SRH-264

A LECTURE ON COMMUNICATIONS INTELLIGENCE

By CAPT. J. N. WENGER, USN

14 August 1946

REVIEWER'S NOTE:

The first review of this document was conducted by personnel of the U. S. Navy. The original classified versions were retained by them and have been placed in the NSG Repository, Crane, Indiana

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LECTURE ON COMMUNICATION INTELLIGENCE
given at Naval War College, 14 August 1946,
Newport, Rhode Island
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PART I

Introduction

It was the policy of the Navy Department until this year to avoid any discussions of communication intelligence among personnel who were not actually performing communication intelligence duties or who were not duly indoctrinated and authorized to receive the results thereof. The Department still considers such a policy sound in principle and intends to apply it to all current and future operations. However, press disclosures in recent months in connection with the Pearl Harbor investigation have made it obvious that too strict adherence to this can result only in a "head in the sand" attitude that will deprive responsible officers of important information bearing upon the prosecution of war.

When the War College requested a lecture on the subject of communication intelligence, it was decided that possibly some of the damage suffered as a result of the publicity could be

turned to advantage through a carefully prepared lecture upon certain aspects of the subject. Furthermore, such a lecture might be a means of improving our prewar system of indoctrinating senior officers, which proved inadequate because of the excessive security observed. We are proceeding, therefore, on what we hope will be a successful experiment.

Security of Communication Intelligence

Communication Intelligence operations are accorded a security status above those of practically any other military activities. This is necessary because they can be successful only under a cloak of extreme secrecy. No form of military activity is more vulnerable to crippling damage from careless or intentional disclosures. Because of the tremendous scope of military operations and the great mobility of military forces, codes and ciphers are of necessity used over wide areas. Compromises, therefore, seldom have a local effect. Knowledge that communications are being read by the enemy leads to swift and drastic changes which may nullify the work of a communication intelligence organization for months. The President of the United States and the Combined Chiefs of Staff

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have recognized these facts and have issued protective instructions. Before commencing this lecture, I am required to read the President's directive for your guidance.

~~RESTRICTED~~

THE WHITE HOUSE
WASHINGTON

28 August 1945

MEMORANDUM FOR:

The Secretary of State
The Secretary of War
The Secretary of the Navy
The Attorney General
The Joint Chiefs of Staff
The Director of the Budget
The Director of the Office of War Information

Appropriate departments of the Government and the Joint Chiefs of Staff are hereby directed to take such steps as are necessary to prevent release to the public, except with the specific approval of the President in each case, of:

Information regarding the past or present status, technique or procedures, degree of success attained, or any specific results of any cryptanalytic unit acting under the authority of the U. S. Government or any Department thereof.

HARRY S. TRUMAN

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Scope of Lecture

The problem of imparting highly classified information always requires a fine balance to be drawn. It has been said with much truth that a secret known by more than one person is no longer a secret. On the other hand, anything which is of such high secrecy that it cannot be given to those who need it loses completely its practical value. With these considerations in mind I shall endeavor to confine my talk to matters which have previously been touched upon in the press or which are now classified so as to permit their discussion in this selected group. Within these limitations, it is my hope to give you, first, some insight into the part which communication intelligence has played in war; and, second, some general idea as to the means by which this intelligence is obtained. From the latter, you may also gain some appreciation of its future needs and draw some useful lessons in security.

Nature of Communication Intelligence

Before proceeding it is important that we have a common understanding of the nature of communication intelligence and the meaning

of certain terms used in connection therewith. Communication intelligence is the name given to information derived from the study or analysis of radio transmissions and other communications whose meanings are normally concealed from unauthorized recipients. This concealment is usually accomplished by codes, ciphers, or other secret means of writing to which the general term cryptography is applied.

Communication intelligence may be said, therefore, to result from an attack on cryptography. Actually, however, it results from many processes and techniques. Most important of these are cryptanalysis and traffic analysis. Cryptanalysis has to do with the solution of codes, ciphers and other secret means of communication. It is the opposite of cryptography. Whereas cryptography is defensive and analogous to armor, cryptanalysis is offensive and may be likened to armament.

Now, the primary objective of cryptanalysis is to make readable the text or substance of secret communications. For military cryptographic systems, this involves mathematical, statistical and analytical

processes too complex for treatment in a brief discussion. Much information is also obtainable from communications without reference to the text or substance. The process of obtaining information in this manner is called Traffic Analysis. It involves deductions or inferences from studies of traffic volume and routing, call sign identification, direction finding, transmitter identification and similar procedures. In actual practice, as we shall later see, cryptanalysis and traffic analysis are complementary processes and frequently interdependent.

Modern Significance of Communication Intelligence

With some idea as to the general nature of Communication Intelligence, we may now consider its significance. The steadily increasing importance of radio communications as a means of conveying military, diplomatic and economic information has become apparent with the growing tempo of modern life. The global nature of military operations has necessarily brought more and more of the vital military information to the radio channels. No other medium can rival the speed and facility of radio in carrying orders

and information to and from swiftly moving forces scattered over widely separated areas. These channels are thus, potentially at least, the most important sources of intelligence to tap.

They have proved to be unique sources, moreover, in that they carry authoritative and accurate information regarding plans and intentions, as opposed to that which merely concerns strength and disposition and which might be obtained from other sources such as reconnaissance. Added to this have been the great advantages that the information is obtainable (a) generally without the risk of a single ship, plane or man, (b) largely by the employment of women and other personnel not usable for combat duty, and (c) frequently as soon as it is available to enemy addressees.

These facts explain the tremendous importance which communication intelligence has assumed in war. The disclosure of an enemy's secret plans through radio interception has permitted immeasurable savings in men and money and has on many occasions meant the difference between victory and defeat.

With so much at stake, both cryptography and cryptanalysis have reached new heights in the last generation. With the advent of radio, codes and ciphers gained widespread use. By the same token, sufficient material became available to attack them. Thus, through action and counter-action both cryptography and cryptanalysis have made steady advances, with first one and then the other in the lead, as has been the case with other defensive and offensive measures. The ambition of every nation has been to develop unbreakable ciphers for its own use and to solve every cipher in use by its actual or potential enemies. This unending struggle soared to peaks of intensity in World Wars I and II. In the latter, in particular, the stakes were so great that millions of dollars were spent and thousands of people engaged in what was literally a gigantic battle of wits.

Communication Intelligence in World War I

The story of communication intelligence in World War I has gradually unfolded in the years that have followed and there is now no question as to its immensely important role in that conflict.

At first the British shrewdly attributed their uncanny success in locating enemy forces and predicting enemy movements to the efficiency of their direction finders. It has since become known, however, that cipher experts of the famous British Room 40 were to a large extent responsible for such important military and political events as the Battles of Jutland and Falkland Islands, and the detection of Zimmerman's attempt to obtain the support of Mexico, which played an important role in stirring up public opinion in the U.S. against Germany. The Earl of Halifax evaluated the work of this group as follows:

> "To Room 40, the country owes an immense debt of gratitude - a debt which at the time, at least, could never be paid. Secrecy was of the very essence of the work, and never was secrecy more successfully observed".

Similar successes were achieved by the French on the Western Front. They repeatedly broke the German ciphers and obtained invaluable information as to German plans and intentions. Likewise the Germans and Austrians had great success with the Russian ciphers in World War I and undoubtedly succeeded in bringing the war on the Eastern Front to an earlier close because of this fact.

As for American communication intelligence operations, they were only minor in character and, in fact, the successes achieved in this country prior to World War II were never of sufficient importance to impress more than a handful of officers with the great potential value of this work.

Communication Intelligence between Wars

As interesting as the revelations of World War I proved to be, their real significance lay in the profound effect they had upon developments in the field of cryptography. Nations began to grow security minded. In consequence the difficulties confronting cipher experts multiplied by leaps and bounds. Most notable of the disclosures were those contained in a book called "The Black Chamber" by an American named Yardley, who had been connected with communication intelligence activities in World War I and for some time thereafter. The misfortune of Yardley's book was that, in addition to facts about the war, it revealed our successes with Japanese codes at the time of the Limitation of Arms Conference in Washington. Upon its

publication, the book created a sensation in Japan and was widely circulated. The Japanese felt that they had been tricked, and many persons who know the full story of our relations with Japan believe that they took a definite turn for the worse as a result of this book. At home the immediate effect was to require exercise of the greatest caution and secrecy in carrying on communication intelligence work. The result was that it was never possible to present properly the needs of the communication intelligence organization and to obtain for it the support necessary for its success. The story of what was accomplished under these difficulties prior to Pearl Harbor has been so widely publicized that it needs no mention here.

Communication Intelligence in World War II

The importance of communication intelligence in World War II was suggested by the extraordinary steps which General Marshall took in obtaining Mr. Dewey's silence during the 1944 Presidential campaign. In his now famous letter to Mr. Dewey, he made the following remark:

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"You will understand.....the utter tragic consequences if the present political debates regarding Pearl Harbor disclose to the enemy.....any suspicion of the vital sources of information we now possess".

Difference in Problems

The fundamental difference in problems presented by our two major opponents required that different techniques be applied. In the Pacific we were up against the extreme deviousness of the Japanese mind. Despite tremendous difficulties, it was nevertheless possible to achieve some measure of cryptanalytic success which provided us with vital information.

In the Atlantic, on the other hand, the enemy brought to play all that his technical genius could evolve, and forced us to the outermost fringes of scientific knowledge in search of the answers. In consequence, we had to depend mainly upon traffic analysis. In other words, instead of having direct access to definite information, as in the Pacific, we were compelled to rely upon methods short of cryptanalysis and obtain our knowledge of the enemy's movements largely by means of inference. The essential objective was in each case,

of course, the same - i.e., to determine the strength, disposition and intentions of the enemy, but you may find it interesting to see how this objective was achieved by very different approaches in the two cases.

The Pacific War

Some idea of the value of our communication intelligence operations in the Pacific in World War II is expressed in the following excerpt from the official narrative of the Combat Intelligence Center, Pacific Ocean Areas, which CinCPac submitted to the Chief of Naval Operations. I quote:

"The factors that vitally affected the Battle of Midway were many and complex but it is undoubtedly true that without radio intelligence it would have been impossible to have achieved the concentration of forces and the tactical surprise that made the victory possible".

"In the defensive stages of the war radio intelligence was not only the most important source of intelligence in the Central Pacific, it was practically the only source. There were very

few captured documents or prisoners of war. There were no photographs of enemy-held positions. In the Central Pacific, excluding the Solomons and New Britain, spies and coast watchers' reports never supplied any important intelligence".

Coral Sea

By way of explaining the application of communication intelligence to our operations in the Pacific, I have taken one of the early defensive actions of the war, the Battle of the Coral Sea, because it illustrates the principles involved in major operations without the confusing complications which characterized later engagements.

I shall endeavor to outline briefly the development of this battle as revealed through certain of the enemy's dispatches that were read by our Communication Intelligence Organization. For purposes of this explanation, the Coral Sea Action is divided into three phases: first, the Tulagi strike; second, the Misima strike; and third, the Mid-ocean strike. The first slide (1) shows the Tulagi strike. You will note that Japanese forces are indicated in red and United States forces in blue. (See appendix "C.I. Notes on Battle of Coral Sea").

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NOTES ON THE BATTLE OF THE CORAL SEA

I will refer to certain numbers on the slides in sequence to locate for you the scene of each development in the battle.

PHASE 1. - TULAGI STRIKE (Slide 1)

CENTER OF LEFT MARGIN (1.) On 27 March the first definite indication of the Campaign was received in a despatch intercepted from Comdr. South Seas Air Force, which read: "All attack forces continue operations ..... on 26th. 2nd Attack Force continue to support main task and using fighters assist #5 Attack Force in the "RZP" Campaign and with scouts carry out patrol of your assigned area. 5th Attack Force continue attacks on "RZP" ..... and carry out patrol in your assigned area."

COMMENT: "RZP" was known to be a designator for some place in the Port Moresby area.

(2.) On 3 April Traffic Intelligence included indications of:

EASTERN END OF NEW BRITAIN

(a) Movement of air tenders from Truk to Rabaul.

(b) Transfer of planes from the west to Rabaul.

(c) An air group commander at Rabaul reporting strikes into the Coral Sea area to a distance of 500 miles.

(2)

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None 3. On 11 April, a despatch indicated that the carriers ZUIKAKU and SHOKAKU were preparing for "current operations".

Despatches between 13 and 17 April from the carrier SHOHO indicated that this ship was bringing plane reinforcements to Truk for the SHOKAKU and ZUIKAKU.

The SHOHO then, in a partly readable message, stated that she would arrive at Truk on 28 April.

By 17 April, therefore, it was apparent from Communications Intelligence that the next Japanese operation would be in the New Britain - Mandates area.

UPPER LEFT CORNER (4) On 23 April, the Pearl Harbor intelligence unit made the following evaluation:

"It is apparent that an operation will commence on or shortly after 28 April with Truk as the starting point. Forces now in or due shortly at Truk include:

CARDIV 5	ATAGO
RYUKAKU (SHOHO)	Submarines
CRUDIV 5 less MAGHI	DESRON
ZUIKAKU	Unknown heavy ships."

(c)

This evaluation was based upon cryptanalysis / and Traffic Analysis, as neither one had definitely identified or located all of these units.

None 5. 27 April, an intercepted message contained call assignments for certain new forces, among which were:

MO Occupation Force and Fleet

RZP Occupation Force

RXB Occupation Force, and

RY Occupation Force.

This was the first mention of the MO Force. RXB was known to be Tulagi, so this indicated an occupation of that island. RZP was known to be in the Port Moresby area, so this call assignment indicated a planned occupation of that area. RY was estimated to include the Ocean Island - Nauru Island - Samoa area.

On the same day, Tokyo directed a change of the call sign system and the Navy Minister ordered the change of the major fleet code.

None 6. Between 27-30 April, there were more TI indications of air concentration at Rabaul. Traffic volume and urgent messages

(3)

were steadily increasing. COMCARDIV 5, ZUIKAKU and SHOKAKU were noted using Truk Radio as a concealed origin on 27 April, thus indicating their presence in that area.

SOUTH OF NEW BRITAIN (7) 29 April, a significant despatch was intercepted from RZP Occupation Force:

"RZP Occupation Force Operation Order #1.

FUMI MARU and (blank) MARU will depart Rabaul X-7 Day and rendezvous off Deboyne Islands with the Saipan Base Force scheduled to arrive Deboyne on X-5 Day".

At this same time, the 4th Fleet assigned tactical calls to the following units of the "MO" Force:

Deboyne Detachment

Rodney Detachment

Samarai Detachment

These are places in the New Guinea - Louisiade Archipelago area.

TOP LEFT (8) On 30 April, a despatch intercepted from Gunboat Division 8 contained an RZP Occupation Force Operation Order which said:

"This force, having completed arrangements, will depart Jaluit at 0600 the 30th and proceed to Rabaul. Join

(4)

us there."

By this time, RZP was known to be Port Moresby itself.

None 9. On 1 May, the Pearl Harbor Combat Intelligence Center sent out an evaluation of the picture in the Pacific:

"MO" Campaign now underway; involves Southeast New Guinea and Louisiade Archipelago; suggest Moresby for "MO". Forces engaged will consist of CARDIV 5; CRUDIV 5 less NACHI; CRUDIV 18 available; DESRON 6 available; Gunboat Division 8; New Britain Air, which is known as 5th Air Corps and Yokohama Air Group; first two land bombers and fighters, last one consists of seaplanes. Total strength shore-based air estimated at 65 bombers, 18 VPs and unknown number of fighters. Air tenders, transports, plus probably one SUBRON and RYUKAKU also in force. CRUDIV 5 and CinC 4th Fleet in Rabaul region tonight. Light forces enroute to operating area. Despite message giving Townsville as reference point, do not believe Australia involved in immediate future except for submarine operations. CinC 4th Fleet is in immediate command of this force.

LOWER RIGHT

10. At [illegible] May, our Lexington and Yorktown Task Forces

(C)

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effected a rendezvous south of the Solomons.

None 11. On 2 May, a message received from Chief of Staff, Combined Fleet gave objectives of the "MO" Campaign as follows: "First, to restrict the enemy fleet's movements and this will be accomplished by means of attacks on outlying units and various areas along the north coast of Australia. The Imperial Navy will operate to its utmost until this is accomplished. Further, we will continue to operate against all bases used by enemy aircraft".

The addressees of this despatch showed that CinC 4th Fleet was in command. CRUDIV 5 and CARDIV 5 were temporary additions to his command. CinC 11th Air Fleet was in command of all shore-based aircraft outside of Empire and was immediate superior of New Britain Air Forces.

LOWER RIGHT CORNER (12) On 2 May, U.S. Task Force under Admiral Fletcher received the Communication Intelligence regarding the RZP occupation plan.

RIGHT (13) On 3 May, Japanese occupied Tulagi as Communication Intelligence had predicted.

(3)

after refuelling them.

(20) On 7 May, message received from "MO" Occupation Force LEFT CENTER to CRUDIV 6: "The RZP Occupation Force will leave Emerald at 1500 on the 7th for (blank). The "MO" Occupation Force will rendezvous with the (blank) Occupation Force at 1400 on the 6th at 09-30 S., 154-15 E. Speed 16. At 1800 May 7, (blank) will move south of Emerald".

21.

LEFT CENTER (22) 070845 May - 2 Jap CA's, 2 CL's were sighted in position 10-03 S., 152-27 E., course 140 degrees.

CENTER (23) 070900 May - 2 Jap CA's were sighted in position 10-40 S., 153-15 E., course 310 degrees.

LOWER RIGHT (24) 070929 May - Japanese planes attacked NECSHO and SIMS. The latter sank that afternoon.

LOW CENTER (25) 071000 May - U.S. Task Forces launched Misima strike.

LEFT CENTER (26) 071120 May - 1 Jap CV, 10 AP's and 10 miscellaneous Jap warships were sighted in position 10-34 S., 152-28 E., course 285 degrees.

-1-

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(14) On 3 May, U.S. Forces which had rendezvoused south of LOWER RIGHT CORNER the Solomons the previous day received from COMSOWESPAC information regarding this occupation of Tulagi.

(15) 040701 May, YORKTOWN launched Tulagi strike.

RIGHT CENTER (16) On 5 May, we received message dated 4 May:

LEFT CENTER From: CinC 4th Fleet

To : COMCRUDIV 5

COMCARDIV 5

"In order to wipe out enemy bases in the Moresby area, the "MO" Striking Force will launch attacks (from) a southeasterly direction on bases in Moresby area on X-3 Day and/or X-2 Day. This order in effect until its successful completion. Commence preparations."

COMMENT: Best estimate here of X Day is 10 May.

LOWER RIGHT CORNER (17) 050846 May - Rendezvous of YORKTOWN and LEXINGTON Task Forces after Tulagi strike.

PHASE 2 - MISIMA STRIKE (Slide 2)

18. 061755 May - NEOSHO and SIMS leave U.S. Task Forces

LOWER RIGHT 06 NEOSHO (-)

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At 071150, Yorktown planes attacked and sank SHOHO off Misima.

LEFT CENTER (29) 071425 May, Japanese planes attacked Support Force which had broken off early in the morning to cover Jomard Passage. No damage resulted.

PHASE 3. - MID-OCEAN STRIKE (Slide 3)

RIGHT CENTER (30) 080820 May, 2 Jap CV's, 4 CA's, 4 DD's were sighted in position 11-51 S., 156-04 E. Course 190 degrees.

LOW CENTER (31) A radio intercept indicated that at almost the same time the U.S. Task Forces were sighted by a Japanese plane.

LOW CENTER (32) 080900 May, Yorktown and Lexington planes launched strike.

RIGHT CENTER (33) 081057 May, SHOKAKU heavily damaged; ZUIKAKU possibly damaged.

LOW CENTER (34) Shortly thereafter, Japanese planes attacked Lexington and Yorktown, as a result of which the Lexington had to be sunk by Phelps.

As the action ended, Japanese battle and damage reports completed our picture.

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COMCARDIV 5 reported:

"Upon sighting 2 carriers (SARATOGA and YORKTOWN) at 0830 on 8th, the Air Force of the "MO" Striking Force attacked and hit the SARATOGA with more than 9 torpedoes and 10 bombs. Over a 2-day period hit the YORKTOWN with more than 3 torpedoes and 8 bombs. Fires were started and they were sunk. American planes destroyed.

For 25 times over a period from 0856 to 1020 this Striking Force was attacked by a total of 60 planes. 2 hits were made on the SHOKAKU. Fires were started but are gradually being brought under control. In order for her to proceed, have attached a destroyer and she is now withdrawing to the north. Her planes have been taken over by the ZUIKAKU."

COMCARDIV 5 also revealed the interesting fact that Japanese dive bombers and shipboard bombers had taken off at 1420 the previous afternoon for a strike. Some U.S. forces were sighted at 1700 in the vicinity of 13 S., 155 E., but the Japanese planes were forced to return without attacking because of fuel shortage.

9 May, Despatches revealed instructions for the SHOKAKU

to return to Truk and the Empire after emergency repairs at Rabaul.

The SHOKAKU, in a message, gave her course and route points from Truk to Yokosuka, stating that she would travel at about 16 knots and arrive Yokosuka on 17 May. Efforts were made to intercept her with submarines but unfortunately failed.

LEFT CENTER (38.) On 10 May, CinC 4th Fleet told 4th Fleet that "The Southern Frontier Commander has postponed the "MO" Campaign; convoys will be returned to Rabaul and you will remain there temporarily; take necessary action."

CinC Combined Fleet approved the action and thus in effect ended the battle.

Other messages on 10 May indicated that the various "MO" forces were being reassigned to assist in the occupation of RYC and RYD, estimated to be Nauru and Ocean Islands, respectively.

The next day the NEOSHO was sunk by the HENLEY and our forces completed withdrawal.

[redacted] SECRET

Of the Battle of the Coral Sea, CinCPac said "Admiral Fletcher utilized with consummate skill the information supplied him, and ..... won a victory with decisive and far-reaching consequences for the Allied cause."

Yamamoto

My next slide (4) illustrates the part played by communication intelligence in one of the most dramatic episodes of the war - the ambush of Admiral Yamamoto. The details of this event have been widely publicized, but a few notes on the intelligence aspects of it may be of interest. The essential facts are shown on this slide.

A chronology of events associated with this affair follows. All times are minus 9.

April 14, 1943

1. At 1008, the Pearl Harbor C.I. Unit sent out a dispatch to CINCPAC, COMSOPAC, and COM7THFLT containing a fragmentary translation of a Japanese message, dated 1755/I 13 April 1943, from CINC SOUTHEASTERN AREA FLEET to several addressees, including COMDR. BALLALE GARRISON:

On 18 April CINC COMBINED FLEET will [redacted]

as follows: Ballale Island ___ ___ ___ ___.

Comment by FRUPAC: This is probably a schedule of inspection by CinC COMBINED FLEET. The message lacks additives, but work will be continued on it.

April 15, 1943

2. At 150410/I and 150657/I, the Pearl Harbor and Washington C.I. Units sent out more complete translations of the same message. These are summarized on the slide.

At 1149/I, CINCPAC notified Task Force Commanders in the Pacific:

At 1000 (0800/I) on 18 April, YAMAMOTO himself, via bomber escorted by six fighters, will arrive from Rabaul in the Ballale-Shortland area. He will leave Kahili at 1600 the same day to return to Rabaul. All dates and times are "L". In case of bad weather, the trip will be postponed until 19 April.

At 1543/I, FRUMEL disseminated the translation of another Japanese message, dated 1221/I April 14, from RABAUL BASE FORCE

[redacted]

May 21, 1943

At 1500/I May 21st, the Japanese Navy Department originated an AlNav, in plain text, reading in part as follows:

"The Commander-in-Chief of the COMBINED FLEET, Admiral Isoroku Yamamoto, died a heroic death in April of this year in air combat with the enemy while directing operations from a forward position."

I might say in comment that this is an excellent example of highly effective teamwork between the Army and Navy in the war. In this case, the Navy obtained the intelligence and set the trap; the Army sprang it.

to an unidentified addressee, wherein reference was made to "the special visit of Yamamoto", and "in view of the situation regarding air attacks on the post", certain precautionary arrangements were requested, including the moving of the "post" to a new location.

April 18, 1943

At 0505 and 0535/I April 18th, a Jap plane was noted by FRUPAC originating encoded weather reports. FRUPAC commented (in his 181926Z (190426/I)) that this was an "unusual time for Nip plane weather mission".

At almost exactly the predicted time, the enemy planes were sighted approaching Ballale, and at 1129/I, a paraphrased message of COMAIRSOLS reported as follows:

> "Major J. William Mitchel, USAAF, led P-38's into Kanili area. Two bombers, escorted by six Zero's flying in close formation, were shot down about 0730/I. One other bomber shot down was believed to be on test flight."

PAGES 30 THROUGH 35

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means other than cryptanalysis to determine the location and movement of enemy forces. Radar and sonar had demonstrated tremendous potentialities as aids in the U-boat hunt, but these aids had to be brought within their effective range before they could be useful. It was here that communication intelligence supplied the necessary link. By means of direction finders the problem of search was vastly simplified, and aircraft and surface vessels were enabled to confine their operations to profitable areas. Conversely it was possible to divert the convoys from those areas where the probability of attack was high. Success against the German submarines was thus in the end primarily the result of the highly efficient coordination of communication intelligence, radar, sonar, aircraft and surface escorts. From the time this coordination began to be effective, the enemy's submarine losses began to mount sharply and our losses in the Atlantic showed a marked and steady decline.

In order for direction finder bearings to be useful they had to be collected at operational centers in Washington, London, and Ottawa in a matter of minutes. This required the establishment

of a flash communication system covering the entire Atlantic, by means of which controlling stations covering the radio spectrum could alert the D/F stations to the desired transmission. Added to this problem was the fact that the submarines were alive to the effectiveness of our direction finders and resorted to all sorts of measures to defeat them, including extremely short transmissions which had to be identified and intercepted in a matter of seconds. Despite these difficulties, it was possible in the latter months of the war to obtain and plot bearings from practically all of the stations in the Atlantic within a matter of 15 or 20 minutes. About the middle of the war shipboard direction finders had been brought to a sufficiently workable state of development to permit their use by forces afloat. These shipboard equipments were then coordinated with the shore direction finder system and the general effectiveness of the network was somewhat improved.

The next three slides (C), (D) and (E) are actual examples of three daily situation shots, forty-eight hours apart. The black dots represent direction finder fixes on U-Boat radio transmissions. As you

can see, the dots show clearly the active submarine operating areas. These situation plots are of particular interest because they show the developments of two wolf-pack attacks. These are clearly indicated by the concentrations of dots in the latter two plots.

A typical operation resulting from HF/DF data was the sinking of the German U-boat U-66 near the Cape Verde Islands in May, 1944. From her survivors, the Navy learned details of the U-66's last patrol. The U-66 in January, 1944, was operating off the west coast of Africa. Her captain wanted to refuel off the Cape Verde Islands and decided to notify the home base of his location.

His transmission was very brief. It was sent in less than 15 seconds. But 26 Allied D/F stations of the Atlantic net obtained bearings on it. From these the position of the U-66 was plotted near 18 degrees North and 34 degrees 30 minutes West. This was passed to COMINCH, who ordered the USS BLOCK ISLAND and her escorts to the scene. This group cruised in the area for five days, searching by all available means. Finally the surfaced submarine was picked up at night by radar and shortly afterwards sighted by a patrol plane which called the destroyer escort USS BUCKLEY to the scene. Then

with the plane spotting, the BUCKLEY attacked the submarine, ramming and riding over her. The battered U-boat got clear. The BUCKLEY pursued and shot away the conning tower. The submarine, now out of control, collided with the BUCKLEY and sank ten minutes later.

D/F Problems

As important a weapon as the direction finder proved to be, its practical application presented a number of formidable technical problems. The determination of location was perhaps more an art than a science. The vagaries of wave propagation and the presence of instrumental and personal errors made it impossible to rely on a single or even a few bearings. For example, here is an actual and typical plot of bearings in the Atlantic (9). Note the area covered by the intersections as compared to nearby land masses, such as Cuba. To reduce such data to the limits of practical usefulness required, first, some means of minimizing the probably uncontrollable errors and, second, some rapid means of evaluating the bearings to determine a fix.

The first requirement could be met to a large extent by

increasing the number of bearings. In other words the more bearings, the smaller the mean error. A very large and extensive direction finder net was, therefore, built. At its peak the Atlantic net contained 51 stations, of which 17 were American, 23 British, and 11 Canadian. My next slide (10) shows their locations.

The evaluation problem was met as shown in the next two slides. By use of light screens, whose density varies as the square of the distance from the center line, the direction finder bearing errors could be quickly evaluated statistically and a satisfactory "most probable" position established.

The first slide (11) shows one of the screens. The center line is placed along the bearing and over a light source. As screens for other bearings are superimposed, a light spot forms around the intersection of the bearings just below the center of the chart. As the screens increase in number this light spot becomes smaller. This result is shown on the next slide (12). The center of the light spot is, of course, the most probable fix.

Identification

By use of direction finders it was possible, as we have just

seen, to determine location. There still remained, however, the question of strength. For example, suppose fixes were obtained on a dozen transmissions on a given day, all of which plotted in a small area. Were those all from the same submarine, or were they from a wolf-pack preparing to attack? This was a vitally important question to answer.

To this problem we applied techniques known as "radio finger printing" and "TINA". The former is a method of identifying a given transmitter, and the latter a method of identifying a given radio operator.

RFP

This slide (18) illustrates the principle involved in R.F.P. By means of an oscilloscope properly connected to an intercept receiver it is possible to get a visible picture of a transmitter emission. This picture can be photographed for comparison with other similar pictures. Due to variations in the design, construction, or operation of transmitters, their emission characteristics differ consistently in certain details. These

differences are readily seen in the examples from three different transmitters now on the screen.

TINA

The principle of TINA is shown by the next slide (14). By means of a plotting system the sending peculiarities of a particular operator can also be reduced to graphic form. On this slide the top three lines represent letters sent by the same operator on three different occasions. Note the similarities. The lower three lines were sent on different occasions by another operator. As you see, they are very similar to one another, but quite different from those in the first group. The difference is very apparent, for example, in the letter "K" as made by the two operators.

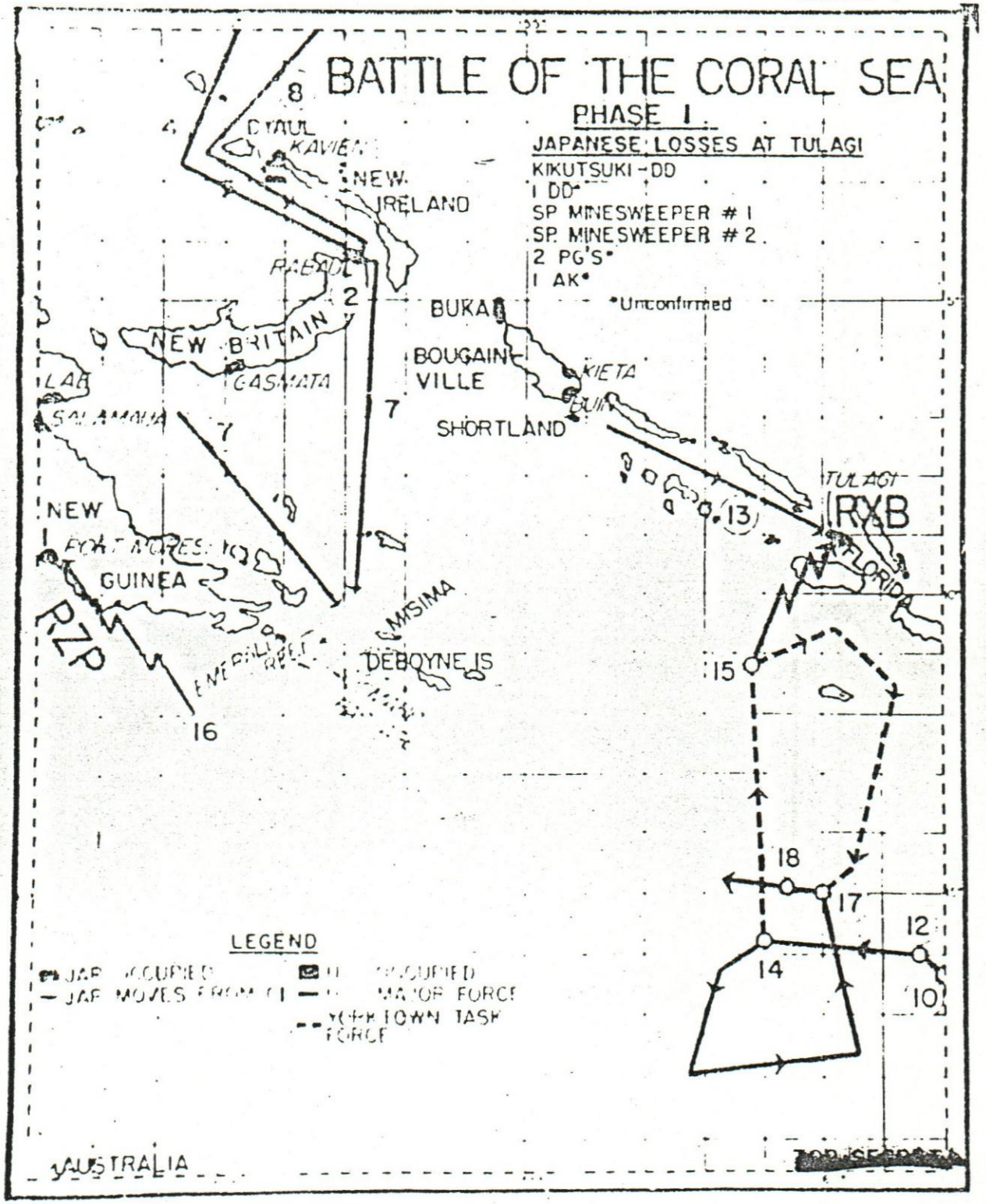
Through a system of cataloguing the peculiarities shown by RFP and TINA it is possible to determine whether certain transmissions are from the same or different sources. Hence, in a group we can tell how many different transmitters are involved. By plotting successive bearings on transmissions from the same source we can

RETYPED FOR CLARITY

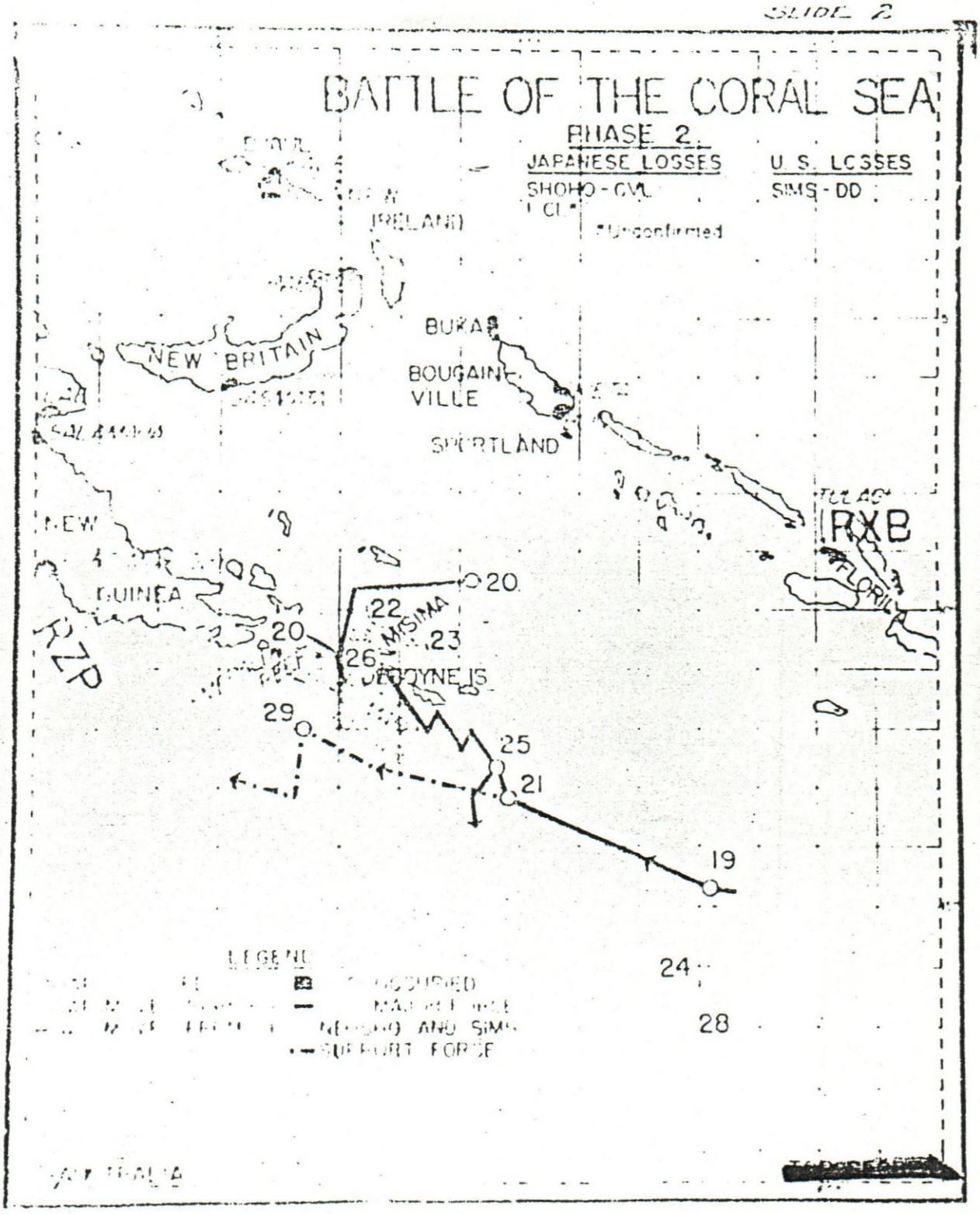
track the transmitting unit. Here is an actual track of a U-boat made in this manner (15). Now, if through association or otherwise we can determine the actual identity of a given transmitter, it can be identified again should it reappear. Finally, by projecting tracks, and comparing detected activities with known habits or the development of previous actions, it is often possible to deduce future operations.

Thus by D/F we can determine location; by RFP and TINA, strength; and, by plotting the two as they change, we may arrive at intention. Many complications, of course, were involved in the actual application of these procedures, but they were essentially the means of solving our intelligence problem in the Atlantic. While information obtained by these means is naturally less reliable than that from cryptanalysis, the foregoing examples illustrate the great value of such methods for obtaining vital intelligence. I give them to you here, moreover, to show the sort of thing an operating commander is up against whenever he uses radio.

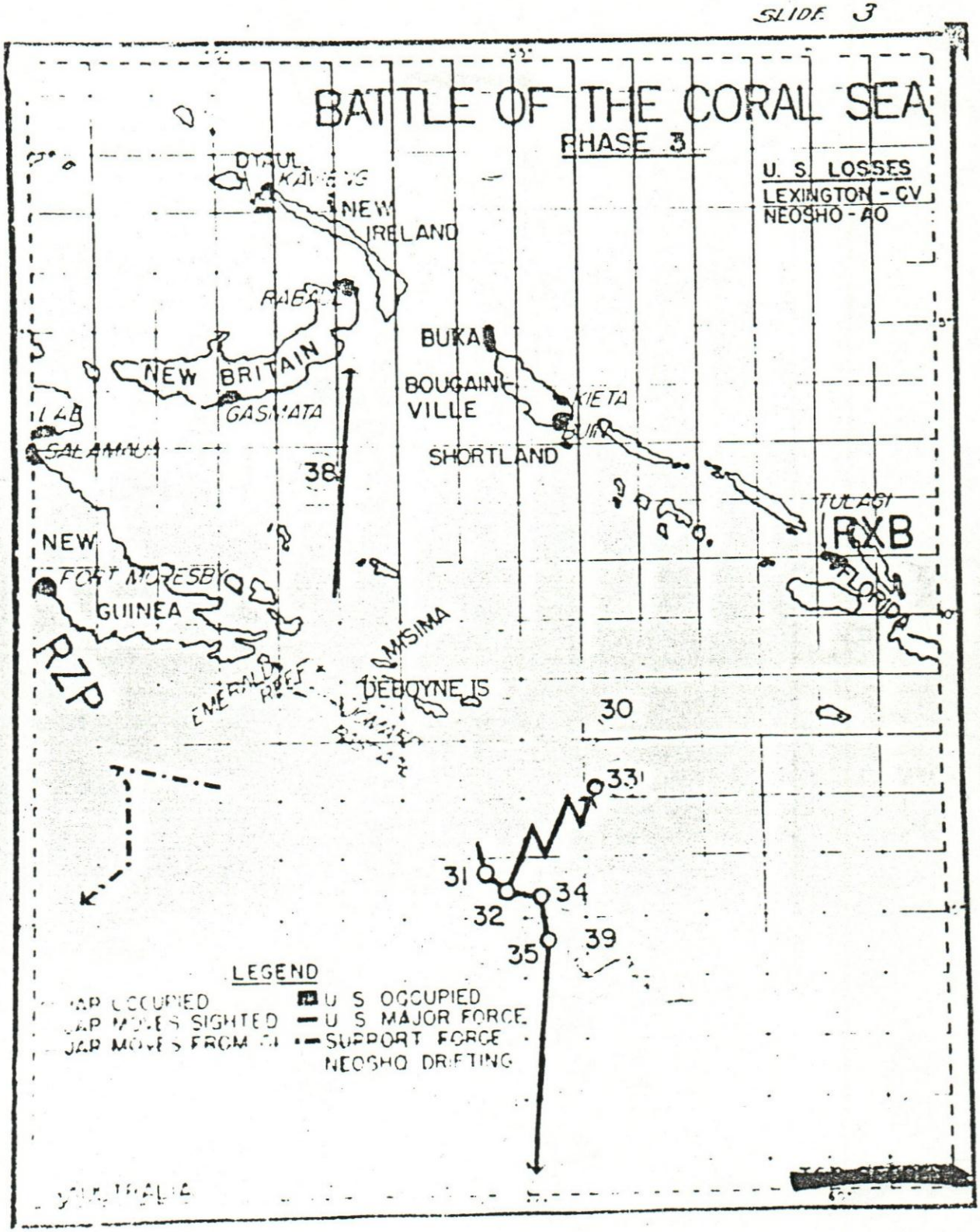
SLIDE 1


BATTLE OF THE CORAL SEA
PHASE I
JAPANESE LOSSES AT TULAGI
KIKUTSUKI - DD
1 DD
SP MINESWEEPER # 1
SP MINESWEEPER # 2
2 PG'S*
1 AK*
*Unconfirmed
NEW IRELAND
RABAUL
NEW BRITAIN
BUKA
BOUGAINVILLE
KIETA
SHORTLAND
TULAGI
RXB
NEW GUINEA
RZP
DEBOYNE IS
ENTRANCE REEF
GUADALCANAL
AUSTRALIA
LEGEND
JAP OCCUPIED
JAP MOVES FROM
MAJOR FORCE
YORKTOWN TASK FORCE

SLIDE 2


BATTLE OF THE CORAL SEA
PHASE 2
JAPANESE LOSSES
SHOHO - CVL
U. S. LOSSES
SIMS - DD
unconfirmed
IRELAND
NEW BRITAIN
BUKA
BOUGAIN-
VILLE
SPERTLAND
NEW
GUINEA
RXB
RZP
MISIMA
JEDDYNE IS.
20
22
23
26
29
25
21
19
24
28
LEGEND

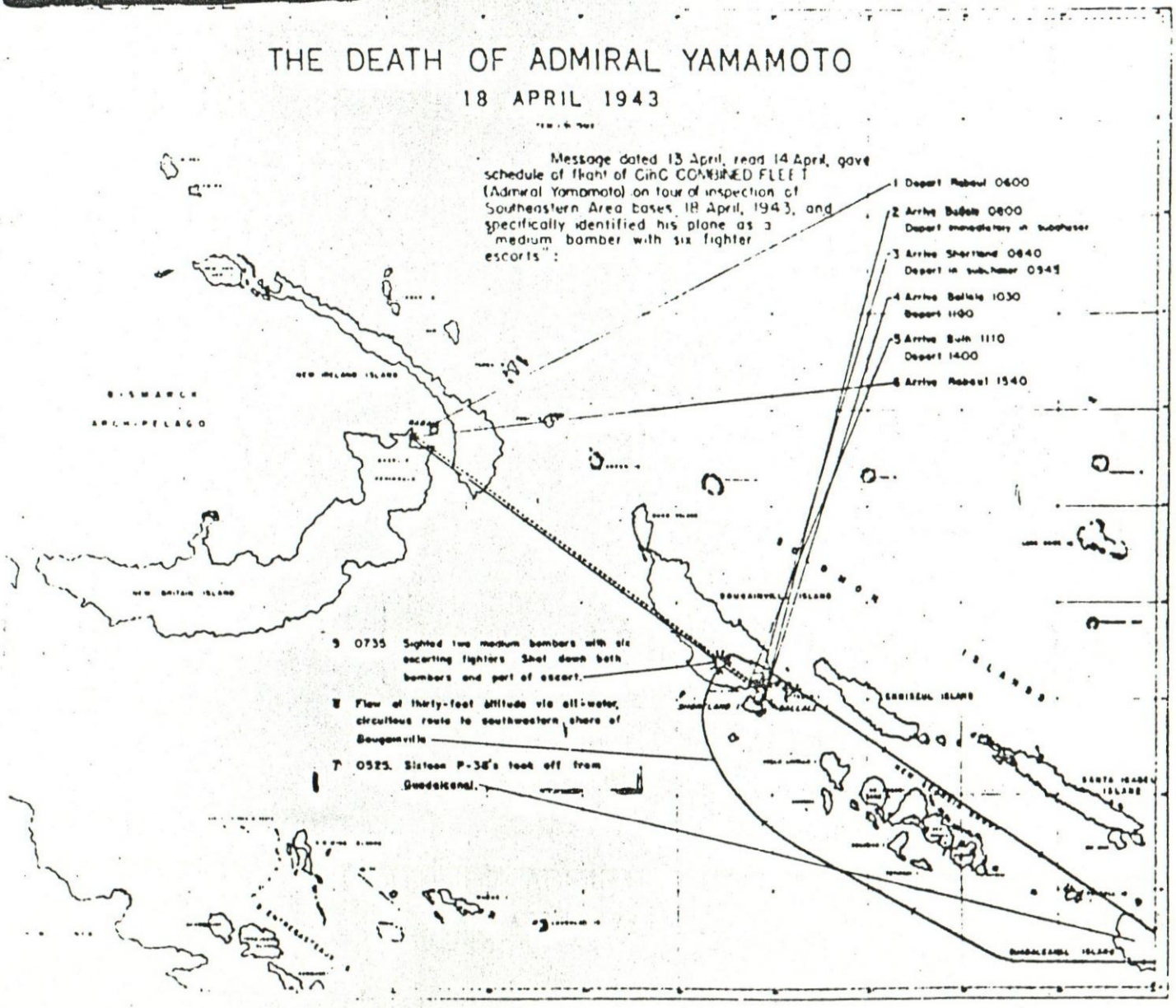
SLIDE 3


BATTLE OF THE CORAL SEA
PHASE 3
U. S. LOSSES
LEXINGTON - CV
NEOSHO - AO
DYAUL
KAVIENG
NEW IRELAND
RABAUL
BUKA
NEW BRITAIN
BOUGAINVILLE
KIETA
GASMATA
LAE
SALAMAUA
SHORTLAND
38
TULAGI
RXB
NEW
PORT MORESBY
GUINEA
RZP
MASIMA
EMERALD REEF
DEBOYNE IS
30
331
31
34
32
35
39
FLORIDA
LEGEND
JAP OCCUPIED
JAP MOVES SIGHTED
JAP MOVES FROM
U S OCCUPIED
U S MAJOR FORCE
SUPPORT FORCE
NEOSHO DRIFTING

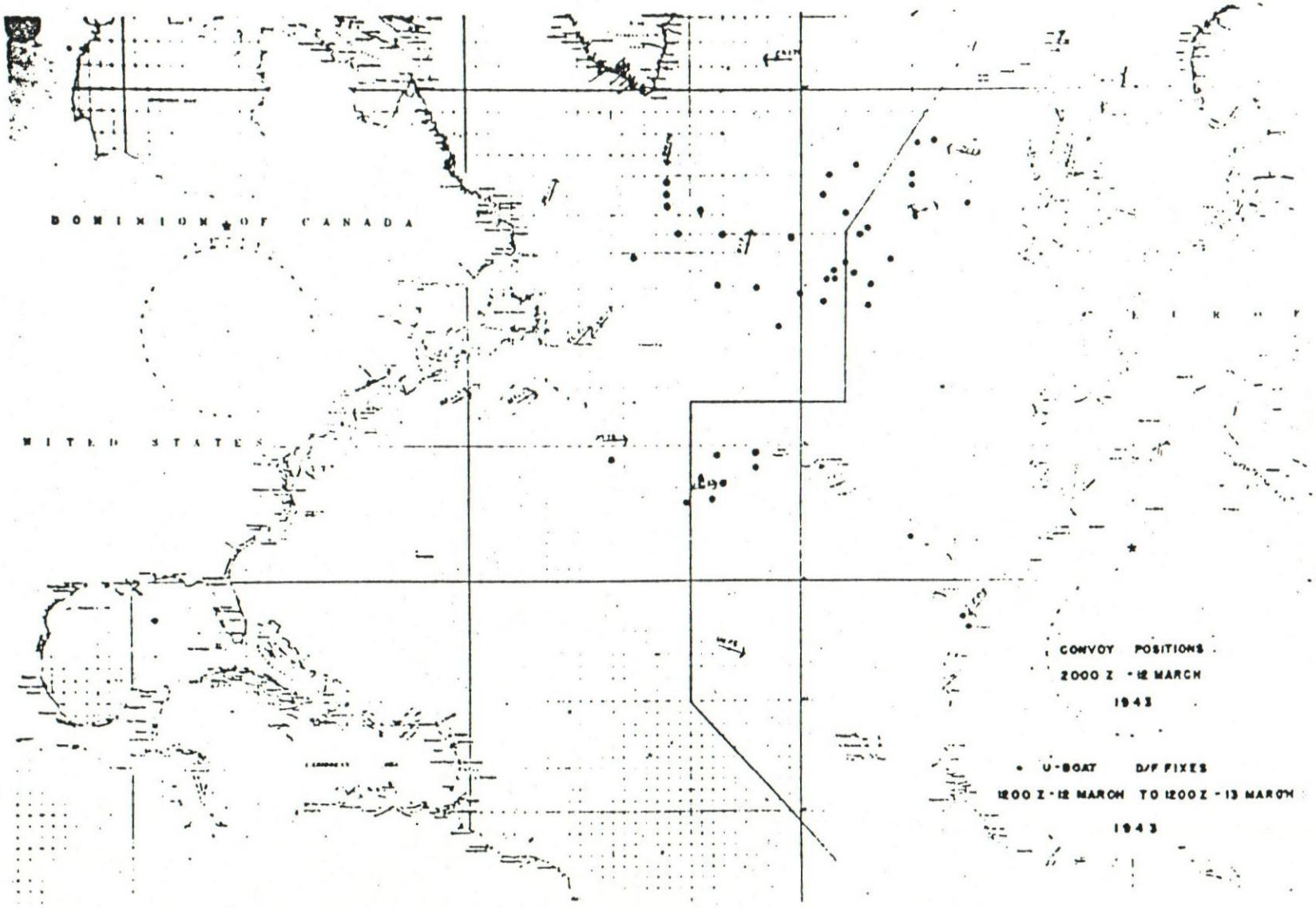
SLIDE 4

THE DEATH OF ADMIRAL YAMAMOTO

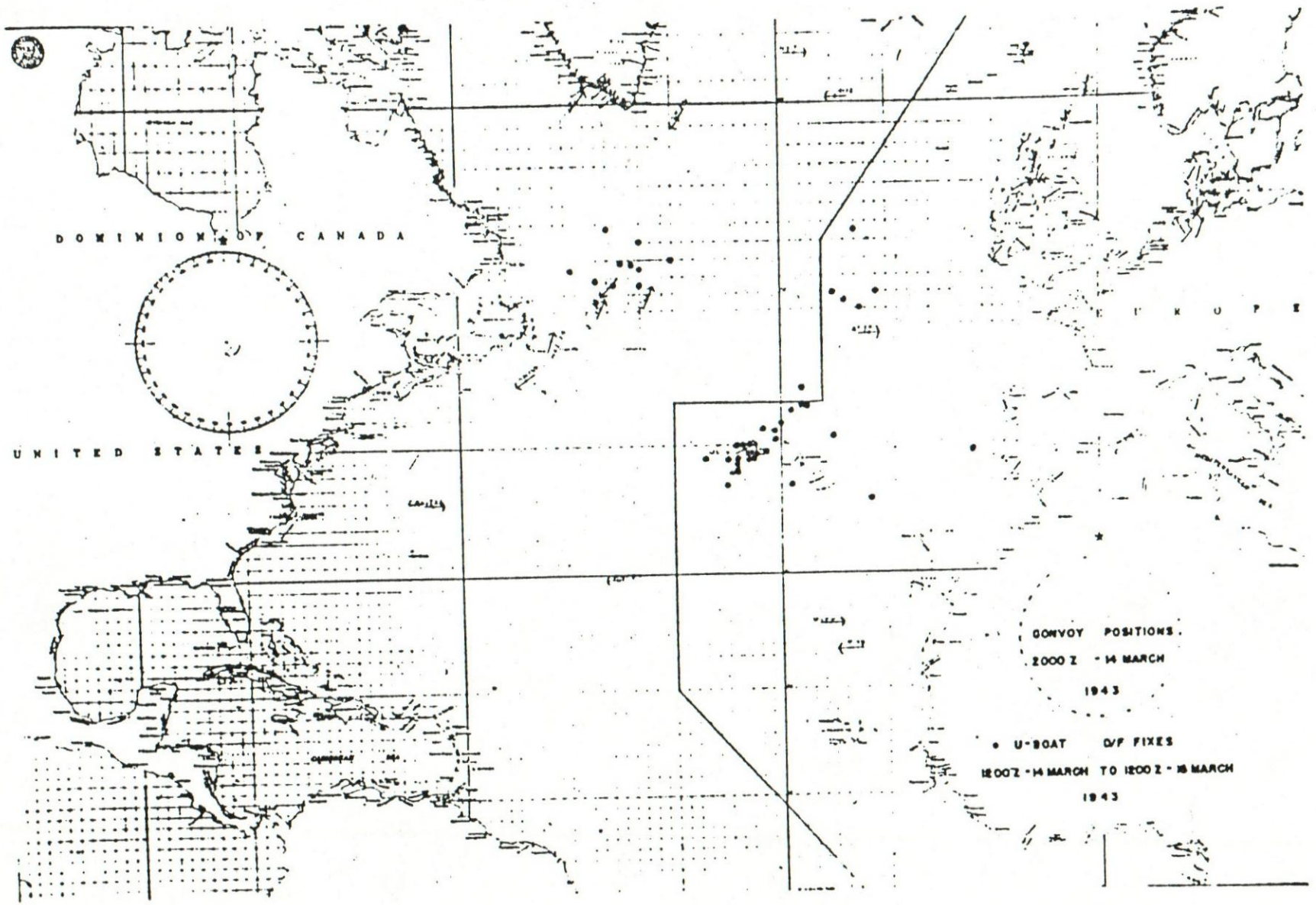
18 APRIL 1943



NOT RELEASABLE

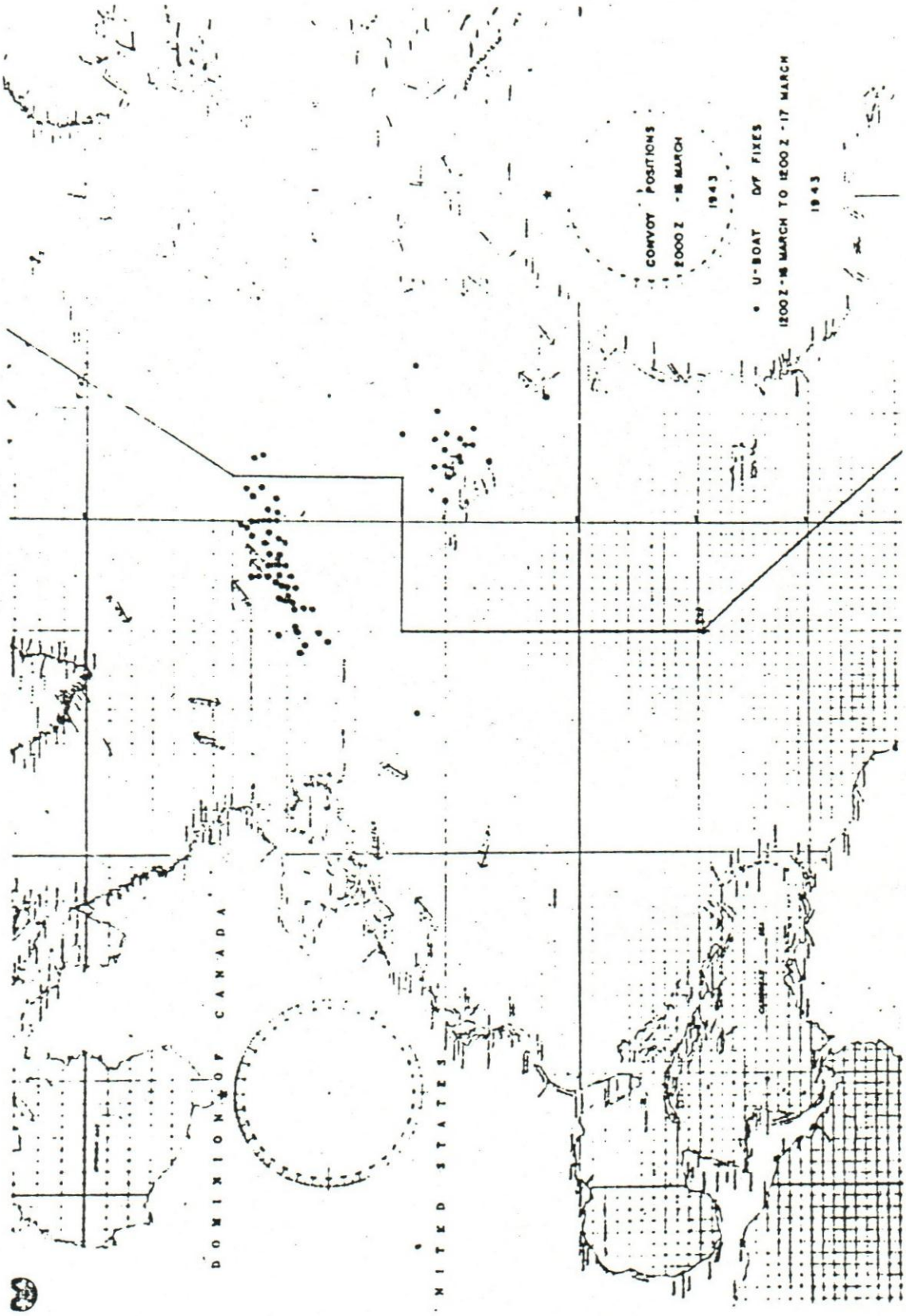

DOMINION OF CANADA
UNITED STATES
CONVOY POSITIONS
2000 Z - 12 MARCH
1943
U-BOAT D/F FIXES
1200 Z - 12 MARCH TO 1200 Z - 13 MARCH
1943

SLIDE 7

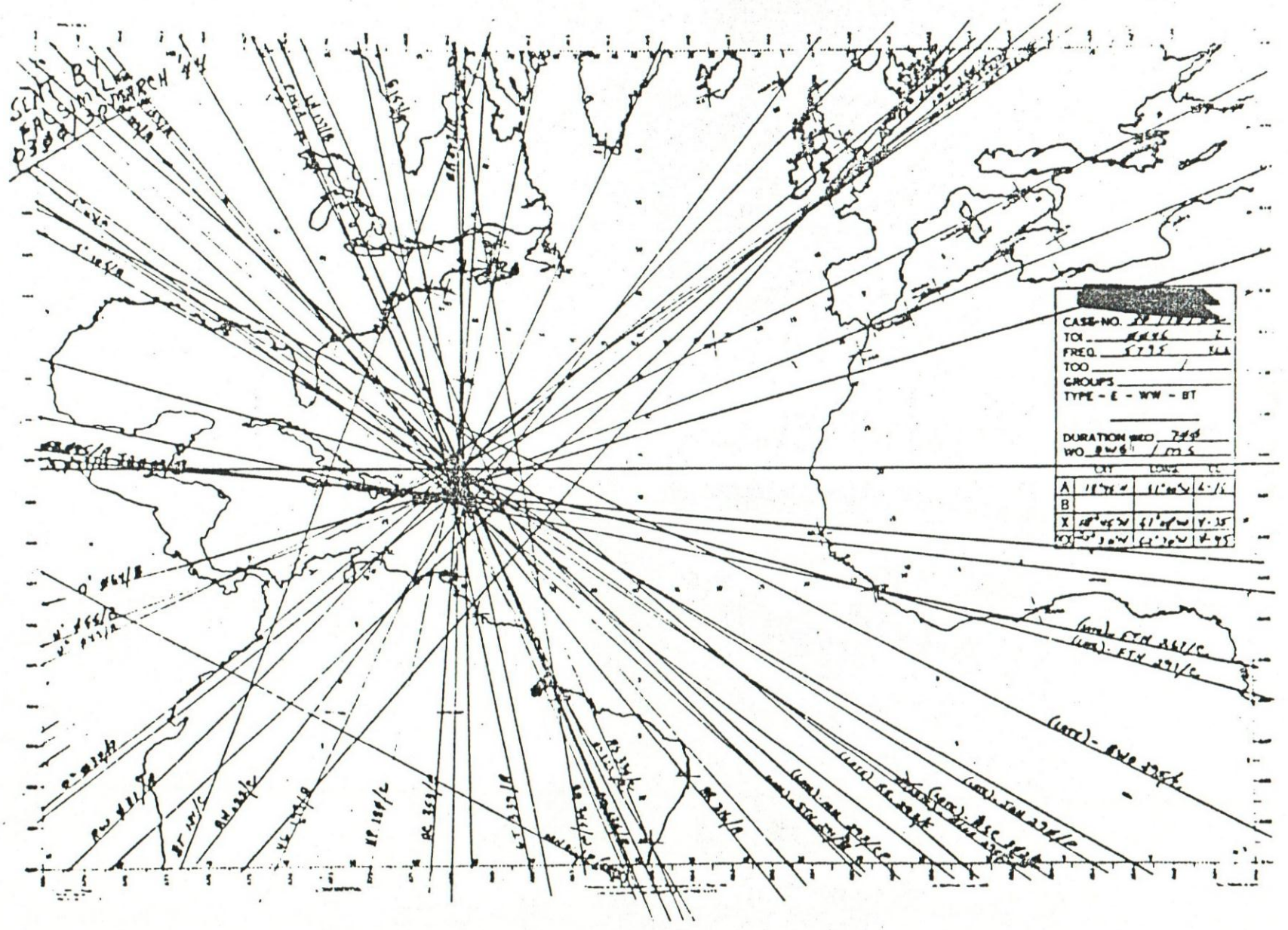

DOMINION OF CANADA
UNITED STATES
EUROPE
CONVOY POSITIONS
2000 Z - 14 MARCH
1943
• U-BOAT D/F FIXES
1200Z - 14 MARCH TO 1200 Z - 15 MARCH
1943

50

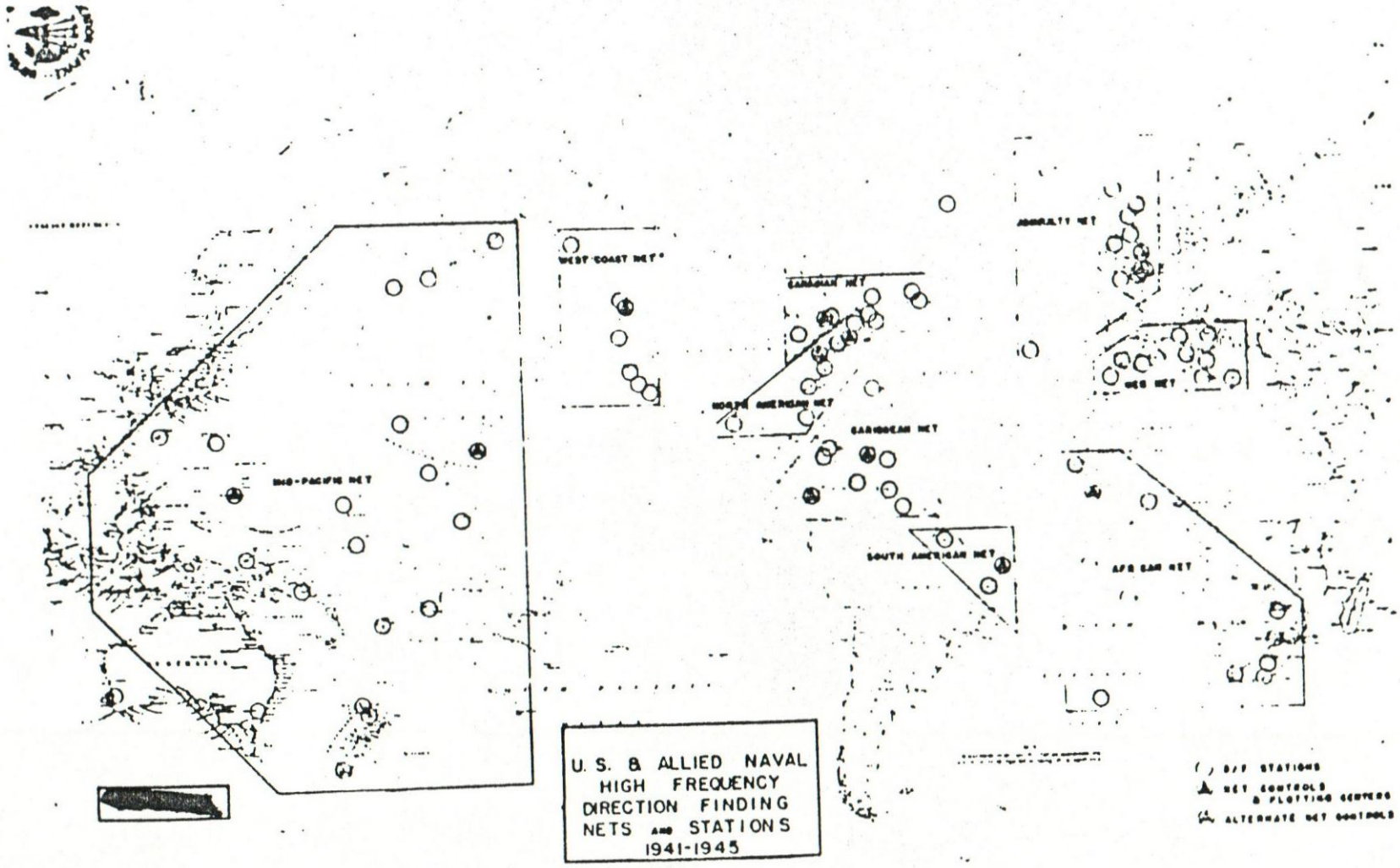
SLIP - 8


CONVOY POSITIONS
2000 Z - 16 MARCH
1943
U-BOAT D/F FIXES
1200 Z - 16 MARCH TO 1200 Z - 17 MARCH
1943
DOMINION OF CANADA
UNITED STATES

SLIDE

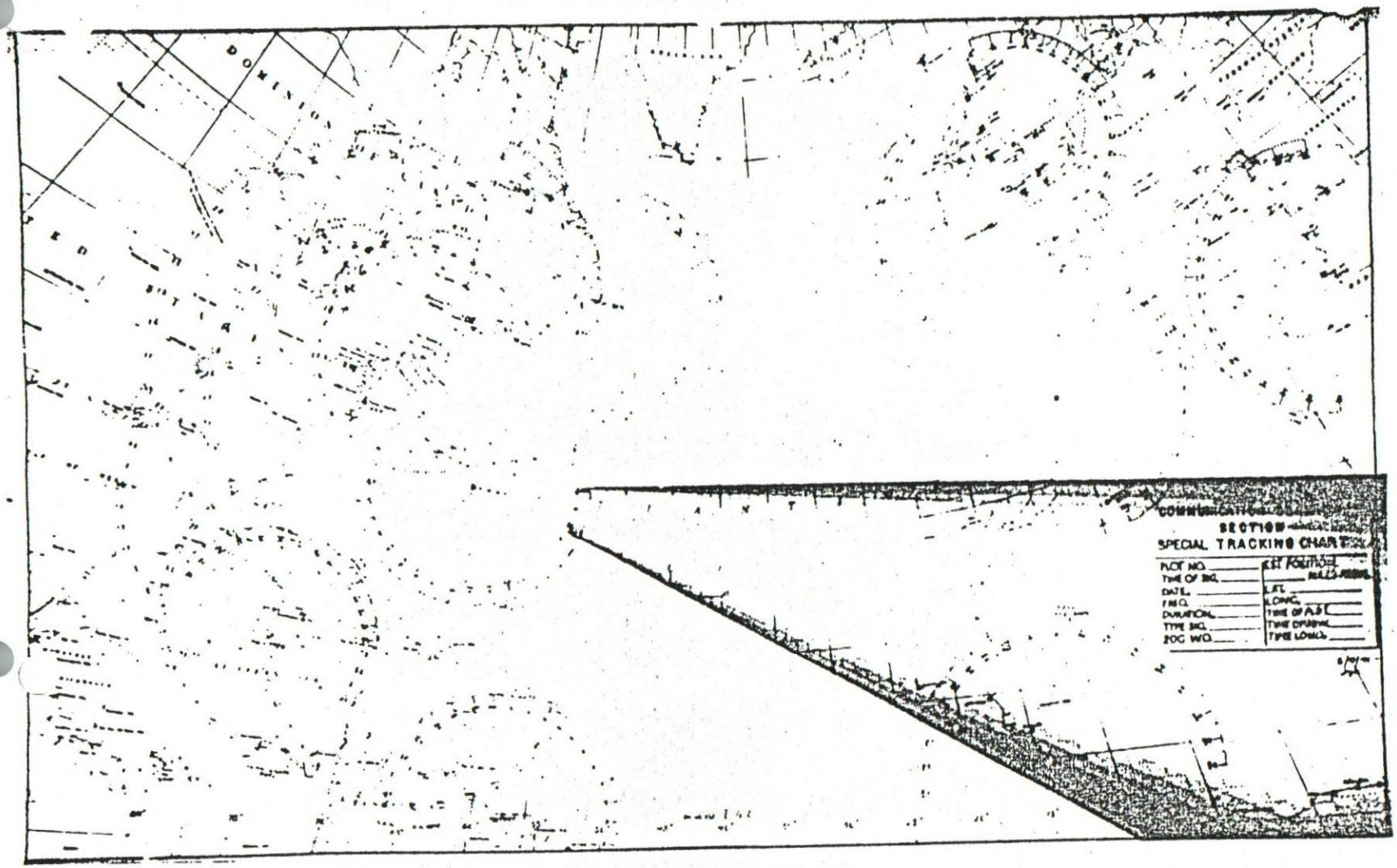


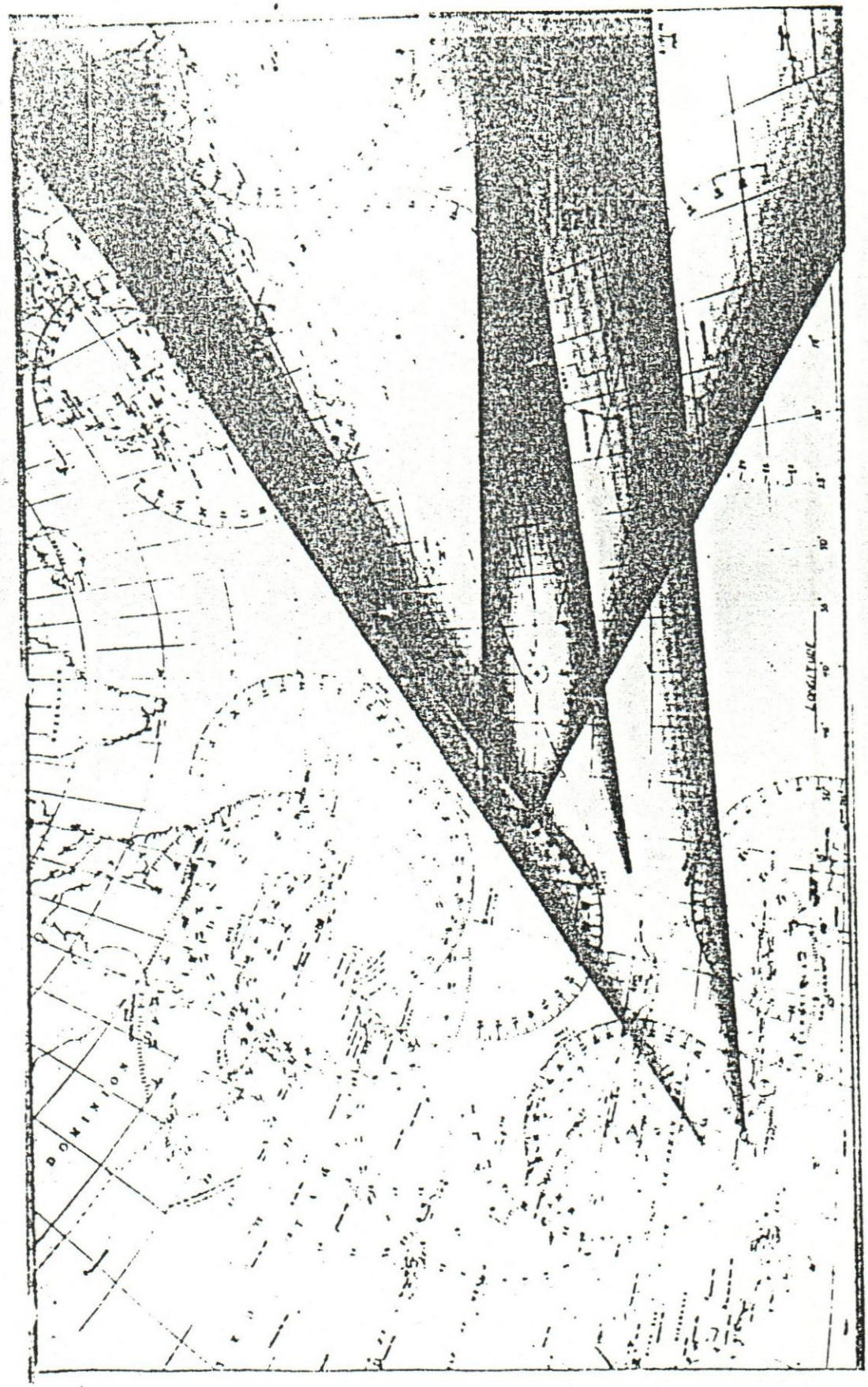
SLIDE 11
10



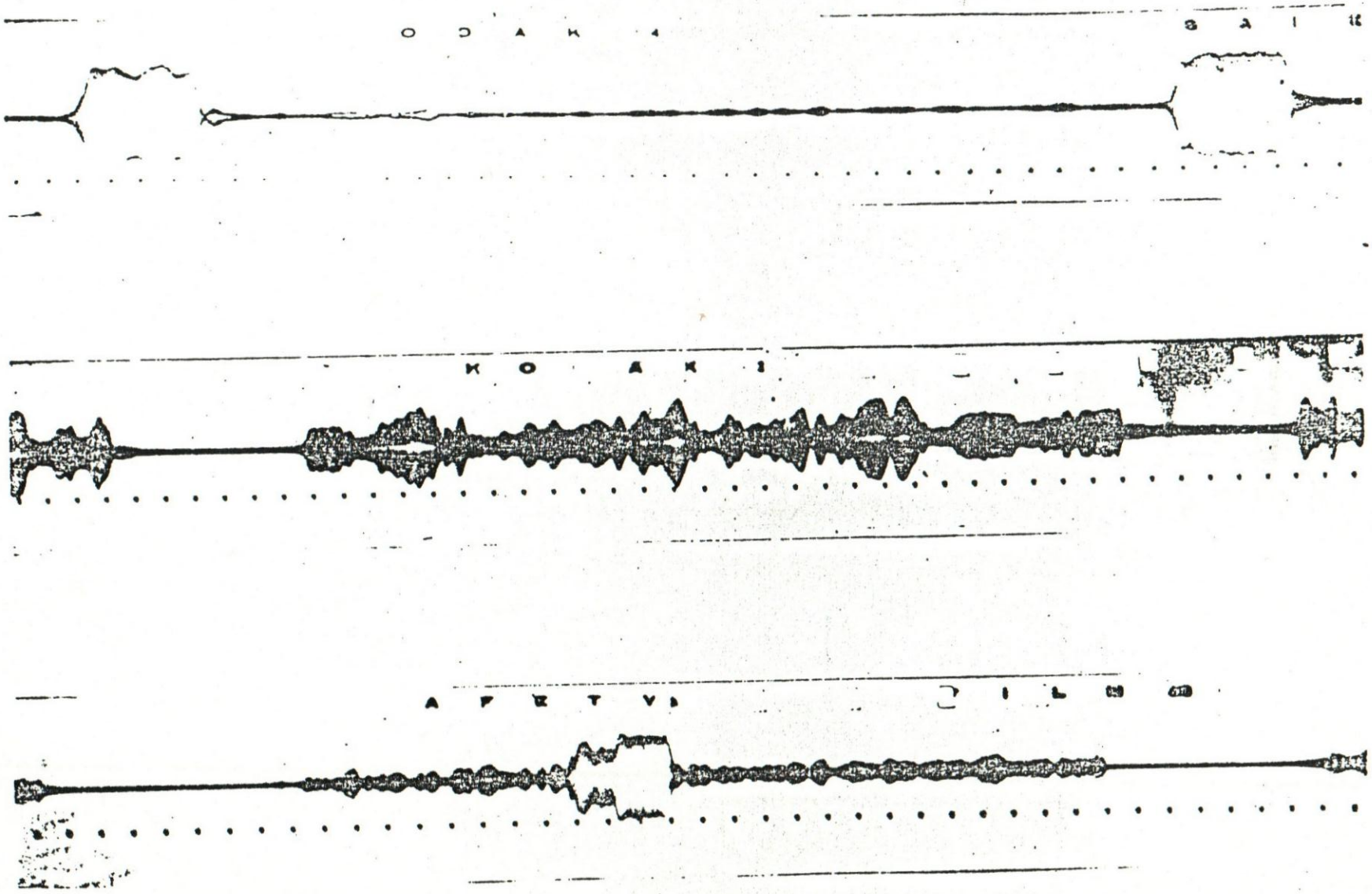
53

SLIDE 11

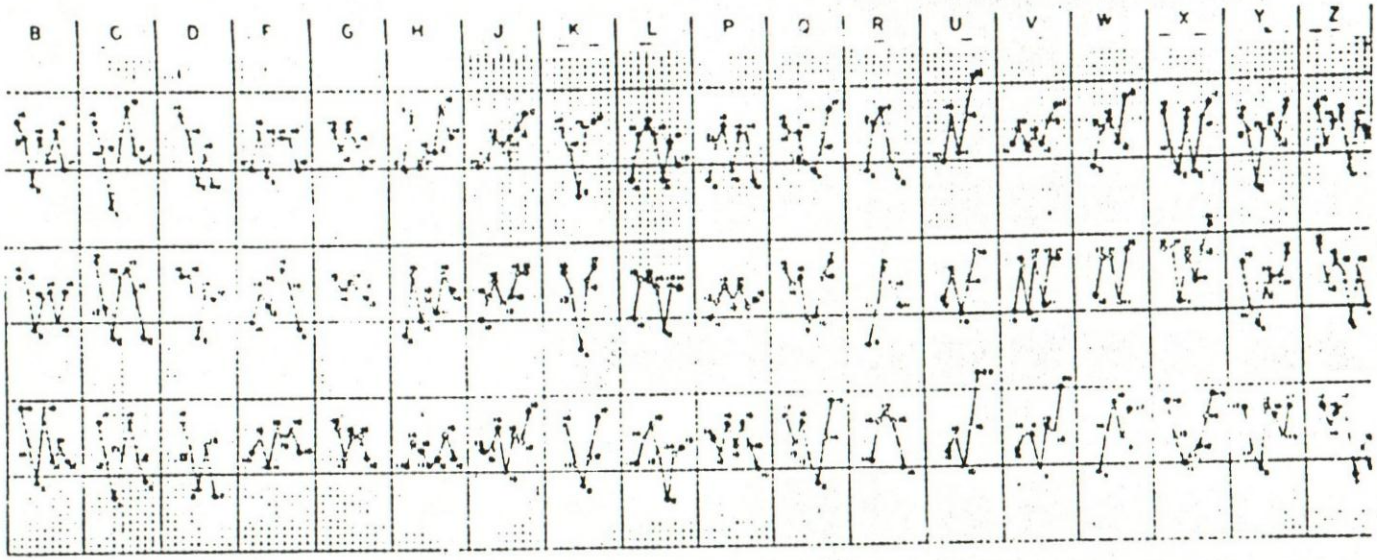

SECTION
SPECIAL TRACKING CHART
PLOT NO.
TIME OF BIG.
DATE
FREQ.
DURATION
TYPE BIG.
POC W/O.
EST POSITION
LAT.
LONG.
TIME OF FIX
TIME ORIGIN
TYPE LOCN.

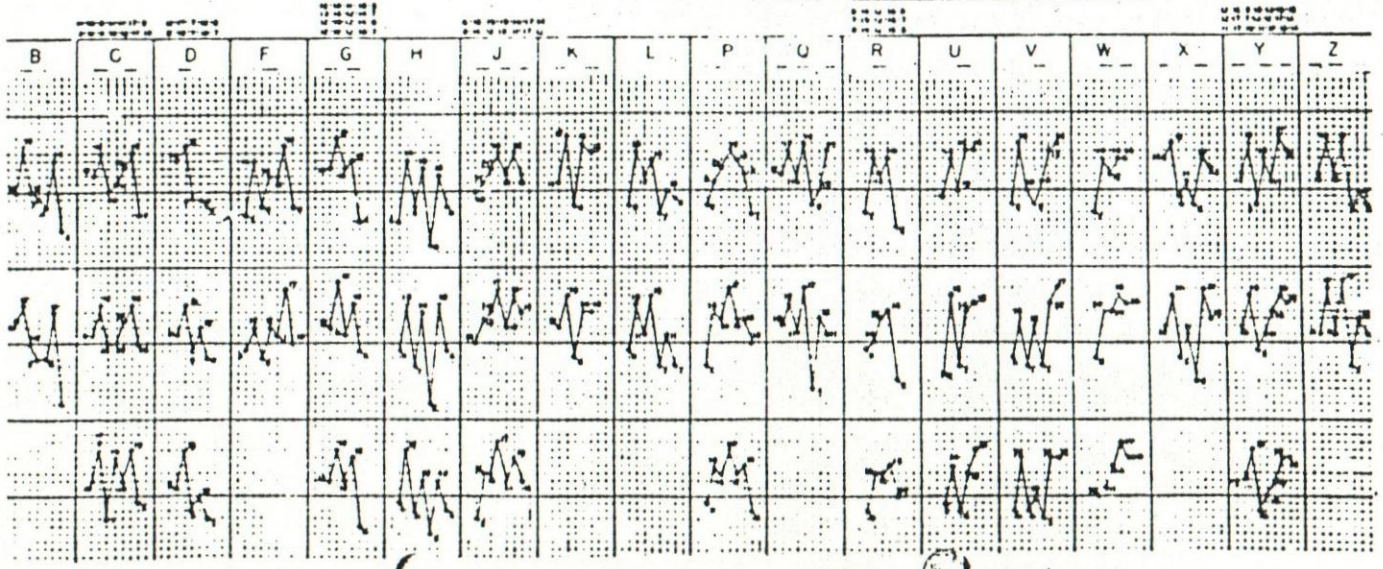


SLID 13

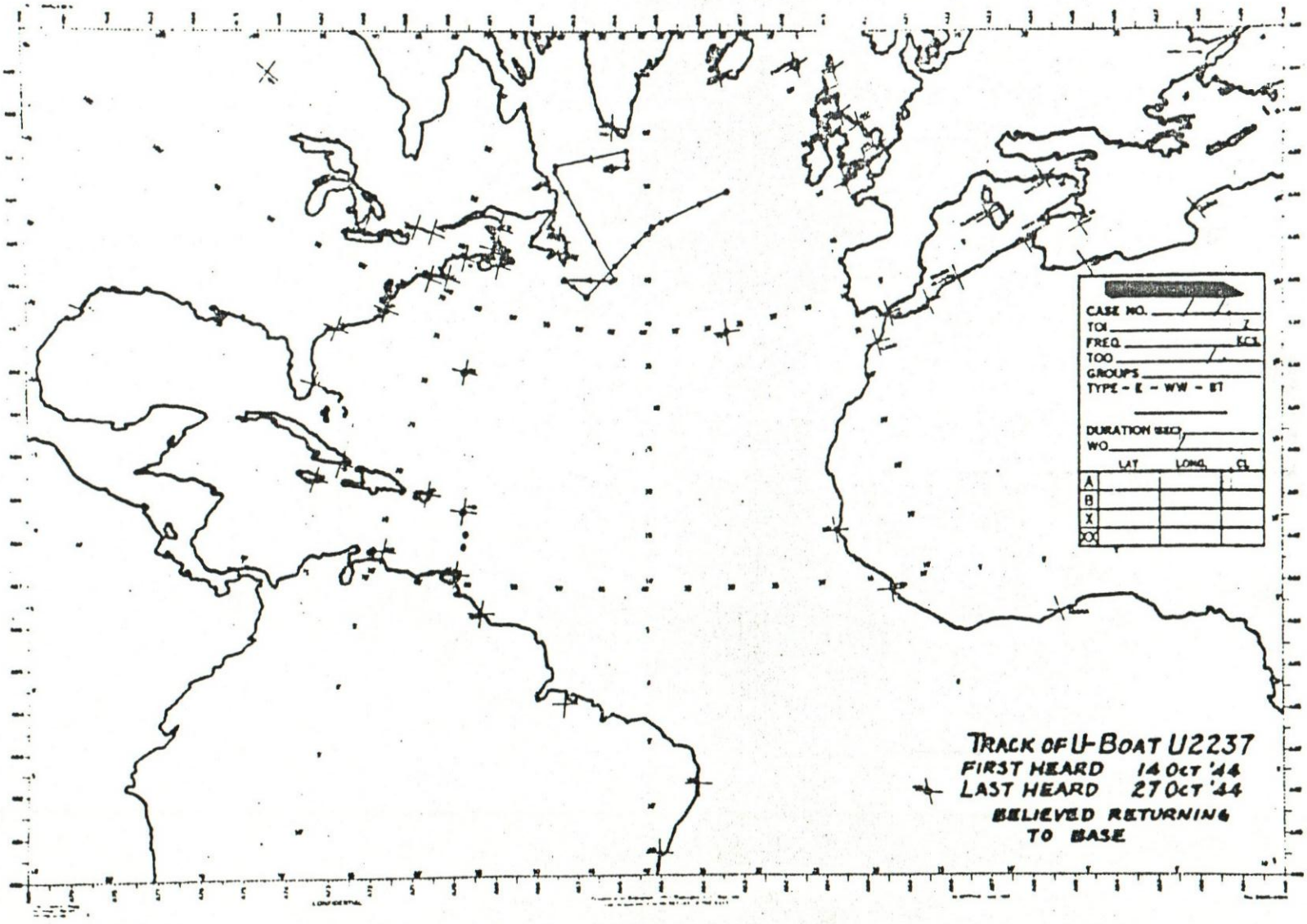


SLIDE 14

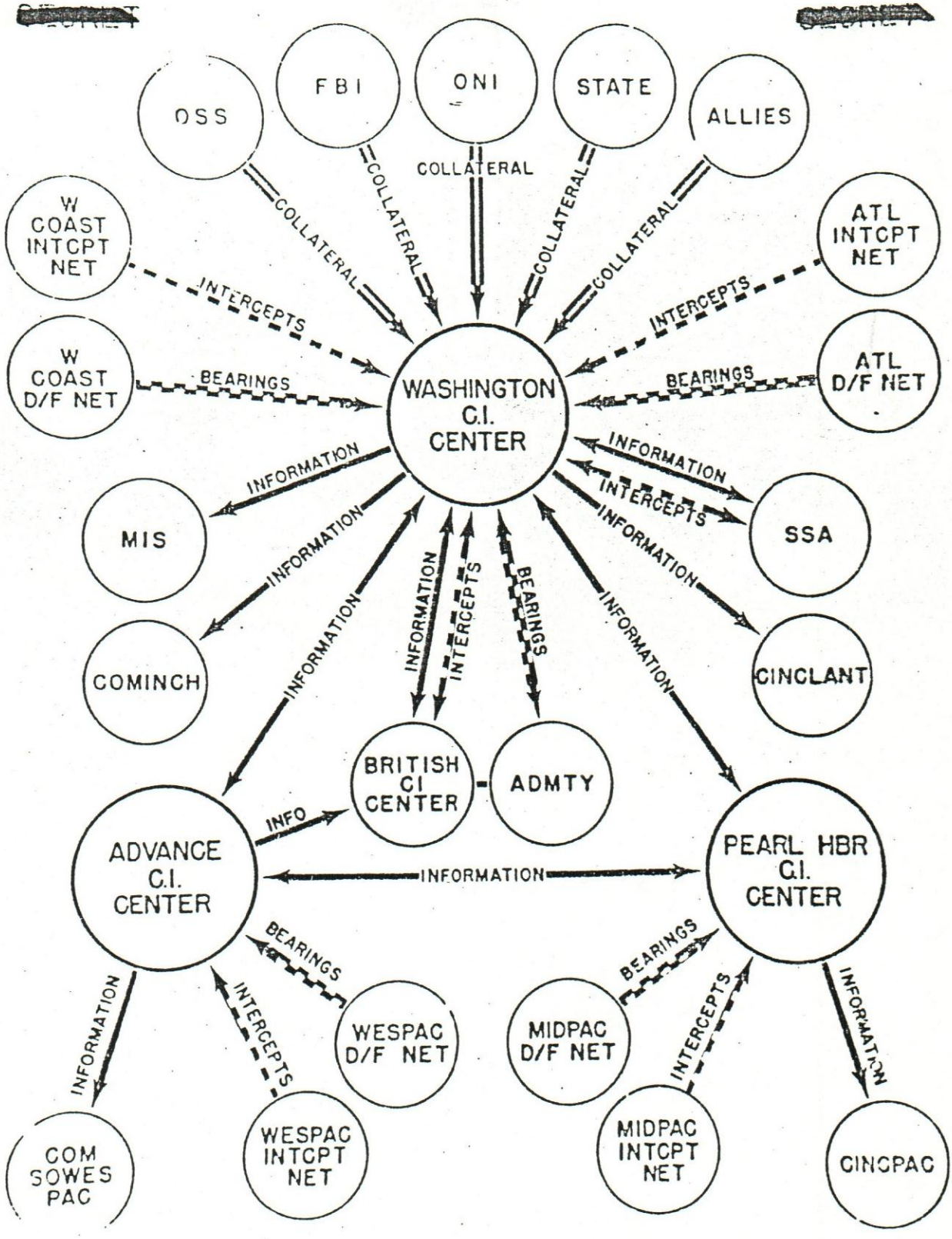




SLID. '5

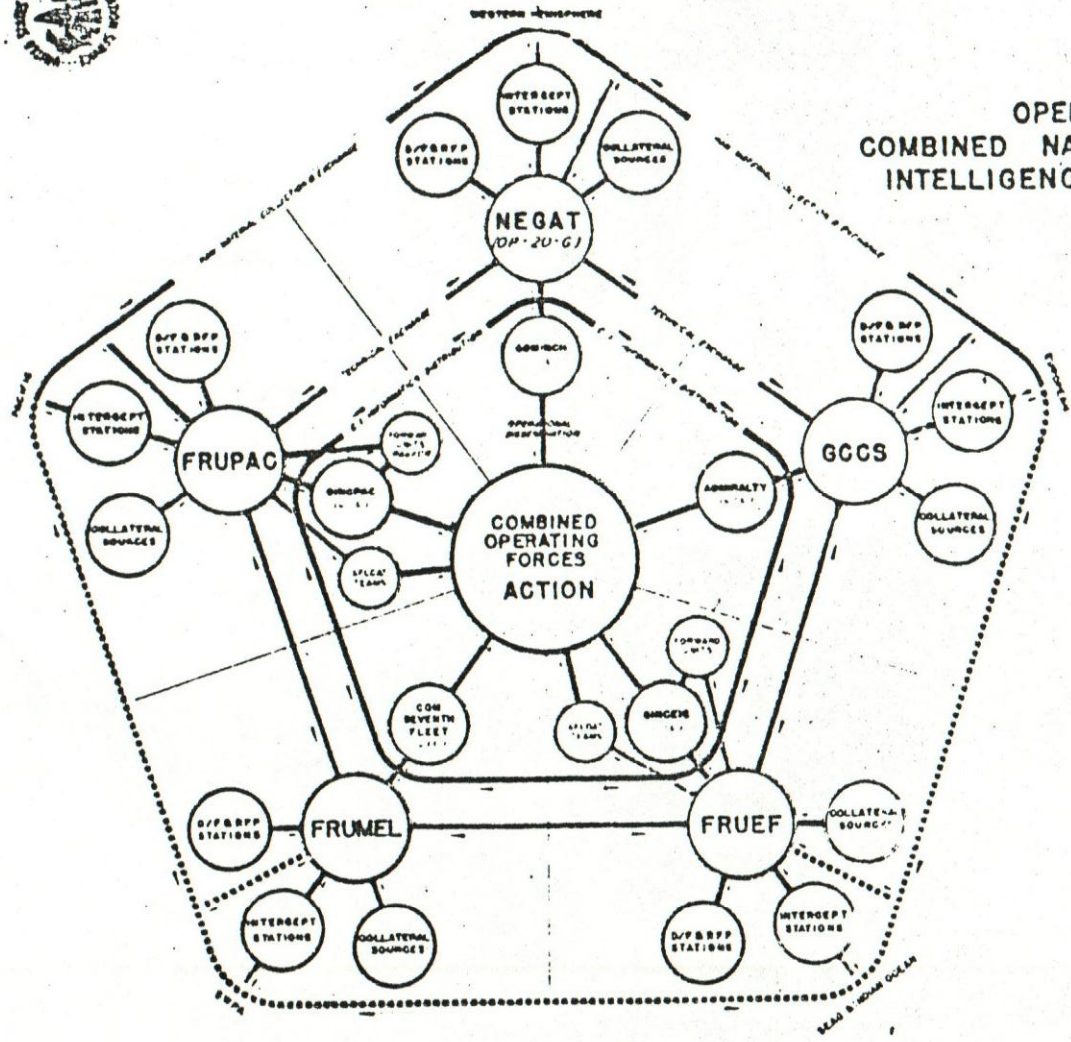

CASE NO.
TOI
FREQ. KCS.
TOO
GROUPS
TYPE - E - WW - ET
DURATION SEC.
WO.
LAT
LONG
CS
A
B
X
XX
TRACK OF U-BOAT U2237
FIRST HEARD 14 OCT '44
LAST HEARD 27 OCT '44
BELIEVED RETURNING TO BASE

U S. NAVAL C.I. ORGANIZATION



SUP - 17

OPERATION OF COMBINED NAVAL COMMUNICATION INTELLIGENCE ORGANIZATIONS



09

SECRET

PART II

INTRODUCTION

We have seen something of the nature and value of communication intelligence. Let us now look into the question of what is required to produce it. Before examining the organization and operation of Naval Communication Intelligence activities, however, it is desirable that we have a proper concept of the general field of Naval Intelligence and of the place in that field which is occupied by intelligence derived from communications.

Types of Intelligence

Naval Intelligence is defined as the product of evaluation, analysis and synthesis of information which is needed for determination of Naval Policy and for planning and execution of Naval Operations. It is of two types -

(1) Strategic intelligence, or that intelligence needed by Naval Commanders charged with determination of Naval Policy and planning, and

(2) Operational intelligence, or that intelligence needed by Naval Commanders in planning and executing operations,

including battle.

Sources of Intelligence

The information from which naval intelligence is produced comes from many sources: from aircraft, surface vessels, submarines, ground forces, various government agencies, etc. By far the greater part of intelligence in peacetime is what may be termed "open intelligence" because it is derived from information normally obtainable from open sources, such as exchange arrangements, trade reports, public documents, periodicals, etc. The information upon which it is based is usually collected in the normal course of legitimate business by recognized agencies such as the State Department, Commerce Department, Immigration Service, Bureau of Mines and American commercial agents abroad. The other portion of intelligence, of which that from communications is an important part, is usually termed "secret intelligence" because it comprises information collected or produced by secret or covert operations.

Two Phases of Intelligence

Since intelligence is defined, in the naval sense, as

[redacted] evaluated, analyzed, and synthesized information, it follows that the production of intelligence may be divided into two main phases; first, information; and second, intelligence. Thus, the information phase includes the collection, processing, and interpretation or elucidation of the source material, and the distribution of the resulting information to the intelligence centers. The intelligence phase includes the synthesis, analysis, and evaluation of this information, and the dissemination of the resulting intelligence to those who require it.

Production

In most cases, the collection or production of information is incidental to the performance of some other function, or it is a specialized process requiring different training, experience, procedures, or facilities for each type of source. The production of intelligence, on the other hand, involves the synthesizing of all related facts, and hence requires close integration of operations for completeness. Thus the information function may in effect logically lead to separation of information producing activities because of

incidental or specialized operations, whereas the intelligence function requires consolidation of intelligence producing activities for composite results.

This concept explains why communication intelligence activities are organizationally a part of the Naval Communication Service rather than the Naval Intelligence Service. Actually they are information producing rather than intelligence producing activities. Hence they are operated under that agency which can best support their specialized functions. In this case, because essentially communications equipment, facilities, personnel, and techniques are employed, the work can be most efficiently and economically performed in close association with communications activities. The situation is identical with that in the case of reconnaissance aircraft. There also we have units whose function is to obtain information for intelligence purposes. For practical reasons, however, reconnaissance aircraft are actually operated by aviation rather than intelligence agencies.

It was upon this concept of intelligence that the U.S. Naval Communication Intelligence Organization was built and operated

during the war. It is believed that its great operational success was due very largely to the soundness of its operating plan and its organizational status, despite the fact that this status was somewhat unique in the Navy and possibly in some respects contravened the accepted military principles of theatre command.

MISSION

The mission assigned to the Naval Communication Intelligence Organization in the war was as follows:

a. To obtain from enemy and neutral communications all possible information regarding enemy policies, plans, strength, disposition, movements, probable intentions and any other information of value to the United States and our Allies.

b. To disseminate this information through established channels to operational and intelligence authorities to whom the information may be useful, such dissemination to be made as directed from time to time by the Commander in Chief of the United States Fleet.

Wartime Requirements

In making an estimate of the situation at the beginning of the war, it was quickly realized that certain very formidable problems had to be solved. The first part of the mission alone entailed the reading of all possible enemy communications. This, in effect, required a duplication of the enemy communications organization. The magnitude of this requirement may be appreciated when it is realized that in our Navy alone about 250,000 persons were engaged in the various phases of communications. Added to this was the problem of providing ourselves by analytical methods with the means to read the communications, a serious complication which the enemy did not face. A further complication resulted from the fact that the enemy controlled his radio transmissions for optimum results with his own forces, while our intercept stations were almost invariably located in disadvantageous positions. Furthermore, unlike enemy operators, our operators could not ask for repeats in the event receiving conditions were bad.

This sort of difficulty, of course, was not unique to

communication intelligence. All forces shared the necessity of doing the best they could with what they had. But there was another aspect of the problem which was unique to communication intelligence. The factors involved were, first, that enemy action by either combat or subversive forces was going on all over the world in neutral as well as enemy countries and, second, that radio waves know no boundaries except those imposed by their own propagation characteristics. The problem thus completely transcended all theatre and area boundaries, and it was evident that a world-wide organization would have to be set up so that any message, wherever intercepted, could be immediately forwarded to a processing center for decryption and then quick delivery in readable form to the operating commander who required it.

Solution

In the face of these difficult problems it was obvious that the slender resources available to us would have to be stretched to the utmost. Action was initiated immediately, therefore, to integrate into a single organization all of the Naval Communications Intelligence facilities wherever located. These facilities were

placed under a central controlling agency in Washington which in effect acted as the command center for operations. All of the operating elements were then welded into a unified whole by means of a special communication system separate from the regular Naval Communication Service. As for duplicating the enemy's communications organization, this was accomplished in effect through mechanization and mass production methods. Moreover, careful coordination of Army, Navy and Allied communication intelligence operations permitted a very effective division of labor, with a minimum of duplicated effort, whereby the Navy assumed responsibility for enemy naval, weather, and clandestine communications.

The next slide (16) shows the Naval operating organization in effect during the first part of the war. It also shows the functional relationship of the essential elements in the production of communication intelligence.

Dissemination

An important factor in the Navy's success was its system of distributing and disseminating operational information from enemy communications. No attempt was made at prior evaluation of such

information in Washington, except for local operating authorities or as specifically requested by operating commanders in the various theatres. The authority for distributing information direct to major commands was delegated to the main processing centers. A flash radio circuit was established on which were the U.S. and Allied communication intelligence centers and the combat intelligence center of the senior naval commander in each theatre. Information produced in each communication intelligence processing center was immediately placed on this flash circuit and passed around to all of the main combat intelligence centers. Each of the latter took from the circuit all information required for its use, then evaluated and disseminated it as intelligence to the operating forces which it served.

This system presupposed that the one best able to determine the operational information required and to evaluate that information and disseminate it to the operating forces was the theatre commander of those forces. He was not only in the position of having the most complete and current information regarding his own forces but was able to receive enemy information

affecting his operations more directly and quickly from the various other sources in his theatre.

This slide (17), which is my last, shows in schematic form the world communication intelligence system as it finally evolved in the closing months of the war. As an operating mechanism it functioned very smoothly and, from the reports of the commanders afloat, it apparently met their major requirements.

Exploitation

As prospective operating commanders your primary concern with communication intelligence is naturally its exploitation. A troublesome problem arose in this connection during the war. It is worth mentioning here because you may be confronted with this problem at some later date.

All knowledge and experience of war point to the necessity of exploiting every possible advantage. The temptation was, therefore, naturally very great in the heat of battle to use communication intelligence whenever it was available. This led to carelessness which quickly threatened to jeopardize the source.

In time of war the full value of communication intelligence

cannot be realized unless operational use is made of it. However, when action is contemplated, as a result of this intelligence, the possibility of compromising the source must always be borne in mind and this danger weighed against the military advantage to be gained. A minor advantage is never alone sufficient ground for risking the loss of a communication intelligence source.

The point of this principle is that most codes and ciphers are necessarily used over wide areas. A change by the enemy as a result of suspected compromise may therefore have far reaching consequences. A commander in seeking a minor advantage in one locality may deprive another commander elsewhere of a much greater advantage or deny the use of communication intelligence in a subsequent major operation.

This indicates, of course, the great importance of coordinating operations, where practicable, with the intelligence situation. An example, with an odd twist, of the consequences of one actual failure to do this will illustrate this point. Plans were made, coordinated, and approved for a certain campaign in the Southwest Pacific. Subsequently the Air Force Commander decided that use

[redacted] a certain additional airfield would be helpful, and accordingly an attack was made on it by ground forces. Unfortunately the objective was overrun and an important naval command ashore in the area was closely approached. Twelve hours later our forces realized the mistake and withdrew, leaving the headquarters intact, but, meanwhile, the Japanese in the excitement of the moment had erroneously reported all their codes and ciphers compromised. Swift and sweeping changes were made by the Japanese. As a result, one of the most important operations of the Central Pacific, scheduled to commence three weeks later, had to proceed without benefit of the unusually complete intelligence which had been available just prior to this incident.

As a corollary to this basic principle of exploitation, cover measures should always be taken in the use of communication intelligence. When the decision is made to take action based on it, studied effort must be made to ensure that such action cannot be attributed to Communication Intelligence alone. When possible, such action must always be preceded by suitable reconnaissance or deceptive measures.

Briefing

Special care must also be used in briefing aviators or other personnel engaged in missions or duties which might readily subject them to capture by the enemy. Extreme pressure can be brought to bear upon such personnel if they fall into enemy hands and it is both dangerous and unfair to burden them with secrets which they do not absolutely require.

Perhaps one actual incident will show the hazards involved. Communication intelligence was supplied to a Task Force Commander, indicating the prospective movement of a certain Japanese force. The actual name of this force was included. Unfortunately, this latter information was passed on to pilots who were sent out on searches for this force. Some of these pilots fell into enemy hands and, under severe pressure, revealed the details of their briefing. The Japanese were certain that the special name for their force could only have been obtained from their communications so they took evasive measures and thus denied us the advantage that we had held.

In this case, it was desirable that the Task Force Commander

[redacted] all available information regarding the expected enemy force, but his more careful briefing of subordinates might have resulted in a far better conclusion to this episode. The essential needs of the pilots could have been adequately met by ordering them to search a specified area, with at most a very general indication of the objective.

A little ingenuity in handling such problems will go far toward saving the goose that lays the golden egg. Whenever it becomes essential for operational reasons to divulge an item of communication intelligence under circumstances involving any extra jeopardy to the source, the information must be so disguised that it cannot be traced to the communication intelligence source alone.

Coordination with Operations

There is another aspect of coordination between fleet operations and communication intelligence activities which should be mentioned here. For most effective results the communication intelligence effort must be carefully oriented to give optimum coverage of operations in progress. A vast volume of communications has to

be scanned each day. In order to give precedence to the material of current importance, it is essential that those controlling the production of intelligence are constantly and fully informed of the current situation. Moreover, this knowledge is essential to the proper interpretation of certain intercepted material. For example, when a sudden rise in enemy traffic is noted, it may be a reaction to some strike by our own forces or it may be the prelude to a strike by the enemy. Knowledge of our own movements permits correct interpretation accordingly.

At the beginning of the war, our communication intelligence centers had great difficulty in obtaining information concerning operations of our own forces. Operating commanders naturally had the same concern about disclosing their secret plans as we had about our secret successes. Some of their reluctance also arose from a misunderstanding of our problems.

One actual example will illustrate the point. During the Guadalcanal Campaign, Japanese observers were reporting, in a tactical code, movements of our ships in and out of local harbors. In solving the code, it was readily determined that certain code

groups represented ships of certain types, but we were not sure which they were. If we could only know the actual movements of our forces, this question could be quickly settled. When, however, a request was made for the information, it was denied on the grounds that it might influence our guessing. We received the information only after pointing out that positive identification of these code groups for ship types, in these relatively unimportant messages about our own movements, would enable us to be certain about them in far more important messages about Japanese forces which might be intercepted later.

Another situation arose during the war which pointed to the necessity for close integration of combat and intelligence operations. As we captured enemy-held positions and sank enemy ships, the number of communicating stations decreased correspondingly. Since our ability to obtain communication intelligence was directly dependent upon the volume of enemy transmissions that could be intercepted, we were confronted with the paradox of having our intelligence efforts threatened with defeat by our own combat successes.

In the face of this difficulty, the aviators began to develop a great enthusiasm for knocking out radio stations, thereby aggravating the situation. We were quick, therefore, in our appeals to restrain them and fortunately succeeded in having their attention directed to other targets before too much damage was done.

Under the circumstances, the proper objective should, of course, have been the destruction of enemy land-line and cable facilities. This would have had three beneficial effects. First, more enemy traffic would have been driven to the air where it could be intercepted; second, this traffic would then have to be encoded thus creating additional difficulties, and, third, the additional load on the radio channels would have taxed their capacity, thereby seriously delaying, if not actually preventing, the delivery of many messages.

ENEMY SUCCESSES

You will doubtless wonder what successes the enemy had against U.S. communications. This question has been thoroughly investigated since the War. The story is an interesting one but far too long to recount here. German results may be

summarized by saying that their major achievements were against low-grade ciphers, although for a time in the early part of the war they successfully exploited Allied convoy communications. Careful investigation after V-E Day failed to reveal any evidence that U.S. high-grade ciphers had ever been read by the Germans.

As for the Japanese, they operated an effective D/F net and attained considerable success in traffic analysis, particularly in regard to air operations and shipping. Their results from cryptanalysis, though, were negligible except in regard to weather which apparently they read regularly. Most of their success in traffic analysis could have been readily nullified by the exercise of ordinary security precautions, and our failure to do so on occasion cost us advantages that might otherwise have been exploited. One notable example of this occurred in January 1945.

Intelligence indicated that the Japanese were planning to move a force which included CARDIV 2 northward from Singapore. One of our Task Forces accordingly took position to intercept this movement. Unfortunately, however, use of radio (necessarily or not) by our forces enabled the Japs to locate them by D/F.

The result was that the Japanese plans were changed and a month later CARDIV 2 made a remarkable escape to Japan in a wild chase up the China coast.

Despite such occasional successes, the effectiveness of Japanese intelligence is perhaps best characterized by the remark of a certain Japanese Admiral who was interrogated on this point after the war.

"I have never pondered the question before" he replied, "but I feel sure that the intelligence organization of the Imperial Navy had no injurious effect on the fleet."

CONCLUSION

In the discussion which we have just had, I have tried to remove from communication intelligence the aura of mystery and romance which popular writers are in the habit of attaching to this subject. My aim has been to present it to you as a serious problem. It is such a complex and comprehensive one that, in the time allotted, I could give you only a glimpse of the over-all picture. But, I trust that you have seen how radio is truly a two-edged sword. Without it, command cannot function, but its

improper use may bring disaster, as it did to our enemies, or at least prevent the achievement of surprise, as it sometimes did for us. Perhaps this knowledge may be helpful to you at some later date.

Above all, however, I hope you have gained some appreciation of the importance of communication intelligence to the future defense of our nation. With the advent of long range air fleets and guided missiles which can strike overwhelmingly and without warning, it has become obvious that peacetime intelligence is no longer merely a strategic protection, but a tactical one as well in the most literal sense. The thunder-clap of the first atomic bomb crystallized this thought as nothing else could have done. It is now apparent, with a special clarity and urgency, that completely effective intelligence is imperative for the safety of our country, and effective intelligence, if the example of World War II can be accepted as a criterion, means in a large measure communication intelligence. We must accept as an axiom that the weaker our military and naval establishments, the stronger must be our intelligence safeguards.

We are not alone in appreciating the future significance of communication intelligence. Other nations are taking increased measures for security and, in consequence, our difficulties promise to increase tremendously. In closing, may I, therefore, emphasize again the importance of avoiding unnecessary discussion of what has been revealed to you today. The Navy Department has refused to confirm or deny any press disclosures, and it is most advisable that this policy be supported by all who know the truth.

[redacted] COPY

F-??	??? 63212	ADDRESSEES	PRECEDENCE
FROM COMBINED CHIEFS OF STAFF		MESSAGE ... ADDRESSEE	
RELEASED BY F-?	FOR ACTION	CINCPAC (FORWARD & REAR)	PRIORITY
DATE 23 AUGUST 1945		COMMANDER 7TH FLEET	ROUTINE
TOR ...		CINCLANT	DEFERRED
DECODED BY		COMNAVEU	BASEGRAM
PARAPHRASED BY	CHECKED BY	INFORMATION	PRIORITY
ROUTED BY	DITTOED BY		ROUTINE
			DEFERRED
			BASEGRAM

UNLESS OTHERWISE INDICATED THIS DISPATCH WILL BE TRANSMITTED WITH DEFERRED PRECEDENCE AND AS ADMINISTRATIVE.

IF OPERATIONAL CHECK BELOW ☐

Originator fill in DATE AND TIME GROUP 240017 (Use G. C. T.)

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TOP SECRET

THE FOLLOWING MESSAGE IS BEING SIMULTANEOUSLY TRANSMITTED BY THE BRITISH CMA US ARMY AND US NAVY TO THEIR C.I. RECIPIENTS AND IS TO BE SEEN AND INITIALED BY THEM AND ALL THOSE WHO PRODUCE CMA PROCESS AND HANDLE THIS MATERIAL COLON THE TERMINATION OF HOSTILITIES IN NO WAY AFFECTS THE NECESSITY FOR MAINTAINING THE SECURITY OF C.I. X ALL PERSONS CMA MILITARY CMA NAVAL OR CIVILIAN CMA WHO HAVE HAD ANY CONTACT WITH C.I. ARE BOUND TO CONTINUE TO MAINTAIN THE SECRECY OF C.I. IN PEACE AS CLOSELY AS IT HAS BEEN MAINTAINED IN WAR X TO DISCLOSE NOW OR HEREAFTER THE MEASURE OF OUR SUCCESS CMA INFORMATION ON TECHNIQUES AND PROCEDURES OR ANY OF THE SPECIFIC RESULTS WOULD BE MOST HAZARDOUS BECAUSE COLON (ABLE) C.I. WILL BE REQUIRED FOR KNOWLEDGE OF THE ACTIVITIES OF THE ENEMY AND FOR

No. 1 ... No. 2 FILE. No. 3F-1 OR CHARTROOM. No. 4 SPECIAL.

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PAGE ONE OF THREE PAGES

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... "Top Secret" instructions contained in Article 76, Navy Regulations.

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F-28

		ADDRESSEES	PRECEDENCE
FROM: COMBINED CHIEFS OF STAFF		ASTERISK (*) MAILGRAM ADDRESSEE	
FILE: F-1	FOR ACTION	CINCPAC (FORWARD & REAR) COMMANDER 7TH FLEET CINCLANT COMNAVEU	PRIORITY ROUTINE DEFERRED BASEGRAM
DATE: 23 AUGUST 1945			
TOP SECRET			
DECODED BY	INFORMATION		PRIORITY ROUTINE DEFERRED BASEGRAM
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TOP SECRET

PAGE TWO OF THREE PAGES

ONTROLLING UNDERGROUND MOVEMENTS AMONG THEM X IT IS ESSENTIAL THAT THEIR SUSPICIONS BE NOT AROUSED IF ACCESS TO SUCH KNOWLEDGE IS TO CONTINUE X BAKER OTHER THREATS TO WORLD SECURITY MAY ARISE IN THE FUTURE CMA AND KNOWLEDGE OF WHAT HAS BEEN ACHIEVED BY C.I. IN THIS WAR COULD ONLY SERVE TO PUT OUR FUTURE ENEMIES ON THEIR GUARD CMA THEREBY RENDERING SIMILAR SUCCESS FAR MORE DIFFICULT IF NOT IMPOSSIBLE X PARA IN THE YEARS TO COME CMA THERE MAY BE LEAKS AND PARTIAL DISCLOSURES BUT IT IS MOST IMPORTANT THAT THESE BE GIVEN NO OFFICIAL CONFIRMATION OR DENIALS AND THAT SUCH DISCLOSURES NOT BE FORTIFIED OR REINFORCED BY ADDITIONAL STATEMENTS OF THOSE WHO ALSO WERE IN THE KNOW X ALL TEMPTATION TO DIVULGE THE C.I. SECRET MUST BE RESISTED

No. 1 ADMIRAL. No. 2 FILE. No. 3F-1 OR CHARTRCOM. No. 4 SPECIAL.

[redacted]

Handle via "TOP SECRET" channels only. Instructions contained in Article 76, Navy Regulations. COPY NO.

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CHARTER F-2Ø EXT.

FROM COMBINED CHIEFS OF STAFF

RELEASED BY F-Ø

DATE 23 AUGUST 1945

TOP CODEROOM

DECODED BY

PARAPHRASED BY

CHECKED BY

ROUTED BY

DITTOED BY

ADDRESSEES

ASTERISK (*) MAILGRAM ADDRESSEE

FOR ACTION:
CINCPAC (FORWARD & REAR)
COMMANDER 7TH FLEET
CINCLANT
COMNAVEU

INFORMATION:

PRECEDENCE

	1
PRIORITY	2
ROUTINE	3
DEFERRED	4
BASEGRAM	5
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PRIORITY	9
ROUTINE	10
DEFERRED	11
BASEGRAM	12
	13
	14

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Originator fill in DATE AND TIME GROUP (Use G. C. T.) 18 19

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21 22

TOP SECRET

PAGE THREE OF THREE PAGES

SEMICOLON THE PRESENT AND FUTURE BEST INTERESTS OF OUR COUNTRIES

DEMAND THAT IT BE MAINTAINED

COPY FOR:
BRADLEY PERSONEL TO INITIAL
GENERAL CLARKE
ADMIRAL REDMAN
VCNO
F-2Ø

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COPY NO.

A SUMMARY OF THE JAPANESE NAVAL COMMUNICATIONS INTELLIGENCE ORGANIZATION

(12)

I. Organization. General responsibility for CI activity was assigned to Imperial Headquarters Navy Section Special Group (Tokumuhan). While a fairly self-sufficient and isolated organization, Tokumuhan was related to the Naval Communications Section through a common Chief directly responsible to Vice Chief Navy General Staff. Tokumuhan was designed for cognizance of all phases of enemy communications, including cryptanalysis although it did not control all CI work. Four internal divisions of Tokumuhan indicate the scope of Japanese CI endeavor: sections for 1) United States, 2) Great Britain, 3) China, and 4) Russia. Supplemental sections of Tokumuhan included a "W-group" located at Hakkow for Chinese communications and a group at Maizuru for Russian traffic. The chief effort of Tokumuhan and its supplemental activities had to do with cryptanalysis.

Interception of enemy traffic for cryptanalysis at Tokumuhan and traffic analysis at Owada was the responsibility of Owada Comm Unit, an agency under the central intelligence organization. In addition to intercept, Owada was the principle D/F station and control for the Central D/F Net (6 networks each for a different area of the outer seas). The Local D/F Net had 7 networks each controlling an area near Japan. Temporary Force D/F Nets were set up by Force Commands.

To direct CI work of general service Comm Units, an inter-

Mediate UNIT with jurisdiction over the Whole communications force -- the 1st Combined Comm Unit -- was established under Cinc Combined Fleet. This unit was designed for use in advanced OPERATIONAL AREAS. Production of tactical intelligence by definite assignment From 1st Combined Comm Unit for coverage of certain ASPECTS or areas of enemy communications, was the CI contribution of various general service Comm Units (especially No. 10 at Singapore). A section within the Naval Weather Bureau, with interest stations at Okurayama, Owada and Tokyo, was set up for decryption of enemy weather traffic.

Finally the Naval Attaches were responsible for information about CI through sources in Allied or neutral countries (in particular attempts were made to exchange CI information with Germany.)

II. Direction-Finding and Traffic Analysis. D/F was considered an important and necessary part of Traffic Analysis. The bulk of reliable CI data available to the Japanese was D/F reports. Tactical use of D/F information included warnings of location of single vessels and estimates on the number of ships in a given area. Owada made full use of D/F in T/A activities. D/F units were highly commended by the central authorities. But the margin of error in fixes (often 200 miles), difficulties of rapid dissemination of reports (often several hours between fix and report to operations), and inadequate coverage for specific needs in spite of great volume of work caused the Japanese to show dissatisfaction with D/F arrangements, even

as late as July 1945.

Tokumuhan made a daily report ("A Summary of Communications Conditions") based on T/A methods. The whole emphasis was on American CI and on predictions for strategic use. Analysis was largely in terms of channels used, calls, procedure indicators, types and volume of traffic by area. A daily average of 1,000 intercepted messages were available at Ofuda. In general Ofuda was seemingly unable to make specific identifications of units and commanders. There was little cooperation between Army T/A and Ofuda and seemingly no rapid relay of intercepts from supplemental stations to the central organization. T/A produced reports listing types and locations of surface units, estimates of shipping trends, and some guesses of identification of units. Although undoubtedly of some value to the high Command, Japanese T/A, largely because of the lack of call identifications, was not an adequate means of obtaining intelligence.

Evidence is not available about the possible Japanese use of RI terms afloat.

III. Cryptanalysis. American traffic was considered most valuable for cryptanalytic study. In addition British, Chinese and Russian systems were worked. Indications are that as few as 90 to 100 persons were engaged in work on American systems. In general very little was accomplished in decription of American messages. Diplomatic traffic was read before the war but not later than 1943. Aircraft codes were read from time to time. Trouble was experienced in the identification of

systems. The chief effort was devoted to strip ciphers. Hand methods of breaking were employed. Attempt was made to line up messages by indicators.

Probably in term of commitment, the decryption of American and especially of Chinese weather traffic by the Naval Weather Bureau was the best result achieved by Japanese cryptanalysis. Information available shows that no major enemy system was read by the Japanese during the war.

GERMAN COMMUNICATION INTELLIGENCE ORGANIZATION

25,000 personnel divided into six major organizations

- Foreign Office
- Nazi Party
- Joint Chiefs of Staff
- Army
- Navy
- Airforce

and an unknown number of minor organizations.

Hitler derived benefit from the organization

He succeeded in the Austrian anschluss due to CI information indicating that the French Army would not stop him.

He delayed a meeting with Chamberlain at Munich for several hours until CI success on British ciphers informed him of the extent of underlying British concessions.

However he reasoned that CI was "unreliable and often misleading. It was better to use one's common sense."

High Command believed strongly in CI

Goering

Doenitz and

Keitel

backed their organizations, resisting personnel cuts and provided them with highly qualified specialists and analytic machinery comparing favorably with American Army's.

[redacted]

Comintell not markedly successful

Due to lack of cooperation between different organizations, excessive specialization of high authorities, jealousy, duplication of effort, indecision, slowness to change Attitude, weakness of senior personnel, and fear of the Gestapo.

Greatest achievements in low grade material

After 1941 they never obtained any important strategic intelligence. Jodl stated, "None of the major operations of the English and American forces were known to them from this source."

German Navy Comintelleorg was working effectively in 1931

Reached a peak in early 1944,

Consisted of approximately 800-1000 at headquarters in Berlin, and 3000 in 47 out-stations, with smaller groups afloat

Headquarters did most analysis, receiving traffic by teletype and courier

Out-stations intercepted and D/F'd

Naval unit was reading considerable British traffic in 1940

Discovery of cover name 'Operation Stratford' permitted Hitler to forestall Chamberlain in Norway

Most important achievement was breaking US-British Naval Cipher #3, employed by convoys

When cipher was replaced sinking losses dropped from 360,000 tons monthly to 90,000

[redacted]

Out-station at Bruges materially assisted the escape of Scharnost and Gneisenau by keeping German High Command informed of British counter-measures.

They were unable to warn of the Dieppe raid, but knowledge of British forces and their difficulties permitted advice to High Command on best employment of German reserves.