

assistant operations officer. An early description makes this rather explicit:

Air combat intelligence officers are a part of the A-V(S) officer program, designed to relieve pilots from the burden of ground duties. Their primary functions are to supply pilots with operational information, brief them before take-off, interrogate them after landing, and to prepare action reports. They perform such other duties as their commanding officers direct. They are not intelligence officers in the usual sense of the word; in reality they are assistant operations officers, in squadrons, at air stations, and on aircraft carriers. Their work is operational in nature. They function in the chain of operational command.

This was an attempt to find a place for what was then, in 1942, an anomaly in the United States Navy. Actually, the ACIO, as the program developed, became much more of an intelligence officer than an operations officer. The simple truth, however, is that the two functions were mutually interdependent, and officers assigned to one of the two billets frequently found themselves performing the duties of the other. Some intelligence officers at times became assistant operations officers or even operations officers. And, conversely, some operations officers found themselves performing duties usually reserved for an intelligence officer.

Although it was intended at first to have the ACIO's relieve the pilots of the burden of ground duties, and although they were to be assigned chiefly to aircraft carriers, squadrons, and naval air stations, it was soon apparent that they would be needed in many other billets. By the end of the war they were attached to the staffs of top-ranking operational commands, they served as liaison officers with the Army and Allied services, and they were assigned in large numbers to the various area intelligence centers where they worked on many varied projects. Some became specialists in flak intelligence; others in problems of air-sea rescue and evasion and escape; still others worked on technical air intelligence, including the examination and analysis of captured enemy aircraft. Wherever the need for an air intelligence officer arose, the billet was filled as soon as possible; when new problems arose, or new types of warfare were introduced, billets were created without precedent, and the intelligence officers had to be resourceful and develop their own procedure.

Throughout the war the demand for ACIO's

tended to increase. This may be exemplified by the average complement of ACIO's aboard carriers at the beginning and at the ending of the war. On a CV, the original complement was to be one ACIO for the ship and one for each squadron. That, using the four-squadron air group then in force, meant five altogether. At the end of the war, on a typical *Essex*-class CV, with a four-squadron air group aboard, there would be two ACIO's for the ship, one for the air group, and for each squadron, a total of seven. If a staff were aboard, there would be three more. As amphibious operations developed, an increasing number of air intelligence officers were employed, and consequently many ACIO's found themselves chiefly concerned with problems of air support.

As appropriate, ACIO's performed the general duties of fleet intelligence officers. There were, however, a large number of special duties which fell to the lot of the ACIO alone, some of which were merely the result of the special tactics of aerial combat, others of close association with pilots and air crewmen.

The ACIO at Intelligence Centers

Originally, the intent was to establish an ACIO section as part of the intelligence center for the area commander. This was done, but it was later felt that the most effective working organization was to have the ACIO work in the particular department of the center with which he was concerned, and not to separate ACIO's from the rest of the center. Thus, the ACIO working on objective data on enemy air bases would work in the objective data section with intelligence officers who might be studying the enemy objectives with an eye to bombardment by surface craft. Similarly, the ACIO whose chief assignment was to keep the enemy air order of battle up to date would work in the same section with the intelligence officer who kept track of the enemy surface forces order of battle. A simpler arrangement, and more efficient, this joint activity made possible the concentration of all information on a single subject in the same place.

In one or two commands, special groups of ACIO's acted as a branch center, specializing only in air intelligence and chiefly responsible for distribution and research and analysis. At

ComAirPac, the operational intelligence section, completely manned by ACIO's, was a striking example of such a group operating with extraordinary success. Nevertheless, even there, the duties were those that could have been handled by a joint intelligence center. Properly organized, a joint intelligence center in any theater of war should be able to handle the basic intelligence needs of all branches of the service operating in that area. Where such organization did not exist, makeshift subordinate groups naturally arose. Nevertheless, the goal should be an effective joint agency supervising all intelligence activities.

Ideally, the intelligence center should be responsible for insuring that all commands operating in its area are adequately staffed with operational intelligence officers. This function was admirably handled for air intelligence by the operational intelligence section of ComAirPac which maintained throughout the war a pool of ACIO's and was thereby able to fill new billets when a new activity was organized, and to furnish ordinary or extraordinary replacements whenever necessary. Thus if combat operations were stepped up and the pace demanded more frequent relief for battle intelligence officers, the local pool was equipped to deal with the increased demand for replacements.

A situation plot is a fundamental intelligence device. In the intelligence centers, several of these plots were devoted chiefly to air intelligence and were maintained by ACIO's. The following items were usually covered:

1. Enemy air bases.
2. Location of major enemy fleet units.
3. Location of friendly and enemy convoys and merchant shipping.
4. Location of special patrol, restricted, or mined areas.
5. Location of own fleet carriers or mobile sea-plane units.
6. Location of own and enemy major bases.

In addition to maintaining special plots, ACIO's prepared that portion of the daily intelligence summaries that reported air movements. A 24-hour ACIO watch was kept in order to plot all information received, and to deal with air problems requiring immediate action.

Among the objective studies prepared by the

joint intelligence agencies some were the immediate interest of the ACIO's who were responsible for collecting all information useful in air combat, including the nature, location, and function of enemy air bases; photographic reconnaissance for chief terrain features, landmarks, strategic and tactical intelligence; order of battle; and whatever sociological or political information might be useful for evasion and escape procedures. Thus, in proportion to the size of an intelligence center, there was an appreciable number of ACIO's working on these special problems. At JICPOA, for example, an ACIO was responsible for preparing all material on Japanese airfields for distribution to the carrier task forces, and also to land-based Navy and Army units operating near the enemy home islands.

In addition to preparing air intelligence material to be forwarded to the operating forces, ACIO's in centers collated the intelligence which returned from the operating forces, in the form of despatches, action reports, intelligence reports, and interviews. This information was analyzed by experts in research and statistics, and reports were then prepared which proved of value to the technicians and to the planners of future operations, and frequently were of immediate operational value as well. Thus, after numerous details on Japanese bomber tactics had been collected from all types of sources, ACIO's in one of the centers were able to draw general conclusions about characteristic Japanese bomber doctrine and issue a sizable pamphlet analyzing the doctrine at some length. From such information, our own defense doctrine could be altered in the field to provide greater protection against these set patterns of attack; and at home, technicians and planners could work on new weapons which would further nullify such tactics.

Frequently the intelligence center was called upon to provide information on new subjects. If the request was an unusual one and not likely to recur, an individual was assigned to the task temporarily. If, however, the subject was one which is to become a responsibility assigned to one or more officers, it was permanently assigned to one or more officers. In the field of air intelligence, some of these special projects were (1) air-sea rescue, (2)

flak intelligence, (3) technical air intelligence, and (4) evasion and escape.

The attempts to rescue pilots who had been forced down in enemy waters were at first experimental and haphazard. As tale after tale of effective rescue was analyzed by intelligence officers, noticeable patterns appeared which suggested that certain search plane tactics and certain types of behavior on the part of downed pilots were most likely to bring favorable results. It was possible for the ACIO's to recommend specific procedure for the downed pilot to follow and to recommend changes in the equipment that an aviator would carry with him. First, then, with the "DUMBO" operations in the Solomons, and later with the highly organized air-sea rescue doctrine as used by the fast carriers and amphibious forces, submarines, surface craft, and land-based planes as well, the combined efforts of intelligence and operations officers produced an official air-sea rescue doctrine which, by the end of the war, was effecting an impressively large number of rescues, thereby contributing immeasurably to pilot morale. As part of this program, several ACIO's in various centers were assigned specifically to air-sea rescue, and for the amphibious operations from Palau on, an ACIO as air-sea rescue officer was assigned to the staff of the Commander Air Support Control Unit (CASCUC) to supervise air-sea rescue operations en route to the objective and during the operation. This proved to be highly successful and plans were underway at the end of the war to extend this function so that individual amphibious units would have their own air-sea rescue officers.

In the early days of the Pacific war, the threat of anti-aircraft fire was of little concern to our Navy pilots since they were likely to encounter it only over the enemy's capital ships and there it was unavoidable. This situation prevailed until late in 1944 when for the first time naval aviators were flying regularly over large land masses, and over congested areas where there were intense flak concentrations. At this time, with the rising number of losses to anti-aircraft fire, ACIO's specially trained in flak intelligence were ordered to centers and to task force and task group staffs, to work with the ship and squadron ACIO's on the safest and most expeditious approaches to and from the

target, and to improve the technical equipment and publications that would be used in plotting these approaches. This was in a sense similar to the program of flak intelligence used by the AAF in the European theater, but the peculiar nature of naval air offensives, mainly attack at lower levels, demanded revisions in accordance with naval offensive doctrine. ACIO's included flak intelligence in their briefing, and so, in addition to the flak specialists, it became necessary for all ACIO's to understand the principles of flak intelligence and to be able to employ them.

The value of examining captured enemy equipment was established by the British in the European theater. Consequently, when operations began in the South Pacific, the need arose for trained air intelligence officers to salvage and report on crashed enemy aircraft. At a time when little was known about the actual capabilities of Japanese aircraft, the smallest fragment of an enemy plane was frequently the clue to new information. ACIO's trained in salvaging crashed aircraft were sent out to the operating areas and collected everything from the nameplates on aircraft engines to the whole planes themselves whenever possible. This activity led eventually to the establishment of the technical air intelligence center at Anacostia, under the general supervision of the air intelligence group, with representatives in all the important operating areas. Naturally, the majority of men working on this project were highly skilled technicians but ACIO's did a large share of the pioneering and controlled administrative aspects of the work from the beginning.

As a companion piece to air-sea rescue, procedure for rescuing pilots who had been forced to land in enemy territory was another development which, by the end of the war, was highly organized. Evasion and escape procedures were most complex in places like the Philippines, and in China, where there were efficiently trained guerrilla organizations and a generally sympathetic native population under enemy control; and the system functioned with moderate success even in less friendly areas. The Army MIS-X section, devoted wholly to this problem, proved to be the best source of information, and so, when the Navy began to require such information regularly, an ACIO was detailed as liaison officer with the Army

headquarters in Washington and disseminated information to other ACIO's in the field. Other officers were trained by MIS-X in Washington and sent to China to establish air-ground rescue units, as part of the Air Ground Aids Section (AGAS).

The ACIO on Air Staffs

At the beginning of the ACI program, it was intended to assign 1 ACIO to each aviation staff afloat, and 18 to the staffs of the commanders of areas where extensive air operations were to be conducted. Naturally, the 18 officers were selected to fill billets in the intelligence centers established for the area commanders, although one or two of those officers were generally chosen to serve as intelligence officers for the commander himself. The one officer assigned to the staff of the air commander afloat, however, was in every sense his operational intelligence officer, and it was only a matter of brief time after operations became complex and frequent that the duties became too numerous for one man to execute efficiently. By the end of the war, an average staff complement for the commanders of the fast carrier task forces and task groups included three ACIO's and the staffs of the commanders of escort carrier forces usually had two.

Also as air activities increased in the Pacific war, the operation of fleet air wings in the forward areas required considerable intelligence work and consequently at least two, and preferably three ACIO's were assigned directly to the flag, with additional ACIO's to serve commanders of subordinate task units when the size and functions of the command warranted such a complement.

As is true of all operational intelligence officers assigned to staffs, the duties of ACIO's assigned to staffs were twofold. First, the ACIO functioned as the admiral's intelligence officer, in which capacity his principal duty was to keep the admiral and his staff informed on all pertinent matters of intelligence; second, the ACIO functioned as intelligence officer for the entire force, group, or unit under the admiral's command, distributing and collecting from the subordinate units all intelligence pertinent to the operations in progress.

For the most part, the duties of the aviation staff intelligence officer are the same as those of the operational intelligence staff officer. Prior to,

during, and after action, however, there were many special tasks for the ACIO which did not confront other operational intelligence officers.

One of the most exacting chores of the staff ACIO at all times was to keep abreast of the available intelligence material on areas in which he might be operating on very short notice. In the last war, the mobility of the fast carrier forces made it quite possible for units to strike the South China coast, or French Indochina one week, and the islands of the Nansei Shoto, or even of the Japanese homeland itself the following week. Such a course of action would take them within range of many major targets including Hainan, Hong Kong, Formosa, northern Luzon, Okinawa, and Kyushu, and would make excessive demands upon the resources of the intelligence officer. Also, unlike ships whose striking powers are limited chiefly to bombardment of installations near the coastline, the range of the aircraft based aboard the carriers made it essential for the ACIO to be familiar with targets far inland, sometimes as much as 200 miles or more. Consequently, familiarity with the geography of an extensive area was but one demand made upon him.

More important, however, than a mere comprehension of the geographical features of the potential operating area was an ability to distinguish the vital military targets within that area and their relative priority. In the preparation of the intelligence annex of the operation order, and even in the preparation of the operational portion of the order itself where he assisted the chief of staff and the operations officer, the ACIO was expected to know the pertinent facts about all major air bases, harbors, naval bases, anchorages, aircraft facilities, public utilities, transportation networks, and industrial targets, and needed to be in a position to list them according to relative priority. Such information was naturally drawn from the objective data covering the area, but most of that material required supplementary coverage and radio intelligence. Also, in many instances, coverage was inadequate, especially if the area was one not previously subjected to attack. In that event, the staff ACIO, together with the photographic intelligence officers who worked under him, planned the photographic reconnaissance to be made of the area in

order to get adequate pictures for immediate tactical strikes, and also to secure ample coverage of approaches, beaches, and coastline areas in anticipation of possible future amphibious operations in the area.

Sudden changes in choice of objectives introduced further complications for the staff ACIO with respect to air-sea rescue, and evasion and escape measures. Not only would it be necessary, in accordance with current air-sea rescue doctrine, to insure that rescue submarines would be on station all along the route to the new target at the necessary times, but it would also entail having on hand complete data concerning regularly scheduled submarine patrols, enemy minefields, and restricted areas in the waters to be covered. Plots of friendly air searches, with call signs and individual search sectors clearly defined, had to be made available to all operating forces. And finally, maps of land areas designating regions occupied by friendly forces and those occupied by enemy forces respectively, had to be prepared for the briefing of pilots and aircrewmembers who might have to make their way through wild and uncharted country before receiving assistance.

His difficulties were increased by the multiplicity of subjects that required his attention throughout this preparatory stage, during which his knowledge of air intelligence covering a widespread area was constantly put to the test.

The air intelligence officer on the staff of a carrier task force or group commander was especially busy during periods of intensified action, chiefly because one of his major tasks was the coordination of all reports flowing in from the various air groups operating under the flag. The squadron ACIO's sent their flash reports to the ship's ACIO, who, in turn, after consolidating them into one flash report for the ship, sent them to the task group ACIO. He consolidated the reports from the various carriers in his task group and forwarded the summary flash report to the task force ACIO who then made a preliminary estimate of the current tactical situation based on the flash reports from the entire task force. On the basis of this estimate, immediate tactical decisions were made by the commander of the task force or fleet, and plans were also made for the operations for the next few days.

Supplementing the flash reports, at the end of each day a more comprehensive summary of the day's operations was forwarded up through the chain of command, beginning with the ship's daily ACI report. These reports were also consolidated by the staff ACIO who then prepared a master daily operational summary for the force commander to forward to the fleet commander. Needless to say, in the multiplicity of reports that passed through the staff ACIO's hands that day, many bits of conflicting information appeared. Consequently, in preparing the final estimate, which eventually formed the basis for an official fleet communique on the progress of the war, he not only pieced together miscellaneous information, but evaluated the claims made by the various units and in the final analysis drew his own conclusions in resolving claims which were clearly in opposition to one another.

When the major units of the Japanese Fleet were attacked at dusk on the night of 20 June 1944 in the memorable Battle of the Philippine Sea, the problem was especially involved. Inasmuch as the attack was made as the sun was setting, visibility was by no means good, and furthermore by the time the pilots met the enemy fleet, they had flown almost to the limit of their endurance. Consequently, though many planes participated in the attack and many enemy ships were attacked, it was several days before the intelligence officers were able to unravel with any degree of success the various strands of the story of the attack: Were there three or four groups of ships? Which carriers were in which group? How many enemy carriers were badly damaged? How many were sunk? How many battleships were present? How many cruisers? And so on. These questions were answered much more readily when the Japanese Fleet was met again in October off Leyte, for then the aircraft attacked the enemy warships, and the better part of 2 days in daylight hours, and the composition of the individual groups was clearly spotted. But even as late as September 1944, intelligence officers were still unable to decide with any degree of certainty just what the composition of the "Central" groups was in that first battle of the Philippine Sea.

An interesting postscript to this problem and a vivid illustration of the difficulty of securing

such information occurred after the cessation of hostilities. In a letter dated 1 October 1945, Rear Adm. K. Nakamura, representing the Imperial Japanese Navy, in response to a request for the locations of major Japanese naval vessels that participated in this battle, writes: "We are unfortunately unable to furnish you with any accurate information on account of our records having been completely lost in fire."

The real value of careful battle reporting lies in the up-to-date information of the enemy obtained. Information prior to an engagement is never entirely satisfactory. To take advantage of the information available during battle is the responsibility of any command. The flash reports and the daily summary had just this purpose.

However, the greater part of the flash reports and the detailed daily summaries was based upon pilot reports obtained during interrogations. These pilots' observations could hardly be expected to be complete or entirely accurate. The speed of an attack, the confusion and distractions necessarily accompanying combat, enemy camouflage, bad weather—these and other factors made desirable all possible verification of pilots' reports by reference to photographs. With every strike or sweep, photographic planes secured coverage of the assigned targets. Such planes also covered other installations, airfields, and areas in addition to those assigned as targets for the day. From such photographs could be secured accurate and reliable information—if they could be processed and interpreted in time to be of use in the next day's operations.

So highly important was rapid handling of photographs when target areas were complicated and relatively unknown, that, during the latter days of the Pacific campaign, fast carrier battle doctrine called for a preliminary photographic report from each carrier and each task group to be prepared in despatch form and received by the task force commander by 2300 on strike days. Task force intelligence officers then reassessed the enemy situation in the light of the operations planned for the next morning, all in cooperation with the chief of staff and operations officers. Necessary changes and refinements were then approved by the admiral and were sent out to the force, along with any significant information not

already in the possession of task groups and ships. These procedures required extreme speed, rapid decisions, and constant work day and night. Best results were gratifying. Pilots received the benefit of intelligence gathered within the force from the day's battle experience.

The duties of the staff ACIO in the period following action were more akin to those of the operational intelligence officers on other staffs. Chiefly, he was concerned with a final appraisal or assessment of the damage inflicted upon the enemy, and his report on this subject was included in the official action report.

The ACIO on Amphibious Staffs

Amphibious operations are inherently complicated, involving all the services in the highest degree of precise coordination. Not least among these coordinations mandatory to success, is air support. This was recognized in theory at an early date and, after continued experimentation and experience, the ideas, techniques, and doctrine that proved successful in World War II were produced.

Since it was realized that air intelligence was prerequisite to an integration of air power with the amphibious activities it was to support, Naval ACIO's were assigned during the earlier days of the war to perform air-ground liaison for ground units and amphibious staffs, often assuming responsibilities as operations officers in addition.

By the middle of 1944, it was clear that air support intelligence was best applied by ACIO's attached to the staffs of commanders of air support control units (CASCUs). As finally evolved, commander air support control units was a type command under the commander amphibious forces, for the training, organization and command of air support control units (ASCU). Under CASCUs, an ASCU was assigned to each amphibious force and group, each admiral having such a control unit embarked in his flagship. With but few exceptions, these units remained with the force or group to which attached.

In operations such as Leyte, Luzon, and Okinawa, where more than one amphibious flagship was present, the control of aircraft was divided in most instances. The ASCU of the senior admiral exercised over-all control of all planes and directly

controlled such missions as combat air patrol, anti-submarine patrol and air-sea rescue, while the ASCU's of subordinate flag officers directed aircraft employed on missions supporting troops.

From the joint operations room on the amphibious flagship, the control unit communicated with ground force, aircraft, ships, and land bases by voice radio. The presence of artillery and naval gunfire control officers made possible the close coordination of air strikes with gunfire. From the adjoining combat information center (CIC), the fighter director—under CASCUC—controlled the air defense of the objective.

Interpreted broadly, the function of an ACIO attached to an ASCU was to keep the commanding officer and other staff members advised of all intelligence pertaining to air support. As is true of all intelligence duties, the particular requirements of this billet varied to an extent with different operations and staffs, but certain background knowledge was needed for all ACI amphibious work, and the duties of an ACIO attached to an ASCU became well established.

Air combat intelligence officers, who participated in the development of ACI amphibious work throughout World War II, indicated that the following specialized knowledge was required for ASCU billets, in addition to the information acquired in basic training in air combat intelligence: Theory and practice of amphibious warfare, organization of an amphibious flagship, organization of Army and Marine landing forces, Army and Marine ground tactics, theory of air support of an amphibious landing, organization and operation of air-liaison parties, organization of ASCU's afloat and ashore, air support control communications, capabilities and limitations of naval gunfire and artillery, and the coordination of air support with this gunfire and artillery.

The specific duties of ACIO's with ASCU's divided naturally into four phases: (1) Preoperational or rehearsal, (2) movement to objective, (3) operational, and (4) postoperational. These duties included functions usually fulfilled by all staff intelligence officers, as well as those peculiar to amphibious duty.

The preoperational duties of the amphibious ACIO required that he be custodian of plans,

despatches, standard operating procedures, and other pertinent material.

As the amphibious landing approached, officers and enlisted men of the air support control unit had to be briefed carefully and comprehensively on the coming invasion; the ACIO conducted or assisted in this series of briefings. By detailed study of landing force plans and by discussion with landing force officers aboard the flagship, he acquired the complete familiarity with the plan for maneuver of the landing force, and the plan for the employment of artillery which he needed as background for briefing, and for his duty of assisting in the coordination of naval gunfire and artillery with air support in the joint operations room of the flagship.

He kept or supervised a plot of reports of aircraft and submarines on search missions, and a ground target list which took into account the results of preliminary bombardment.

During the invasion, the ACIO maintained up-to-the-minute records of information required for air support. He maintained the data outlined under his preoperational duties and a situation map of the progress of ground fighting, derived from the reports of air observers and coordinators, flight leaders, air liaison officers, photographic interpretation officers, naval gunfire and artillery control nets, and various other sources. It was his job to filter and evaluate all the information collected by ASCU, and disseminate it over the flagship intercommunication system to all interested parties.

It was the ACIO who checked the requests of air liaison officers for air support with the plotted positions of ground troops, cleared with naval gunfire and artillery representatives in the joint operations room, and advised the commander air support control unit of the suitability of the targets for airplanes. He also originated missions on the basis of intelligence received from other sources, and supplied all available data on the target for use in the execution of the mission.

Each evening during the operation, the ACIO prepared and despatched to the supporting carriers and air bases a summary of the front-line situation, and such pertinent target material as might aid in the briefing of pilots before take-off. Daily summary reports of air support operations were pre-

pared for inclusion in the admiral's daily report to higher echelons, and records necessary for writing the final report on the operation were collected and organized.

The ACIO edited the preparation of the air support operations section of the final report of operations; it was his responsibility also to write the war diary of the air support control unit, including the number and type of enemy planes shot down, our own losses, the results of searches, and the numbers and results of all strikes.

On occasion, ACIO's were attached to the staffs of landing force commanders air support control units and found special emphasis on those duties concerned with the coordination of artillery and naval gunfire with the supporting Navy, Marine, and Army aircraft, and the handling of emergency landings at newly captured fields.

Naval air combat intelligence officers were called upon from the beginning of the development of naval air support efforts to assist in the preparation of the doctrine under which this support had to be finished. Naturally, this was a continuing task, as new experience had to be incorporated into the doctrine to insure that it is up to date.

The ACIO Attached to Ships

The air combat intelligence officer attached to a CV, CVL, CVE, or AVP was a member of the air department of the ship. In his position as a ship's officer, the duties of the ACI lay in two directions: To the captain and air department, and to the air group. Organizationally, he was the intelligence officer of the ship, functioning as such whether or not air operations were underway; at the same time, since the prime purpose of the vessel was air power, his duties reflected the inherent combination of intelligence intended for the most effective use of the aircraft aboard and intelligence for the ship as a surface unit.

This liaison nature of his position was its most important characteristic; he was the captain's representative in the ready rooms, and he was also the person through whom the reports and many of the requests of the air group were channelled to the ship's organization. Tact, the desire and ability to effect cooperation, and familiarity with the wide range of material, procedures, and personalities were required for success.

The duties of a ship's air combat intelligence officer divided naturally into six categories: (1) Precommissioning and preshakedown duties, (2) routine duties underway, (3) prebattle duties, (4) duties during battle, (5) postbattle responsibilities, and (6) collateral duties.

During World War II, when large numbers of new carriers were being built at an accelerated rate, ship's ACIO's often joined the ships' complement some months before commissioning.

The period before the shake-down cruise of a new carrier during wartime was devoted to testing and training; the ship's ACIO usually was assigned duties in connection with intensive educational programs for both officers and enlisted personnel. He arranged for talks and lectures, and was called upon to present intelligence subjects or other courses.

On wartime shake-down cruises, when there was no combat expected in the immediate future, the ship's ACIO performed certain routine intelligence duties; when the ship went into action, they became more important. His duties concerned with the dissemination of information assumed vital significance, since this information was needed for immediate decisions by the command.

To collate and present this information in a visual form which could be quickly interpreted, the ACIO maintained a situation chart. On this chart was plotted the positions of friendly and enemy shipping, air searches, submarine sanctuaries, restricted areas, and any other information of operational or air intelligence value. In addition, he maintained a bulkhead chart or over-all situation map, covering a much larger area, on which positions of friendly and enemy bases were noted, as well as other pertinent data—air search sectors, submarine areas, normal convoy or air transport routes, or the boundaries of jurisdiction of different commands.

On nearly all ships to which an ACIO was attached, he wrote a daily summary of the latest intelligence received by despatch and radio broadcast; wartime despatches not infrequently totaled more than 100 per day. Some summaries were limited to strictly operational information whereas others reflected the ACIO's ability to use his background knowledge and files for amplifying with

more complete description and explanation the minimum information received by despatch.

On nearly all CVL's and CVE's, and on some CV's the ship's ACIO was assistant air plot officer, participating in the preparation of the "fly" sheet. This flight order, mission, or briefing sheet, as it was variously called, contained all current navigational, weather, recognition, and communications intelligence necessary for briefing pilots on either routine or combat missions. If these fly sheets were not utilized, it was still the duty of air plot and the ACIO to disseminate to the ready rooms the same information by teletype, loudspeaker, or telephone. In addition to intelligence information, data on recognition signals and communications ordinarily were supplied by the ACIO.

Ship's ACIO's worked closely with group and squadron intelligence officers, who conducted ground school during routine cruises. From his central position and more extensive files, the ship's ACIO could be of great assistance in planning and conducting ground school during routine cruises. He also assisted in planning and conducting educational enterprises aboard.

When an operation order was received and the ship prepared for action, the ACIO's most urgent duties commenced. All his previous work began to bear fruit, and by the same token, his actions during this preparatory period affected the performance of his duties later in battle.

He was responsible for a thorough knowledge of pertinent operation orders and their annexes and enclosures. It has been said that perhaps the most important single qualification of an ACI officer is the ability to read and understand an operational order, for the captain usually called upon him to summarize the significant sections for the ship, as well as brief him on the orders of other units concerned.

If the operation order

If the operation order was delivered while the ship was in port, it was the job of the ship's ACIO to gather from the intelligence center or flagship as much additional intelligence material as might prove necessary or helpful; he collected also any special target material prepared for the operation.

It was found generally, after a study of the furnished material in connection with the operation,

It was found generally, after a study of this furnished material in conjunction with the order, that additional special charts, maps, photographs,

diagrams, templates, or mimeographed instructions might be called for; it was almost always necessary to prepare special target material adapted to the particular mission of the ship's air group. The production of this extra information was the joint duty of all ACIO's aboard.

Underway toward the target, there were a few hours or several days during which the pilots were briefed by the squadron ACIO's. The ship's intelligence officer assisted in planning and preparing for this work, since he was custodian of much of the target material, the liaison with the photographic laboratory and printing shop, and the channel through which the captain expressed his approval of the briefings or suggested certain emphases.

Just as he assisted the squadron ACIO's in briefing, the ship's ACIO participated in planning for the interrogations. By helping to prepare report forms and organizing the procedure for correlating and summarizing these pilot reports, he assisted materially in reducing delay or confusion. Since he was the funnel through which reports passed to the captain and flag, his was the responsibility to see that this intelligence channel was not clogged.

If a flag was aboard, the ship's ACIO worked closely with the flag intelligence officer in the preparation of intelligence of joint interest, and served as an important link in passing information normally received by the flag down through the ship, and vice versa.

When combat missions were flown, the ship's ACIO spent much of his time in CIC, or on CV²s, in the ACI office. In CIC, he got the up-to-the-minute information concerning the progress of strikes, evaluated this intelligence, plotted the position of planes forced down or of engagements with enemy aircraft, kept a record of the times of such events, and passed on pertinent items to the Bridge and ready rooms. One of the air plot officers or a squadron ACI relieved him or collected the information when he was elsewhere.

When strike or patrol flights returned the ACIO was ready to assist with interrogations. His primary duty, however, was to receive and collate the reports of the squadron ACIO's, and send a flash summary to the Bridge.

In his central position as a ship's officer, the

ACIO was the logical person to supervise the collection of data from other ship's officers. Both he and the squadron ACIO's needed data on ammunition and bomb expenditures, fuel consumption, damage to aircraft, and injuries to personnel, and quickly processed photographs. Written or verbal reports on these matters were collected in the ACI office during and after battle. Items of immediate significance were passed on to those concerned, the remainder retained for inclusion in postbattle reports.

The handling of aerial photographs was the administrative responsibility of the ACIO, but the details of this task were performed by the photographic interpretation officer when aboard.

During action, as at no other time, the ship's ACIO was called upon to furnish intelligence on a great variety of subjects—communications, enemy positions, target details, operations details, or the meanings of coded names and calls; but his primary duty remained that of rapidly and accurately collecting intelligence from pilot reports, evaluating and summarizing this information, and disseminating it to the bridge and ready rooms for immediate use.

The principal duty of the ACIO, following any engagement of the carrier or its air group with the enemy, was to write the ship's battle report. Pacific Fleet confidential letter ICL-45 states what was to be included in this report, but many captains used this vehicle for voicing comments or criticisms arising from experience of the action.

Other post action duties were to assist the squadron ACIO's in the preparation of the official aircraft action report (especially by having the required number of photograph attachments processed) and in their task of writing letters recommending awards.

The duties of an intelligence officer on an escort carrier differed appreciably from those outlined above only when the CVE was employed exclusively for antisubmarine warfare, as was usually the case in the Atlantic theater of operations. It is clear that he had to be more thoroughly familiar with the science and latest developments in antisubmarine warfare than the ACIO whose carrier was concerned with enemy submarines by chance, rather than by choice.

The Air Group ACIO

A late development in the air group organization in World War II was that of assigning an ACIO to the group commander's staff. One or two ACIO's were sent out with air groups as a part of the group complement in 1942, but the practice of regularly assigning an ACIO to an air group staff was not started until late in 1943, and it was not until the summer of 1944 that air group ACIO's arrived in the combat area in any appreciable numbers. By the end of 1944, virtually all groups had an ACIO as a regular part of the air group complement.

The duties of the group ACIO were not defined precisely nor limited exactly, because he functioned chiefly as a liaison and coordinating officer. He was personally responsible to the air group commander and the scope of his activity was conditioned to a great extent by the needs and desires of his commanding officer. Generally, the group commander wanted an ACIO to relieve him of all details connected with the collection, evaluation, and dissemination of intelligence materials, to furnish him with whatever important information he might need, and to represent him in the ready rooms whenever necessary. The ACIO was the group commander's right-hand man in any matter pertaining to intelligence, and, frequently, operational problems for the whole air group.

As a liaison officer, the ACIO worked with the group commander and the squadrons on one hand, and with the units that controlled and serviced the air group on the other. When the group was ashore, he established relations with intelligence officers of the fleet air detachment; aboard ship, he acted as liaison with the air department via the ship's ACIO.

The nature of his work varied considerably depending upon whether the Group was ashore or aboard ship. Duties also changed markedly when the air group went into actual combat operations. Under certain conditions, the group ACIO was called upon to perform duties usually handled by the squadron or ship's ACIO. He was there to relieve and assist them in every way possible.

Since he worked between the ship and ship's organization, he could facilitate the flow of intelligence from the ship's ACIO to the squad-

ron ACIO's or vice versa. This function was executed successfully in proportion to the group ACIO's experience.

During periods of training outside the combat areas, the group ACIO has duties of a general nature not confined to air intelligence.

Nevertheless, despite the time he devoted to these collateral duties, he had at all times to keep up with the latest information on enemy and friendly tactics, performance of enemy and friendly aircraft, geography of potential combat areas, and especially innovations or improvements of intelligence materials being made available.

When the air group was embarked, the group ACIO functioned almost entirely as an intelligence officer; he dropped many of the collateral duties and assumed his role as coordinator of intelligence activities between ship and squadron.

As pointed out above, the greatest single source of information as a ship prepared to go into action was the operation order. The squadron ACIO had to study closely those plans under which his unit was operating directly—that is, the task force and the task group operation orders. The group ACIO, in his position as coordinator, had to be on hand, however, to explain to the individual squadrons the over-all plan for coordinating strikes, not only within the air group itself but also without—with air groups from other carriers, and even the forces and Army air forces. Therefore, the group ACIO had to study, in addition to the immediate plans, the operations orders for the fleet as a whole, for the amphibious forces if a landing were in progress, and also any other available material that shed light on the conduct of the operation underway.

Furthermore, inasmuch as the target priority was established by the operation order, and since it was generally the group commander's mission to act as air target coordinator during strikes, it was imperative that the group commander be thoroughly briefed by his ACIO on the relative importance of all available intelligence on the individual target assignments for each strike. Theoretically, the group commander was personally responsible for obtaining this information, but with the endless stream of details that beset

him daily, in addition to the normal strain of flying his aircraft in combat, he was forced to rely upon his ACIO for the bulk of his information.

Since the group ACIO had a more comprehensive understanding of the over-all operation than the squadron ACIO's, it was feasible, and often imperative, that he, together with the ship's ACIO's, provide each squadron with all available briefing materials. If adequate information or charts were not available aboard ship for targets which had been suddenly scheduled for attack, the group ACIO collaborated with the ship's officer in the production of all charts, overlays, and objective data to be used by the air group as a whole.

The group ACIO coordinated the briefing program to insure that flying personnel received all the necessary information. This was done in a variety of ways. He might personally brief the air groups as a whole or the squadrons individually on such subjects as the general plan of operation, on air-sea rescue, or on escape and evasion.

If, in addition to the duties outlined above, the group ACIO had any spare time for assisting with the interrogation of the returning pilots and aircrewmembers, there was much that could be done. If any one squadron ACIO was particularly overburdened, he could help him; if things were going well enough in the individual squadrons, he could assist the ship's ACIO in coordinating all the incoming information for the flash reports and for the daily operational summary. Duties could easily be divided, with the ship's ACIO keeping track of downed planes and maintaining liaison with air plot on air-sea rescue, and the group ACIO simultaneously collating the target information.

The group commander was expected to submit a covering letter with the actions report from his group, to be included in the ship's official action report. Such a letter contained whatever recommendations he desired to make, basing his comments on the operations just completed, and he was doubtless assisted in preparing it by the group ACIO. At this time, the group ACIO could also assist the squadron's ACIO's in the preparation of recommendations for awards.

The Air Squadron ACIO

As originally conceived, the primary duties of ACIO's assigned to squadrons were "to relieve the commanding officer and other flying officers in the squadron of all details connected with the handling, preparing, and distribution of intelligence material." It was expected that the naval aviator, with his technical background, would understand the functions of ordnance, communications, and administrative officers more clearly than he would the complexities of air combat intelligence. A trained specialist in intelligence is a virtual necessity in time of war, but it must be remembered that his success will depend in large measure upon his resourcefulness. And in the squadron organization more than in any other type of billet, the ACIO found that his ingenuity was put to the test repeatedly, frequently under excessively trying circumstances.

Many of the special problems of the squadron ACIO were occasioned directly by his close association with the pilots and aircrewmembers, and these personal relationships were sometimes complicated by the fact that he was one of the few nonflying officers in the unit. For this reason, the intangible but very real quality of personality was an important aspect in the selection of squadron ACIO's. A squadron ACIO had to be the kind of person who enjoyed meeting and knowing people; his close acquaintance with the varied types and temperaments among pilots made it possible for him to evaluate their reports with much greater exactness.

Frequently, the squadron ACIO found himself to be a jack-of-all-trades. Because the successful carrying out of his duties was so thoroughly dependent upon a condition of high morale, he found himself performing a great many services that were by no means standardized and certainly not in the category of intelligence.

In addition to providing for the everyday comforts, insofar as possible, the squadron ACIO, because of his constant close association with the men, was in a position to recognize signs of pilot fatigue, and to keep the flight surgeon advised accordingly.

These collateral duties, however, were by no means mandatory. Most important of the official

duties of the squadron ACIO were (a) briefing—providing the pilots with all the information necessary to the accomplishment of their mission, and (b) interrogation—getting the information from the pilots and passing it on to higher echelons as rapidly and as accurately as possible. These duties will be dealt with in more detail below. It should be noted, however, that through such interrogations he received operational intelligence at one of the basic sources—direct from combat experience. The pilot gave his information to the ACIO who converted it into the necessary combat intelligence, through proper selection and evaluation.

Inasmuch as the majority of Navy squadrons were carrier-based, the special problems of the squadron ACIO will be treated principally from that point of view. The duties of ACIO's attached to land-based squadrons varied only in detail from those serving aboard ship.

The squadron ACIO played an important role in the training activities which, in wartime, were undertaken vigorously immediately after commissioning, and which comprise a more continuous activity during peacetime. He organized and conducted the ground school portions of the training syllabus for both pilots and crews; in addition, he began or continued the program of intelligence education, conducting sessions on geography, the organization of enemy or foreign fleets and air forces, new equipment and tactics, survival, escape and evasion, and various other subjects.

Either on shake-down or while moving forward, the ACIO found frequent opportunity to implement much of the training program in which he had participated so actively. Normally, he had occasion to brief his pilots and crewmen on practice exercise, to interrogate them on results, and to prepare material and reports of various kinds.

If the ship stopped at one or more of our own advance bases, the squadron ACIO—saw to it that the as well as the ship's ACIO—saw to it that the latest intelligence material on the forthcoming battle operation was procured from the intelligence center.

It was at this time, before the squadron reached the actual combat zone, that the ACIO conducted a series of general briefings on the areas in which the air group was likely to operate. These impor-

tant lectures were devoted to geographical data of potential value to the flyers, enemy and friendly bases, air-sea rescue procedure, submarine sanctuaries and shipping routes, methods of escape and evasion, and other intelligence of long-range value. These presentations were valuable not only for the squadron, but the preparation preliminary to these talks broadened the background knowledge of the ACIO himself, and fixed important information firmly in his mind.

Until now, the squadron ACIO had provided intelligence of general or preparatory nature. When action against the enemy or simulated battle conditions were imminent, his work became focused necessarily on what are at one and the same time his prime responsibilities and his chief specialties: operational briefing, interrogation, and combat reporting.

What the ACIO found essential in all his verbal presentations to the squadron, he now applied with special emphasis—he made his briefings *brief*. To be sure, no pertinent facts or figures were omitted, but he knew that the flyers were taut and excitable immediately before combat, and at this time all information was eliminated which was not of concern at the moment.

Ordinarily, briefings were organized to proceed from the general to the particular, with a gradual focus on the mission about to be undertaken. Insofar as security permitted, the strategic and tactical considerations underlying the mission were included. Although the presentation was succinct and to the point, care was taken to emphasize the necessity and significance of even the most routine "milk-run."

Special attention was devoted by the ACIO to insure that the very latest intelligence was made available in each briefing; much of this was found in photographs taken by earlier flights and in the despatches that were constantly arriving from other units. New data on enemy air strength and tactics, the effectiveness and location of his AA concentrations, and the enemy's ship movements assumed therefore the highest priority in the transmission of air intelligence.

Experience in World War II produced ample evidence of the necessity of briefing the air crews. Like their pilots, they had to know the target if they were to be competent observers, and they could

not perform their fighting role unless they too were aware of both the purpose and tactics of the mission, and the likely developments of enemy counteraction. They had to be in a position to anticipate what subsequent interrogations might seek to discover, for they were frequently better able to observe damage on the ground and in the air than the pilot himself.

Of equal importance to the responsibility of giving information before the mission, was the ACIO's duty of collecting intelligence concerning what transpired and what specific results were obtained. This he accomplished by interrogation. Much depended on the advance planning and organization perfected before the time of battle—especially those details of the interrogation form which simplified to such an extent the rapid recording of data. With the backing and cooperation of the squadron commanding officer, an orderly and disciplined interrogation procedure was established in the space made available for the purpose.

The use of aerial photographs, models, and maps within easy reach provided a ready reference for those being questioned, and a check for the questioner. In his role of evaluating all reports, whether conflicting or not, and of producing finally the most accurate and complete picture possible, the ACIO performed a most valuable service for those in the chain of command who would use this intelligence in tactical decisions and plans. It was employed for the action report, squadron history, and war diary, and it served as basis for the award of decorations which were so important to morale.

An outstanding illustration of the necessity for the most careful evaluation and absolute accuracy occurred during the Battle of Leyte Gulf on 24 October 1944, when our own carrier-based ACIO's made hasty damage assessments, reporting that virtually the entire middle group of five Japanese battleships and their supporting vessels had been badly crippled or sunk. Had the ACIO's appraised the pilots' reports more carefully, it is entirely possible that the Japanese capital ships would not have been allowed to steam through the San Bernardino Straits on the following morning to attack our escort carrier force at point-blank range.

It was the air combat intelligence officer's job to

ground data needed for various forms of public information use.

As public information officer, in fact or by name, the ACIO was responsible for providing the material needed for public recognition of the squadron or any of its members. So important was this matter for morale that he took it upon himself to do what he could to see that his unit received in the press and on the radio the recognition to which it was entitled by virtue of its record.

A number of additional squadron documents were prepared by the ACIO; or, in any event, he assisted materially in their preparation. These included the rough log of daily activity, the mission record detailing the number and type of flight by each pilot, the squadron war diary, and the official squadron history.

In conclusion, it can be said that the experience of squadron ACIO's during World War II emphasized the "almost infinitely flexible" nature of their duties and supplementary jobs. In the light of his fundamental responsibility to serve his squadron and commanding officer in all matters pertaining to air combat intelligence, this is not surprising. Squadrons varied as to type, as well as within a single category, and the particular desires and needs of commanding officers differed widely. This flexible billet with its core of official responsibilities required of the ACIO initiative, ingenuity, and a willingness to work—as well as the specialized training which made the application of these qualities possible.

determine and describe the truth concerning his squadron's activities; intelligent interrogation was his means of accomplishment.

The ACIO prepared the comprehensive detailed report of the action which was used for a wide variety of purposes. While much of the data for the final action report was derived from flash reports and interrogations, special information was concerned from the different officers most directly involved—data on navigation from the navigator officer, on ordnance from the ordnance officer, on plane failures from the chief machinist or officer in charge of the aircraft service division. Not infrequently, the ACIO was asked by his commanding officer to prepare a covering letter, including comments and suggestions arising from the experiences of the action.

It goes without saying that the squadron intelligence officer exercised great care in this work; special attention was devoted by him to the final assessment of the damage claimed, and to the spotting and elimination of duplications.

After an action, it was certain that the ACIO would be called upon to prepare recommendations for awards, in accordance with the facts available to him and in compliance with current directives. Often, performance cards were kept for each pilot, greatly simplifying the task of compiling the data to accompany these recommendations, and serving a useful purpose in connection with the monthly achievement reports of aviators and the back-

CHAPTER XII

PHOTOGRAPHIC INTELLIGENCE

The importance of aerial photography as a source of strategic and technical intelligence has been indicated in the discussion of strategic and operational intelligence contained in preceding chapters. During World War II, photographic intelligence was a most reliable basic source, and by far the most productive reconnaissance source, of intelligence. Every phase of strategic and operational intelligence utilized photographic interpretation reports and often such reports alone formed the basis for important decisions of operating and planning commands. This chapter discusses the development, sources, use, and procedures of photographic intelligence during World War II.

Development of the Naval Photographic Intelligence Organization

The naval photographic intelligence organization received its initial stimulus and help from the British, who, upon being pushed off the European Continent and largely separated from ordinary information and intelligence channels, hurriedly improvised a system of extracting desired military information from factual evidence contained in photographs taken over enemy-held territory. Though the British improvised, they did so extremely well, and soon were achieving results that were spectacularly successful.

The intelligence and operational value of British photographic technique was brought to the attention of the Bureau of Aeronautics in the spring of 1941 by the United States naval attaché in London. Accordingly, naval observers were sent to England to study British procedures and experience. Their report stressed the importance of photographic interpretation work, and the need for a similar organization in the Navy, and recommended the establishment of a Navy school to train officer personnel in the science of photographic interpretation.

On 12 September 1941 a photographic interpretation school was established under the Bureau of

Aeronautics at the United States Naval Air Station, Anacostia, D. C. Perhaps the most important stumbling block for the school was the inability then to anticipate requirements in the new field. As matters stood, no office could draw up a specific directive regarding complement for the fleet since no such personnel had been previously employed by the Navy. Furthermore, only experience would educate the fleet in the use of such officers and evoke a definition of their place and exact functions in the naval operational organization. Early in the war, only aircraft carriers and patrol wing squadrons were equipped to take and process aerial photographs. At first, since the importance of the photographic interpreter's work lay in the use (not in the taking or processing) of aerial photographs, trainees could be assigned only to such commands. In general their function was defined as follows:

1. To extract the intelligence data from factual evidence contained in photographs of enemy holdings.
2. To present such data for use by operational commanders in coherent, practical, and readily understandable form.

As the value of photographic intelligence was realized and more photo interpreters became available, photographic interpretation units were formed, either as a part of a photo group or intelligence center assigned to an area commander. These units varied in size from 30 to 100 officers and were designated as South Pacific Photographic Interpretation Unit (SoPacPIU), Interprong 1, Central Interpretation Unit—Southwest Pacific Area (CIU-SoWesPacA), Interprong 2, Photo Reconnaissance Interpretation Section (PRISIC) (JICPOA) and Advanced Intelligence Center (AIC) of Nor Pac. Early in the summer of 1942, PRISIC was formed at Pearl Harbor to serve as a pool of photographic interpreters to be drawn upon by units of the Pacific Fleet and to perform more thorough and detailed analysis which could not be successfully handled by units emphasizing interpretation for

immediate operational use. PRISIC was absorbed into Joint Intelligence Command Pacific Ocean Area (JICPOA) in April of 1944.

Interpron 1 was formed in July 1943 as part of photo group 1, under SoPac, with headquarters at Guadalcanal until September 1944, at which time it returned to the States. While at Guadalcanal, it furnished photo intelligence for the Solomon Island campaigns, up to and including the Peleliu invasion. During July of 1945, Interpron 1 returned to the Pacific, making its headquarters at Okinawa.

Interpron 2 was formed as part of photo group 2 under ComAirPac and headquarters at Eniwetok from April of 1944 until October 1944 at which time it moved to Guam. Interpron 2 furnished photographic intelligence during the drive in the Central Pacific, and landings in the Marianas, and for aerial and surface strikes on Japan proper.

An advanced intelligence center was formed in October 1942, under the area commander of the North Pacific area, and was composed of photographic interpreters and air combat intelligence officers. It was originally established at Kodiak, Alaska, and on March 1943 moved to Adak, Alaska. This organization furnished intelligence for the Attu and Kiska invasions and for the strikes against the Northern Kuriles.

The above-mentioned organizations formed the center of photographic interpretation activity where intermediate interpretation comprised the bulk of the work done, although some preliminary and final interpretations were undertaken. From these units, especially from PRISIC as well as from the Photographic Intelligence Center, Anacostia, photographic intelligence officers were assigned to naval air and surface units, amphibious commands, Army air force and infantry commands. Photographic interpretation officers were also ordered from the center at Anacostia to the Atlantic Fleet and furnished valuable assistance in the European theater of operations.

As widespread combat experience established the value of aerial photographic intelligence, the organization expanded in size and scope. In November 1943, the school at Anacostia which had been performing the function of a center since 1942 was formally established as the Photo-Interpretation Center, Anacostia, D. C.

Today, as part of the Photographic center of the Bureau of Aeronautics, the photo-interpretation center conducts research in photographic interpretation and maintains reference manuals and other documentation on the military equipment and installations of the major world powers. Also included in its activities are photogrammetric research to improve the methods of map and chart production, the training of military and civilian personnel in interpretation, the preparation of historical and war-plan terrain models, the maintenance of a library of photo reports and related works, and preparation of photographic interpretation reports for the Office of Naval Intelligence.

Capabilities of Photographic Intelligence

The extraction of useful intelligence from photographs is not simple. Photographs, in common with other basic information, must be evaluated or interpreted. To perform this function the photographic interpreter in World War II had to know the conditions under which the picture was taken. He had to know the focal length of the camera used and the altitude of the aircraft in order to determine the actual scale of a ship in an aerial vertical photograph. His experience had taught him which types of photographs, cameras, film, filters, or methods were preferable, for instance, in determining beach gradients, and which were better for detecting camouflaged AA positions. For this reason the preflight planning of an aerial reconnaissance mission had to be done with a view to the information desired from the photographic interpreter. The kind of camera, film, and filters used was determined by the weather and the type of target to be shot. In addition to the mechanics of photography, careful consideration was given to the time, direction, and altitude of approach to the target in order to obtain the best possible photograph in view of the type of aircraft used, weather conditions, and the degree of enemy opposition expected.

Many different kinds of photographs and techniques were used by the photographic interpreter in his efforts to extract intelligence data. A list of these includes the aerial verticals, obliques, trimetrogon, Sonne and gun camera photos, with submarine and ground photographs offering sup-

plementary aid. Each of these had a specific usefulness in fulfilling the intelligence needs of various strategic and tactical situations.

Vertical aerial photographs, taken with the axis of the camera vertical or near vertical, were the most valuable for all-around use (and are most widely used) since it was possible to determine the dimensions of objects, or the height or depth of terrain shown in the photograph. Vertical aerial photographs were generally taken in daylight. However, some very successful night photography synchronized with photoflash bombs was used, particularly in the European theater, in detecting night shipping and ground troop movements. It was also used to furnish preliminary damage assessment of night bombing operations and, when used without flash bombs, presented information on searchlights, flak, flares, and fires not obtainable from daylight photographs.

Oblique aerial photographs are those that result when the camera axis is tilted away from the vertical. Such photographs presented a side view and had great value in the detailed interpretation of camouflaged installations, electronic directional finders, light antiaircraft emplacements, underwater and beach obstacles, barbed wire, pill boxes, and armored vehicles.

The trimetrogon and Sonne types are variants of the two basic types of photographs. In trimetrogon photography an assembly of three cameras is used. One camera is directed vertically downward and two are mounted at an angle of 30° from horizontal and perpendicular to the line of flight. The two oblique cameras are so placed that they photograph both the horizon and a small area covered by the vertical camera. All cameras are operated simultaneously, so that the area from horizon to horizon, perpendicular to the line of flight, is covered by three photographs. In addition to being very useful to the photographic interpreter in general reconnaissance studies covering terrain sweeps, communication patterns, and vegetation and industrial concentrations, trimetrogon sorties were valuable for mapping large areas at a small scale. Sonne strip photography was especially adapted to low-altitude (200 feet) and high-speed (300 m. p. h.) flying and permitted an accurate determination of height and depth. It was admirably suited for detailed beach work;

the scale was such that all visible forms of minor defenses could be located and data on gradient, spot depths, and heights calculated. The Sonne strip had the great advantage of "freezing" the surface of the water areas, so that the bottom could be seen stereoscopically. Photographic interpreters, with a small amount of additional training, obtained splendid results with the Sonne strips in depth determination studies.

Gun camera, submarine, and ground photographs were of great assistance in compiling damage assessment, technical information, or supplementary data. Gun camera photos were widely used to record hits in aerial combat gunnery. At such times they often provided valuable recordings of new types of aircraft, ground equipment, modifications in structure or design, and other bits of similar information which were extremely useful to air combat intelligence officers as well as to photographic interpreters. Submarine photos were taken through the periscope during the course of an attack on enemy shipping or during reconnaissance missions along enemy shorelines. These photos offered little perspective but were very valuable in making damage assessments, identifying enemy vessels from their length and shape characteristics, and determining the heights of radio towers and shore installations. Ground photos were commonly used by the photographic interpreter as supplementary aids in most types of interpretation. Where photos had been captured or derived from enemy gazetteers or travel folders, important use for them was found in identifying or analyzing structures and evaluating local terrain. Ground photos taken by our own forces after occupation of enemy territory were employed in comparative studies by photo interpreters. Ground shots when set side by side with vertical stereo pairs, offered valuable cross references and materially increased the chances of recognizing similar installations observed elsewhere on aerial photographs. Fine comparative studies of Kiska and Attu were made by Navy photographic interpreters who took part in the occupation of each island and proceeded to photograph all important installations.

Along with the various types of cameras and photographic techniques, the photographic interpreter directed the use of special film and filter

combinations under varying altitudes and light conditions. For instance, infrared film records an unusual rendition of colors. Vegetation registers a light tone in sharp contrast to noninfrared reflective objects such as water and cultural objects that record dark on the print. This aided in the detection of artificial camouflage in vegetation area or, since fresh dirt records dark against weathered soil, in distinguishing between old and new bomb craters.

There were numerous variations in the cameras, types of photograph, film, and techniques the photographic interpreter could choose from for a specific purpose. The resulting photographs provided the basic source from which, utilizing his special technique, he extracted reliable evaluated information.

Photographs as a source of information possess certain advantages when compared to other basic intelligence sources. Reports of Japanese surface forces based on visual sightings by pilots or coast watchers frequently called a destroyer a battleship or a tanker a carrier. In the case of Navy pilots thoroughly trained in ship recognition this was usually due to the altitude or distance from which they observed the ship; in the case of native Filipino or Chinese guerrilla coast-watchers it was due to lack of training as well. The photograph had the advantage of bringing the sighting to a highly trained expert in a form in which the image could be examined visually at leisure by means of magnifying glass or stereoscope. If, after visual observation, the Interpreter was in doubt, the actual dimensions of the ship could be calculated from the photograph—usually an infallible method of determining the class of vessel.

Thus photographs provided positive evidence as opposed to the indefinite indications or inferences of other sources. Generally they were "controlled," that is they were taken under known conditions and with the specific purpose of revealing certain information concerning the enemy. Aerial photographs did not need to be evaluated as to source and reliability, but only as to their content and significance. Within the knowledge and experience of interpreters, pictures provided facts for the particular time and place represented.

Another advantage of aerial photography was the intensive and comprehensive coverage possi-

ble. Not only could large ground areas be covered on a single photographic sortie, but each picture could be examined from many different points of view. With the assembled bird's-eye view before them, interpreters, expert in various phases of enemy activity, could extract what the pictures showed concerning their specialty or draw inferences concerning activities conspicuous by their absence. The mechanical eye of the camera and the use of special films made it difficult for the enemy to use successfully camouflage, dummies, decoys, or other "plants" intended to conceal or mislead. It is questionable whether the skillful and often elaborate efforts of the Germans were worth the construction and maintenance effort required, for they were revealed in most cases by the camera.

Another advantage of aerial photography as a source was the current nature of the information derived. Information obtained from most intelligence sources is dated when received. With efficient photo reconnaissance, information is available in the length of time required for the photo flight, the processing of negatives, the interpretation of the prints, and the dissemination of final analyses. The results of one of the longest reconnaissance flights in the Pacific—the 2,200-mile round trip by Marine flyers to Truk to obtain data on this most closely guarded Japanese base about which little was known—were available within 24 hours.

Limitations of Photographic Intelligence

Despite inherent advantages, aerial photographs provide no magic "open sesame" to all intelligence. There are limits to the information which can be derived directly or indirectly from photographs; an evaluation of enemy morale, for example, could hardly be made by this means. The source is useless during periods of bad weather and coverage is limited to areas within range of our aircraft. Also, since a photograph represents conditions at one particular instant in time, information obtained therefrom must be carefully evaluated in view of intelligence received through other channels of information. For instance, during the Philippines campaign aerial photographs of major enemy airfields failed to reveal the numbers of aircraft that other sources indicated were

based there. This apparent contradiction was resolved by information received from guerrilla sources. The enemy, probably in anticipation of raids, was flying the planes off these airfields at dawn and returning after dark. During the daylight hours the aircraft were, presumably, widely dispersed at minor strips.

Finally, the value of photographic intelligence is limited in direct proportion to the knowledge and experience of the Interpreter. Specialized interpretation such as underwater depth determination requires specialists within the photographic interpretation field.

Photographic Intelligence in World War II

Most of our peacetime sources of intelligence concerning Japan came to an end on 7 December 1941. Simultaneously it became the problem of our intelligence organizations to establish and utilize wartime sources for procuring all possible strategic and operational intelligence. Photographic intelligence was one major development in the over-all program of obtaining information concerning enemy areas, harbors, cities, bases, military installations, industry, communications, combat and merchant vessels, aircraft and weapons. Its use was limited, however, to areas within range of our reconnaissance aircraft.

Photographic reconnaissance was conducted throughout the war in so routine a manner as to be taken for granted. Naval photo squadrons and the photo planes of our carrier forces, as well as other air units equipped with cameras, supplied a continuous flow of photographs. Before their more publicized bomb and incendiary raids, the B-29s based at Guam and Saipan were employed in performing photographic reconnaissance over large portions of the Japanese homeland, obtaining information urgently needed for an astonishingly wide variety of military purposes. On the other side of the globe, Italian ports had been photographed from Africa on a set schedule; the more active centers were covered daily whereas others received less frequent visits, dependent on the range and availability of aircraft, and upon weather conditions. Perhaps the most regular and comprehensive coverage of the entire war was conducted by the British over Germany and bordering states; for four long years a ceaseless

vigil was maintained by hundreds of photoplanes flying regularly on scheduled and special flights. Almost every British plane, except transport and supply craft, carried one or more cameras. From the magazines of these cameras came hundreds of thousands of negatives, and an even larger number of prints, which were carefully studied for both the long- and short-range intelligence which they disclosed.

As our forward bases advanced within air range of Japan proper, much was learned from pictures of industry; size, construction data, and manufacturing details were revealed or corroborated. Photographs taken during or after attacks recording the damage inflicted on the enemy were of extreme importance in many fields of intelligence. The effect of strategic bombing raids on the enemy's war potential was, of course, of primary importance in long-range planning for the over-all conduct of the war. The extent of the fire damage in the Japanese cities subjected to incendiary bombing by our B-29's and the degree of destruction of the German municipalities visited by our aircraft in Europe were determined almost entirely from aerial photo reconnaissance, as was the effect of the atomic bomb on Hiroshima and Nagasaki. In all theaters of operation, damage assessments by photo interpreters were remarkably accurate, despite the deliberate policy of conservative estimate.

The bulk of the photographs taken during the war were aerial photos, but the camera was not restricted entirely to the airplane. Periscope pictures of installations located along the coast sometimes provided initial intelligence concerning some particular activity so far distant from our advanced outposts as to require the tremendous range of the submarine; such pictures also gave conclusive evidence of sinkings. Captured or behind-the-lines ground photographs of enemy installations and equipment contributed materially.

In all theaters of war, photography provided the command with strategic intelligence fundamental to an evaluation of enemy activities and capabilities; it revealed tactical information essential to operational planning, and it supplied many and various military units with specialized intelligence important to them in their particular field.

The importance of aerial photography in the

preparation of strategic area studies and surveys—surveys which contain almost encyclopedic detail of a given area—has been previously stressed. The subjects covered by these area studies indicate the wealth of strategic information obtained from aerial photographs. Strategic target studies, based mainly on photographic interpretation, were most valuable in planning strategic bombing raids, both in determining the exact target and the type of bomb likely to prove most effective. From a photograph of a large industrial plant it was possible in most cases to determine the specific building of shops doing the vital manufacturing or performing a function important to continued operation. For instance, the destruction of the powerhouse of a large plant would necessarily result in cessation of operations. This sort of information was more important for the precision bombing of carrier planes as opposed to the saturation bombing of the B-29s; but it was important in either case in estimating the effect of the bombing on the production capabilities of the plant.

Photographic reconnaissance was effected to procure either strategic or operational intelligence. The distinction in the requirements of these two closely overlapping fields of intelligence (a single picture would often serve for both) is that operational intelligence usually required frequent photographs—often daily missions—of the same area or target. The accumulation of basic strategic information required sufficient original reconnaissance sorties to obtain the coverage, scale, and clarity required for thorough interpretation, and such additional sorties as were necessary to illuminate doubtful points. Additional missions would be flown periodically in order to detect any important changes in the defenses or installations of the area.

Reconnaissance photographs taken principally for operational use provided all levels of command with information needed in planning future operations and in conducting operations in progress.

Such photographs were of material assistance in estimating Japanese capabilities and intentions. They were utilized, when possible, in determining the disposition and operational condition of the Japanese Fleet. For instance, constant photo reconnaissance sorties were flown over Singapore

during the last months of the war to ascertain the status of the Japanese cruisers under repair at that port. These vessels were a potential threat to our forces, especially those in Borneo, and had the latest photo of the series revealed that they were operational or that they had left Singapore, important operational decisions would have resulted. Photographs also assisted in establishing the existence of newly constructed warships. Accurate intelligence relative to the *Amagi-Katsuragi* carriers, the *Agano* and *Unryu* cruisers, the *Terutsuki*-class destroyers, and a host of other vessels was obtained in this way. Not only were recognition characteristics obtained quickly, but details of armament, equipment, and construction were compiled for the first time or checked with information from other sources. Thus, throughout the war, intelligence obtained from photographs (positive or negative information) was of great assistance to those concerned with estimating the daily disposition and capabilities of the Japanese Fleet—information of primary value in determining the current disposition of our forces and in planning future operations.

Similarly photographs played an important part in preparing estimates of the strength, capabilities, and intentions of the Japanese air forces. Constant photographic missions were flown over Japanese airfields within range. From the photographs, interpreters compiled the number, type, and condition of aircraft present at each airfield. This information was invaluable in preparing the estimates of Japanese air strength. Comparison of daily reports revealed fluctuation in strength and types, information that assisted in estimating enemy intentions. The constant watch maintained over enemy airfields also revealed the existence of many new planes or new models of old types. Other types of photographs were of similar value. Baka, the suicide rocket bomb, was first seen hanging beneath the belly of a Nell, in a gun camera photograph.

Photographs were all-important in the various phases of planning contributing to each of the four steps of solving military problems. In addition to contributing as described above to the preparation of estimates of enemy strength, capabilities, and intentions necessary for solving military problems, special photoflights conducted over

landing beaches revealed the nature of geographical or enemy-devised obstructions that would be encountered by our amphibious vessels and invading troops. Such things as the depth of the water, surf conditions, underwater obstacles, terrain immediately back of the beach, enemy coastal guns, pillboxes, and other defenses were revealed by the study of aerial photographs. Such information permits considered decisions as to the exact point of landing on a given beach or whether the beach is the most suitable one available for the landing.

Photographs were indispensable in conducting operations, especially aerial operations. Photo interpretation provided target data, recorded the result of attacks, and much of the other information necessary for a successful air strike. For instance, intense study of aerial photographs enabled the flak analysis expert to determine approaches which would submit our planes to a minimum of effective antiaircraft fire. Similarly, the location and type of Japanese radar installations were obtained from photographic coverage enabling aircraft and surface vessels approaching the vicinity of radar stations to take such evasive action as the circumstances required.

Photographs taken of Japanese task forces prior to an imminent carrier or fleet action disclosed the precise composition of the enemy force. Such information enabled our task force commanders to determine, well in advance, the most effective manner of conducting the engagement. Specific targets could be assigned our carrier planes for the first extreme range attacks. The exact type of bomb or torpedo most effective against each target could be determined. Photographs obtained during the first and each successive attack checked and amplified the more fallible visual reports of ships destroyed, damage inflicted, and the number and operational condition of the surviving vessels. Such play-by-play description of the battle was naturally of prime importance to the admiral in command in making each successive tactical decision.

Photographs taken during dawn carrier-plane attacks on airfields and installations in the Tokyo area provided immediate intelligence concerning the number and location of enemy aircraft dispersed in the area and permitted the selection of

the most profitable targets for the afternoon strikes.

In addition to their strategic and operational use, aerial photographs were employed widely by special intelligence units in their particular study or research. Much of this photo information was found in ordinary reconnaissance pictures, carefully studied for what they might reveal concerning the specialty. At times, special photo flights were conducted for the primary purpose of obtaining pictures especially suitable for some phase of research; thus, for example, aircraft took large-scale photographs of Japanese radar installations so that the efficiency of their instruments could be estimated and the best countermeasures instituted. Considerable detailed information relating to defenses was obtained in like manner.

In the naval war in the Pacific, photo reconnaissance played a leading intelligence role. The extreme distances involved meant less frequent coverage than was possible in the more compact European theater of operations, and these same geographical factors often seriously limited the intelligence concerning the Japanese that was available through other sources. Our strategic knowledge of such places as Munda, Rabaul, Wake, Tarawa, Kwajalein, Truk, Peleliu, Saipan, Guam, Iwo Jima, or Okinawa was derived largely from reconnaissance photos. Our knowledge of the Japanese home islands was vastly expanded, confirmed, and corrected by this same means. The planning and successful execution of the invasion of Iwo Jima illustrate in every phase the intensive and extensive operational use of pictures. Approximately a quarter of a million rolls of aerial photographs are included in the mammoth overall intelligence picture of the Pacific war. Separate commands disagree, often vehemently, as to what type of information was most valuable during the war, but there appears to be a general agreement that aerial photography procured a large percentage of all the operational intelligence obtained during the war and produced more varied types of information concerning the enemy. Collecting information concerning the more American naval intelligence—enemy ships, air-specialized fields of intelligence—enemy ships, aircraft, radar, antiaircraft, beach defenses, damage assessment, and a host of others—could not have

been so effectively developed without the benefit of photography.

There is no more concise and authoritative statement of the value of photographic intelligence than that made by Admiral R. K. Turner, commander, amphibious forces, United States Pacific Fleet, in charge of almost every major amphibious operation in the Pacific during World War II, whose views on the value of photographic intelligence are quoted below:

Aerial photography and photo interpretation have been the primary sources of intelligence in the Pacific war. Their importance cannot be overemphasized. Basic photo interpretation is not difficult to learn, yet the number of intelligence officers who are unable to do so at present is appalling. During the war, photo interpretation officers and intelligence officers have had different classifications, have been trained in different schools, and have been assigned by different administrative commands. Combat intelligence and photo interpretation should not and cannot be rationally divorced. They must go together. In the future, it is recommended that no combat intelligence officer be considered as such without a thorough knowledge of aerial photography, its use and limitations. Students should be taught the mathematics of aerial photography as it affects altitudes, shutter speeds, plane velocities, overlap and sidelap of pictures, parallax, scales, etc. They should become familiar with photographic equipment, and learn which camera is best for various types of photography, the films that are best for different types of work, the photo paper, the methods of reproduction and the limitations of the equipment. Aerial photography requirements for different commands should be thoroughly studied. Flight planning is vital to thorough and satisfactory coverage of any area. Pilots and photographers must be briefed, and intelligence officers must do it. As to the actual study of photos in the classroom, theory and mathematics should be stressed. Students should understand the methods of horizontal control, height finding, and water depth determination. Each student should be assigned an area and required to plan the flight, choose the equipment, make a controlled mosaic, prepare a preliminary map, and draft a final map ready for printing. Details of installations, defenses, building constructions, soils, trafficability, vegetation, etc., can be eliminated from the course much better than the fundamental principles mentioned above. The former vary so widely and are so specialized that they must ultimately be reported on by experts in the special fields anyway. Photo interpretation is largely a matter of experience. Architects should "interpret" buildings; Army, Navy, and Marine Corps specialists should "interpret" drainage, soils, etc.; engineers should "interpret" roads and bridges. The intelligence officer should certainly have a knowledge of all, but he cannot

hope to qualify as an expert in most. Each student should learn to prepare them on a variety of areas and for varied purposes. The importance of submitting these in clear, concise, graphic fashion should be emphasized. Further, the student must learn to integrate and incorporate photo information and photo interpretation reports with other intelligence and other intelligence reports. It is recommended that every officer not only make these reports, but that he fly over the area after making the report, to make observations from the air. He also should check his report and observations on the ground, at the same time taking ground photos. Finally he should recheck his report with the aerial photos, aerial observations and ground photos and observations. Areas of varied terrain, coastline, hydrography, and installations should be studied in this manner.

Procedures and Techniques Employed By Photographic Interpretation Officers

The functions of intelligence officers and photo interpretation officers (PIO's) in war theaters were closely entwined and mutually supported one another. Experience proved that uniformity, efficiency, and the best intelligence data resulted only when each member of an intelligence section knew what every other member was doing and how and why he was doing it. Close liaison was not enough. The closest cooperation and interrelation of functions were essential. Therefore, implicit in any discussion of the specific procedures and functions of photo interpretation officers is the understanding that their actual duties often cover a broader scope than the specialized functions ascribed to them.

Billetts for Photographic Interpretation Officers

As discussed in the first part of this chapter, PIO's were assigned in considerable numbers to the intelligence centers in the various theaters of war and to photographic interpretation squadrons which operated interpretation centers in conjunction with reconnaissance planes and aviators. They were also assigned to the staffs of high commands, such as CinCPac, ComPhibsPac, and the fleet commanders. In the carrier task forces, they were assigned to the task force commander, the task group commanders, and to the carriers themselves as members of the ship's company. In the amphibious command, they were attached to the force commands, the group commands and to CASCUs. Consequently, wherever aircraft were

taking pictures, PIO's were on hand to supervise photographic operations.

The basic duties for PIO's were threefold: planning photographic reconnaissance missions; interpreting the resultant photographs; and assessing damage, after attacks on all types of objectives.

Planning Reconnaissance Missions

The planning of photographic reconnaissance missions varied by nature, depending on whether the purpose was strategic or tactical. For long-range planning, it was naturally desirable to have on hand at least a cursory coverage of all potential objectives. Such photographs were utilized in the preparation of general strategic studies to be used whenever required. For example, one of the first tasks for our South Pacific forces in the last war, after we had secured a firm foothold in the Solomon, Ellice, and Gilbert Islands, was to secure full coverage of Japanese installations in the Marshall Islands. Even though all the enemy's military bases were not proposed targets for actual invasion, it was none the less necessary to photograph every potential source of opposition. From such photographs the intelligence centers in the South Pacific and at Pearl Harbor were enabled to prepare objective folders for use by high echelons in planning and by tactical commanders in staging aircraft or surface attacks. Before very long, virtually every rock and sandbar that appeared above water at low tide had been photographed at least once and its general description carefully noted and filed for reference.

To order such photographic coverage was the prerogative of operations officers; intelligence officers saw to it that no enemy bases were ignored; and the photographic interpretation officers prepared the plan for the actual reconnaissance flight, insuring that the planes were properly equipped, the runs over the target area thoroughly mapped, and the pilots adequately briefed. Such plans were usually included in the photographic annexes to the various fleet operation orders and were prepared by the PIO's under the general supervision of ACIO's.

Once an objective was selected and defined as a target for large-scale assault or invasion, the most comprehensive photographic coverage was essen-

tial, for use by fast carrier striking forces and by the amphibious forces. Thus, when Kwajalein, Majuro, and Eniwetok atolls had been chosen as our major objectives for landing in the Marshall Islands, photographic interpretation officers had to insure that the plans for reconnaissance flights provided for the necessary comprehensive coverage. Every inch of the three atolls was photographed. Beaches and their approaches received special attention, after the disastrous approach over the reefs at Tarawa, and by the time D-day arrived there were few surprises for our landing forces. This type of coverage, also plotted by the PIO, was the result of carrier and land-based aircraft activities, depending upon the specific type of photograph required. Wherever possible, regular and even daily coverage was flown in order to keep track of any significant changes that might show up in photographs. And if the situation demanded, a special operation might be planned for the express purpose of taking pictures for future amphibious operations, such as the raids on the Palau Islands in August 1944—which operation was termed "SNAPSHOT" and had as its primary mission photographic reconnaissance. For such a mission, the work of the PIO is most important in the preparation of the operation order.

Finally, PIO's were called upon to plan reconnaissance flights during tactical operations, to secure large-scale photographs of individual targets for immediate strikes, and to provide for adequate coverage of all targets attacked in order that sufficient pictures should be available for damage assessment.

In all squadrons where pilots were about to participate in a photo reconnaissance mission, the ACIO was responsible for seeing that they were adequately briefed. It was, however, common practice for the PIO to do the actual briefing for such missions since he was better qualified to discuss the technicalities.

Interpretation

When the missions had been flown and the photos processed and delivered, the second phase of the work commenced. Whether aboard ship or on land, the photos were quickly examined and preliminary reports were prepared by the PIO's. These stressed the most obvious features—such

active defenses as antiaircraft weapons, and such passive defenses as radio, radar, and searchlight installations. The reports could be made by individual PIO's attached to small units when the information was of immediate importance, or they could be sent to an interpretation unit where facilities are more extensive and personnel more plentiful.

Land-based long-range photographic reconnaissance planes generally operated in conjunction with a photographic interpretation center; consequently the negatives were delivered to the center immediately after the mission was completed. Coverage by carrier aircraft was handled in a slightly different manner depending upon the circumstances. If the photographs were of immediate tactical significance, the ship's PIO supervised the printing of the most useful negatives and produced, as soon as possible, a preliminary interpretation. If the information on the photographs was not required immediately, the ship's PIO handled the negatives in accordance with instructions clearly set forth in the task force operation order, which directed that copies be sent to various commands, including interpretation units and intelligence centers.

Upon occasion, it was necessary for the ship's PIO, in conjunction with a hasty preliminary examination of a photograph, to prepare overlays, photo mosaics, maps, navigational plotting board templates, and other pertinent items for immediate use by the striking forces. But whenever possible, if time was not of the essence, such work was reserved for the fully equipped interpretation units and intelligence centers to which the negatives were forwarded for thorough interpretation. There every scrap of information was wrung from the photos and comprehensive interpretation reports were printed for use by strategic planners and tactical commanders. A large staff of photographic interpreters was on hand to do what was impossible aboard ship or at advanced bases in the combat area. As noted, JICPOA was a prime production center for every type of intelligence map, chart, or study used in the Pacific, and in the photographic field alone there was a quarterly production of more than 3,000,000 contact prints. Printed material produced by JICPOA reached a peak, in January 1945, of more than 5,000,000

sheets a week, many of which represented the work of PIO's.

Damage Assessment

Damage assessment, like the other duties of the PIO, varied in nature, depending upon the use to which the pictures were to be put. In the midst of carrier or land-based aircraft strikes on objectives to be hit again the same day, the next day, or in the immediate future, the photo interpreter hastily appraised the damage which the photos revealed and reported to the intelligence and operations officers, in order that tactical decisions could be made instantaneously. In addition to such immediate assessments, however, PIO's at centers made a careful detailed study of the damage and the results of their analysis determined future strategy and tactics for the particular target. Such damage assessment was also reviewed by technicians who constantly checked the efficiency of new weapons and devices. Not until the actual occupation of Japan were the scientists able to observe firsthand the devastating effect of the atomic bomb. Prior to that, the results were studies from photographs.

The PIO assisted the intelligence officer of an operating command in the preparation of the official action report by compiling, on the basis of photographic evidence, statistics on actual damage done, as compared with pilot reports on the same actions. Thus a double check was accomplished.

Essentially, the duties of PIO's with staffs or ships resembled in kind the duties of the intelligence officers with those echelons. Thus the staff photographic interpreter assisted in the preparation of the operation order by furnishing the photographic annex, and, because of his position as an expert in his field, was consulted during planning periods. A carrier's photo interpreter worked with the ship's ACIO and air group commander in planning the day's strikes, and he frequently briefed the pilots on matters of photo reconnaissance. Through the medium of photographs as his source of information, he furnished his command with the information necessary for its effective functioning.

Special Skills

To function effectively, the PIO had to be thoroughly trained in special skills. In wartime,

much of this training was hasty and unfinished, but consistent study was required even while operating with the fleet. As discussed earlier in this chapter, he had to understand thoroughly the technical aspects of photography and photographic reconnaissance. But in addition, it was important that he be well trained in miscellaneous subjects that he used frequently in interpreting photos; the recognition and characteristics of ships, aircraft, and ground vehicles; target analysis; the characteristics of own and enemy ordnance; and the techniques of camouflage.

He had constantly to review the intelligence materials as they were received by his unit and take note of all new ships and aircraft that the enemy was reported to be using. Additional substantiation of such reports, through the medium of prisoner of war interrogations or captured documents, had also to be checked. Thus, the PIO was in a position to spot a new plane or ship when it first appeared in an aerial photograph. During combat there was no time for extensive research on an individual problem, and the only solution for keeping up with the situation was to scan all intelligence as received. This task was just as much a part of the PIO's daily duty as it was a part of the more he knew about the characteristic composition of various types of targets, the better equipped he was to advise intelligence and operations concerning target selection. It cannot be overemphasized that all these officers—operations, intelligence, photographic interpreters—worked closely together.

The PIO had also to be able to recognize the various types of enemy ordnance as they appeared in aerial photographs, and, in addition, in order to assess damage adequately, he had to know as much as possible about our own ordnance and its capabilities. He had furthermore to be aware of the various types of deception, in the use of camouflage, decoys, or dummies, which the enemy was in the habit of employing.

In the planning of photographic reconnaissance flights, the PIO had to consider the aerological conditions over the target to be photographed. Consequently it was also desirable that he have at least a working knowledge of aerology and also that he supplement this knowledge by frequent

consultations with the aerologists. Weather conditions over a target 200 miles away can be and usually are quite different from those over the task force, and often certain climatic peculiarities influenced the planning of the reconnaissance flight. For example, in the first strikes against the Philippines in September 1944, because of the ever-present overcast, ranging between 7,500 and 8,000 feet, it was almost impossible to make satisfactory runs with the K-18 camera, due to the slow timing cycle which resulted in insufficient overlap.

Finally, the PIO had to have a comprehensive understanding of the problem of cartography, and it was better still if he was something of a cartographer himself. Specialists in this field were available for higher echelons, but it was not always possible to supply them for the lower echelons. When expert cartographers were not available, the photographic interpreter was generally called upon to provide the necessary overlays, maps, or charts required at short notice. Furthermore, during extended combat operations the photographic interpreter prepared flak analysis and radar evasion maps for air groups based aboard the carriers. These specialized problems required a thorough understanding of flak intelligence and of the capabilities of enemy electronic devices—two highly technical fields.

At the beginning of the Guadalcanal campaign it was discovered that the Hydrographic Office charts of the area, which had been copied from old British, Dutch, French, and German admiralty charts, were grievously in error. For some areas no charts existed. It was then the task of the photo interpreters to produce new maps and charts for that area, a task that they performed quickly and admirably, considering the circumscribed conditions under which they operated in the South Pacific. Later on, such tasks were performed in more leisurely fashion by large staffs of photo interpreters, map specialists, and cartographers operating in JICPOA at Pearl Harbor where facilities were adequate for mass production. Nevertheless, it is always a possibility, during active operations, that certain maps or charts might be required immediately; in that case the photo interpreter had to be ready to assist in their production.

Special Assignments

In addition to the routine assignments, PIO's functioned in a liaison capacity with other military organizations in Washington and in the field. Officers were detailed to the Far East Section of the F Branch of ONI to collaborate on the preparation and publication of reports on harbor facilities in the Japanese home islands and to furnish whatever material was applicable for the JANIS studies. Other officers worked with the specialists in technical intelligence, assisting in the identification and establishment of the characteristics of Japanese shipping, ordnance, electronics, and other military equipment. New Japanese aircraft types and modifications were the particular interest of the Technical Air Intelligence Center, and PIO's also assisted that organization by utilizing the relevant information that they derived from

aerial photographs. Other officers collaborated with the Naval Photo Science Laboratory in the comparative film analysis study and in the development of photographic equipment such as the Sonne stereo-strip camera which was used effectively in underwater depth determination preparatory to assault operations.

In general, the photo interpreter was a necessary part of any operating command as well as an integral part of an intelligence center engaged in the production of intelligence materials. He was primarily a technician and functioned frequently in the capacity of advisor on technical photographic problems; but, as has been reiterated in the foregoing paragraphs, in order to carry out his duties effectively he had to be well informed as to the needs of the intelligence officer, with at least average understanding of operational problems.

During World War I, naval operations, for the most part, involved antisubmarine warfare, escort of convoy, and preparations for fleet actions. The intelligence officer aboard ship was usually an assistant operations officer on a staff or the head of a department of the ship itself, charged with intelligence as a collateral duty whenever the need for it arose. He was to keep his flag or command officer advised of enemy locations and movements, and his information consisted largely of dispatches received from scouting units and intelligence sources ashore. Air reconnaissance was in its infancy, and amphibious operations, as distinguished from raids, were not contemplated. It was not necessary to storm the beaches of Europe, inasmuch as France was then an active ally and transports could land their troops at her ports.

Certain concepts of amphibious intelligence were developed by the Marine Corps in 1940 and 1941 as a result of training and experimental work carried on along the Carolina coast, in the Caribbean, and at Quantico. These concepts were put into practice in the first amphibious operations and were the bases of subsequent development in World War II. But the most important rules of conduct came from combat experience. Valuable lessons were learned at Guadalcanal, in North Africa, and in Sicily; by the time we invaded the beaches of Normandy and Saipan, within 2 weeks of one another in June 1944, a highly developed technique was employed.

With the initiation of amphibious operations, first at Guadalcanal in August 1942, and then in North Africa in November of the same year, the need for a considerable number of intelligence officers in such actions was clearly established. The amphibious operation was more complex than all other arms as well. It was imperative that the movements of our own and enemy forces and the characteristics of the theater be well known to all persons involved in the action. Intelligence officers had to be trained for these special activities and rushed to the fleet as quickly as possible.

CHAPTER XIII

AMPHIBIOUS INTELLIGENCE

In the Normandy invasion a considerable number of intelligence officers participated both in the planning and operational phases of that great amphibious operation. Their work included constant liaison with intelligence units of the United States Army, the British Army and Navy, and with the Free French forces; day-to-day processing of newly acquired information; and detailed briefing of personnel responsible for the success of the landing, including officers of high echelon command, division commanders, type commanders (landing ships and craft), and finally the coxswains of LCVP's and LCM's. During the operation these intelligence officers were assigned duty with either the flagship, or the assault group commanders, or went ashore with the beachmasters.

By the conclusion of the war, the brilliant succession of landings in the Philippines, on Iwo Jima, and on Okinawa, proved vividly that all previous experiences had been studied most carefully and utilized advantageously.

Development of Amphibious Intelligence

To meet the special problems of modern amphibious warfare, Naval Intelligence developed specialized techniques and doctrines and prepared a large number of officers for future operations at rearward bases. In addition, the training of these officers continued, in apprenticeship, under actual combat conditions. By the end of the war, amphibious intelligence had reached a stage of development comparable to the complexity of amphibious operations as a whole, since it was of necessity concerned with all aspects of those operations.

Amphibious intelligence had its beginning in the First Marine Division G-2 section and in the headquarters of Amphibious Force, Atlantic Fleet (AFAF), based just outside Norfolk. By 1943, the AFAF intelligence section had grown to a strength of 100 Army and Navy officers and men whose task was to study amphibious operations from the point of view of intelligence and to integrate their work in the over-all task of planning.

As a result of experiences in the early landings, they outlined two general aims for amphibious intelligence (1) to secure the maximum detailed information on beaches and enemy defenses in the vicinity of shorelines on which landings seemed practical; and (2), to maintain a continuous estimate of enemy capability on land, sea, and in the air.

In securing information on beaches and enemy defenses in the vicinity, certain subjects had to be covered, if possible:

1. *Hydrography*, with special emphasis on surf and swell conditions, tides, currents, depths of water, water temperature, and salinity.
 2. *Weather*, with relation to temperature, rainfall, force and direction of wind, frequency of storms, visibility, flying conditions, special phenomena, and astronomical data.
 3. *Beaches*, with reference to their location, length, width, physical consistency, offshore approaches, gradient, nature of bottom, reefs, rocks, shoals, and other possible hazards.
 4. *Terrain*, especially that immediately adjacent to the landing beaches, with reference to approaches, observation posts, fields of fire, obstacles, cover and concealment, and roads from portions of shoreline on which landings seem practicable to logical objectives inland.
 5. *Ports*, with relation to the landing beaches, hydrography, berthing facilities, port facilities, and estimated demolitions and obstructions practicable to the enemy.
 6. *Enemy defenses*, with reference to their location, number, caliber, range, and emplacement of batteries, machine guns, and searchlights; wire trenches, mines (land and underwater), and underwater obstacles.
 7. *Medical plan*, with reference to landing medical personnel and supplies, evacuation of wounded and sick personnel, establishing first-aid stations and field hospitals ashore, hospital ships and other medical facilities afloat, reporting casualties, sanitation, and measures for prevention and control of disease.
- In securing information:

In securing information on enemy capabilities on land, sea, and in the air, the amphibious intelligence officers were concerned with the general

dispositions, in the theater of war, but most specifically with the strength, composition, disposition, and degree of mobility of those enemy ground, sea, and air forces that were capable of interfering with the landing or the establishment of the beachhead.

These general divisions were used throughout the balance of the war, both in the Atlantic and Pacific operations. The duties of amphibious intelligence officers were basically those of any operational intelligence officer, namely to keep the commanding officer informed on all matters of intelligence, and to collect, evaluate, and disseminate intelligence for the benefit of all higher, lower, and collateral echelons. Prior to operations, they received their information through the usual channels, the more productive of which were intelligence in Washington and the field. Plans were based on objective studies, reports, weather forecasts, photographs, reconnaissance, and any relevant and tested piece of information that was considered reliable. During operations, information was received from amphibious scouts, reconnaissance aircraft, support aircraft, air and ground fire liaison officers, prisoners of war, captured civilians, documents, materials, and communications intelligence. After operations, official action reports were prepared by amphibious intelligence officers for their units.

The organization of the amphibious forces, however, differs in detail from other fleet organizations, and the nature of amphibious operations, as of air operations, frequently demands consideration of special intelligence problems. These special problems are discussed in the first part of this chapter.

Intelligence in the Organization of Amphibious Forces

Both the Atlantic and Pacific Fleets, as well as the forces that operated in the Mediterranean, had an amphibious component. In the Pacific there was an administrative command designated Administrative Command, Amphibious Force, Pacific Fleet (AdComPhibsPac). Under AdComPhibsPac, 14 amphibious groups were established, each under a separate command for general tactical operations; in addition, as the problems of air support became more involved, a separate commander

was designated as Commander Air Support Control Units (CASCU), and this Command functioned as an additional amphibious group. For specific operations, specific groups were assigned to the amphibious force command with the operation under the related fleet commander. The Intelligence Section of ComPhibsPac (after the establishment of that command in the spring of 1944), acted as a coordinating agency in matters of intelligence doctrine between the various amphibious task forces and the amphibious groups. In the summer of 1945 ComPhibsPac was given operational control of all amphibious forces and groups. With this change the Intelligence Section of PhibsPac assumed additional responsibilities.

In the early Central Pacific amphibious operations, there were only a few intelligence officers struggling with the overwhelming problem of supplying the necessary intelligence for each operation. In the Gilbert and Marshall Islands invasions, for example, only three intelligence officers were attached to the commander of the Joint Expeditionary Force.

The assistance of Australian and New Zealand naval officers, together with natives who knew the islands, enabled them to do a creditable job against almost insurmountable odds. But, as the needs were recognized, additional intelligence officers were supplied. The amphibious intelligence organization grew rapidly, and at the conclusion of the war in the Pacific, there were 208 intelligence officers in 11 units of PhibsPac.

PhibsPac intelligence was organized in echelons parallel to those employed by the amphibious forces, Pacific Fleet. By the end of the war, 22 officers were assigned to ComPhibsPac's staff. Force and group commanders had their own intelligence sections. ACI officers were with CASCU, and other qualified intelligence officers were placed on the staffs of transport squadrons (TransRon) and transport divisions (TransDiv) commanders, LST, LSM, LCI, and LCS(L) flotilla commanders, and underwater demolition team commanders.

Because of great distances in the Pacific and the need for keeping intelligence material current, the ComPhibsPac staff intelligence center was divided during operations, one part remaining on Com-

PhibsPac's flagship, with rear echelons in Guam and Pearl Harbor, and a forward echelon located at the most recently captured objective. The rear echelons were charged with the task of procuring all new intelligence material available in the rear areas or in the United States, and distributing such material to the intelligence officers in all echelons. They also arranged for the reproduction and distribution of intelligence material, as directed by ComPhibsPac, and, when new intelligence officers reported for duty, they trained them, briefed them on the war problems in the area, with special emphasis on intelligence procedure, and assigned them to billets with the amphibious forces. The forward echelon consisted of an Officer in Charge and an assistant. These men were responsible for maintaining close liaison with ComPhibsPac afloat and with the advance headquarters of CincPac, especially the photo interpretation and map reproduction units. They were furthermore expected to pass all pertinent intelligence immediately to the amphibious forces requiring it.

PhibsPac intelligence was generally responsible for supplying intelligence material to all units of the attack force. For the Iwo Jima operation this amounted to 495 ships. More than 2 months prior to the invasion of Okinawa all ships and units of the Joint Expeditionary Force—all told there were 1,500 addressees—received folders of basic material, such as intelligence maps prepared by the PhibsPac Section and Tenth Army G-2, preliminary beach sketches, anchorage charts of the Saipan, Ulithi, Eniwetok, and Leyte staging areas, hydrographic data, and publications on POW's, captured matériel, and suicide tactics. A final distribution included air and gunnery target maps, bombardment and approach charts, road and beach maps, tentative anchorage charts of Okinawa, controlled mosaics and other photographs. Relief maps and plastic models were distributed to the major commands, TransDivs, fire support ships, CVE's and most of the APA's.

Late photographic observers' reports were passed and hydrographic observers' reports were passed by despatch, map, overprints, photographic blow-ups or Ozalid print, as appropriate. Any subject on which there might be conflicting information was discussed jointly by interested commands, to

avoid variation in the material issued to troops and amphibious forces.

Planning for an amphibious operation involved for the intelligence officer preparations which were necessary preludes to any type of operation. There were, however, several variations from the familiar pattern.

Because of the mass of details to be considered and the many commands participating, the amphibious intelligence officer was usually at work on the plans for an operation long before other operational intelligence officers. The missions projected for the fast carrier striking forces and other fleet units were to a large degree dependent upon the invasion plans and consequently could not be drawn up in detail until at least the rough sketch of the amphibious operation had been drawn. Furthermore, in the event that all necessary information was not available, plans were made for getting what was needed before the operation began. Thus, when the Joint Chiefs of Staff decided in August 1944 that Okinawa and other portions of the Nansei Shoto were to be occupied the following spring, intelligence officers commenced preparations for the coming operation. At that time Okinawa had not even been hit once and we knew very little about what was there. The fast carrier and escort carrier task forces were cleaning up the Marianas and were preparing to attack Palau and the Philippines. The first raids on Okinawa did not take place until October of that year, but at the rear echelon commands, intelligence officers were beginning to gather basic intelligence material.

The sources were the conventional ones. Strategic studies prepared in Washington and at the area intelligence centers were checked and complete inventories taken of all material that would be useful in the coming operation. Most important of all, plans were made for the preparation of studies, maps, and charts which were not available but which would be necessary when the operation commenced. This was quite naturally one of the chief responsibilities of the amphibious intelligence officer during the early planning stage. As mentioned above, about two months prior to the Okinawa invasion all ships and units of the Joint Expeditionary Force received folders of basic material. Such folders were the product of the fore-

sight of intelligence officers and provided the necessary background for the particulars which would follow later.

In August of 1944, the materials dealing with Okinawa and adjacent islands were extremely limited. Information on Iwo Jima was just as scarce as the previous spring. It is a simple deduction to recognize that the early raids on Iwo Jima, when we were occupying the Marianas in June 1944, and the first strikes on Okinawa in 1944, were made not only to reduce enemy strength in those strongholds, but also to reconnoiter and take aerial photographs in anticipation of the landings scheduled for the winter and spring of 1945. As the carrier planes and long-range bombers flew over the islands again and again, the coverage each time became more complete and the information more comprehensive. It is never possible to learn all one wishes to know about the enemy. After securing photographic coverage daily for a period of more than 2 months prior to the landings on Iwo Jima, we still had not learned how thoroughly the Japs had gone underground, despite the detailed knowledge that we were able to extract from the photographs. Any changes, however slight, had to be made known to the operating forces, and consequently intelligence officers were busy publishing new materials continuously until the operation commenced.

Requests for specific types of photographic coverage of the objective were generally originated in the Pacific by the intelligence section of ComPhibPac. Especially desired were large-scale verticals, Sonne photography of reefs and shallow water for the purpose of aiding in depth determination, and low- and high-angle obliques of the beaches under consideration. Requests were made to CincPac who ordered the necessary photographic coverage, via his fleet photographic officer. For the most part, land-based planes were used, but in instances where they were unable to obtain the desired coverage, carrier aircraft were ordered to effect the coverage.

Deciding what types of maps and charts are necessary and how much information is to be included on each for maximum efficiency and utility is one of the most troublesome problems that besets the intelligence officer in the planning stage. Actually this is a problem that can never be settled

once and for all, inasmuch as changing conditions of battle and individual preferences will constantly make a lasting uniformity impractical. The best intelligence can do, in collaboration with the cartographers, is to rectify imperfections in previous publications and attempt to keep pace with the changes. Frequently the attempt to crowd too much information on a single map results in a finished product that cannot be interpreted easily by the one who has to use it. Such a problem arose in conjunction with the gridded combination air-support and bombardment charts prepared for the Marianas invasion.

What had happened was this: Long before the operation commenced, operations and intelligence officers well versed in the problem of air support and others who represented the bombardment group met at Pearl Harbor, in conjunction with the map production unit of JICPOA, to see if they could not issue a convenient chart which would serve the needs of both groups. The intent was essentially constructive—to supply both units with what they required and simultaneously to reduce paper work. The result, unfortunately, was less constructive. The charts produced, when reduced to a size for aviators to carry with them, were so cluttered with symbols, legends, terrain features, and grid numbers, that the pilots could not use them at all and new makeshifts had to be devised aboard ship during the operation. Much is learned by such experimentation, and the same error did not occur again. Such experiences were common, and more often than not it proved to be preferable to increase the amount of material issued rather than to attempt to consolidate information for different uses in a single publication. The bulk of intelligence material issued in the later operations was also general agreement that the material was useful and highly desirable. It was easier to destroy material than to create it in the operating area, even though the surplus might seem excessive. Amphibious intelligence officers had to consider the needs of all echelons. They had either to assist in producing or insure that someone else was producing all the maps and charts required for all echelons of the joint forces in the operation. This included detailed hydrographic and terrain studies, beach studies, gridded maps, photographs, and

mosaics, shoreline sketches, overlays, blow-ups, terrain models, rubber models, and any other form of graphic representation that might clarify a particular aspect of the situation. When it was determined what material should be reproduced and the necessary quantity ascertained, requests were made to the local intelligence center, the Hydrographic Office, the Army Map Service, and available Army topographical battalions. Deadlines were fixed. Frequently, activities were forced to employ commercial reproduction facilities when the military facilities were overloaded. In the Central Pacific, most of the requests for large quantities of maps and charts were made to the cartographic officer of JICPOA who then apportioned the work according to facilities available. Reproduction of beach sketches, anchorage charts, diagrams for operation plans, and similar material was usually done aboard the AGC's under the supervision of the staff officers of the force or group commander. Careful planning and allocation were necessary to insure that the facilities of every available AGC were employed to the fullest extent.

Other materials were prepared with like thoroughness. Supplements to the over-all strategic studies were issued as needed: Air information summaries, order of battle estimates, data on merchant shipping and shipping routes in the area, estimated positions and potentialities of enemy warships, in short, anything that might increase our knowledge of the objective.

The distribution of intelligence material to the units participating in an amphibious operation was a major problem. In the larger Central Pacific operations, it was necessary to supply 1,300 naval units, and many other echelons in the Army and Allied services as well. The distribution plan scheduled a preliminary distribution of basic material at the earliest possible time in order that commands could familiarize themselves generally with the objective. These packages were sent by regular officer-messenger mail. Final distribution included all pertinent maps, charts, beach diagrams and sketches, mosaics, models, and other data. For the Okinawa campaign, 72 tons of material were thus distributed. The contents of packages varied in type and quantity, according to the needs of the addressees. After having tried several methods for the final distribution, it be-

came obvious that the only way to insure delivery was to send the material by air to each staging area and have it distributed there by an intelligence officer who could then make last-minute corrections in the distribution list necessitated by last-minute changes in vessel assignment.

Once the basic intelligence materials were assembled and the general plan of the operation was made known to the intelligence officers, the work of preparing intelligence annexes for operation plans began. Contrasted with the chore of collecting all relevant information, the actual preparation of the annex was a relatively simple matter. All material to be included was readily available by the time the annex was to be written. As in all commands, the intent was to make it as short and concise as possible. Reference was made to all intelligence materials necessary for the operation, but other than the annex itself, no intelligence material was included in the operation plans.

Prior to embarkation for the objective, a rehearsal simulating conditions to be encountered with the preparation of intelligence materials to be used in the rehearsal and were responsible for the distribution of the materials to the units involved. They were thereby able to test the usefulness and methods of handling the intelligence, and after the rehearsal a critique of the plan analyzed the procedure, a practice which allowed for the last-minute correction of deficiencies.

The Operational Phase of Amphibious Intelligence

Once the forces were on the move toward the objective, the operational phase could be said to have commenced. The primary responsibility of amphibious intelligence officers en route was to insure that all naval personnel were thoroughly familiar with the conditions to be encountered. If the security of the staging area permitted, briefing was begun there, but in any case, at the staging area, intelligence officers assigned to staffs of TransRons, TransDivs, and similar units, met with the intelligence officers of the ships in their respective commands and instructed them in the methods and materials to be used in disseminating information to all ships' personnel en route. Just prior to the briefing, the commander of the air support

control unit met with all carrier pilots, squadron and air group commanders, and intelligence officers and briefed them on the general over-all picture of the air support operations to be conducted.

It is not possible, without extensive and detailed treatment, to describe what all amphibious intelligence officers were doing during an operation. Once again, however, it may be stated that basically their duties were those of all operational intelligence officers, modified only by certain special problems peculiar to amphibious operations. A few of those problems will be discussed here.

Wherever possible, amphibious forces employed scouts and raiders, for the purpose of obtaining advance and last-minute information. Such scouting operations were generally successful and much valuable information was obtained in this way, but the feasibility of conducting them was limited by the nature of the enemy terrain involved. They were used extensively in the South and Southwest Pacific where land masses were comparatively large, and where approach to the objective might be made from more than one or two directions. Prior to the landings on New Georgia in the summer of 1943, scouts were sent up from Guadalcanal to explore the terrain to determine the possibility of placing a small fighter strip on a point close to the projected landing areas. The reconnaissance was carried out successfully, partly because of the invaluable assistance of small guerrilla bands and coast-watchers.

In the Central Pacific, however, the use of scouts was curtailed by the high probability of their discovery. Small land masses with comparatively few landing places allowed for a concentration of enemy troops and equipment at or near the beaches, and the great distance of an objective from Allied bases limited transportation of scouts either to surface vessels large enough to make the round trip or to submarines. The former could not go in without certain detection; the latter risked discovery by radar, air, or visual observation. It was virtually imperative that, for the security of future plans, scouts successfully fulfill their mission, since their mere presence in enemy territory was a conclusive warning to the enemy. In one case, in the Central Pacific, scouts were used to reconnoiter, and three of them were captured. Fortunately, the plans of which they were aware were later

changed and information which they may have been forced to divulge was of no real value to the enemy.

Submarine reconnaissance was usually requested by ComPhibsPac prior to an operation. Requests were made to CincPac who delegated ComSubPac to obtain the desired information. Detailed specifications and photographer's mates were furnished to ComSubPac by JICPOA, and requests for photographs were accompanied by charts indicating positions, directions, distances, and numbers of pictures to be taken. This type of reconnaissance was especially useful in making observations regarding reefs, surfs, currents, and landmarks, and the reports were invariably detailed, accurate, and useful. Of special value were periscope pictures used in briefing coxswains on the approaches to specific beaches.

Much of the information obtained from scouts, raiders, and submarines was gathered in the pre-operational phase, and utilized in the preparation of the strategic studies and the advance intelligence bulletins. But it might also have had to be gathered as the operation was about to commence, and in that case dissemination would have had to be made via despatch, message drop, TBS, or other speedy means of communication. Just prior to the landings on Saipan, a squadron commander was shot down off-shore and was forced to spend the night on a reef in the landing area, while our own battleships were bombarding the shore installations most of the night. Shells whistled over his head, but he had sufficient presence of mind to make as careful a study of the reef and underwater obstructions as was possible under the circumstances. The following day, when he was rescued by one of our seaplanes, he made a full report to the fast carrier task force commander who then relayed the information to the amphibious forces which were prepared to land shortly thereafter. Such an incident is, of course, accidental, but information of that nature is obtained by trained experts as well. One of the most useful sources of information in the hours just prior to landings was the result of the labors of the underwater demolition teams (UDT's).

In early Pacific operations, underwater demolition teams (UDT's) proved their effectiveness in beach clearance and were able to operate success-

fully in daylight provided there was adequate fire support. Up to that time, UDT training had been purely for the demolition of obstacles and that was the assigned mission of the teams. Reports of the results obtained were forwarded to the interested commanders and no attempt was made at further dissemination of this information.

After the Marianas operation, an intelligence section was added to the staff of ComUDTsPac. The mission of the UDT's was then enlarged to include reconnaissance as well as demolition; in fact, the two functions were conceived as being wholly separate, with reconnaissance coming first. Two intelligence officers were assigned by ComPhibsPac to the staff of ComUDTsPac and close liaison was thereby established. This activity expanded considerably as operations grew larger and more complex, and by the end of the war, there were nine intelligence officers on permanent duty and seven on temporary duty with ComUDTsPac. All were given special instructions to prepare them for UDT intelligence work, and some were assigned to teams for specific operations.

During the landings at Lingayen on Luzon, in January 1945, ComUDTsPac requested that Army liaison personnel from higher echelons of the assault units be assigned to UDT as observers. Rough UDT charts, showing the results of the teams' reconnaissance, were prepared and reproduced on gelatin "Ditto" pads, and a limited distribution was made on D-day to some of the command ships of the assault forces. As a result of these experiences, it was perceived that UDT's could in the future perform very valuable work of a reconnaissance and intelligence nature, even though no demolition of obstacles might be required. In fact, it then became apparent that the primary function of UDT's was intelligence rather than demolition. If the obstacles were there they could be destroyed. But even when they were not there, much valuable information might be gathered for the use of the landing forces. The teams participating in this work at Lingayen Gulf had had no training in hydrographic reconnaissance as distinct from the demolition function, and consequently the information contained on their charts, although valuable, was not complete. Furthermore, distribution of this information had not been properly arranged for and it

did not take place until one hour before the assault on D-day.

For adequate underwater intelligence, it was established that the officers participating should have a thorough knowledge of hydrography, in addition to an understanding of the maps, beach diagrams, and the methods of speedy reproduction under combat conditions. Ozalid machines were installed on the fast transports (APD's) on which the teams were embarked, and they were used extensively in the preparation of the reconnaissance charts which were distributed immediately after the information was brought back. Staff members and underwater demolition team captains were briefed by the rear intelligence section as soon as practicable before an operation, and later the intelligence officers assigned to UDT's briefed all personnel whose duties necessitated detailed information. All pertinent material was issued to them, and particular effort was made to supply them with blow-ups of all the best available photographs of the beaches and reefs to be reconnoitered. Careful planning went into the distribution scheme to be employed, and the following program was successfully employed at Iwo Jima.

Reconnaissance was made on D2-day, and several hours afterward, a despatch, summarizing the UDT information, was sent to the flagship of the amphibious forces for relay to the attack forces approaching the target.

On the night of D2-day, the landing force liaison personnel, which consisted of Marines, two members of the UDT staff, and men from the teams, were sent back to rendezvous with the attack and support forces. They were transferred at sea with copies of the despatches and the UDT charts. At dawn on the morning of D-day, with the arrival of the attack forces in the area, further transfers of staff personnel with the necessary charts were made to command ships. Each team furnished guides to the first landing waves, and the staff personnel reported to the Force Beachmaster.

No demolition was necessary at Iwo Jima, but the necessity, feasibility, and importance of wide demonstrated there and the lessons learned and reports amplifying the information in the despatches and charts, as well as by liaison personnel who would be returned to all Army assault units.

The despatches were sent on the completion of each reconnaissance or demolition operation; the charts, reports, and personnel were put aboard APD's to rendezvous with attack forces on D1-day; and at sea, UDT personnel, with charts and reports, were transferred to all TransRon, TransDiv, attack force, and two tractor flagships, and the Army personnel were assigned to their respective battalions, regiments, divisions, and corps.

This plan was later successfully executed at Okinawa, the largest amphibious operation in the Pacific. Dissemination was made to 1340 participating ships and staffs, as needed. Members of the staff accompanied each team on its reconnaissance, to aid in the preparation of despatches, charts, and reports. Aboard the team flagships during the reconnaissance were 30 members of the Marine and Army landing force personnel; they were returned to their respective units on D-1 morning, with much detailed information of great value to the troops who were to land the following day.

In addition to the UDT's, all the small vessels, such as minesweepers, which approached the beach in the several days prior to landing, assumed the responsibility of collecting all possible beach and hydrographic intelligence. It was the task of the intelligence officers attached to such commands to forward the information immediately to properly designated commands for further distribution.

Once the invasion was underway, the tactical aerial photographic plan had to be commenced. Preparations for adequate photographic coverage were worked out in advance by the intelligence officers of the amphibious command in close collaboration with the air combat intelligence officers who worked with the commander air support control unit. These plans normally provided for continuous photographic coverage of vital areas for several days prior to the landing and continuing regularly during the operation until the objective was secured. The plan set forth the flight schedule and photo requirements and became a part of the operation plan for both the expeditionary and attack forces, and the carrier forces afloat. After the arrival of the advance forces in the objective area, all planes participating were controlled by CASCUC, and the undeveloped film was generally

dropped aboard his command ship for processing, further distribution, and interpretation.

Each amphibious force and group, operating independently, was assigned photographic planes which operated under CASCUC's operation plan. Photos were obtained of all important areas and targets under bombardment, and these were continuously covered for damage assessment purposes. After completion of the flights, the negatives were delivered to the AGC.

Once the landing had been effected successfully and the troops had made their way inland, capturing settlements, towns, cities, and hosts of enemy civilians and combatants, a new problem arose for the intelligence officer. Each person captured was a potential source of invaluable combat information; each captured document and each piece of enemy equipment was equally a possible step toward shortening the war if properly examined and interpreted. One grave difficulty was that the average officer might not be equipped to cope with the strange language encountered. It was by no means essential for the combat intelligence officer to be an expert linguist and an authority on the language of the country he was engaged in opposing. In fact, frequently the man with linguistic talents was not the type that made the best combat intelligence officer. It was essential however, that the operational intelligence officer have with him language officers who were able to supply these deficiencies and who were familiar with the problems encountered and with the type of information normally desired.

Originally, language officers were found in rear echelons, interrogating prisoners after they had been carried out of the battle zones or translating documents that had been shipped back. The speed with which armed forces moved during World War II made it imperative that linguistic experts be on the spot, to question men as soon as they were captured and to give at least a preliminary scanning to all documents that might have been of immediate operational importance. Furthermore, questions arose concerning the prospective movements of forces for the next few days, and it was desirable to learn whatever a prisoner was willing to divulge.

Consequently, language officers were sent out from the intelligence centers to participate in the

actual landings and be present at the earliest opportunity for collecting information which they alone were equipped to extract. They were briefed in advance by the Intelligence Section of the amphibious command so that they knew everything essential about the objective, and they maintained constant liaison with the operational intelligence commanders and any information gained was promptly disseminated and used. Prisoners having important tactical information were sent to the flagships of the principal tactical task force commanders and any information gained was promptly disseminated and used. Prisoners having general strategic information were returned to the intelligence centers in the areas by the fastest means available, usually air, for interrogation there. Eventually most of the captured personnel whose information was of value were taken to the area, even though they may have received a preliminary working-over in the combat zone.

Prisoners and documents considered primarily of naval interest were delivered to naval intelligence and language officers for interrogation, and those likely to have military information were turned over to Army intelligence officers. The information was then pooled and used by all forces that required it.

Much timely information was likely to come directly from prisoners, whether they were members of the armed forces or civilians. It was quite possible, however, that documents captured in command centers or other official headquarters might prove to be of immediate tactical importance. At Kwajalein, a complete portfolio of secret Japanese charts of the Western Pacific was recovered from a sunken Japanese vessel. They proved most useful just a few weeks later when we invaded Eniwetok from the inside of the lagoon, basing much of our plan upon data taken from the captured charts.

In searching for enemy material, particular attention was paid to code and cipher publications, books that frequently were distinguished by their covers. For example, most Japanese publications of that nature had a red or pink border and they were generally heavily weighted for obvious security reasons. Such publications were forwarded to large central radio units, or they were utilized immediately aboard the flagships.

It was necessary also for men going ashore to

receive careful instructions from intelligence officers on counter-intelligence. Just as we desired to secure as much information as we possibly could from captured enemy personnel, so the enemy resorted to various methods to learn what they could from our men. Preliminary briefings included as much instruction as was possible on the subject of resistance to enemy interrogation, and on problems of evasion and escape.

Once bombardment and invasion of the enemy territory commenced, the problem of target selection became extremely important. During the early campaigns in the Pacific war, fire support ships assigned to operations involving small areas were able to knock out Japanese installations with area fire, virtually blanketing the entire objective. As the war moved on from the coral atolls to larger land masses, it became apparent that fire support, to be most effective, both during the prelanding and later call-fire stages, should depend upon pinpoint firing on individual targets. For the first time, at Iwo Jima, and then later at Okinawa, an amphibious support force commander was appointed to direct the fire support mission. His work, and that of his staff, was to plan, coordinate, and direct all prelanding preparations, including naval gunfire, air support, minesweeping, and reconnaissance.

Intelligence officers were assigned to the staff of the amphibious support force commander, and their primary responsibilities were target location, target identification, and damage assessment. Before the operation, they were to brief personnel and distribute to ships and aircraft the best annotated and gridded photographs, and last-minute photo interpretation reports. A target information center was designed and operated by the staff intelligence section, in collaboration with the gunnery officer. Into this center was funneled all information from gunfire and air support, and from photo interpreters. Everything was immediately tabulated, and the results disseminated rapidly. Ships were advised of new targets as fast as interpreters located them. If a fire support ship were not on the target, the amphibious support force commander sent an intelligence officer to the ship with necessary information and a directive that the suggestion of the intelligence officer be followed. This system resulted in improving the

effectiveness of gunfire, but there were still deficiencies in the system of briefing spotters and gunnery officers of individual units. Eventually plans were drawn up for the training of many intelligence officers who would ultimately be assigned to battleships, cruisers, and spotting carriers for duty before and during operations so that target intelligence could be used to its full extent by the ships doing the firing.

Training in Amphibious Intelligence

A continuous training program remained in session for the purpose of indoctrinating inexperienced intelligence officers assigned to the amphibious forces. These officers, most of whom had never been afloat, were not only taught the unique features of amphibious intelligence, but were also advised regarding the intricacies of shipboard life, acquainted with Pacific geography and warfare, taught the importance and techniques of briefing and liaison work, the reasons for and the methods of keeping various types of plots, the handling of prisoners of war and captured documents, and the necessity for immediate dissemination of pertinent intelligence. Inasmuch as the intelligence officer was frequently judged by his competence in the conduct of collateral duties, he was instructed in collateral duties that were commonly assigned to intelligence officers.

No intelligence section can be complete without well-trained enlisted personnel. Procurement of these men proved to be a constant and serious problem for the Pacific amphibious forces. Competence in drafting was not enough. The draftsman also needed to know cartography and standard mapping symbols, and to be able to prepare material in a form suitable for reproduction.

Printers needed to know the operation of the various types of equipment available and also how to maintain it. Each type of work required its special skills. The contribution made by enlisted personnel to the successful operation and production of the amphibious forces' intelligence cannot be overestimated. Diligent search was necessary and many difficulties were involved in the process of locating, training, and screening men during the selection period and in the process of coordinating their work after the training had been completed. The result, however, proved that ade-

quate training of enlisted personnel for specialized work in intelligence was not only desirable but virtually essential for efficient and effective operations.

Value of Intelligence to Amphibious Forces

Many sources might be tapped for testimony regarding the value of intelligence activities to the amphibious forces; the statement of commander, amphibious forces, United States Pacific Fleet is especially pertinent. In a letter dated 15 October 1945, he made the following statement:

One of the most significant developments of the war in the Pacific has been the growth of the Combat Intelligence Service. Prior to World War II, Navy specialists trained in this field were almost completely lacking and facilities for training in this field were nonexistent. Faced with a total lack of precedent for training officers fresh from civilian life in a new and almost unknown field, the program was necessarily slow and laborious. However, proceeding largely by trial and error, incor-

porating the experiences gained as we went along, by instituting a training program * * * by self development of the officers, in aviation, and by the issuance of directives for the utilization of such officers and their material, the training and employment of combat intelligence officers attained a considerable efficiency during the latter stages of the war in the Pacific. By the end of the war, several hundred well-trained combat intelligence officers were on duty with the amphibious forces. Other intelligence officers were with the fleet and with shore-based intelligence centers.

The amphibious forces in particular, being engaged in a type of warfare which was developed almost entirely during the war and which involved a coordination of the skills of all branches of the service, have relied heavily upon intelligence officers and have found their services vital. Other commands within the fleet have no doubt been similarly benefited.

It is believed by this command that the need for officers highly trained in all phases of combat intelligence and particularly amphibious intelligence, will continue to increase, and that their services will be absolutely imperative to the United States Navy in the event of any future war or emergency.

CHAPTER XIV

NAVAL INTELLIGENCE IN ACTION—THE OKINAWA OPERATION

In chapter XIII the development of amphibious intelligence during World War II was discussed. In this chapter the role of Naval Intelligence from the planning phase of the Okinawa campaign up to the beach landing of United States forces on that island will be described. In the space available, a detailed account of the extremely complex intelligence functions during the operation in question is impossible. Therefore the subject is necessarily considered only in its broadest perspective.

As the invasion of Okinawa was an amphibious operation, the part played by Naval Intelligence must necessarily be described from the standpoint of the intelligence section of ComPhibsPac, Commander of the Joint Expeditionary Force to land on Okinawa.

Intelligence During the Planning Phase

In August 1944, the Joint Chiefs of Staff directed the occupation of certain portions of the Nansei Shoto for the development of bases there and eventual further operations against Japan. Their decision was derived from first phase strategic intelligence studies provided by ONI and MIS. These studies were the result of months of research and included information collected over a period of years from a wide variety of sources and by many diverse methods. However, as the basis for an amphibious operation, they naturally left much to be desired; and before the actual landings took place, first on 24 March 1945 at Kerama Retto, and next on 1 April at Okinawa proper, the facilities and personnel of Naval Intelligence were taxed to their utmost to provide the participating forces with the necessary effective strategic and tactical information.

As ComPhibsPac was assigned to be Commander of the Joint Expeditionary Force, the ComPhibsPac Intelligence Section was, of course, the highest echelon of intelligence for the amphibious operation. Announcement of Okinawa as the spe-

cific objective in the Nansei Shoto immediately set the ComPhibsPac Intelligence Section to the task of collecting all available information on the area to be attacked.

ONI supplied the basic geographic data, terrain studies, and all basic monograph material on Okinawa proper and all the islands of the Ryuku Retto. Such additional material as was subsequently collected by the DIO's, the naval attachés, and the research units of ONI itself was forwarded to JICPOA. In addition, ONI furnished a counter-intelligence study in two parts, one on the Ryuku Retto and the other on the Satsunan Shoto. They were so compiled as to serve the needs of Combat Intelligence Corps detachments and other security forces involved in the combat phases as well as those of the military government teams charged with public safety and security. The texts covered local government organization and functions (stressing police and gendarmerie), naval installations of counter-intelligence interest, organizations believed to be engaged in subversive activity, and biographical data on over 900 officials.

Thus, ONI supplied all accumulated information (primarily strategic intelligence) and in this manner assisted the Intelligence Section of ComPhibsPac in the basic planning stage. It remained for other intelligence units and sources to provide more recent and detailed strategic and tactical data from reconnaissance and local contacts.

After the preliminary survey of accumulated intelligence, conferences were held by representatives of the Intelligence Section of ComPhibsPac with the officer in charge, JICPOA, the DIO of the Fourteenth Naval District, and the Intelligence Officers of the Fifth Fleet, Tenth Army, Fleet Marine Forces (Pacific), XXIV Corps, XXX Amphibious Corps, ComAirPac, Fast Carrier Force, and all amphibious groups. These were necessary in order to apprise all planners of material available and to prepare coordinated

plans and schedules for collecting new material. Here, also, the over-all intelligence plan was developed and adopted. Of special importance was the agreement on the types and scales of maps and charts to be used and the photographic reconnaissance plan.

The next step taken was the thorough canvassing of all agencies in the Hawaiian area to obtain additional data on Okinawa and, where security permitted, to advise them of the special interest in that area so that they could intelligently coordinate and present their available information. Among these activities were JICPOA, the DIO of the Fourteenth Naval District, the local branch of the Office of Strategic Services (O. S. S.), the Bishop Museum, the United States Geological Survey, the Hawaiian Pineapple Co., Pan-American Airways, and the Commercial Pacific Cable Co. The contact with commercial organizations and individuals was, of course, accomplished through the DIO.

Constant and close liaison was necessary from this stage on. It had already been learned that liaison was vital to prevent duplication of effort and insure receipt and use of the best possible information. Thus, liaison was established between the ComPhibsPac Intelligence Section on the one hand and on the other with JICPOA, the DIO of the Fourteenth Naval District, the Fleet Marine Forces Intelligence Section and numerous other cognizant commands and units. In addition, of very considerable importance was efficient liaison with the Tenth Army, composed of five United States Army and three United States Marine Divisions, which had been designated as the invading force. In this connection it must be pointed out here that the Military Intelligence Service performed a most important function throughout the entire operation, but one that is not discussed herein since the subject under consideration is concerned with the land operations following the initial invasion.

Early steps were taken to interrogate all possible informants including POW's who might have information on the area in question, and other categories of informants who might have visited or worked in Okinawa or its neighboring islands. Among the POW's were several hundred Okinawans who, despite their low intelligence, divulged a certain amount of useful intelligence.

In the general category of valuable informants was a conchologist who was living in Arizona when his existence and background were discovered as a result of investigations undertaken by the DIO of the Fourteenth Naval District. When, upon interrogating him, it was found that he had collected shells on the reefs of Okinawa and possessed much information on the reefs, surf, and channels there, he was placed under contract to the Navy, flown from the United States, and attached to the ComPhibsPac Intelligence Section.

Another excellent source of information was the United States Geological Survey Office in Honolulu in which two geologists were contacted who were of much value in analyzing terrain from aerial photographs. Other informants were Hawaiian residents of oriental extraction who had either visited Okinawa or fished in its waters.

The interrogation of POW's was carried out chiefly by officer graduates of the Naval School of Oriental Languages, which was established under cognizance of ONI early in 1941 to train competent interpreters and translators of the Japanese language. In spite of the fact that only a fraction of these graduates had previously lived in the Far East, all of them were competent upon graduation in the use of spoken and written Japanese. After a brief training in intelligence methods, they were found invaluable in the field, particularly for quick exploitation of information derived from interrogation of prisoners and scanning and translation of captured documents.

As in all other Pacific operations, a great part of the information on Okinawa came from aerial reconnaissance. Since it was impossible to obtain all necessary coverage of Okinawa with land-based planes, much of the coverage had to be obtained during carrier strikes, one of the most successful of which was undertaken on 10 October 1944, when 90 percent of Okinawa was photographed and both large-scale verticals and obliques were taken. A definite improvement in the planning of photo reconnaissance was effected for the Okinawa operation by initially obtaining adequate vertical coverage for early preparation of maps. Subsequently, the large-scale coverage for detailed study of installations was obtained, and by that time

interpreters had a satisfactory map on which to plot their findings. The frequent small-scale coverage by B-29's, although not always suitable for detailed study, served as an excellent means of detecting changes made in major enemy installations.

This coverage effectively closed the gap between the coverages obtained at the time of fast carrier strikes, and again emphasized the necessity for continuous photo coverage of an area. Earlier photos revealed installations that later coverage often failed to disclose because of camouflage. Likewise, the number of installations and changes in the relative strength of defense positions could be determined only by careful study of successive sorties. Some Sonne photography was obtained by planes of task force 58. This covered positions of the main landing beaches of Okinawa and was useful in making accurate depth determinations. Although such photography was too late for planning purposes or wide dissemination, it confirmed depth estimates made previously by the ComPhibsPac Intelligence Section.

The type of photography needed for amphibious operations is unique. The publication of a letter prepared by the ComPhibsPac Intelligence Section setting forth the requirements of the amphibious forces and illustrating good and bad coverage, notably increased the quality of photo reconnaissance. Through the ACI officers attached to Task Forces, these requirements and requests were clarified and emphasized for pilots prior to reconnaissance. This careful briefing was found to be of great value in obtaining the desired coverage.

In accordance with standard practice, ComPhibsPac requested submarine reconnaissance of the objective and this was conducted. The results were compiled in the form of annotated mosaics which included both the written reports and the periscope photos. These were especially valuable for briefing personnel operating assault craft and in familiarizing them with approaches to the beaches.

Early in 1944, a publication entitled "Information Bulletin—Nansei Shoto" had been prepared and distributed by JICPOA. On 15 November 1944, *Information Bulletin—Okinawa Gunto* was completed by the same activity. This latter study

included all the latest general information on the target area. However, as more detailed information was needed by the various units to be involved in the operation, additional material was necessary. Also it was desirable to disseminate much new information collected after the publication of the JICPOA bulletin on Okinawa.

A general study of Okinawa similar in content to the JICPOA survey, was prepared by USAAF-POA, primarily for use by the Army Air Forces. A target analysis bulletin was prepared by JICPOA primarily for the use of fast carriers. The ComPhibsPac Intelligence Section and the G-2 section of the Tenth Army jointly prepared a graphic and tabular study of the hydrography, reef, and beach conditions for use of both the naval and ground forces. The Fleet Marine Forces, Pacific, published a graphic terrain study of the area assigned for Marine landings. In December 1944, the ComPhibsPac Intelligence section prepared *Supplementary Information on Okinawa* which included detailed studies of reefs and beaches, unloading conditions, surf and swells, weather, tide tables, and daylight-dark tables. During November and December 1944, the Intelligence Section was also engaged in preparing *Preliminary Beach Sketches* which showed the assault beaches and perspective, and familiarized salient features of each area by brief paragraphs and annotations. Even though there had been very little aerial reconnaissance up to this time, these annotated beach sketches showing the depth of water, the offshore approaches, nigger-heads, coral reefs, and many other details, were remarkably accurate. In January and February, 1945, the ComPhibsPac Intelligence Section annotated oblique aerial photographs of the assault beaches and, upon request, JICPOA laid a controlled mosaic of the southern part of Okinawa from B-29 photos taken on 3 January. This mosaic was printed in 13 large sheets with the landing beaches annotated, and copies were distributed to naval units and to troop commands of the Tenth Army. The engineering terrain intelligence team, a group of civilian geographers attached to the Army, prepared a detailed graphic study of the terrain behind the assault beaches at the request of ComPhibsPac. This was completed in January 1945 and proved to be very accurate. Also in January

1945, the ComPhibsPac Intelligence Section completed the Intelligence Annex for the ComPhibsPac Operation Plan and assisted in the preparation of the Annex for the Operation Plan of amphibious group 1. The Intelligence Section also assisted ACI officers of the commanders, air support control plan, in preparing the Photographic Plan to be executed at the objective.

The preparation and distribution of standard Hydrographic Office charts were not normally the responsibility of the ComPhibsPac Intelligence Section. However, the section assumed the duty of distributing new H. O. charts as they were printed. Sufficient copies for all commands in the operation were obtained from the Fleet Hydrographic Office in Pearl Harbor. The Okinawa approach chart was prepared and printed in Washington. The bombardment chart was prepared and printed by two Army units, located at Pearl Harbor and Guam. The information on installations and defenses was obtained from photographic interpretation by the ComPhibsPac Intelligence Section itself and reviewed and approved by the G-2 section of the Tenth Army. Anchorage charts of staging areas were supplied by the Fleet Hydrographic Office and eventually distributed by the ComPhibsPac Intelligence Section, as were a road map of Okinawa and various briefing charts of the Nansei Shoto prepared by JICPOA.

The air and gunnery target map, scale 1/25,000, was the standard ground map for the operation and the largest scale map of the entire area which was produced. It was drafted and printed by Army engineers in the Pacific for use by all naval, air, and ground units. Gridded air support charts were prepared from this map, were bound in booklets, and disseminated for the use of pilots, spot-chart was printed on one side of a page and a gridded photo of the same area was printed on the back of the succeeding page, so that both were visible to the user at the same time. The size, format, bright coloring, and grid were especially helpful to pilots who were able to use these effectively in their small cockpits.

A two-sheet plotting map of Okinawa, scale 1/100,000, was also made and reproduced by Army engineers, and was especially valuable for briefing

and for maintaining generalized situation plots. A special intelligence map, scale 1/36,000, was drafted and printed by the ComPhibsPac Intelligence Section. This map showed all the defense installations observed in photographs taken up to 3 January 1945. It was brought up to date again in March. During November and December of 1944, the ComPhibsPac Intelligence Section hydrographer prepared tentative anchorage charts for five areas at the objective. These were reproduced and prepared for distribution to all ships and units immediately involved in the invasion, and to port directors for issue to ships that would later arrive at Okinawa. Since no agency had been designated to prepare Virtual Plan Position Indicator Reflectoscope and Radar Prediction Determination charts, the ComPhibsPac Intelligence Section made the necessary arrangements to have them produced and distributed to those units that would require them.

A large number of rubber relief maps of the southern part of Okinawa, scale 1/10,000 in nine panels, and a scale 1/25,000 in two panels, were produced by the Atlantic Amphibious Training Command and the Photographic Intelligence Center, Navy Yard, Washington. JICPOA produced a number of plastic models, mostly of the assault beach area. The relief maps were delivered to the rear echelon intelligence section in Pearl Harbor and distribution was made to the amphibious forces from there. There were enough of these maps to supply all major commands, all TransRons, TransDivs, fire support ships, CVE's, and many of the APA's. As always, these models proved very useful in briefing.

Reproduction was always a major intelligence problem in the Pacific. As operations increased in size, more and more careful planning was required to insure that material would be available in sufficient quantity for distribution. So it was again that lack of detailed maps made photo reconnaissance imperative before commencing the major preparation of final maps, charts, and other written material. The first aerial reconnaissance of Okinawa was in late September 1944, and several more took place in early October. The preliminary distribution of material by the ComPhibsPac Intelligence Section was made on 20 January 1945, and the final distribution on 28

February 1945. Four months was the time available to reproduce the necessary material, and this period included the time employed for original preparation. In addition, the Iwo Jima preparations added a tremendous load to the already heavily taxed facilities and personnel. The vital importance of careful and detailed planning, as well as maximum and efficient use of all valuable reproduction equipment, was absolutely imperative. Fortunately, by this time experienced officers and personnel were available.

All major reproduction facilities in the Pacific were under control of the officer in charge, JICPOA. When the facilities of the amphibious forces were inadequate to handle reproduction, requests were made to him. His cartographic and hydrographic officers then formulated a plan and the work was allocated. Army engineers and the USAFPOA reproduction unit handled most of the large printing orders. However, great quantities of intelligence material were reproduced by the print shops and photo laboratories of the amphibious forces. ComPhibsPac had a print shop and photo laboratory ashore at Pearl Harbor, and every AGC in the selected force also had both. It should be pointed out that these facilities were controlled and operated by the ComPhibsPac intelligence officer, and should be emphasized that all reproduction of operation plans, communication plans, boat control diagrams, etc., for the planned invasion had to be accomplished by them in these shops and laboratories.

A preliminary distribution of basic material was made to all staffs and ships to be involved in the operation by the ComPhibsPac Intelligence Section in January 1945. This material contained most of the accumulated strategic intelligence received up to that time, and was intended to assist the intelligence officers of the various staffs and ships in preparing their individual intelligence plans and to be used as background information in the acquiring of additional intelligence. This information was transmitted in the form of terrain studies, maps, charts, beach sketches, identification sheets, and information bulletins.

The final distribution of intelligence material from the ComPhibsPac Intelligence Section was forwarded from Pearl Harbor on 23 February 1945, and included all intelligence developed from

the sources described previously. This distribution was a difficult problem. It was essential that every vessel engaged in the Okinawa operation, and those that might possibly become involved, receive an adequate supply of maps, charts, photos, and all other prepared written matter. These included not only the strictly amphibious vessels but all the gunfire support ships, the components of the carrier task forces, and other vessels that might be designated to assist in bombardment or transport of troops as reinforcements. The assigned vessels were staged at seven different bases through the Western Pacific and some were almost constantly at sea. Experience has clearly demonstrated that distribution by the echelon system was unsatisfactory, for many ships had complained of not receiving packages or of having received them months after they were mailed. Therefore, arrangements were made to fly the material by special R5D planes to the various staging areas. One intelligence officer from the ComPhibsPac Intelligence Section accompanied each plane and personally made the distribution at each staging area. He had complete lists of the ships and staffs involved and was in constant touch with ComPhibsPac, and thus was able to make corrections as changes took place. The officer was also supplied with a number of additional packages for distribution to ships which might be assigned at a later date. This system operated satisfactorily although there were approximately 1,340 vessels and staffs engaged in the operation. All commands received an adequate supply of intelligence material.

With proper security provisions and detailed instructions, copies were forwarded to port directors, island commanders, and a few other important commands for possible later distribution to reserve units and ships assigned at the last moment because of unforeseen emergencies. A large supply of extra copies was furnished to the amphibious group intelligence officers for emergency distribution. Previous experience had indicated that there always were last-minute changes because of unforeseen requests for distribution of intelligence material, and these emergency measures enabled all participating units to obtain the needed intelligence regardless of the date or location when they received orders to proceed to the objective.

During the over-all planning phase, which may be considered as lasting up to the end of the first week of March 1945, no intelligence briefing was conducted except for the high ranking planners in rear echelons and the ComPhibsPac staff, all of whom were, of course, continuously briefed as new information was developed.

Intelligence En Route to Okinawa

On the departure of ComPhibsPac's flagship from Iwo Jima on 9 March 1944 for Guam and then Leyte to embark the staff of the commanding general of the Tenth Army, basic plans had been completed. This, however, did not mean that intelligence could relax. On the contrary, as the various forces to be engaged in the operation began converging on the objective, its work rapidly increased. From a variety of sources, late information was being received by all intelligence units attached to staffs, squadrons, ships, corps, etc. The coordination and effective dissemination of this material were heavy and vital tasks.

Upon ComPhibsPac's arrival at Guam after leaving Iwo Jima, the latest photographs taken by the fast carrier task force were obtained. These included the first of the Sonne photos. Here also the latest CincPac estimates were received. Upon arrival at Leyte the final photo coverage of Okinawa by land-based planes was received, duplicated, and disseminated. Before leaving Leyte for Okinawa, final preparations were made for the receipt and dissemination of photos to be taken by a force of CVE's between L-day minus 7 and L-day minus 3. Also plans were perfected for the receipt and dissemination of UDT and aerial hydrographic observers' reports.

While at Leyte, lower echelon intelligence officers began a thorough briefing of all personnel, including coxswains, boat crews, shore- and beach-party personnel. At this time the pilots of air support units were also being briefed for the first time by ACI officers. Members of ComPhibsPac's Intelligence Section briefed UDT's who were staging there and higher echelon officers in the immediate area.

During the whole period from ComPhibsPac's departure from Iwo Jima through to the attack, the ComPhibsPac Intelligence Section maintained the following plots:

1. Strategic plot of enemy forces, including sea, land, submarine, and air.
2. A plot showing the movement of all allied task forces (maintained in conjunction with the Operations Section).
3. A mine field plot, kept up to date as reports and dispatches were received.
4. A running intelligence plot of the objective itself, kept current by evaluation of new photos and reports.
5. A plot of the European situation, for the information of ComPhibsPac and his staff.

While en route from Iwo Jima to Leyte a photo book of vertical and oblique pictures of the principal landing beaches was prepared and distributed in quantity. It consisted entirely of contact prints thoroughly annotated and proved to be most useful. During this same leg of the trip to the objective the Sonne photography was annotated and negatives were made. These negatives were immediately printed and distributed to the commands concerned. At Leyte after receipt of the most recent photos taken by land-based planes, the 1/36,000-scale intelligence map was brought up to date, reprinted in quantity, and widely distributed. In this connection copy negatives were sent by officer messenger to the forces assembling at Ulithi, as time did not permit awaiting the completion of the printing at Leyte. The intelligence officer of Amphibious Group 1 at Ulithi printed and distributed the copy negatives of the map to all fire support ships while underway to the target.

The day before the invasion, the UDT reports and the CVE photography were received. Since the UDT reports had already been distributed in accordance with a previously arranged plan, no further distribution was required by the ComPhibsPac Intelligence Section. On the same day more photographs were received from amphibious group 1 and were printed in quantity and distributed during the afternoon by a destroyer. Further information received on that day from several sources on suicide boats and planes was coordinated and disseminated by despatch to the entire force.

During several days prior to the landings the reproduction departments of ComPhibsPac's AGC were worked to capacity. The photo laboratory was continuously printing photos and mosaics

needed for quantity distribution. They were also engaged in reproducing special prints and mosaics requested by subordinate units for individual tasks. En route from Leyte to Okinawa a major installation map of Okinawa, scale 1/72,000, in two sheets, was prepared for the use of the fire support ships. This was distributed early in the morning of the day of the invasion. In addition to overlays, etc., for other sections, the map reproduction unit, while en route from Leyte, prepared and printed blank charts to be later used by mobile hydrographic survey units. All of the above activity involved continuous day and night work by the yeomen, draftsmen, photographers, printers, and cartographers attached to the Intelligence Section on board.

As the forces approached Okinawa, the Intelligence Section was further burdened by planning for the invasion and occupation of the western islands of Okinawa Gunto, Kaiza Shima, and Mujako Shima. Although the latter two islands were never attacked, all maps, charts, and intelligence material pertaining to them were compiled and printed before the arrival at Okinawa.

Intelligence at Okinawa

With the arrival of the invasion forces before the beaches of Okinawa, the responsibilities of all intelligence officers still further increased. They were working against time at this point in the operation, and the speed with which they obtained and disseminated information was a major consideration. An attempt will be made here to consider some of their multiple tasks and the volume of intelligence they were required to disseminate.

On the day of the invasion, ComPhibsPac assumed control of all photographic reconnaissance planes. This, of course, meant that his Intelligence Section was called upon to provide the necessary information to direct their activities efficiently. One photographic plane was assigned to each corps, and missions were controlled by their own air support control units. Additional photographic planes were at the disposal of ComPhibsPac and the commanding general, Tenth Army, with missions coordinated and controlled by the commander, air support control units, on the flagship of ComPhibsPac. After the arrival of land-based F5's of photographic reconnaissance squad-

ron 28 operating under the tactical air force, the majority of the photo missions requested by troop commands were flown by them. The direct control of ComPhibsPac which allowed for briefing of the flights by this squadron resulted in some excellent photographic coverage of specifically designated areas.

Photo coverage of all the small islands at the objective was obtained by CVE planes from the air support force. These planes also obtained excellent low oblique coverage of other islands on the Nansei Shoto which was necessary for planning purposes. The value of having intelligence officers personally brief photo planes was again demonstrated. More or less successful efforts were made to furnish prints and comments on the results of previous sorties to the intelligence officers with the various carriers and photo groups for briefing of pilots and photographers. As in former operations, two ComPhibsPac photographers were assigned to the CVE's to assist in organizing photo flights. They acted in general as trouble shooters, and moved from one CVE to another.

Photographers were also sent ashore whenever possible after the landings to obtain photographs of installations, equipment, and unloading. One photo interpreter was assigned to the commander, underwater demolition team, for the operation. He was of considerable assistance in making detailed studies of the reefs and other obstacles from late photographs and in briefing the teams. Photo interpreters on temporary duty with the commander of the heavy gunfire support ships did invaluable work in locating targets and assessing damage. The ComPhibsPac photo interpreters worked closely with the target information center set up by the gunfire support commander. Location of targets and damage assessments were passed to the center in order that assignments could be more accurately and efficiently determined for fire support ships, aircraft, and artillery.

As stated previously, the underwater demolition teams had been briefed on all available intelligence at Leyte, and latest photographs had been delivered to them there. After making a reconnaissance of Kerama Retto prior to its occupation a week before the landing on Okinawa, they proceeded to Okinawa, and, 2 days before the assault there, they reconnoitered the beaches. Here they

were accompanied by representatives of the various troop commands assigned to the selected areas. Their reconnaissance produced a detailed written report including large-scale Ozalid prints of beach and reef sketches, and this proved to be very accurate and comprehensive. The day before the invasion, representatives of the various troop commands were taken by destroyer to the flagships and vessels on which troop commanders were embarked. They were furnished with this written report. At the same time the material was supplemented by oral reports of representatives of the teams.

During the underwater demolition teams' reconnaissance, 3,500 obstacles in the form of wooden posts set on the reef edges were discovered. As most of these were considered to constitute a barrier to LVT's, it was deemed necessary to blow them out of the beach approaches. This was accomplished without incident the following day by the UDT's. In addition, these incredibly courageous and successful teams were later used to reconnoiter for more suitable unloading beaches in the northern part of the island.

Three aerial hydrographic observers were assigned to the CVE's, and, beginning a week from L-day, they flew over the assault beaches daily to observe conditions of the surf, height of swells, length of breakers, and other hydrographic developments. Their reports were sent to all ships and later corroborated.

The hydrographic survey units were under the control and jurisdiction of the ComPhibsPac intelligence officer, and had begun hydrographic preparations for Okinawa prior to the Iwo Jima operation. Two of the four units employed at Okinawa had been engaged on survey work at Iwo Jima; the other two had been engaged solely on patrol and escort duties. All four had arrived at Leyte in time for rehearsals, and were then assigned to the various amphibious groups with whom they proceeded to the scene of operations. On arrival in the Okinawa area they were released from all escort and patrol duties, and were used thereafter solely for survey operations. Two of the units conducted survey operations at Kerama Retto, laying buoys, observing currents and tides, and making special examinations of beaches and anchorages. All radar reflector buoys indicated in

ComPhibsPac's operation plan, and numerous additional buoys, were planted. The position of all these buoys were determined or checked. Third class navigation buoys were laid in the ship lane, and acetylene-burning navigation lights were established on nearby islands. Small lighting buoys were laid as temporary aids until vessels operating these areas became acquainted with local conditions. Radar reflector buoys were maintained throughout the operations as aids for fire support ships. While conducting hydrographic operations in the Kerama Retto waters, the two units printed and distributed temporary charts showing the new developments. On their departure to commence new surveys at Okinawa all unfinished work and records were transferred to one survey vessel. This ship later assembled all data developed by the units into a field chart of Kerama Retto.

The other two units arrived at Okinawa and began hydrographic operations on L-day. Navigation lights were established, and all known offshore dangers were marked. The offshore area between the low waterline and the 30-fathom curve before the Okinawa beaches was sounded. Several uncharted coral heads inside the 10-fathom curve were found and marked. On the completion of the soundings in this area an anchorage chart was prepared, printed, and distributed by ComPhibsPac. This completed the assault hydrographic activities for Okinawa.

One unit was assigned to amphibious group 4 for the Ie Shima operation. The results of its survey were published in the form of an anchorage chart. After the occupation of Ie Shima special surveys on a large scale were conducted there for the purpose of harbor development and were completed on 10 May 1945.

Miscellaneous hydrographic surveys of special areas were requested of the units as the operation progressed. Such requests were assigned on a priority basis established by tactical needs. These special surveys were made on scales of 1/6000 or less, and were detailed and tedious. Ozalid prints of special surveys were furnished the island commander of our military forces as needed. In addition to the special surveys, numerous buoys were laid to make ship lanes. Positions of all buoys placed were shown on the temporary field charts

which were disseminated to all units concerned.

The force aerological officer, working under the ComPhibsPac intelligence officer, made weather forecasts twice daily, at 0800 and 2000. These reports were dispatched to all commanders within the immediate area and to CincPOA and Com Fifth Fleet. Similar forecasts were made by the task force and task group commanders daily, and were immediately relayed to ComPhibsPac for further distribution. All forecasts proved to be exceptionally reliable and accurate. Additionally, all patrol aircraft and striking aircraft operating between Okinawa and the China coast, and Okinawa and the Empire, issued radio weather reports whenever security permitted the use of radio traffic. This information was used in the preparation of the above-mentioned forecasts.

Large quantities of captured material were brought directly to the ComPhibsPac Intelligence Section for study and translation. Approximately 65 percent of this matter was taken from enemy pilots and aircraft. In general it was processed in one of two ways:

1. A preliminary screening was made upon receipt to uncover items of immediate value. These were translated at once or forwarded to interested commands as the situation warranted. Such intelligence included top secret enemy documents, orders, tactical and briefing notes for pilots, instructions for the use of certain codes, air navigation charts, and hydrographic charts.

2. A second and more thorough examination was conducted, and valuable or useful intelligence then uncovered was forwarded to a JICPOA team ashore for further dissemination. Most of this type of information was strategic rather than tactical.

Liaison was effected with language officers and other intelligence officers attached to the landing forces and to JICPOA teams, so that there was instant transmission to the ComPhibsPac Intelligence Section of any information of interest that was developed ashore from the captured documents and material.

A large number of prisoners of war were brought aboard ComPhibsPac's AGC by landing force personnel and interrogated by language officers attached to ComPhibsPac Intelligence Section. Those picked up at sea by naval commands

were brought directly to the flagship. Preliminary interrogations were first conducted, and then if it appeared that a prisoner possessed naval or technical information of strategic value he was flown to the nearest JICPOA POW camp. If he had information of immediate value to the landing forces he was rushed to the nearest Army G-2 section ashore.

To insure the interrogation of all POW's who had information of value, naval intelligence officers, including language officers, went ashore at an early hour and searched continuously among the POW's for those individuals who might divulge useful data. Some important information was developed in this fashion and immediately transmitted from the beaches to the interested commands.

POW ships on which intelligence and language officers had previously been assigned were designed for the removal of prisoners no longer desired for interrogation in the immediate area of combat. The ship's officers of these vessels were briefed by intelligence officers on segregation of the various classes of POW's, and as a result, steps were taken to insure that the work of future interrogators would not be impaired.

Situation plots, as indicated previously, were constantly maintained by the ComPhibsPac Intelligence Section, as was the intelligence map that showed troop positions. The map was most valuable for briefing commanders of newly arrived ships, thus preventing them from firing at night on friendly forces on the many adjacent small islands.

In accordance with previously developed practice, daily situation estimates were prepared for ComPhibsPac and his staff. These were especially important at Okinawa because of the severe losses sustained by our vessels due to Kamikaze attacks. These estimates were derived from all available sources, including the highest of classified despatches.

A major problem of reproduction developed in the photographic laboratories of the various AGC's as a result of the enormous number of negatives taken by the photographic planes. It was necessary to develop these by the hundreds of thousands. One AGC actually produced 1,250,000 prints at the scene of this operation under combat

conditions. In addition, over 3,000 more copies of the 11-sheet 20 by 22½ mosaic of southern Okinawa were printed for use by the troops ashore. Besides photographs of Okinawa, pictures taken of surrounding islands considered for later phases of the operation were being developed, printed, and distributed.

The map reproduction units also were continually busy. One of the major chores was the reproduction of the captured Japanese topographical maps of Okinawa. Another was the printing of charts prepared by the hydrographic survey parties, and still others were troop situation maps, special road maps for the Army Engineers, and a quantity of smaller jobs.

While the commanding general of the Tenth Army was still on board the flagship, continuous contact with his staff and intelligence officers was maintained. After his forces moved ashore, close liaison with various echelons of his army was established. Frequent visits were interchanged between officers of the ComPhibsPac Intelligence Section and the G-2 section of the Tenth Army. Liaison between superior commanders of all Army and Marine forces was maintained as much as was physically possible.

Intelligence in Supporting Commands

Thus far we have considered the role of intelligence in the Okinawa operation from the standpoint of the ComPhibsPac Intelligence Section, at the same time bringing into the picture as much as practicable of the activities and contributions of intelligence units attached to subordinate, superior, or separate commands. An attempt to describe in more detail the functioning of three of these units follows.

On 30 October commander second carrier task force relieved commander first carrier task force at Ulithi and commander first carrier task force returned to Pearl Harbor where he set up headquarters. It was at this time that the staff of the first carrier task force began preparations for the Iwo and Okinawa operation plans, but the formal work did not actually commence until mid-December. The Iwo Jima plan was naturally the first consideration, and was especially complex since it called for diversionary raids on the Empire. This meant that the major burden of the intelligence

officers was to learn all that could be known about the Tokyo area in particular, and about the Japanese homeland in general. Once the major portion of this work was done, however, it was equally essential to turn their attention to Okinawa and the problems which that operation would bring. The Iwo Jima plan was finished in the rough stage shortly after Christmas. Inasmuch as the Okinawa operation was not to commence until mid-March, with the landings scheduled for 1 April, it did not demand immediate attention. Nevertheless, commander first carrier task force and his staff were scheduled to go to sea again late in January. Consequently this was the last opportunity to secure information on Okinawa in a somewhat leisurely fashion. Therefore, as much data was collected as could be gathered at that time from intelligence centers and commands. Liaison was maintained with the staffs of CinCPac, Commander Fifth Fleet, and ComPhibsPac as well as representatives of the British Pacific Fleet who were also to take part in the operation. At this time intelligence officers made their recommendations to the intelligence centers as to the types of materials most desired for the coming operation. Conferences were held with representatives of the other commands in an effort to consolidate activity as far as possible. Such a period of planning had been tried once before by Commander Third Fleet and commander second carrier task force before the Philippines invasion, but was not entirely successful because the commands at that time did not change simultaneously. This was the first time that the fleet commander and the task force commander began operations together after a period of sustained long-range planning in the rear areas.

The next overt action against Okinawa took place on 22 January 1944 when the fast carrier force again struck the island; this time the primary mission was to obtain photographic coverage. Despite adverse weather, all task groups flew photos and almost all the desired coverage was obtained. Later, commander first carrier task force and his staff returned to Ulithi, and, on 26 January, Commander Fifth Fleet and commander first carrier task force relieved Commander Third Fleet and commander second carrier task force respectively. Early in February the fast carrier forces again sortied from Ulithi, and on February 16

and 17 they struck at Tokyo areas preliminary to the landings on Iwo Jima on 19 February. For the next month they continued to support the Iwo Jima operation.

This is significant, in that the carrier intelligence officers who had to make their plans for the Okinawa operation scheduled for late March and April were once again at sea and at work on another complicated operation. On 1 March, task force 58 (the fast carrier task force) conducted another strike and photographic reconnaissance of the Nansei Shoto and specifically of Okinawa and the islands to be occupied along with it, such as Kerama Retto and the eastern islands of Okinawa. This was the last offensive action against the island until the operation began. Early in March, when the Iwo Jima operation was more or less secure, even though fighting was still heavy ashore, the bulk of the carrier forces returned to Ulithi. The commander, air support control units, began briefing the carrier ground officers and aviators about mid-March. It had been decided that the ground officers would be briefed on the entire operation, that is, the prelanding strikes at Kyushu airfields and the naval base at Kure, as well as the proposed landing operation on Okinawa itself. For purposes of security, the aviators were to be briefed at this time only on simulated offensives as far as the problem of air support was concerned, and the times of L-day and H-hour were not divulged. Squadron intelligence officers were then permitted to brief the pilots on the operations of immediate importance. Consequently the aviators aboard the first carriers were briefed first on Kyushu and on the Inland Sea areas which they struck first. After those attacks they were briefed on air support for Okinawa. On 21 March, the escort carriers that were to protect the amphibious forces and furnish the bulk of the air support sortied from Ulithi. On L-day minus 8, Kerama Retto was captured, and on L-day, which was 1 April, Okinawa was invaded.

The formal operation plans and orders for this operation were issued as follows: CinCPac Op-Plan No. 14-44 of 31 December 1944; Commander Fifth Fleet Op-Plan No. 1-45 of 3 January 1945; ComPhibsPac commander first carrier task force Operation Order No. 2-45 of 1 March 1945. Naturally, supplements were issued from time to time

and the words which had appeared on the Iwo Jima operation order were by now familiar to all intelligence officers. The words were "Changes are inevitable—relax and enjoy them."

Certain problems arose at this time which were, in one sense or another, unique for the naval air force. First, the large number of operational airfields in the Kyushu-Inland Sea areas designated for diversionary attacks made it necessary to obtain the very latest estimates of enemy air strength on the reserve fields as rapidly as possible. This gave rise to a problem in dissemination, and finally a system was worked out whereby most of this information was exchanged by despatch. Such a problem is likely to occur in any area that combines both civil and military organization, and a speedy and efficient system for exchanging such information must be adopted. Second, because of the combined nature of the operation underway, the subperforated raids on the Empire, and the activities of the British Pacific Fleet operating as task force 57 in our own fleet organization, it was necessary to maintain active liaison with many units. It was especially important when the B-29's were attacking the Kyushu airfields during the period from 15 April to 15 May to learn from them as soon as possible the results of their raids. And as far as the British Pacific Fleet was concerned, it was necessary to place air combat intelligence officers aboard their ships for the purpose of indoctrinating their officers in the methods that we were using to forward intelligence.

As soon as the amphibious group commanders chosen to participate in the operation were notified by ComPhibsPac of their missions, their respective intelligence officers were directed to confer with the ComPhibsPac intelligence officer. At their meeting, the work to be performed in the over-all intelligence plan was determined, outlined, and discussed with the group intelligence officers. They were instructed to confine the scope of their activities to the particular beaches and approaches thereto on which their respective forces had been directed to land. They were further instructed to prepare their own beach sketches and diagrams except in the cases of the two groups of Okinawa land troops on the principal beaches of Okinawa. It was arranged that they should prepare their sketches in conjunction with the ComPhibsPac

Intelligence Section, so that a complete approved set could be printed. However, in all instances, the ComPhibsPac Intelligence Section was to furnish all basic information and render all possible assistance by supplying newly received intelligence. As the commander of amphibious group 1 had been designated as commander fire support group, his intelligence officer was directed to supervise preparation of special air and gunnery target folders, prepare special photographs of principal targets for issue to fire support ships, and brief the photo pilots on the CVE's. This officer was also ordered to assist in the preparation of the photographic plans.

When the various group intelligence officers were first apprised of the objective, they were also given all material available at that time in the ComPhibsPac Intelligence Section, so that they could prepare preliminary reports for their commanding officers. Thereafter, their particular studies and work dealt in the main with their immediate objectives. All strategic and tactical maps and charts were supplied by ComPhibsPac; the group intelligence officer had no duty in this respect. Generally speaking the responsibilities of his section and his administrative organization were similar to those of the ComPhibsPac Intelligence Section.

The group intelligence officers handled their own immediate distribution problems, but if an item required wide distribution, sufficient copies were sent to ComPhibsPac, reproduced in larger quantities, and distributed by his Intelligence Section to the ships and units requiring it. The groups were furnished pertinent photo coverage as received. Arrangements were made with the photo interpretation squadrons to deliver photos to them in the forward areas. This arrangement was supervised by a ComPhibsPac liaison officer who was responsible for guaranteeing to the groups coverage of their particular areas.

In addition to close liaison with ComPhibsPac intelligence officers, group intelligence officers conferred frequently with intelligence officers attached to subordinate echelons and briefed them as to what duties they were expected to discharge. These latter officers in turn depended upon the group intelligence officer as their principal source of information. During their conference with him,

plans were made for the expeditious handling of captured documents and material, processing of POW's, liaison between the various units, continuous interchange of pertinent intelligence, and agreements for the briefing of all personnel involved in their particular phase of the operation.

While en route to Okinawa the group officers received all reports and latest photos on their respective objectives, and thus revision of their material was in constant process. The Intelligence Section of Amphibious Group 1 organized its target assessment center and printed a final intelligence map for distribution by destroyer to ships and units within its command. At Ulithi this group had arranged three briefing rooms, complete with maps, charts, terrain models, and other equipment, on board the ComPhibs group 1 AGC for the briefing of pilots so that this part of their program could be executed more efficiently and expeditiously. The other group intelligence officers, where possible, also arranged for one or more similar rooms and found them to be a great time-saver in briefing pilots, intelligence officers from subordinate commands, commanding officers, ship's officers, staff officers, beachmasters and shore-party personnel. In short, the ComPhibsPac Intelligence Section's crusade on briefing had produced results, and amphibious personnel were told where they were going, what to look for, and what they could expect.

After the arrival at Okinawa, the intelligence officer of ComPhibsPac group 7, one of the first intelligence officers on the scene, realized the necessity for rapid dissemination of information on Kamikaze methods, and personally ordered an immediate survey during which he and his subordinates interviewed 50 or more commanding officers whose ships had been under attack by suicide pilots. An analytical study was quickly prepared by his Intelligence Section and distributed to the entire task force. Later it was further distributed to all commands in the Pacific. This was the first effective study of suicide attack methods and drew great praise from all recipients. As the campaign progressed, further information on the Kamikaze attacks was collected and distributed by various other intelligence units.

The intelligence officer of ComPhibs Group 1 and his assistants supervised all photography dur-

ing the week prior to the invasion, and evaluated and selected targets for naval gunfire from the results of photo reconnaissance sorties. In conjunction with the AGC gunnery officer, he operated a target information center at which were fixed positions or targets and where the demolished targets were eliminated and new targets recorded. Ships that failed to get on a target were materially assisted by the facilities of the center, when intelligence officers who had thoroughly studied the objectives were sent aboard with the most recent gridded photos and charts. The intelligence officer of this group also prepared duplicate negatives and prints of early photography for distribution to other groups in accordance with the previously determined photographic plan.

Intelligence officers of other groups processed intelligence for their respective areas, and assisted the G-2 sections of the Army in the reproduction of photos and printed charts required for operations ashore. Some of these officers were later detached for operations against outlying islands. In such cases they were responsible for the preparation and distribution of all the intelligence for these special operations, including the preparation of beach sketches, briefing of personnel, interrogation, and study of captured documents.

The duties and activities of the TransRon and TransDiv intelligence officers in the Okinawa campaign, as in all others, varied considerably. Some squadrons and divisions were employed in the Philippines area and some in the Iwo Jima operation prior to the invasion of Okinawa. Assignments and rehearsal areas were different. Planning was necessarily started at different times. It is difficult to present the work of TransRon and TransDiv intelligence officers in a general way. In order to provide a typical example, rather than an indistinct general picture of the duties of an intelligence officer assigned to a TransRon or TransDiv, certain aspects of the work of the intelligence officer attached to TransDiv 47 will be described. TransDiv 47 was part of TransRon 16 which moved the Twenty-seventh Infantry Division from Espiritu Santo to Okinawa.

A copy of ComPhibsPac operation plan was received by the TransDiv 47 intelligence officer while at Saipan on 3 March 1945, from the Com-

PhibsPac intelligence officer. During a 2-day stop at Guam, 4 and 5 March 1945, the intelligence officer checked the stock at the CincPac-CincPoa issuing office and obtained the latest bulletins on Japan, Formosa, and the China coast, large-scale plotting sheets of the Western Pacific, and copies of AMS 1/25,000 maps of Okinawa Gunto. The final distribution package from the ComPhibsPac Intelligence Section was received at Espiritu on 17 March 1945. This included a two-section plaster model of the assault beaches. All material was addressed from the ComPhibsPac Intelligence Section to the TransDiv intelligence officer, and was delivered at Espiritu by an officer of the ComPhibsPac Intelligence Section. A copy of the TransRon operation plan was received at Ulithi on 3 April 1945.

A meeting of all intelligence officers of TransRon 16 was held at Espiritu on 18 March to discuss the briefing program and probable schedule of operations and to make certain that all intelligence officers and ships had received all necessary intelligence material. The TransDiv intelligence officer, at numerous times, discussed operations plans, intelligence, and the briefing schedule with the infantry S-2 officer aboard his ship. Very close and constant liaison and free interchange of material was maintained between these officers until the latter's debarkation at Okinawa. While at Espiritu the TransDiv officer also discussed problems with, and solicited criticism and recommendations from, the intelligence officers of the five APA's and two AKA's of the division.

En route to Espiritu from 5 to 15 March, the TransDiv intelligence officer had studied all available material and prepared an *Intelligence Digest—Okinawa Gunto*. This digest included prepared sketches for boat employment, movement, and control for the TransDiv boat flotilla commander. These were used in the TransRon operation plan. En route to Ulithi the TransDiv intelligence officer assisted the infantry S-2 officer in writing an intelligence bulletin. For the TransDiv commander and his staff, the intelligence officer wrote a summary of the seven tentative and alternate Twenty-seventh Division missions.

At Espiritu, the TransDiv intelligence officer distributed 10 copies of the *Intelligence Digest* to each ship of the division, and 35 copies to the intel-

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ligence officers of each of the other 2 divisions in the squadron. One copy of the large-scale plotting sheet of the Western Pacific was also provided each ship in the division. En route to Ulithi he furnished various maps, charts, and gazetteers to the staff communication officer, the ship's C. I. C. officer and ship's navigator. He provided the TransDiv beachmaster, boat flotilla commander, ship's beachmaster, ship's intelligence officer, and boat group commander with all available material. At Ulithi, the following material was distributed to each ship of the division: Four copies of photographs of the assault beaches, 25 copies of tide curve (and boat draft lines) at Okinawa, and 2 copies of the intelligence bulletin prepared by the Twenty-seventh Division. Immediately prior to and during the Trugen Shima operation (10 to 12 April) all available Eastern Island intelligence material, maps and charts, estimates of troops, defenses, etc., were furnished the boat flotilla and boat group commanders, and the TransDiv and ship's beachmasters. During the unloading at Hagushi Beaches (12 to 16 April) all photographs, maps and charts of the area were distributed to TransDiv and ship's beachmasters, the boat flotilla and boat group commanders.

En route to Ulithi the TransDiv intelligence officer briefed staff and ship's officers in the wardroom, C. P. O.'s in the C. P. O.'s mess room, ship's crew in the mess hall. The briefing covered the over-all fleet, air, and joint expeditionary force program, task organization and composition, as well as the intelligence on Okinawa Gunto. The

infantry S-2 officer briefed staff and ship's officers on enemy defenses and troop dispositions, and outlined the various possible missions of the Twenty-seventh Division. En route to Kerama Retto (4 to 9 April) the TransDiv intelligence officer briefed the boat group officers and men on the development of Okinawa operations, general conditions of sea, surf, weather, reef, and beach conditions at Eastern Islands and Hagushi.

The bulkheads of the flag bridge plot room were covered with various maps and charts of the North-west Pacific, the 1/72,000 approach chart, and the 1/100,000 plotting map of Okinawa. Throughout the operation submarine contacts, enemy air bases and operational radii, all information on mines, navigation hazards, and aids, UDT and hydrographic reconnaissance information, operating areas, summaries of enemy bases, etc., were plotted on these maps and charts. Daily despatch summaries were always plotted immediately upon receipt. Copies of the 1/100,000 map were posted in the ship's sick bay, wardroom, and general mess. The general situation was kept plotted on all of these for the information of everyone aboard.

The role of Naval Intelligence in the Okinawa operation was not perfect. Certain of the units it served complained of the receipt of excess material and others that they were not properly supplied. In the planning phase certain factors were overlooked, and, after the invasion began, liaison sometimes broke down. However, in this operation Naval Intelligence combined past experience and training to produce its most successful operational effort.

PART FOUR: COUNTER-INTELLIGENCE

CHAPTER XV

COUNTER-INTELLIGENCE

Counter-intelligence, which was discussed briefly earlier in this text, is an important and ever-present security function. It has been defined as follows by the joint intelligence committee:

Counterintelligence is that aspect of intelligence relating to all security control measures, both active and passive, designed to insure the safeguard of information, personnel, equipment, and installations against the espionage, sabotage, or subversive activities of foreign powers and of disaffected or dissident groups of individuals which constitute a threat to the national security.

In chapter II it was stated that the mission of naval or military intelligence is to provide the commander with both a shield and a weapon. This very broad division of intelligence into defensive and aggressive, or negative and positive, aspects, by means of a double metaphor is convenient but misleading. The metaphor itself is derived from the knights-in-shining-armor era of warfare, and bears little relationship to present-day military realities.

The shield-weapon concept of intelligence has given rise to the term "negative intelligence" and "positive intelligence," the former synonymous with the shield and the latter synonymous with the weapon. The ambiguity of the terms is pointed out in the following quotation from *Outline Review of U. S. Intelligence Agencies*, published in 1947 by the Armed Forces Staff College:

In some governmental intelligence agencies, a distinction is drawn between what they choose to call "positive intelligence" and "negative intelligence." Positive intelligence, in these agencies, is considered to be the knowledge of the potentialities and intentions of a nation with regard to ourselves, directed from without our boundaries; negative intelligence is considered to be the knowledge of subversive and similar efforts of other nations or individuals against our government and its policies, operating within but directed from without our territorial or occupational boundaries. Actually, the distinction is an ambiguous one, since all intelligence is really positive in that it provides knowledge upon which positive plans and policies are based and in accordance with which positive action is taken.

Because of the ambiguity involved we will avoid henceforth reliance on the shield and weapon concept, and will not refer to negative and positive intelligence. The subject of this chapter is counter-intelligence, which is commonly thought to be synonymous with the shield, or negative, aspect. Actually counter-intelligence includes both passive and active measures; this point is emphasized in an Armed Forces Staff College publication (1947) entitled "*Counter Intelligence—Theater of Operations and Joint Overseas Operation.*"

Counter-intelligence operations are characterized both by passive and active measures. Passive measures are those precautions undertaken by all local commanders in their respective areas of responsibility to prevent the enemy from gaining important information, from destroying installations and equipment, and from undermining the morale of our armed forces and their supporting populations. Active measures, on the other hand, are those undertaken by a commander to seek out and destroy or nullify any enemy intelligence activity within the region under his control.

Because counter-intelligence does not fit exclusively into either strategic intelligence or operational intelligence (Pt. Two and Pt. Three of this text) it will be discussed here in Part Four as a separate chapter. The fact that chapter VIII, in Part Two, is entitled "Who's Who, Sociological, and Counter-Intelligence," might lead to some confusion in the mind of the student, if we did not explain that only that part of counter-intelligence which shows enemy intentions may properly be discussed under the counter-intelligence category of strategic intelligence. The security functions of the Domestic Branch of ONI are an important part of naval counter-intelligence; following a general description of, and introduction to, counter-intelligence, they will be described in this chapter.

It is important to realize that counter-intelligence, and its component parts, including counter-espionage, takes place in both war and peace, and in home territory or the territory of actual or potential enemies. This point is well brought out in the following quotation from a description of

counter-espionage as seen from the viewpoint of the Army:

The duties of the counter-espionage service are to prevent the leakage of military information, and to destroy the enemy espionage service. The methods employed vary when carried out in home territory, in enemy territory or in allied territory. In the home territory it may be assisted by the police, censorship, port control, hotel registration, and by arbitrary barriers such as prohibited areas, as well as all the other preventive measures developed after years of experience in combating enemy espionage activities. In occupied enemy territory, the intelligence service is assisted by all of these powers, and, in addition, has the arbitrary powers of an occupying army. Its operations are more difficult, however, for the whole population is potentially hostile. In allied territory the difficulties are even greater, as it is the ally who controls in his own territory all the real preventive machinery.

A surveillance is maintained over secrecy discipline within the armed forces with a view to prevent gossip about impending operations, indiscreet conversations, rumors, misuse of code on telephones, telegraph and wireless, the marking of railway cars, trucks and billets with inscriptions giving identification of units, indiscretion in correspondence, careless handling of confidential papers and books, the taking of unauthorized articles into the front lines, on patrol or on reconnaissance, and the wearing of identifying badges or insignia.

The description of counter-intelligence presented above was written by a United States Army officer; at first glance it would appear to be concerned only with matters of Army interest, hence not pertinent to a text on the subject of Naval Intelligence. However, World War II demonstrated that close coordination and cooperation between our armed forces, and particularly between the various intelligence agencies, was necessary for the successful conduct of joint and combined operations. *Counter Intelligence—Theater of Operations and Joint Overseas Operation*, states that:

There is no significant difference in the mission of counter intelligence in the group, naval, and air forces and all Services share in the responsibility of carrying out this mission by both active and passive measures. However, the relative number of personnel devoted to counter intelligence is greater in the ground force than in the other two because of the better opportunity afforded the enemy to penetrate our counter intelligence screen by constant contact of opposing ground forces and the presence of indigenous or displaced populations in the combat or occupied areas * * *.

The purpose of the counter intelligence organization in a theater is to destroy the effectiveness of the enemy intelligence system. This is accomplished by denying

information to the enemy, or by positively deceiving him as to our disposition, movements and plans. Counter intelligence means available to all forces are extensive, and to secure their effective employment requires close coordination by theater headquarters.

Coordination of counter-intelligence means in overseas theaters by theater commanders during World War II was successfully accomplished; it was paralleled by close cooperation between agencies and departments of the Government on the home front. The major share of responsibility for counter-intelligence in overseas theaters fell to the Army Counter Intelligence Corps, because of the large numbers of ground troops and civilians involved. On the other hand, the chief counter-intelligence effort of Naval Intelligence was domestic, with, of course, the world-wide ramifications inherent in cable and radio censorship and commerce and travel control. In the remainder of this chapter a discussion of the counter-intelligence activities of the Domestic Branch of the Office of Naval Intelligence, and of the D branches in naval districts and river commands will be presented.

Counter-Intelligence Activities of the Domestic Branch

The principal counter-intelligence activities of the Domestic Branch in World War II were the following:

1. Investigations.
2. Security.
3. The contact register.
4. Sabotage, espionage, counter-subversion.

By and large, these activities were conducted by similarly titled sections of the Domestic Branch of ONI and of the D branches of intelligence offices in naval districts and river commands, as constituted in wartime. As will be seen, some of the sections have reverted to inactivity in the post-war period.

It is important to note that although the Domestic Branch was charged with the major part of the counter-intelligence mission of Naval Intelligence during World War II, by no means did it conduct or support all of the counter-intelligence activities of the Navy.

Before passing to a detailed discussion of the various sections of the Domestic Branch it is also important to note that the branch as a whole and

organizations of foreign nations. Thus it must rely for its raw material on the data received from other Government agencies and on the reports of officially accredited naval representatives.

The establishment of a centralized intelligence agency for the Government as a whole may be expected to simplify but probably not alter radically the counter-intelligence responsibilities of Naval Intelligence. The task of collecting information, evaluating it, and filling in the missing parts of the puzzle should be rendered easier. It will still be necessary to interpret these basic data in the light of the needs of the naval service and their potential danger to the Naval Establishment and to formulate the security policies necessary to combat the danger.

In studying the work of the individual sections of the Domestic Branch in the following pages it is important for the student to be alert to the manner in which the specific activities of a given Section or "Desk" contribute to the fulfillment of the counterintelligence mission and objective as a whole. Over the course of time, reorganizations and changing needs are bound to alter the existing division of duties. This is unimportant, since the sectional break-down at any given time can be rapidly mastered. What is important to understand thoroughly is the over-all mission of counter-intelligence within Naval Intelligence, the reasons for the existence of this mission, and the activities which must be covered to discharge it. These are virtually permanent and implicit in the responsibility of furnishing intelligence to assure the security of the Naval Establishment. If these factors, and their interrelationship, are thoroughly understood there will be no difficulty in understanding the mechanics by which the mission is discharged at any given time.

Investigations

Perhaps one of the most misunderstood activities of Naval Intelligence concerns the work done by the Investigation Section of the Domestic Branch of ONI. The mere mention of the word "investigations" is apt to produce unpleasant reactions in most officers and men of the Navy. Visions of persecution, a Gestapo, "witch-hunts" and "snooping" invariably arise in the minds of many who do not know the reasons behind investigations

the individual sections accomplish many of their objectives through liaison with other activities within the Naval Establishment and other agencies of the Government both at headquarters and in the field. Thus in the security field a close relationship with the Bureaus in the Navy Department, the shore establishments, and officers responsible for production is essential. Security is a primary responsibility of command.

As a staff unit of the Office of the Chief of Naval Operations, ONI is charged with formulation of policy in matters pertaining to security. It also serves as a clearing house for evaluated information on situations threatening the security of the Naval Establishment. In the counter-intelligence field the responsibility is to keep appropriate naval authority fully advised in advance of actual or potential threats to the Navy arising from espionage, sabotage, and subversive activity in order that responsible commanders may take appropriate action to safeguard their commands against such dangers. Hence, it will be seen that the Domestic Branch produces intelligence on matters affecting the security of the Navy just as the Foreign Branch produces strategic intelligence.

Just as close liaison is necessary for the accomplishment of the objective, so is it essential for the collecting of the information on which the evaluated intelligence is based. For its information, the Domestic Branch relies on the district intelligence offices, naval attachés, the Foreign Branch of ONI, the Operational Intelligence Branch of ONI, and close liaison with the other intelligence agencies of the Government, particularly the War Department, the Federal Bureau of Investigation, the State Department, and the Treasury. To accomplish its mission, the Domestic Branch cannot passively await information from these sources; on the basis of its own studies and the current needs of the naval service it must actively seek data necessary to provide a complete picture of potential dangers at any time and the security measures necessary to combat them. It must be understood that while conducting research and compiling data in the field of counter-intelligence, the Domestic Branch does not engage in counter-espionage in the strict sense of that term—that is, does not operate secret agents, handle double agents, or seek to penetrate the intelligence

or who have no idea of the necessity for them. Actually the investigative functions of the Domestic Branch are as necessary and logical a part of counterintelligence activity as those of the other sections discussed in this chapter. Whether concerned with security problems or with cases of suspected espionage, sabotage, or subversion, the work of the Investigation Section is closely related to practically every other phase of ONI Domestic operations as well as to many of the other offices and bureaus of the Navy Department. Similarly its investigations of misconduct, various infringements of regulations, etc., bear a general relationship to security, especially during wartime, and are performed as a service to the entire naval organization.

On 26 June 1939, the President of the United States directed, by an Executive Memorandum to his Cabinet members, that the investigations of all espionage, counterespionage, and sabotage matters, actual or potential, should be controlled and handled by the Military Intelligence Service, the Office of Naval Intelligence, and the Federal Bureau of Investigation. Since 1939 the exact delimitation of responsibility for these investigations has been provided for in a series of interagency agreements, the latest of them still in effect.

Furthermore, the Secretary of the Navy directed on 1 November 1945 that the Office of Naval Intelligence would have jurisdiction over all matters requiring investigation within the Naval Establishment when requested by competent naval authority. Therefore, the mission of the Investigation Section of ONI may be stated to be: To administer, operate, and maintain an investigative service to provide, for the Navy, coverage of alleged or suspected espionage, sabotage, and subversive activities on the part of naval personnel, service or civilian, and to make other investigations as required by competent naval authority.

So much has been written about "espionage, sabotage and subversive activities" as mentioned in the previous paragraph, that it is not necessary to outline here these fields of activity. In practice, the Chiefs of MIS, ONI and FBI act as a committee for the purpose of coordinating their activities and maintaining the responsibility of each service in these fields. Where deemed necessary, information developed by the three services is

pooled, and it is recognized that all agencies may have an interest in cases falling within these categories. Therefore, the closest cooperation and coordination of all efforts are sought.

The term "other investigations" requires more extensive explanation. These break down into four major fields of investigative activity, i. e., contractors, personnel security, war frauds, and misconduct or disciplinary. During World War II it so developed that the Investigation section was far more occupied with cases in these categories than in espionage or sabotage investigations.

Contractors' investigations may be required before the material bureaus of the Navy Department enter into contractual relationships with private concerns. When the Chief of a Bureau deems it necessary, in the interest of the security of classified naval equipment or information, to have facts about the general corporate structure of a contractor, its financial responsibility, ability to produce the needed item(s), integrity of the management, and particularly any possible foreign affiliations, ONI is requested to obtain such information. Based on the facts developed, the officer responsible for the security of classified naval materials or information can make his decision whether to place the contract or not. Also he is enabled to devise suitable security controls if the decision is made to let the contract.

A person does not have to be an active espionage agent or saboteur of a foreign power to interfere drastically with national defense measures or in the successful prosecution of war. The ships, equipment, and supplies of the Navy are only as safe and efficient as the persons who are engaged in their procurement and production or who have knowledge of their location and movements. Personnel security investigations are made at the request of commanding officers who are responsible for the security of classified naval information, sometimes in the form of special equipment. The subjects of these investigations are persons, either service or civilian, who are not under suspicion but about most of whom nothing is known beyond the meager information set forth in an employment application questionnaire, all of which is supplied by the person filling out this form. Investigations assemble and present the facts that enable the commanding officers to determine which persons are

not suitable to handle classified naval information.

War fraud investigations have to do with instances where commanding officers have reason to believe that naval personnel, service or civilian, are involved in defrauding the Government in connection with naval contracts or by unauthorized use or disposition of naval supplies or equipment. When evidence of fraud is produced, the case is further developed by the FBI in conjunction with the War Frauds Unit of the Department of Justice. At the same time, or pending completion of the case by the FBI, the commanding officer of the naval activity concerned is placed in possession of the facts, enabling him to institute any administrative action he deems appropriate to protect the Naval Establishment from further harm.

Misconduct or disciplinary cases require investigation by trained agents to obtain facts so the commanding officers, where warranted, can fix responsibility and determine appropriate punishment. These investigations are undertaken by Naval Intelligence on specific request because of the aforementioned SecNav directive, and also because it has trained investigators whereas no other agency of the Navy is similarly equipped. (Because of the absence of naval control over investigators of civilian agencies, to whom classified naval information might have to be disclosed, and their lack of naval background, there is no other agency of the Federal Government which can investigate cases of this kind for the interested naval activity.)

Before Naval Intelligence undertakes an investigation in these fields, a formal request must be forwarded by the commanding officer of the naval activity concerned. For this reason, allegations that Naval Intelligence officers engage in "snooping" activity or "witchhunts" are entirely unfounded. It also should be kept in mind that Naval Intelligence in gathering the requisite data on an investigation, serves merely as a fact-finding agency and not in an action capacity. Completed investigations are referred to the authority originating the request for such administrative action as might, in his judgment, be warranted on the basis of the facts developed in the report.

Among the name-check investigations made are those conducted in the cases of aliens in the naval service who make application with the Immigration and Naturalization Service for naturalization.

The Bureau of Naval Personnel has directed that the alien's commanding officer must request ONI to conduct a name check and make the results available whether negative or affirmative, to the commanding officer. He in turn is then requested to recommend either favorably or unfavorably to the Immigration Service on the alien's petition for citizenship.

All investigative reports are classified as confidential or higher in order to restrict dissemination of the data and to protect the sources of information from compromise or disclosure. Therefore, those who receive such a report must carefully safeguard its existence and source. In no case where a report has to do with the investigation of an individual may it be shown to the person investigated, nor may he or she be informed of the existence of such a report.

Security

Probably nowhere in ONI is the necessarily broad concept of the term "security" better demonstrated than in the Security Section. In a sense, information is to the Naval Establishment what blood is to the human system. It must flow through and help energize the whole organization, and its loss from any one part equally affects the whole. In almost every phase of naval administration, planning, logistics, and operations, information is an important and indispensable element. The same is no less true of the various offices and sub-bureaus engaged in research, production, or supply. Such a basic and vital element, which can be sought and sometimes procured at innumerable points inside and beyond the Naval Establishment, must constantly be guarded in accordance with the security classification assigned it and by as many other different means as can practically be devised. To indicate the extent to which the information disclosed must be safeguarded to prevent unauthorized use, naval information is classified at its source as: Top Secret, Secret, Confidential, ~~Restricted~~, or nonclassified.

Traditionally the administration of all matters relative to the security of classified naval information has been a function of the Naval Service delegated by the Secretary of the Navy to the Chief of Naval Intelligence under the authority of the Chief of Naval Operations. However, the Chief

of Naval Intelligence is not charged with the responsibility for all aspects of naval security. *Physical security* has many ramifications, but basically it is a responsibility of command. Likewise *communications security* has many aspects, but it is the responsibility of the Chief of Naval Communications. There are other types of security in which the Navy has an interest, but for which primary responsibility rests outside the Navy. *Internal security* of the United States is the responsibility of the Department of Justice, and *personnel security involving employees in private plants working on Navy contracts* is a responsibility delegated to the Provost Marshal of the War Department by the Secretary of the Navy.

The mission of the Office of Naval Intelligence on security matters may be stated as follows: To administer, operate, and maintain, as a part of the Domestic Branch, the Security Section, to insure the security of the Naval Establishment by preventing improper transmissions of information, the disclosure of which to unauthorized persons, both within or without the Naval Service, could adversely affect the Navy in the fulfillment of its objectives.

Classified naval information originates in all naval activities. Each activity has fixed on it by Navy Regulations definite responsibilities regarding the security classification to be given to any information which it originates and regarding the handling and stowage of classified information in its possession.

The primary duty of the Security Section of ONI thus is to establish suitable coordination of all security functions relating to classified naval information undertaken by the Naval Establishment. The section also has the responsibility for receiving and coordinating the assignment of security classifications and their timely reductions or removal, implementing within the Naval Establishment all security directives of higher authority, informing higher authority of security considerations which require security classifications or security action outside the Naval Establishment, organizing and directing security action within the Naval Establishment, and coordinating such action with that of outside agencies. This is accomplished through the operation of three sub-

sections: Naval Information, Naval Censorship, and Commerce and Travel.

The mission of the Naval Information Subsection is to administer, operate, and maintain the means and methods to insure the safeguarding of classified naval information of all categories, to the best interests of the Naval Establishment. In accomplishing its mission two principal functions are performed. First, it has cognizance of all policies relating to the security of naval information, and second, it exercises administrative control over the security activities which are centralized in ONI.

All policy* regarding the security of classified naval information is either originated or approved by this subsection before promulgation. This involves the preparation for promulgation by CNO of specific directives treating such subjects as classification and security measures, naval aeronautical information, disclosure of naval information, developing and processing of films, release of information on new construction or conversion, passing on visitors to commissioning ceremonies, taking of photographs of naval personnel, aerial photographs of naval installations, keeping of diaries by naval personnel. Directives involving the physical security of the Navy Department are prepared by the Administrative Office of the Navy Department on the advice and after consultation with this subsection.

The basic policy regarding the disclosure of classified naval information to private individuals and organizations for private use is determined by, and the direct or indirect disclosure of such information to foreign governments is controlled by this subsection. In connection with this latter problem, policy governing the release of all military and naval classified information to foreign governments is at present under the jurisdiction of the State, Army, Navy, and Air Force Coordinating Committee (SANACC). Before this committee assumed jurisdiction and during the early stages of the war, all naval policy was prepared by the Naval Information subsection. Later in the war, jurisdiction for the release of all technical information was assumed by the Joint Chiefs of Staff. The Joint Chiefs of Staff policy was in turn sup-

*Security classification policy is fully discussed on p. 190.

plemented by a Navy Department policy on the release of all classified information other than technical, and the directives to Navy Bureaus putting these basic policies into effect were then prepared. The section head became the CNO representative on the Technical Information Subcommittee of the Joint Intelligence Committee of the Joint Chiefs of Staff. At present he serves as the Navy representative on the SANACC Subcommittee for Technical Information Security Control, which prepares the previously mentioned basic policy on releasing military or naval classified information to foreign governments.

For administrative convenience the Naval Information Subsection is organized into five smaller components, referred to as "Desks"; Policy and Committees, Records and Disclosures, Visits, Public Information Liaison, and Miscellaneous Security. It is anticipated that another desk may have to be added to deal with plant protection or personnel security liaison.

Inasmuch as most of the expert knowledge of Navy equipment and primary authority for security classifications relating to it rest with the technical bureaus, security coordination between them and ONI must be particularly efficient. To insure a vigorous and effective security control, representatives are selected by the bureaus concerned, and are technically qualified and in direct contact with the technical personnel of the office to which they are accredited. Their presence bridges the gap between the technical and security offices, avoids duplication of functions, expedites clearance on all security matters being processed, and serves as a constant reminder of the necessity for review and reclassification of matter in order to keep the basic records current.

Another phase of information control is in connection with the release of classified documents and papers to foreign governments. Many requests are received for training manuals, instruction books, specifications, intelligence reports, operating instructions, and other types of classified publications and documents. The requests usually come from the diplomatic representative of the interested country, and are forwarded by ONI for the comment and recommendation of the bureaus having cognizance of the subject matter. All such requests must be passed upon in the light

of existing policies on the subject matter as well as special circumstances within the knowledge of the bureaus and the Foreign Branch of ONI.

Closely related to the release of classified information to foreign governments is the problem of security control over the manufacture by United States concerns of equipment for foreign governments and organizations. Navy approval must be given for the manufacture of all items in which the Navy has a security interest. Requests for these clearances, coming generally from the State Department, are processed with the bureaus and the Aeronautical Board, and letters setting forth the Navy's position are prepared.

Of similar character is the control over the issuance of classified naval information to private concerns and individuals for private purposes. In general, classified naval information is not available for private use except in the performance of service for the Navy. An exception, however, is made in favor of the release to United States air companies for use in commercial operations of Hydrographic Office charts and flight information classified no higher than restricted. Other private requests are denied unless they can be declassified. Certain offices of the Federal Government, as well as agencies of State and local governments, have in general been supplied with classified naval information under appropriate admonitions as to safeguarding when it appeared that the material was needed for the performance of a governmental purpose.

The Naval Information Subsection is responsible for promulgating policy and exercising control over the visits of foreigners to naval activities, commercial plants and private institutions engaged in classified work for the Navy. General control is also exercised over the admission of technicians to naval vessels and shore establishments through investigation (by the Army Service Command) and issuance of credentials to the individuals concerned.

All visit requests, except those relating to purely naval establishments, are cleared with the Intelligence Division, General Staff, U. S. Army, prior to notification of the parties involved. The inspectors at the various plants are given to understand that the approval of one of the services includes the approval of the other. To avoid dupli-

cation, the contractors have been divided between Army and Navy for purposes of notification.

Another important function of this subsection is security liaison with the Office of Public Information of the Navy Department, primarily in the form of responsibility for the release of operational information to the press. It entails review of articles, reports, and pictures for the purpose of determining whether or not the subject matter conforms with naval policy and may be released.

Among other miscellaneous security tasks is one aimed at the correction and prevention of security violations by naval personnel. Many such violations are committed in the preparation, handling, and marking of correspondence. A more serious type of violation is encountered when personnel lose or compromise classified matter. In such cases, as required by Navy Regulations, an investigation of the circumstances of the loss or compromise is made at the point at which it occurs and a report forwarded to CNO. These reports are reviewed to see that adequate inquiry into the facts has been made and are then transmitted, sometimes with recommendations for corrective measures, to the interested offices of the Navy Department for information, and to the Bureau of Naval Personnel when disciplinary action is in order.

On 9 July 1947, CNO letter 47-631, signed by the Chief of Naval Intelligence, announced the establishment of a Security Classification Control Board in the Office of Naval Operations, under the Chief of Naval Intelligence, with a Chairman assigned from ONI, and other members assigned from other specially designated bureaus and offices. The duties of the Board were described as follows in paragraph 2 of the CNO letter:

2. The Security Classification Control Board will serve in an advisory capacity to the Chief of Naval Intelligence on matters pertaining to security planning and policy. Specifically, the Board is expected to accomplish under the Chief of Naval Intelligence the following:

- (a) Develop a uniform policy as applicable to the classification and declassification of classified matter in accordance with security directives.
- (b) Prepare certain instructions and directives as applicable to paragraph 2 (a) above for promulgation by the Chief of Naval Operations (CNI).
- (c) Provide for the establishment of classification

control officers within various commands as appropriate.

The establishment of the board as a separate branch (32K) of ONI automatically removed from the Security Section of the Domestic Branch some of the responsibility with regard to classified naval information. Essentially, however, the new board is a planning and coordinating body.

During a period of emergency or war the personal communications of naval personnel—officer, enlisted, and civilian—constitute one of the largest potential sources for the improper disclosure of classified naval information. Such disclosure may be the result of carelessness on the part of the person writing the communication or it may be intentional. To prevent such unauthorized disclosures during wartime naval censorship is responsible for preparing basic regulations for naval censors to follow; maintaining liaison with United States Army Censorship, National Censorship, and other governmental agencies insofar as their activities relate to naval censorship; administering the censorship of ONI pouch mail; and acting as a clearing house for administrative matters pertaining to naval censorship, i. e., violations, proposed changes in regulations, inquiries of naval activities, other Government agencies, or private citizen.

Naval censorship is recognized as a function of command. Therefore, each flag officer, the commanding officer of each vessel, and the commanding officer of each naval base or activity where naval censorship is established are required to appoint officers under their command to serve as staff, ship, or base censors and such other assistant censors as are needed.

The officer designated as censor receives basic regulations from the Chief of Naval Intelligence to guide his activities. From time to time modifications of, additions to, and deletions from the basic regulations are promulgated by the fleet, detachment, or base chief censors in addition to those distributed by the Chief of Naval Intelligence. These special instructions cover the particular degree of security desired by the commanding officer over and above the basic regulations, or permit modifications, approved by ONI, which relax the basic regulations.

What do naval censors do and why? It is the responsibility of the censor to instruct all hands

within the command where he is on duty concerning the censorship regulations and procedures authorized by the commanding officer. He must impress on all hands that censorship is not undertaken for the purpose of prying into the private affairs of naval personnel. Rather it is done as a security measure designed for the safety of United States Navy ships and of the Naval Establishment.

What and who are subject to naval censorship? All private postal correspondence, telegrams, cables, radio messages, telephone calls, and photographs originated for private reasons by officers and enlisted men of the Navy, Marine Corps, and Coast Guard; civilians, including persons serving, visiting, or residing on a vessel of the Navy or at those bases and activities where censorship has been declared in effect—all these are subject in time of war to the regulations of naval censorship.

Censors must insure that all personal communications are channeled through their offices. Personnel assigned censorship duties are required to read or examine these items in order to determine whether or not prohibited topics are discussed or subjects revealed through photographs. Censors may forward, delay, suppress, or delete prohibited matter from personal correspondence. Usually if a large number of deletions would destroy the sense of the communication it is returned to the originator for rewriting.

Censors are on the alert both for attempts at evasion and unintentional violations of censorship. The subject matter prohibited from mention in personal correspondence during World War II was that which would disclose the locations, identity, or movements of any naval vessel, merchant ship, aircraft, naval or military force; the defensive or offensive forces, weapons, installations, or plans of the United States or her Allies; munitions; the effect of enemy operations; criticism of the armed forces of the United States or her Allies; weather conditions; or any matter, the discussion of which might benefit enemy military, economic, and financial interests, or which might interfere with the national effort or damage the foreign relations of the United States. From the foregoing it will be seen that naval censorship is essentially very simple. What is required beyond the basic regulations is a large amount of common

sense. The latter comes into play through an intelligent interpretation and application of the rules, in knowing when and where to relax certain of the rules, and in building the proper security sense among all hands within each command.

Regulations require censors to forward comment sheets to the Chief of Naval Intelligence. On these is summarized any information contained in the correspondence of a subversive nature or which may reflect an unusual knowledge of or interest in classified naval information. Comment sheets are also used to transmit correspondence that evades or violates the regulations and to report a violation of telephone or telegraph regulations.

Certain deficiencies were observed during World War II in the administration of censorship regulations. They concerned the lack of flexibility in the treatment of the private correspondence of naval personnel, the forwarding of official and private photographs, the transfer of private funds, and the clearance through official Navy documents. These problems are being investigated and will be dealt with in future revisions of the Naval Censorship Regulations.

The Navy has a direct security interest in all telecommunications entering or leaving the United States over commercial or private circuits during a national emergency. The naval interest in this field has been a continuing one, stemming from World War I under an Executive order issued on 28 April 1917. The Navy, with its forces far-flung throughout the world and responsible for the safe overseas movement of merchant ships and strategic materials, was vitally interested in preventing information regarding such movements from falling into enemy hands. Realizing that the usual means of sending messages regarding shipping was by cable and radio, the Navy assumed the responsibility of censoring commercial cable and radio messages as being corollary to its responsibility for the safe movement of shipping. These censorship duties were performed during World War I by the Cable and Censorship Section of ONI. After World War I the Cable and Censorship Section was charged with the responsibility of developing plans and training for cable and radio censorship in time of war. Various training and operational manuals were published and approxi-

mately 20 groups of intelligence officers had completed training classes prior to 7 December 1941. The state of readiness of the section was such that on the very day of the Pearl Harbor attack, effective cable and radio censorship was put into effect.

In the interim between the two wars, Cable Censorship, as it was then named, was an activity of the Domestic Branch and functioned primarily as a procurement and training cadre.

The unit was mobilized early in the national emergency, preceding Pearl Harbor, and under Executive order exercised its censorship function over cable and radio communications crossing the national boundaries. When National Censorship was established, the unit and its entire field force were transferred to that organization. In the war, its censorship controls were extended to all media of telecommunications. The Army was assigned the task of foreign postal censorship and its unit likewise was transferred to National Censorship. In each case, the service personnel served on a detached duty basis. As United States forces advanced overseas, censorship units for control of civil communications were set up in rear areas. Following the Japanese surrender the section was directed to obtain from the Director of Censorship all records and files of the Cable and Radio Unit, these being desired as a basis for future planning and for training personnel in censorship duties.

Normally the section is inactive when no emergency exists. When active, its mission is to deny to enemy nations and to secure for the United States information of military-naval, economic, and political value transmitted via international telecommunications.

The Cable and Radio Division of National Censorship has the same two specific functions of defensive and offensive action. Defensively the unit must see that no information of military, economic, or political value to the enemy is transmitted. Accordingly, all international business to and from the United States reflected in telecommunications filed with commercial or private companies for transmission must be checked. This covers a wide range of shipping information—new devices; production data; war plans; movements of materials, supplies or personnel, strategic materials, important personages, and the commodities of commerce in general. Information of value

to many government agencies, the Navy Department included, is abstracted from the messages, read, and delivered to the agencies concerned.

In addition to detecting enemy activities (or those of enemy sympathizers)—such as reports of agents, efforts to locate and secure strategic materials, transmission of funds and spreading of propaganda—the unit also assists in thwarting or breaking up such activity. It functions offensively to gain information regarding the cable and radio censorship activities of hostile nations. In addition, it takes offensive action in transmitting special United States propaganda to enemy areas.

Heavy penalties are provided for violation of censorship. Simple technical violations may be dealt with by the usual authority of a censor to suppress, paraphrase, delete, or otherwise dispose of a message. In those cases of serious, and apparently willful violations, Censorship refers such cases to the Department of Justice for the usual process of prosecution.

Great care is exercised in the selection of personnel assigned and trained for this duty. They are usually selected from men who possess a background of experience in trade, finance, industry, and communications.

The probable invention of new means of telecommunication makes uncertain the forecast of future methods of censoring telecommunications in times of war or national emergency. On the other hand, the basic problem has always been and will continue to be the censoring of the message offered for transmittal rather than a technical knowledge of means of communication. Accordingly, future methods of censoring telecommunications will likely be similar to the methods used during World War II.

Experience has shown that classified naval information may be transmitted improperly by persons outside the Naval Establishment and through means over which the Navy has no direct control. Similar channels are also frequently used by agents of foreign nations engaged in espionage or subversion aimed against the Navy. Therefore, one of the responsibilities of the Security Section is to inform higher authority of security considerations which require action outside the Naval Establishment and to coordinate the De-

partment's security interests with the action of outside agencies.

The mission of the Commerce and Travel Subsection may be stated as follows: To administer, operate, and maintain the Commerce and Travel Subsection as a part of the Domestic Branch's Security Section; to prevent through the media of merchant ships, crews, shipping, travelers, overseas aircraft, and persons engaged in maritime pursuits, the transmission of information, the disclosure of which would adversely affect the security of the Naval Establishment; and to assist in the control of persons seeking to enter or depart United States controlled areas who might be inimical to the security of the Naval Establishment.

During peacetime, the security requirements of the Navy in these fields are usually satisfied by the regular control procedures of the established civil Federal agencies, and accordingly the subsection is inactive. Exigencies of national emergencies, however, require the subsection to be activated in ONI and the naval districts to disseminate information to and advise, consult, and maintain liaison with Allied and Federal agencies having primary jurisdiction over the control of nonmilitary travelers and merchant shipping and overseas aircraft. Information of naval interest obtained as a result of these liaisons flows to the subsection for dissemination to the cognizant naval activities.

Even in time of war or national emergency, the primary responsibilities in the Commerce and Travel field lie with other Federal agencies. These agencies either are permanent or are created in national emergencies and expressly authorized by statute to act in specific phases of control. Active participation by ONI is on a temporary basis and is occasioned by the emergency need to protect adequately naval interest until such time as the responsible agencies assume the task.

When activated, the subsection initiates the policies which are promulgated by CNO to Naval District Commandants to govern the activities of district officers assigned Commerce and Travel duties. In the past, the subsection has been organized at headquarters and in the Naval Districts into a Commerce Unit and a Travel Unit, each of which was further broken down into desks.

To discharge its responsibility, the Commerce Unit was required to maintain effective liaison

with the United States Coast Guard, Bureau of Customs, War Shipping Administration, Immigration and Naturalization Service, the MIS, and FBI, and shipping companies. During World War II it was necessary to create four subordinate desks for effective administrative control. These were the boarding, casualty, shipping information, and merchant seamen desks. Mention will be made of the more important functions of these desks.

During World War II the boarding desk was very active. It supervised and coordinated the activities of officers in the naval districts assigned to board merchant vessels. The primary purpose of such visits was to obtain and disseminate to the cognizant activity any information of naval interest possessed by Merchant Marine officers, crew members, travelers, and Armed Guard commanders. At the same time steps were taken to insure that no classified naval information was secreted in the vessel, cargo or on the persons of travelers, including crew members. This was accomplished through collaboration with United States Customs, which has very broad powers of search and seizure.

The casualty desk and its activities grew out of the necessity for expeditious dissemination of intelligence concerning enemy attacks on merchant ships. Survivors of such attacks were interviewed by boarding officers (often the first naval authority to contact them after the attack) to obtain combat intelligence of immediate interest to operations. Other necessary information also was obtained regarding the attack, sinking, names of survivors, known dead and missing, status of secret and confidential naval publications on board, etc., for numerous naval and other Federal activities.

The shipping information desk had the responsibility for representing the naval security interest in the handling of merchant shipping information. Great care is taken to surround with security controls the production of classified naval or military equipment and its intended usage; yet such equipment usually is moved to the actual theater of operations by merchant ships under civilian control. Documents pertaining to merchant shipping, such as bills of lading, marine insurance policies, and cargo manifests, must be handled by private firms which, experience has shown, are not so security-conscious as the armed services. Merchant seamen and waterfront workers have excel-