socialist Tradition* (Kyoto: Minerva Press, 1978), p. 247.

82. Arthur Holly Compton, *Atomic Quest: A Personal Narrative* (New York: Oxford University Press, 1956), p. 236.

83. Wesley Pruden, "Pruden on Politics," *Washington Times*, April 21, 1995, p. A4.

84. J. Samuel Walker, "History, Collective Memory, and the Decision to Use the Bomb," *Diplomatic History* 19, no. 2 (spring 1995), pp. 319–328.

85. Winston S. Churchill, *The Second World War: Triumph and Tragedy* (Boston: Houghton Mifflin, 1953), pp. 668–669.

86. Wilcomb Washburn, "The Smithsonian and the *Enola Gay*," *The National Interest* 49, no. 40 (summer 1995), citing David M. Glantz, "The Soviet Invasion of Japan," *MHQ: Quarterly Journal of Military History* 7, no. 3 (spring 1995), pp. 96–97.

87. Margaret Truman, ed., *Where the Buck Stops: The Personal and Private Writings of Harry S. Truman* (New York: Warner Books, 1989), p. 205. Truman wrote: "General Marshal told me that it might cost half a million American lives to force the enemy's surrender," *Memoirs*, vol. 1, p. 417.

88. Roger Olaf Egeberg, *The General: MacArthur and the Man He Called "Doc"* (Washington, D.C.: Oak Mountain Press, 1993), p. 193. The debate on the *Enola Gay* exhibit at the Smithsonian Institution provoked much speculation about the number of casualties to be expected in a projected invasion of Japan. See Washburn, "The Smithsonian and the *Enola Gay*," pp. 43–44, and Peter Maslowski, "Truman, the Bomb, and the Numbers Game," *MHQ: Quarterly Journal of Military History* 7, no. 3 (spring 1995), pp. 103–107.

89. Albert Einstein as told to Raymond Swing, "Atomic War or Peace: The Crucial Question," *Atlantic* 180, no. 5 (November 1947), p. 30.

90. Pacific War Research Society, comp. *Japan's Longest Day*, p. 11.

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