United States Cryptologic History

Series IV
World War II
Volume 1

American Signal Intelligence in Northwest Africa and Western Europe

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UNITED STATES CRYPTOLOGIC HISTORY

Sources in Cryptologic History

Series IV
Volume 1

American Signal Intelligence in Northwest Africa and Western Europe

George F. Howe

National Security Agency
2010

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Historian's Introduction

The volume at hand, Dr. George F. Howe's *American Signals Intelligence in Northwest Africa and Western Europe* is important professional reading for those interested in cryptologic history or in World War II.

The first historian for the National Security Agency was Captain Thomas Dyer, USN, who had made significant contributions in cryptanalysis during the war. When Dyer retired in 1954, NSA decided to hire a professional historian as his replacement. That was Dr. George F. Howe.

Dr. Howe was born in Vermont in 1901, and received his Ph.D. from Harvard in 1926. He was a professor of history at the University of Cincinnati for the next two decades. In 1945 he joined the research and writing staff of the Army's Historical Division. While in that position, he wrote *Northwest Africa: Seizing the Initiative in the West*, published in 1957 as part of the official series on World War II, commonly known to historians as the "Army's green books."

At NSA Dr. Howe supervised a small staff in preparing a number of specialized histories as well as a general study of the Armed Forces Security Agency, NSA's predecessor. Dr. Howe retired in 1971, although he was called back to assist part-time with several history projects. He passed away in 1988.

It is fitting that, for his own major project at NSA, Dr. Howe chose to write about signals intelligence support in North Africa (and Western Europe), drawing on the expertise developed for the "green books" and adding to it a dimension he could not write about for unclassified publication in the 1950s.

Dr. Howe's book deals primarily with organizational matters for providing SIGINT support in combat. Thus, the reader will not find stories of high-level cryptanalysis underlying big decisions by famous leaders. In my estimation, by concentrating on the less flashy aspects of wartime support in favor of the background work, Dr. Howe has again added a dimension of great worth to our knowledge of SIGINT and of the war.

The study of World War II SIGINT has concentrated, by and large, on ULTRA, the exploitation of high-grade cryptographic systems used by Germany and Japan, and the use of ULTRA material by senior wartime decision makers. This effort unquestionably is important for understanding the decisions and events of that terrible era, but the overwhelming focus on this aspect has resulted in a slightly skewed understanding.

The production of ULTRA and its effective use depended on a strong and well-organized structure working in conjunction with now-legendary cryptanalysts. Since the distribution of ULTRA was

limited to a small number of officers and civilian leaders, the bulk of SIGINT support to the war-fighter came from tactical SIGINT units working at or near the front lines.

Dr. Howe has restored to us essential details about the organization, maintenance, deployment, and service of the military cryptologic units that undergirded the ULTRA effort and supported combat forces directly.

This is an important subject for understanding what happened in World War II and for studying the principles of SIGINT organization today.

Dr. Howe's book was released in part in the late 1980s as a "Special Research History," an early NSA method of declassifying documents and studies. That was a time when much of the SIGINT story, even from World War II, was still classified; thus, significant portions were blanked out. It is a pleasure now to be able to present an unexpurgated version of this fine history.

David A. Hatch

NSA Historian
2010

Dr. Howe receiving an award in 1982
from Ms. Ann Caracristi, then the deputy director of NSA

Foreword

It is most fitting that the first volume of the chronological history series to be published is one written by Dr. George F. Howe, who directed and shaped the cryptologic history program during its first fifteen years. In addition, as many readers know, before he came to NSA, Dr. Howe had written, among other histories, the volume on Northwest Africa in the official series, *The U.S. Army in World War II*.

Working part time in the years since his retirement, Dr. Howe has produced a comprehensive history of U.S. Army SIGINT operations in North Africa and Europe in World War II. A distinctive feature of this history is the manner in which SIGINT activities are presented in the context of military operations and military strategy. Dr. Howe performed most of the research for this work before NSA's archives were established, which means he had a monumental task simply locating some of the cryptologic records for this work.

The Agency has been fortunate to have such an experienced and distinguished scholar writing this important chapter in the history of American cryptologic operations.

Vincent J. Wilson, Jr.

Chief, Cryptologic History Publications and Staff

[1980]

Author's Note

The completion of this cryptologic history in its present form has been accomplished by the efforts of many persons. Of those with whom the author has worked directly and to whom much credit for substance and form is due, he gratefully acknowledges the contributions by members of the NSA History and Publications Staff — Vincent J. Wilson, Jr., Chief; Henry Schorreck, Historian; Priscilla Pitts, Editor; Jean Hall, Secretary; and Linda Dinan, an ex-member; as well as Charles White Eagle, cartographer; and Wallace Winkler, Ray Schmidt, and E. Dale Marston, in their role as historical researchers.

George F. Howe
3 June 1980

Introduction

Production of signal intelligence during World War II for use by American armed forces was a process more elaborate than the creation of a set of oriental rugs. Looking back today, patterns are recognizable but variations abound. The interdependence of different participants in production is as evident as that of the shepherds, spinners, loommakers, dyers, and weavers, whose common product, like SIGINT, might end up in an office with a parquet floor under a handsome chandelier or in the tent of a nomad, or in something in between those extremes. But in any setting, it would be highly prized.

During World War II, Americans preferred the term "communications intelligence" (COMINT) as a near equivalent to the British term "signal intelligence," but they accepted the abbreviation, SIGINT, and used it. After World War II, the United States armed forces distinguished electronic intelligence (ELINT) from COMINT, and for several years reserved control over ELINT matters from the province of the U.S. Communication Intelligence Board. When that segregation ended, the term SIGINT soon displaced COMINT in general practice. Without wishing to predate American use of the term "SIGINT" instead of COMINT, I have used it in this account of events in World War II.

American and British units, both together and separately, produced SIGINT used by the armed forces of both countries, either separately or in combined actions. Each country had a SIGINT organization with a center at its capital and tributary stations elsewhere in the country and overseas throughout the world. The British had a unified organization and three separate Service organizations. The Americans had no unified organization; each Service had its own and coordinated with each of the other's. In the overseas theaters they had centers in rear areas and mobile units in combat zones. The latter could be teams, parties, platoons, sections, detachments, companies, or groups – anywhere from 3 to more than 200 men. The ground and air components of the U.S. Army developed related but distinctive operations and units.

A theater's Signal Intelligence Service (SIS) provided tactical SIGINT to commanders. Dissemination was subject to security regulations appropriate for a product of high value and precarious availability. Enemy communications from which tactical SIGINT was derived were those passed between low and intermediate levels of command in low-grade or medium-grade cryptographic systems, or in plain language. When enemy communications at high military levels and in high-grade cryptographic systems could be read, the product – special intelligence – took form after elaborate processing at the British center in England; it was forwarded under stringent controls to eligible recipients, including commanders in the theaters of operations. Thus, there was a dual Allied SIGINT operation-production and dissemination of tactical intelligence ("Y") and special intelligence ("Ultra" or "U").

This narrative, while noting the existence and relevance of special intelligence, makes no attempt to explain the methods of its production, or to show with any precision how it applied to particular operations. Instead, the history centers on American production and use of tactical SIGINT ("Y"), as accomplished in the western Mediterranean and European Theaters of Operation, U.S. Army. It treats Ultra marginally, as it had tactical applications.

Radio communications among American combat units were monitored by the enemy for the same purposes that the Americans were served by radio surveillance of the Germans. American traffic was also monitored by Americans for two purposes: to detect and correct communications insecurities that the Germans could exploit, and to keep track of advance American elements in order to keep American commanders continuously and currently informed of their positions, situations, and intentions. This history does not deal with those operations beyond indicating their claims on radio intercept sources.

Some information about the German Army field SIGINT service is included here. The war was a competition not only between the operators of guns, tanks, aircraft, and other weapons, but between the operators of radio receivers, radio direction finders, and the facilities available to intelligence analysts. Since it is axiomatic that SIGINT emerges from defective COMSEC, instances of German SIGINT success are likely to be examples of American COMSEC failures. To that extent only, is American COMSEC a part of this account.

The Mediterranean theater was only one of many in a conflict often described as "global" in scope and "total" in depth. Military application of technology was accelerated during the conflict. It may be helpful to cite some of the relatively new and distinctive features of World War – features which have become less striking in the light of later and newer developments. Between World Wars I and II, aviation, called "air" or "air power," had become transformed. It relied, however, on single and multimotored propeller aircraft; jet-powered planes were being used, but not widely, as the hostilities ended. Missile systems had been sufficiently developed by the Germans to be used in warfare, but they had not perfected accurate delivery systems. Rockets were widely used by ground, sea, and air forces. The bombsight was sufficiently refined to achieve fair accuracy from great heights. The role of "air" made the acquisition and defense of airfields essential.

During World War II, automotive transportation largely supplanted that by animals; animals were still being used, but primarily as pack animals in mountainous terrain. The newer vehicles rolled on either tires or "tracks." They ranged from small cars and motorcycles to massive, heavily armored tanks equipped with thick armor, 150-mm long-barreled guns, as well as lighter weapons. Artillery was adapted to the new kinds of targets. Shells could be armor-piercing, incendiary, high explosive, white phosphorus, smoke, or high velocity. The "proximity fuse" caused detonation with maximum effect. Bombs, like artillery shells, varied in character as well as in size. Napalm and flamethrowers were used against sheltered positions. Radar and sonar were widely used. Beacon signals assisted ships and aircraft in navigation. Radio direction finding (DF) – goniometry – was a reversing of that procedure.

To offset the military control of ports by hostile forces, the Allies developed the means and the methods necessary to land men, weapons, supplies, trucks, and even armored vehicles through surf and across beaches.

Naval ships bore on their decks small aircraft for reconnaissance and for directing naval gunfire on shore targets. Carriers with flight and hangar decks were used as floating bases for fighter and bomber aircraft.

The control of numerous dispersed units – ground, air, surface, and submarine – required extensive facilities for radiotelegraph and radiotelephone communications.

In Northwest Africa, during 1942-1943, American "commanders began to realize as never before the potentialities of mobile radio, radiotelephone, carrier telephone, and teletype, to say nothing of the immense possibilities of radar, radio intelligence, radio countermeasures, propaganda, and so

on. Commanders began to take for granted facilities undreamed of in any previous conflict. They expected to be able to communicate at any time with subordinates, even in moving vehicles widely scattered over a mobile front. They expected to be able to talk with headquarters however distant. In fact, they began to demand facilities not yet developed."[1]

Technology to meet the COMSEC requirements produced, among other devices, high-speed, automatic Morse telegraphy and non-Morse radioprinters. For security, communicators employed cipher machines and telephone "scramblers." The communications traffic of both sides became voluminous; each sought successfully to derive SIGINT from the other's signals.

Note

1. George E. Thompson, Dixie R. Harris, Pauline M. Oakes, Delaney Terrett, *The Signal Corps: The Test*. (Office of the Chief, Military History, 1957), 381.

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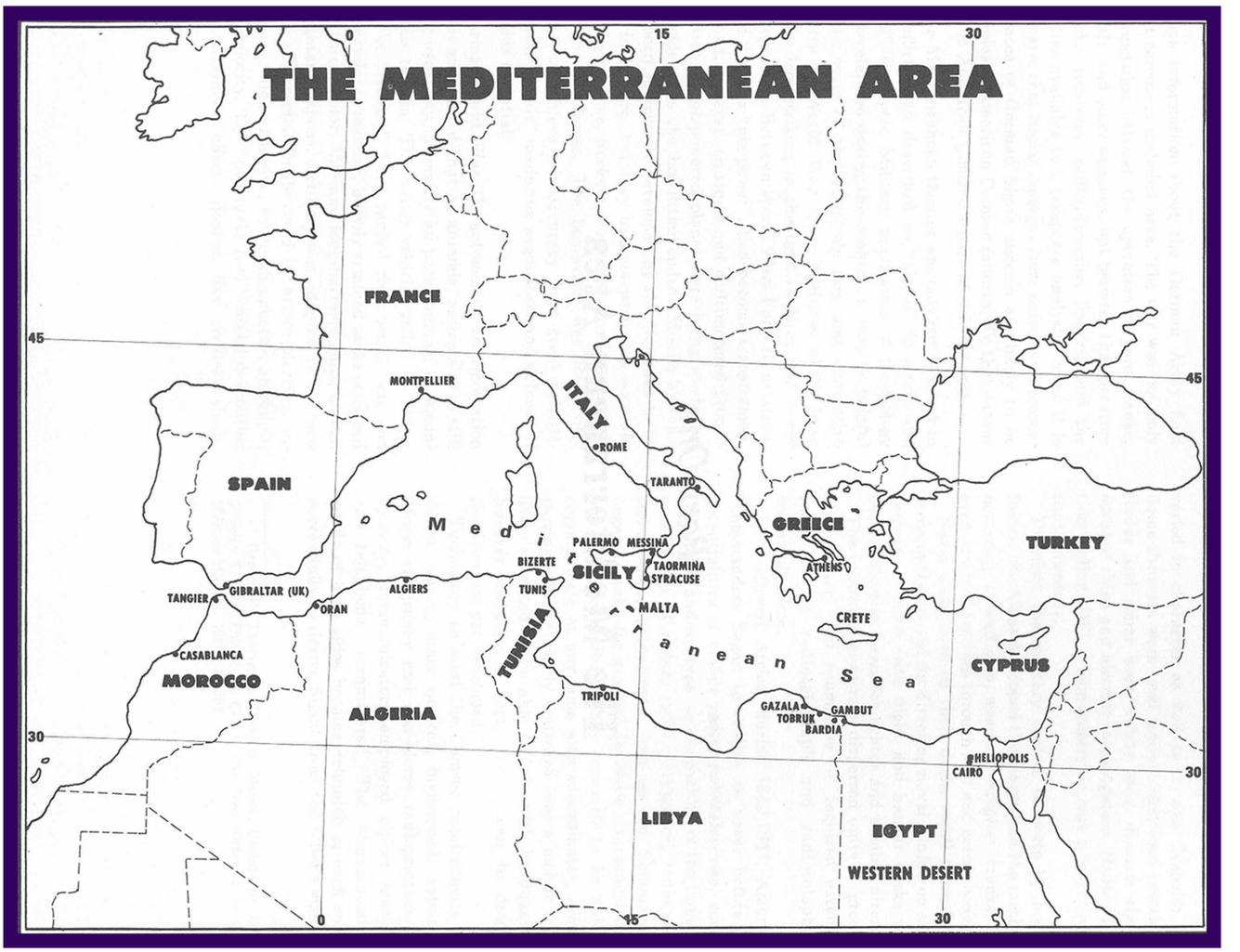
Part One
The Mediterranean Area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GAZALA
TOBRUK
BARDIA
GAMBUT
ALGERIA
HELIOPOLIS
CAIRO
LIBYA
EGYPT
WESTERN DESERT

Chapter 1

Situation Report

Early Conditions

American SIGINT operations during World War II were conducted by separate Service Cryptologic Agencies. Both in their Washington centers and in the field, the Army and Navy went largely separate ways. In the Army, moreover, cryptologic activities followed divergent lines for ground and air forces. Different and somewhat separate organizations were developed to serve the needs of ground and air commanders.

The U.S. Army had produced and applied SIGINT in France during World War I. Signal Corps units had then engaged in radio interceptions and goniometry, a term more frequently expressed later as direction finding (DF) or position finding. The intercepted material and "fixes" in 1917-1918 were delivered to G-2, American Expeditionary Force, for exploitation.

Between World Wars, the Army and Navy each supported a small and slowly growing group of radio intelligence units and analysts, in each case placing them within the communications segment of that service. The material intercepted and the intelligence derived were for the most part from diplomatic communications. Foreign armies and navies in the 1920s and 1930s were distant from the United States, and diplomatic communications were therefore much more readily intercepted. Diplomatic intelligence was welcome at high policy-making levels. The Army and the Department of State cooperated in producing such information in connection with the Conference on the Limitation of Naval Armaments in Washington in 1921, and persevered in such an effort until stopped by orders of the secretary of state in 1929. A new effort to prepare to utilize SIGINT in wartime took place most secretly in the next decade.[1]

In the U.S. Navy communications exchanged during grand maneuvers of the Japanese fleet were made the basis of traffic analysis that, as a test, demonstrated how much intelligence could be ascertained without reading the contents of messages. It was sufficiently successful to convince Navy leaders that their small communications intelligence effort should be expanded and supported.

In the twenties and thirties, the Army had worked on Japanese communications to develop technical competence and to help U.S. policy makers become sufficiently informed about Japanese political and military intentions. Japanese cryptography made use of machine encipherment of diplomatic messages. The cryptanalysts of the U.S. Army and Navy successfully devised counterparts to the main Japanese enciphering device and quickly read much Japanese traffic that the senders believed to be completely protected.

German naval operations in the Atlantic were closely directed from the homeland. Submarines reported daily, or more often, and received specific instructions by radio. Even before the U.S. became a belligerent, the nation provided war material essential to the British. After Hitler and Mussolini declared war against the United States, it became more than ever vital that German sea warfare be checkmated. Toward that goal, the United States Navy and the Royal Navy cooperated in exploiting German naval communications.

By presidential order in 1942, the two service SIGINT organizations, usually calling their products COMINT, collaborated with the Federal Bureau of Investigation (FBI) only and kept other U.S. agencies (such as the Federal Communications Commission) from engaging in production operations.

The British developed a unified SIGINT agency known as the Government Code and Cypher School (GCCS), which was ready when war came in 1939 to begin joint-service operations at a preselected site near London. Each of the British armed services had its own intelligence system to which SIGINT contributed Information.

During the war, the United States Army and Navy separately entered into several specific agreements with the London Signal Intelligence Board and its instrumentality, the GCCS. In all matters of SIGINT policy, GCCS could present a single British position, while SIGINT officials of the U.S. Army or Navy usually could not.

As the war continued, changes in methods of warfare and developments in enemy cryptography brought about endless modifications of the organization and operations of the SIGINT producers. Not only technical adjustments but also administrative arrangements were prompted by new experience. In the U.S. Army, the Signal Corps' Signal Intelligence Service (SIS) in mid-1943 became the Signal Security Agency; both were under the supervision of the Military Intelligence Division (G-2), War Department. On 15 May 1942, Colonel Carter W. Clarke of G-2 was designated as G-2's representative to supervise the SIGINT operations of the War Department and to manage the handling and dissemination of all the special material produced. He was at the same time made G-2 Liaison Officer with the Department of State, Department of the Navy, FBI, Federal Communications Commission, Office of the Coordinator of Information, and Office of Facts and Figures. When the Signal Intelligence Service became the Signal Security Agency, G-2 exercised direct operational control and disseminated SIGINT products through a Special Branch, G-2. Ultimately, in September 1945 as the Army Security Agency, the SIGINT organization, was transferred from the Signal Corps and incorporated into the Military Intelligence Service.

Before Pearl Harbor, to reduce overlapping effort by Army and Navy producers of diplomatic SIGINT, the two armed services alternated responsibility daily. On 25 January 1942 Colonel Frank W. Bullock, Chief, Signal Intelligence Service, and Commander John R. Redman, Commanding Officer, OP-20-G (the SIGINT element of the Office of Naval Communications), agreed orally that the Army would process all diplomatic traffic and would furnish to the Navy intelligence service translations of all messages of interest to the Navy. The Army expanded its SIGINT establishment to cope with the traffic of enemy ground and air forces as well as diplomatic material.

OP-20-G remained in the Office of Naval Communications throughout the war, expanding tremendously and disseminating its products through combat intelligence officers at various headquarters. Its contribution to Allied triumph in the Battle of the Atlantic against German submarines, and in the campaigns in Pacific Ocean areas, would be hard to exaggerate.

Brigadier General Carter W. Clarke (Photograph courtesy of the Department of Army)

The Army Signal Corps in 1938 had a single radio intelligence company and five small radio intercept detachments of signal companies in Texas, California, the Canal Zone, Hawaiian Islands, and

the Philippines. A Second Signal Service Company was activated early in 1938. Fort Monmouth, New Jersey, was the site of the original training center. Under a Headquarters, SIS, that acquired in 1942 the property of a girls' school at Arlington Hall, Virginia, the Second Signal Service Battalion (as it became in April 1942) and its detachments provided the organizational framework for cryptologic work. The cryptologic school, first at Fort Monmouth, and after October 1942 at Vint Hill Farms, near Warrenton, Virginia, tried to train communicators, intercept operators, and analysts in various types of cryptologic operations. The number of beginners who finished the forty-eight-week course was reduced by an endless drain of men either bound for Officers' Candidate School, sent to fill spaces in divisional units, or transferred for inability to keep up with the training.

Radio intelligence companies were organic to the staff of a general headquarters of a field army. Radio intelligence platoons were similarly part of the tables of organization of divisional signal companies until October 1943. Then these platoons were shifted from divisional signal companies to the signal battalions of the various corps. While these units conducted the monitoring of American communications in the interests of security, they were drawn more and more into surveillance of enemy communications for intelligence.

The high-grade cryptographic systems under exploitation by the Army's SIGINT organization when the U.S. entered the war were Japanese only. The expectation then was that intercept stations in forward areas would collect such material and send it to a Washington center or a theater center for analysis. Under Army organization, a theater of operations was expected to determine its requirements and control the means of satisfying them, after they had been obtained. In the Zone of the Interior, men were to be trained, organized, equipped, and "shipped out." In the theaters to which they went, it was believed that more training and seasoning would make them fully productive. There was no system in 1941 for the rapid, secure dissemination of SIGINT produced at any center to distant commanders in the field. For that and for many other aspects of producing and disseminating SIGINT, the U.S. Army (Signal Corps and Military Intelligence Service) sought illumination in the experience of its British ally.

In 1942 the Signal Intelligence Service sent some partly trained personnel to the United Kingdom for advanced training. At that juncture, the American SIS drew no distinction between the resources and protection required in producing what the British called "Special Intelligence" (SI) or Ultra and those needed for what they called "Y" (or "Yorker"). The British derived Ultra from cryptographic systems of high grade (when they could read such systems) and distributed it directly from London via radio links, exclusively for that purpose, connecting GCCS with Special Liaison Units (SLUs) at certain headquarters. The officer in charge of an SLU conveyed special intelligence face-to-face to a few eligible individuals and protected all materials in accordance with extremely exacting security rules. The contents and the application of SI to current operations were guarded so thoroughly because of the extraordinary value attributed to it and the readiness with which a disclosure could bring about crippling cryptographic changes by the enemy. It is probable that even SI was unknown to more than a few score officers in any theater.

The British had achieved, in special intelligence, a source into which they had had to pour prodigious intellectual effort and substantial monetary outlay. The American participation in either producing or receiving Ultra was, therefore, always on terms to which the British agreed, an agreement that might have been affected by pride of possession but certainly was controlled by concern for continuation in the future. It was only when Allied victory in Tunisia was at hand that the American participation in special intelligence became the subject of a formal, written agreement.[2]

"Y," on the other hand, was produced in the field as well as at GCCS from traffic in cryptographic systems of medium or low grade, or in plain language. It consisted largely of messages

between lower echelons of command and between ground stations and aircraft in flight. "Y" also utilized information from DF "cuts" and "fixes" and from the externals of messages. The British called that "Wireless Telegraph Intelligence" (WTI). The American term for it was traffic intelligence.

"Y" (or traffic intelligence) helped to identify the enemy links of greatest merit for surveillance and to furnish cryptanalysts with clues to subject matter by identifying the sender, receiver, and time of transmission. From "Y" alone the information about enemy movements and order of battle was often enough to guide command decisions. Knowing exactly where a specific enemy formation was stationed could sometimes be of more benefit to a commander than the substance of the very message that had revealed the location.

At the time Operation TORCH – the Allied invasion of French North Africa – was being planned, two other terms in use by British producers were "Y-Inference" and "Fusion." The former was a kind of traffic intelligence that amounted to interpretations of messages in the light of probabilities. The latter, as used at Bletchley Park (the main British SIGINT center), meant comparing "Y" with SI to insure that the interpretation of the former was consonant with the substance of the latter. But the word "Fusion" was also employed to mean collating several varieties of intelligence information, such as "Y," interrogations of prisoners of war, interpretation of photographic reconnaissance pictures, and reports from agents.

Early British Experience with Field SIGINT

From September 1939 to November 1942, the Mediterranean area was the scene of many actions of the first phase of World War II. The British and Italian navies contended for control of the Mediterranean-Suez route. British forces ousted the Italians from Ethiopia and defeated them in Libya. Then German forces augmented the Italians to recover Libya, gained control of the Balkan countries, and drove the British out of mainland Greece and Crete. The German Air Force disputed with the Royal Navy the use of the Mediterranean route to Egypt or to Malta. But Malta remained in British hands, while the British successfully defended Egypt in return for extensive use of that country as a British base.

By October 1942 a German-Italian Panzer Army, Afrika, was threatening Egypt from positions in Egypt's Western Desert while the British Eighth Army, partly armed with American tanks and supported by Royal Air Force (RAF) and Royal Navy units, was preparing to drive the Axis out of the country altogether.

At the western end of the Mediterranean, Gibraltar remained the British possession, as it had been for more than 200 years. From airfields in Sicily and southern Italy near Foggia, as well as mainland Greece and Crete, German Air Force units had made the surface of the entire Mediterranean extremely dangerous for British ships. German and Italian submarines heightened the risks and caused the total tonnage of sunken ships to mount alarmingly.

SIGINT confirmed in May 1942 that bombing of Malta by day had been rendered too costly to be continued and that the German Air Force would resort to night bombing only. Despite the failure to subdue and occupy Malta, the Axis high command allowed Field Marshal Rommel to drive into Egypt, threatening Cairo and the Nile Delta. During the campaign he lost his advanced SIGINT unit at a time when British SIGINT was strongly supporting the ground and air forces in his path. At General Headquarters, Middle East, in Cairo, the direct link between GCCS at Bletchley Park and the principal Army and RAF intelligence officers in the theater was active, beginning in March 1941. At Headquarters, Western Desert Air Force (WDAF) at Gambut, the commander and his principal intelligence officer were recipients of special intelligence which, whenever security would not thus be compromised, became the basis for tactical air action. After July 1942 a source of SI in the Western Desert itself was exploited at Heliopolis; there the RAF installed a miniature version of one of GCCS's divisions to process incoming material near a Special

Liaison Unit. A special communications link to Headquarters, Eighth Army, was then used often to supplement the SI from London on which Army and Air Staffs relied. General Claude Auchinleck was said to have attributed to this forward auxiliary SIGINT service his success in stopping Rommel from getting as far as Cairo.

From late February to late May 1942, preceding the Axis thrust into Egypt, British Eighth Army had its "Y" units at army and corps headquarters. (Division headquarters had been obliged to move too frequently for efficient SIGINT production there.) They divided intercept coverage. At Corps, the units exploited all immediately readable traffic. At Army, and at a military base near Heliopolis, cryptanalysts and traffic analysts derived more results from the material transmitted in cryptographic systems of greater difficulty. The base unit furnished not only such decrypts but technical data of help to analysts further forward. After the Germans began their attack into Egypt in 1942, they provided so much more traffic that British cryptanalytic successes were facilitated.

In May 1942 a dramatic demonstration of what "Y" could do for the Eighth Army occurred. When Rommel was preparing to attack from the Gazala area, SIGINT provided an interpretation of the enemy's dispositions and probable intentions. It was based on the correlation of readable messages in low and medium-grade systems with compromises of enemy code names, with DF fixes, reconstruction of enemy nets, and data gleaned from interrogating prisoners of war. The Eighth Army's operations officer, like most British commanders then, was inclined to discount Army SIGINT unless it took the form of a readable message text disclosing significant information. Compared with SIGINT from deductions, he preferred to trust inferences derived from other forms of intelligence. After the attack came, and the interpretations by the SIGINT staff had been wholly confirmed while that from other intelligence was shown to have been incorrect, the validity of SIGINT was more readily accepted than before. Information from other sources about pending British operations and about Axis situations thereafter became much more fully available to the SIGINT staff, thus further improving the quality of its output.

By October 1942 the British Eighth Army was receiving strong field SIGINT ("Y") support as well as SI. The fruits of experience were being harvested. Deficiencies in training, in equipment, in selecting sites, and in operating secure, SIGINT communications facilities had all been reduced. Intercept control by the SIGINT unit near Army headquarters was recognized to be the most satisfactory. That all intercept of low-powered German tactical traffic had to be accomplished at points within 100 miles of the transmitters was clearly realized. The value of secure circuits used exclusively for SIGINT communications between field units and a fixed station at base, and between field stations and commanders, had become apparent.

Doubtless it was Ultra more than "Y" which enabled General Montgomery, before his first big battle at Alam Halfa, to tell his officers what he expected Rommel to attempt; it was a prophecy of such accuracy as to gain even more credit for Eighth Army's intelligence service in the future.[3]

German Army and Air Force SIGINT Organizations

While the Allies prepared for SIGINT production in the field in French North Africa, the Germans who were to confront them there relied for similar services upon the abilities of a SIGINT organization that primarily had been directed against Soviet targets on the Eastern Front and only secondarily against the British forces in the eastern Mediterranean region.

The German Army had begun the formation of a SIGINT service during the 1920s by establishing then, and in the next decade, several fixed intercept stations at sites within Germany. Under control from a center in Berlin, they were able to monitor military traffic from the low countries, France, the British Isles, and the Soviet Union. The Russo-Finnish War offered ample opportunity to develop German ability to read Soviet cryptographic

systems. During the interval preceding the German invasion of western Europe in 1940, field SIGINT regiments (KONAs) had been formed for army group and army commands from personnel taken from the fixed stations, plus linguists and mathematicians who had been drafted as reinforcements. In the months between the collapse of France and the invasion of the Soviet Union in June 1941, the German SIGINT structure expanded rapidly.**4**

From 1941 to 1944, the German Army SIGINT Service operated centers in Berlin and Zossen. All were under policy control of the Field Army's Chief of Intelligence. KONA 4 and KONA 7 (an abbreviation of "Kommandateur Nachrichten Aufklaerung") were intercept and processing units attached to regional headquarters in Greece and Italy, respectively. A unit known as Fernaufklaerung Kompanie 621 (FAK 621) was a forward intercept and analytic unit operating under KONA 4 with the Deutsche Afrika Korps (DAK) in the Western Desert of Egypt. Not before Rommel's German-Italian Panzer Army, Afrika, began its retreat westward across Libya to Tunisia and only when the Fifth Panzer Army assumed command of the Axis forces in Tunisia was KONA 7 organized in 1943 and assigned to Oberbefehlshaber Sued (Kesselring). FAK 621 while in Tunisia came under control of KONA 7 and obtained technical support from KONA 7's "Evaluation Unit" at Rocca di Papa. The latter contained about 150 men in sections concerned with cryptography, cryptanalysis, and the elements of traffic analysis, direction finding, and intelligence. The German Air Force put a SIGINT unit in Sicily at Marsala or Taormina which cooperated with the Army SIGINT service.

FAK 621, when commanded in the Western Desert by Captain Alfred Seebohm, included specialists in the cryptosystems used by the British, men who had been used during the campaign of 1940 that ended with the French surrender. Their work in North Africa was aided by the capture, during the invasion of France, of at least one British War Office code, and also for a time much strengthened by the detailed communications to Washington from the U.S. Army Attaché in Cairo. These communications were transmitted in a U.S. system that the Germans could readily solve.

During the summer of 1942, at just about the time the Allies decided to invade French North Africa, FAK 621 was attacked and overrun by British Forces. Captain Alfred Seebohm, the commanding officer, was fatally wounded. About one-third of its authorized strength of seven officers and 300 enlisted men was lost. Their excellent receivers and direction finders had been used effectively to produce intelligence reports on British order of battle, plans, morale, and tactical dispositions — reports on which Rommel could and did rely. FAK621's captured files identified British systems which the Germans had analyzed and exploited, causing British communications changes that henceforth deprived the Panzer Army, Afrika, of most of the SIGINT on which it had been able to rely. The captured records also included German ciphers and radio schedules, which, of course, they had to change. There was no evidence that British special intelligence had yet been compromised; the British "Y" service also continued to provide information of important value to the Eighth Army as it prepared for the battles that ended the German-Italian threat to Egypt. Remnants of FAK 621 and reinforcements were placed under command of a Captain Habel and reequipped for service in Tunisia.**5**

German intercept units covered the British Eighth Army from Italy and the British First Army from Sicily, while the fixed German Army station at Montpellier continued to monitor French communications, including the XIX Corps d' Armee in Tunisia. Three direction-finder nets, controlled from Gabes, Taormina or Marsala, and Rocca di Papa and connected by combined wire and radio channels, functioned during the main battles in Tunisia. Intercept material could be sent to Oberbefehlshaber Sued (O.B. Sued) that way, or by courier planes that ran every other day from Bizerte and every day from Sicily. In the last days of the Tunisian campaign, after the Allies had gained air superiority, SIGINT became the main reliance of the Axis command.

When the German Air Force transferred Luftflotte 2 from the Eastern Front to the Mediterranean, with headquarters in Sicily, its two main divisions, Fliegerkorps II at Messina and Fliegerkorps X at Heraklion, were given SIGINT services. Until Operation TORCH, during a period of almost two years, they operated against the Royal Navy, the Royal Air Force, and the British Eighth Army. The German-Italian Panzer Army, Afrika, which pushed its way across the Western Desert into Egypt after the fall of Tobruk in June 1942, became highly dependent upon the support of the German Air Force. Rommel's defeat at El Alamein and long retreat to Tunisia gave his forces some respite from the RAF until the Allies gained air superiority there in April 1943.

The German Air Force SIGINT service came from units of varying size that were placed with operating units at Mediterranean bases. The Luftwaffe had created its SIGINT agency, Chi/Stelle, OB dL, in 1937 and worked on air traffic there thereafter. It had a fixed station within Germany at Oberhaching known as W-Leit 13 which monitored French and British traffic from Africa. Luftwaffe SIGINT South with units at Athens and a fixed station near Athens, was augmented when Field Marshal Kesselring took up his air and theater commands as O.B. Sued.

The German Air Force units each made their own evaluations of what they had intercepted and deciphered. Deciphered messages were sent immediately to higher SIGINT headquarters, to other SIGINT organizations, and to the flying units, where the air intelligence officer made an ultimate evaluation. Luftflotte 2 had in Taormina an Evaluation Company (W-Leit 2) attached. During 1943 several outstations to intercept HF communications were established under W-Leit 2. Like British Army traffic in northern Africa, RAF operational communications also ceased to be readable in 1943, obliging W-Leit 2 to rely on traffic analysis, tracking of flying routes, interception of radiotelephone traffic, and radar intelligence (RADINT).

At the end of the campaign in Tunisia, when the invasion of Sicily was in preparation, and when the surrender of Italy was the subject of highly secret, clandestine negotiations, W - Leit 2 departed Taormina a few days ahead of the Allied parachute and beach landings farther south. It set up at Frascati to remain there almost a year before being bombed out.

U.S. Preparations for SIGINT Service in the West

Special intelligence produced by the U.S. before the Japanese attack had gone under the designation of MAGIC. Precautions taken to shield it were somewhat akin in spirit to those that the British used for their special intelligence. Expanded use of SIGINT in the wartime production of U.S. military intelligence for field commanders required suitable innovations in handling SIGINT products. On 18 January 1942 Mr. Alfred McCormack was appointed special assistant to the secretary of war to devise methods that would serve all requirements. On the basis of his recommendations, the Military Intelligence Service (MIS) of the War Department acquired a Special Branch, headed by Colonel Carter W. Clarke, GSC. As a new lieutenant colonel, McCormack became its deputy chief. The Special Branch handled all SIGINT, and produced a daily "MAGIC Summary," which at first largely pertained to diplomatic communications.

The Signal Corps organization for producing SIGINT, known by several successive titles – including Signal Intelligence Service (SIS) and Signal Security Agency (SSA) – served the Special Branch, MIS, as a "customer." MIS was attached to, but not a part of, the War Department General Staff. It was controlled by the assistant chief of staff, G-2, and provided intelligence to the General Staff, the Army ground forces, Army air forces, Army service forces, overseas theaters of operations, and certain federal agencies. The chief signal officer came under the command of the commanding general, Army Service Forces. Thus the Signal Intelligence Service/Signal Security Agency and its theater counterparts were not directly under the assistant chief of staff, G-2 (intelligence) until very late in World War II.

In the last status, it was renamed the Army Security Agency, effective 15 September 1945.

The U.S. Army contingent in Europe began with a Special Observers Group first stationed in the United Kingdom in May 1941 (before Pearl Harbor). On 3 January 1942 that staff was superseded by a larger Headquarters, U.S. Army Forces in the British Isles (USAFBI). On 8 June 1942 that was replaced by Headquarters, European Theater of Operations, U.S. Army (ETOUSA). ETOUSA was to control preparations for ground and air operations of the Allied central strategic undertaking – invasion across the English Channel and penetration as far as the heart of Nazi Germany.

The U.S. Army intended to provide in the theater a signal intelligence service that would come abreast of British capabilities already derived from two years of actual war experience. It was in the best interests of both Allies that the Americans learn as soon as possible to produce and apply tactical SIGINT. Soon after Pearl Harbor, the Americans sought detailed knowledge of British organization and methods through observation of operations in the United Kingdom. The U.S. Army staff element through which those attempts were first funneled was the SIS officer (First Lieutenant R. J. Doney), Signal Section, HQ, USAFBI.

One platoon of an intercept unit, 122d Signal Radio Intelligence (SRI) Company moved from the United States to Northern Ireland and by 15 May 1942 was attempting to collect German traffic from that location. Several young officers visited British Army SIGINT stations. Captain Harold

Brigadier General Carter W. Clarke presenting the Distinguished Service Cross to Colonel Alfred McCormack in November 1946, for exceptional service to the War Department while serving in the Military Intelligence Service
(Photograph courtesy of the Department of Army)

McD. Brown investigated the British Army "Y" Service, wrote a lucid report, and submitted it on 10 July 1942.[6] Others studied the situation at fixed and mobile "Y" stations. At the British SIGINT center at Bletchley Park, about forty miles outside London, Captain Solomon Kullback and Captain Roy D. Johnson observed British procedures for decrypting systems used by several countries.

Certain discoveries by the observers were startling. They amounted to recognition of a whole repertoire of methods employed by the German communicators to camouflage radio links – both transmitter and receiver – as well as to encrypt the substance of messages. Successful intercept operations were dependent upon effective direction by specialists to radio targets identified through the application of what the British called "Wireless Telegraph Intelligence" (WTI). It determined the identity of stations in radio links and nets by analyzing the externals of messages, and it assisted cryptanalysts in other ways to ascertain the identities of senders and receivers. Already the British "Y" Service had developed TINA (to identify radio operators by their "fist," i.e., sending characteristics) and radio fingerprinting (to identify transmitters by distinguishable traits of their signals), as well as DF as adjuncts of analysis. It was obvious that the training of American radio intercept operators had to be brought up to date by enough exposure to live German traffic. Another discovery by early Amer- ican observers was that the RAF had to monitor and read much more than communications between aircraft in flight and terminals on the ground. It had to extend the scope of coverage to include ground links, navigation aids, air transportation, air rescue service, and others.

Captain Solomon Kullback
(Photograph from NSA History Collection)

In August 1942 Lieutenant Colonel George A. Bicher, SigC, became the first director, Signal Intelligence Division, (SID) Signal Section, Headquarters, ETOUSA. After establishment of the Headquarters, Services of Supply, ETOUSA, his division passed like the whole office of the chief signal officer to the jurisdiction of that headquarters. SIS, ETOUSA, was an operating organization under the theater SIGINT staff element (SID).

Colonel Bicher's mission became manifold. He supervised and conducted all SIGINT production activities within the theater, in close contact with G-2, ETOUSA, and acted as an advisor to that element on technical matters. He supervised a special War Department SIGINT production unit cooperating with GCCS in the latter part of the war, but did not supervise the representatives of Special Branch, MIS, War Department, who had been stationed in the U.K. He had normal liaison with U.S. Army "Y" Service in other theaters, cooperated with GCCS on technical matters of mutual interest, and supervised liaison activities of the representatives from the Signal Security Agency, GCCS, and the London SIGINT Board. He furnished that Agency with technical infor-mation concerning SIGINT operations in the European theater. For a while he represented the Army Signal Corps during early efforts of the U.S. Army Air Forces to build an Air Intelligence Service, but in 1944, the Signal Corps yielded to the determination of the U.S.A.A.F. to control separately the SIGINT operations on which it relied, and Colonel Bicher's responsibilities were correspondingly reduced.

In the summer of 1942, the SIGINT duties of SID, ETOUSA, were chiefly those of planning the expansion of SIS, ETOUSA, and of conducting liaison with War Office and Air Ministry concerning assignments and itineraries of American observers on temporary duty. SIS, ETOUSA, established

Colonel George A. Bicher (Photograph courtesy of the Department of Army)

security and intelligence branches, and grew from four officers and three enlisted men on 4 August 1942 to fourteen officers and fifteen enlisted men on 10 September. Four days later, two lieutenants were detailed to a two-week course at the RAF Station at Newbold Revel for "computors" (the British word for traffic analysts), thus beginning the training that led to establishment in January 1943 of the Air Intelligence Section, SIS, ETOUSA. Throughout the war signal security was also an area of responsibility for SIS, ETOUSA. It involved the development of signal operating instructions for the theater, distribution of and accounting for cryptographic machines and material, security monitoring of American communications, and related training.

The War Department eventually approved plans for theater training of 100 SIGINT officers and 400 enlisted men. Authorized personnel began arriving before a table of organization had been approved. But the planning and preparations in 1942 to meet the requirements of an American component of an Allied force invading Europe to establish a bridgehead across the channel were suddenly submerged by the demands of Operation TORCH in French North Africa. Mediterranean requirements took precedence for more than a year.

The Call of the Mediterranean

The Allies were committed to defeating the Axis not by attacks at the edges of the territories they controlled but by thrusting at the heart of the strongest, Nazi Germany, as soon as that became practicable. In 1942, however, they agreed that attacking Germany itself was not practicable, so they began "closing the ring" around the Third Reich. As a prelude to regaining control of the western Mediterranean, they concluded that they had enough forces to seize the area along Africa's northern coast, and that Allied seapower could maintain the long lines of communication from home bases to overseas combat areas there. The Axis lines, though shorter, would involve rail, sea, and air transport. The combat troops of each side would therefore meet at the periphery of possible effectiveness.

The Allied strategic decision to occupy French North Africa greatly altered the course of the war, but the extent to which it would affect the ultimate cross-Channel attack was reinforced by subsequent choices.. During the remainder of 1942 and the first part of 1943, the Mediterranean became the major theater of Allied initiative. That it was intended to be so only temporarily was reflected in the arrangement to include North Africa and the western half of the Mediterranean within the European Theater of Operations, U.S. Army (ETOUSA). The boundaries of the European theater were extended to include that area on 18 August 1942.7

Following the decision of the Allies at Casablanca in January 1943 that Sicily would be occupied next, after Tunisia had been won, a new North African Theater of Operations, U.S. Army (NATOUSA), was established on 4 February. General Eisenhower then relinquished his position as commanding general, ETOUSA, to Lieutenant General Jacob Devers and became commanding general, NATOUSA, as well as commander in chief, Allied Force. The new theater included the Iberian and Italian peninsulas and adjacent waters, but no part of European France.

For Operation TORCH, an "Allied Force Headquarters" under General Eisenhower originated in the United Kingdom in August 1942, used Gibraltar briefly for an advance command post, and moved on 25 November 1942 from London to Algiers. In 1944 Headquarters, AFHQ, moved to Caserta, Italy. Under successive commanders, Anglo-American forces and associated forces of other nations engaged in campaigns in French North Africa, Sicily, the Italian peninsula — from Calabria to the Po Valley and the Alps — and on major islands like Sardinia and Corsica. AFHQ mounted Operation DRAGOON, the invasion of southern France, in August 1944.

Before the hostilities in the Mediterranean area ended on 2 May 1945, U.S. Army and Army Air Forces had been participants in eight Mediterranean campaigns. The official designations of these campaigns are as follows:[8]

Algeria-French Morocco	Anzio
Tunisia	Rome-Arno
Sicily	North Apennines
Naples-Foggia	Po Valley

The Allied and American theater organization in the Mediterranean underwent major changes. In December 1943 AFHQ's responsibilities were extended to include operations in Greece, the Balkans, or Turkey, and in the same month General Eisenhower was designated to command the invasion across the English Channel. He relinquished both Allied and U.S. Army commands in the Mediterranean. On 8 January 1944 General Sir Henry Maitland Wilson succeeded him as Allied commander in chief, Mediterranean Theater. The eastern Mediterranean, where British forces had been engaged for so long, ceased to be separate. General Wilson's principal sea, ground, and air commanders were British officers. The British became executive agent for the Combined Chiefs of Staff in the whole theater, replacing the Americans in the western Mediterranean. Maitland Wilson's deputy as Allied commander became General Devers, who also succeeded General Eisenhower as commanding general, NATOUSA. Headquarters, NATOUSA, was expanded. At the time of the changes, General Sir Harold Alexander commanded Allied ground forces in Sicily and Italy; eventually he succeeded Wilson as Supreme Allied Commander, Mediterranean Theater (SACMED), a title established on 9 March 1944. In that capacity he received the German surrender in Italy in May 1945.

About one month after General Wilson took command, and in view of the possibility of an Allied invasion of southern France, NATOUSA's boundaries were enlarged to include the southern part of France. The invading forces would be organized and Operation DRAGOON would begin, as a responsibility of AFHQ. But when the invaders had penetrated far enough to require unified control, their activities would come under control of General Eisenhower's Supreme Head-quarters, Allied Expeditionary Forces (SHAEF); their administration and logistical support would pass to ETOUSA. In fact, SHAEF assumed operational control on 15 September 1944 of the forces that had participated in Operation DRAGOON. HQ, ETOUSA, took over the line of communications behind those forces on 20 November 1944. All NATOUSA/MTOUSA units in southern France were officially reassigned to ETOUSA. The Mediterranean Theater, having mounted the invasion, had its northern boundary once more changed and thereafter employed diminished resources in northern Italy and in wide-ranging air operations from bases in Italy.

These organizational aspects of the war in the Mediterranean area underlay the circumstances of the SIGINT effort. The conditions of combat affecting the performance of SIGINT units are treated as the narrative proceeds.

Notes

1. See the description by G. Raynor Thompson and Dixie R. Harris *The Signal Corps; The Outcome* (Washington, D.C., 1966), 328ff.

2. See Chapter XI.

3. "Ultra at Eighth Army and 21 Army Group," a report by Brigadier E. T. Williams, 5 Oct 1945.

4. General Albert Praun, *German Radio Intelligence, and European Axis Signal Intelligence in World War II as Revealed by "TICOM" Investigations and by*

Other Prisoner of War Interrogations and Captured Material, Principally German, 9 vols. Prepared under the Direction of the Chief, Army Security Agency, 1 May 1946. NSA Archives. A61-136 X56-48-3 S-3424-3430.

5. General Albert Praun, *German Radio Intelligence, 51-72, tells the story of FAK 621*, placing the capture at El Alamein instead, as stated in the GCCS History, Vol. XI, 237, of Bardia. David Irving, *The Trail of the Fox*, 234, emphasizes the extent of the deprivation which the capture caused Rommel to suffer. Anthony Cave Brown, *Bodyguard of Lies*, 102 ff. gives details of the capture, when Rommel's main forces were far away to the south.

6. *British 'Y' Service (Land and Air)*, Copy in AHS A52-20, Box 34/2, Folder M42/002.

7. See map, R. G. Ruppenthal, *Logistical Support of the Armies*, I, 112.

8. AR675-5-1; Army Pamphlet 672-1, 6 Jul 1961.

Chapter 2
Beginnings in Northwest Africa

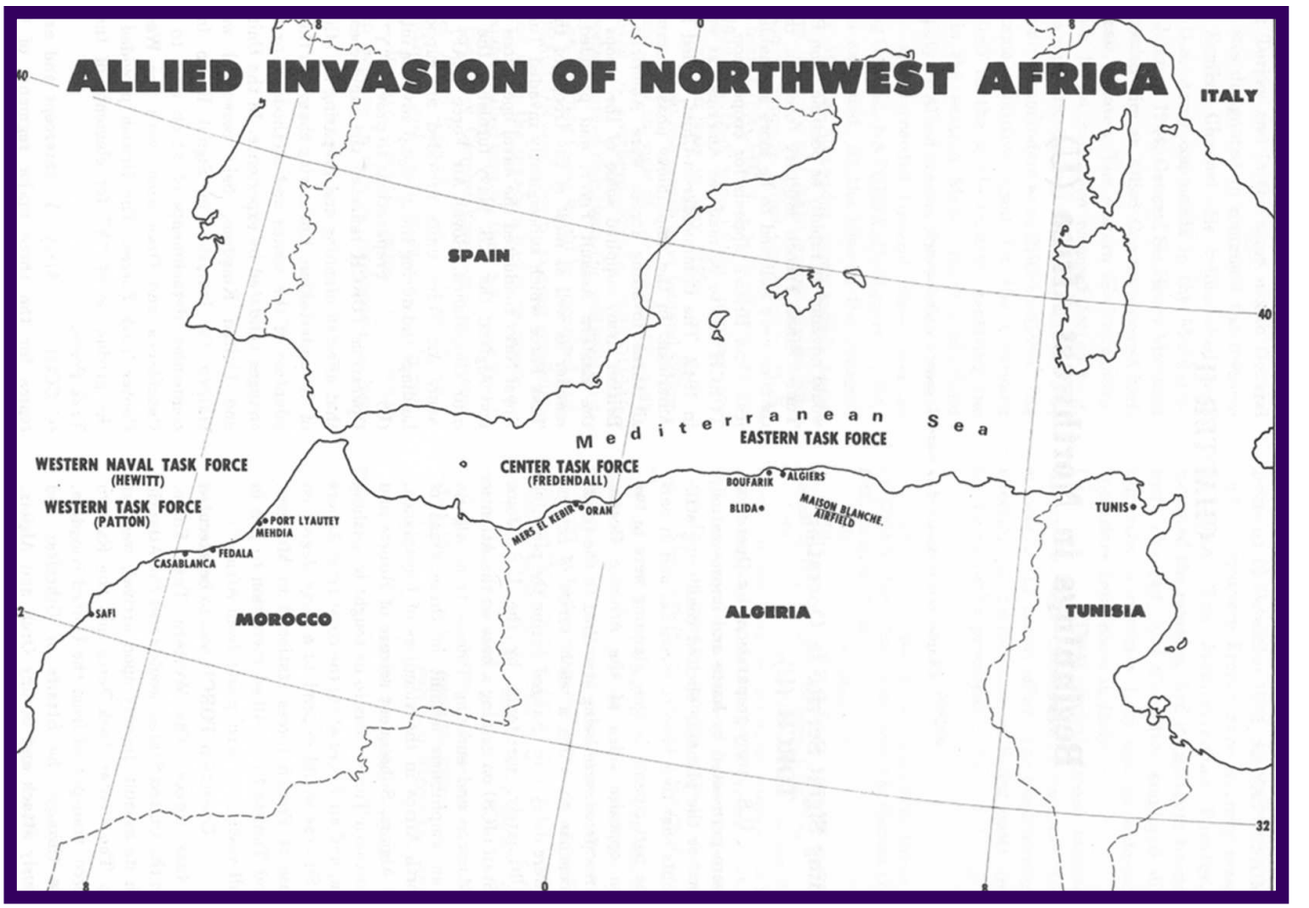
Planning SIGINT Service in Operation TORCH

U.S. Army preparations for Operation TORCH were permeated by haste and improvisation, in part because the planning elicited conflicting strategic concepts that took time to reconcile, and in part because the participants in that planning were in two clusters on opposite sides of the Atlantic Ocean. American resources were being stretched to the limit. Critical decisions on which a whole series of actions depended were delayed or changed during the planning process. Ultimately, insistence by the U.S. Joint Chiefs of Staff (JCS) on gaining a base on the Atlantic coast of Morocco and entering Tunisia from Algeria produced an amphibious assault in three areas of French North Africa in the vicinities of Casablanca, Oran, and Algiers. Subsequent seizure of Bizerte and Tunis in northern Tunisia was to be sought by pushing ground, sea, and air forces along the coast from Algiers eastward. Success would depend to a large degree on the response of French forces stationed in Morocco, Algeria, and Tunisia to an Allied invitation to join in expelling all vestiges of Axis power from Africa.[1]

Operation TORCH was to be executed by three task forces. The Western Task Force, mounted in the United States, would cross the Atlantic and launch its assault directly upon arrival, weather permitting. The Center Task Force and the Eastern Assault Force, transported from the United Kingdom, would pass through the Straits of Gibraltar and simultaneously attack and occupy Oran and Algiers. From the latter the Eastern Task Force, reinforced by British troops and commanded by a British general, would advance as rapidly as possible upon Bizerte and Tunis. Since French military forces in the African colonies were believed to be more amenable to American than British appeals for cooperation, Operation TORCH was to be made as American as was feasible in 1942. The commander in chief, Allied Force, was American. In the amphibious phase, commanders of all three invading forces were American. But the British Army supplied some of the troops needed in the Eastern Assault Force, and provided the commander as well as most of the troops of the Eastern Task Force which subsequently invaded Tunisia. The Royal Navy conducted the naval operations near Oran and Algiers; the U.S. Navy furnished the sea forces near Casablanca. Royal Air Force (RAF) and U.S. Army Air Force units provided air support during landings and during the overland advance into Tunisia.

Preparations to provide "Y" service in Operation TORCH reflected the same considerations that affected planning and preparing for other aspects of the undertaking. Underlying them was the continual adaptation of the means and methods of production to changes validated by experience. In the United States and United Kingdom, field personnel were being trained for inclusion in Signal Radio Intelligence companies, detachments of which were to go to the Casablanca and Oran areas with the Western and Center Task Forces. The British provided units for the production of "Y" for elements of the Eastern Task Force.

Army "Y" intercept and exploitation teams for the three major segments of Operation TORCH were divided into echelons that would move to objectives in two successive convoys. Their equipment was loaded in follow-up transports that were crowded to the limit. At Arzew, near Oran, the American Radio Intelligence (RI) detachment landed, completely separated from its equipment and from G-2, on 10 November 1942. The main body arrived on 21 November, having lost


ALLIED INVASION OF NORTHWEST AFRICA
ITALY
SPAIN
Mediterranean Sea
EASTERN TASK FORCE
WESTERN NAVAL TASK FORCE
(HEWITT)
CENTER TASK FORCE
(FREDENDALL)
WESTERN TASK FORCE
(PATTON)
BOUFARIK
ALGIERS
BLIDA
MAISON BLANCHE AIRFIELD
TUNIS
PORT LYAUTEY
MEHDIA
MERS EL KEBIR
ORAN
FEDALA
CASABLANCA
SAFI
MOROCCO
ALGERIA
TUNISIA
40
32

all equipment on a freighter torpedoed en route. At Algiers, the two parts of 100 Special Wireless Section (Type B) landed on 12 and 15 November. With 46 Wireless Intelligence Section, they moved toward Tunisia, attached to the principal ground force organization – Headquarters, British 78 Division, at first, and after 8 December 1942, Headquarters, V Corps. At Casablanca, as at Oran, French resistance ceased before the somewhat prepared radio intercept and exploitation detachment could make any significant contribution. The intercept operators were inadequately directed and insufficiently trained. They lacked DF equipment and lacked guidance concerning French or Armistice-Commission communications links that would be most profitable to cover. While they were getting established, they could do little that yielded real results.

The "Y" units of the RAF participating in Operation TORCH were to be, first of all, a small team of radio and radio telephone monitors stationed on Gibraltar known as 351 Wireless Unit (WU). A second group, 380 WU, would land at Algiers and remain nearby. The third, 381 WU, would land at Algiers but would move into Tunisia with the Eastern Task Force, monitoring voice traffic.

When France had surrendered to the Nazis in June 1940, many small French naval units came over to the United Kingdom and brought with them their code and cipher documents. The British GCCS arranged to sort the documents out and to match them with appropriate links, and thereafter maintained a small exploitation unit. Vichy authorities continued to use the same codes while depending for security upon novel encipherments.

In the United States, late in 1938 the Signal Intelligence Service had begun work on the diplomatic systems of the Germans and of various Romance language countries. In July 1942 an attack on French meteorological traffic, as broadcast from North Africa and metropolitan France, began in preparation for Operation TORCH. Within a month solutions became available by teletype or courier to the director, Weather Central Division, USAAF, and they continued until American troops had captured the stations broadcasting from French North Africa.[2]

In planning for "Y" service to support ground force commanders advancing into Tunisia, Allied commanders took as a model arrangements developed by the British Army in the Western Desert. At Allied Force Headquarters, the staff structure would parallel that of General Headquarters (GHQ), Middle East, in Cairo. Each would have a General Staff Intelligence (Signals) Section and a General Staff Signals (Intelligence) Section within its respective major staff divisions. The latter would supervise the operations of field radio intercept units; their material would be analyzed by associated intelligence personnel for the extraction of "spot" items of tactical intelligence, and to obtain wireless telegraph intelligence (WTI). Mobile SIGINT units similar to those then at work in the Eighth Army would be allocated to Headquarters, British First Army (Eastern Task Force), and to the Corps headquarters under that Army's command. The British SIGINT units would produce cryptanalytic results.

In Morocco, American Signal Radio Intelligence (RI) units near Casablanca and Oran might be used to keep Spanish armed forces under radio surveillance. It was reasoned that if the seizure of French North Africa from Axis control were successful, and if subsequently Libya fell to Anglo-American forces, no other campaigns in the Mediterranean might occur before the assault across the English Channel. At the time Operation TORCH was planned, some such operation in Western Europe was thought likely in 1943. Commitment of SIGINT resources to the Mediterranean area seemed only temporary and subject to the need to prepare them for later service elsewhere.

Once the decision to execute Operation TORCH had been made, the British set about arranging for the provision of special intelligence (SI) to the planners and commanders. Wing Commander F.

W. Winterbotham, who held the main responsibility for the methods of dissemination, has described from memory the indoctrination in London of the principal American officers: Lieutenant General Dwight Eisenhower, commander in Chief, Allied Force; Major General W. Bedell Smith, his chief of staff; Major General Mark W. Clark, his deputy; Major General Carl Spaatz, USAAF, his principal American air officer; and Colonel Palmer Dixon, A-2, USAAF, who had been attached to the British Air Ministry.[3] Measures taken during the planning phase included organizing a Special Liaison Unit (SLU) to accompany Eisenhower to Gibraltar on the eve of the landings in French North Africa, and another to be with Major General Kenneth Anderson, General Officer Commanding (GOC), British First Army/Eastern Task Force, during the advance of his headquarters through Algiers to Tunisia. When AFHQ moved to Algiers, SI would be available to the commander in chief and to his principal naval (Admiral Sir Andrew B. Cunningham) and air (General Spaatz and Air Vice Marshal William Welch) commanders. Given a continuation of productive capabilities at GCCS during to operations in Morocco and Algeria, the commanders would be able to know what opposition to expect. In the race eastward to secure Tunisia, they might see benefit from foreknow-ledge of German countermeasures.

The Army intelligence officers at GCCS were more concerned with utilizing SI than with providing "Y." In the field since 1940, production and application of "Y" by British SIGINT units had progressed rather independently beyond what was fully appreciated at Bletchley Park during the summer of 1942. The plans to provide SI to commanders in Northwest Africa were adequate, even if arrangements to collect and transmit German raw traffic in high-C grade cryptographic systems to GCCS were not. Planning for producing and handling tactical SIGINT in Tunisia simply paralleled the structure of GHQ, Middle East, and British Eighth Army, but allowed a key SIGINT slot at First Army Headquarters to remain unfilled until after the race for Tunis in December had been lost to the enemy.

Training which might have made American "Y" units in Northwest Africa better prepared to operate effectively after the unavoidable period of initiation, suffered from one serious deprivation: only for a very short period before American units embarked from the U.K. was a British "Y" officer with field experience brought into the training program in London. Technical documents and data necessary to guide intercept and to expedite solution and exploitation during the first stage of the invasion were lacking. The units themselves were newly organized. No unit with British First Army was ready to cope with Italian Army communications. In short, "Y" service in the invasion of northern Africa was organized for a quick victory or a prolonged campaign.

The principal intelligence officer of General Eisenhower's Allied Force Headquarters was Brigadier E.E. Mockler-Ferryman, British Army. The chief air intelligence officer was Group Captain R. H. Humphreys, RAF, who began work on that assignment in September 1942 at Norfolk House. While keeping track of German Air Force intentions and of indications of awareness of Allied intentions, in the Mediterranean, he also had to prepare for efficiently and safely exploiting special intelligence pertaining to air matters there.

The Navy, Army, and Air branches of the Intelligence Division, AFHQ, had to cooperate closely to be effective. Headquarters, XII U.S. Air Force, under Major General James H. Doolittle, was to be provided with special intelligence at Oran. Headquarters, Eastern Air Command at Algiers, under Air Marshal William Welch, was to receive parallel service and was to insure that the RAF 242 Group, providing close support to the Eastern Task Force, was sufficiently in the picture. Production and dissemination of "Y" by the Air Ministry and units in the theater would be controlled separately. A Special Liaison Unit at Headquarters, AFHQ, would handle SI.

The special intelligence segment of G-2, AFHQ, while engaged in the necessary preparations,

included, besides the chief air intelligence officer, one man each from the Air Ministry, the Fighter Command, the Fusion Party at GCCS, the Headquarters, Eastern Air Command, and Headquarters, RAF 242 Group, and two from Headquarters, XII Air Force. Four British Army and two Royal Navy intelligence officers were also indoctrinated for Special Intelligence.

On the enemy side, German Army strategic intelligence continued to falter and to cause reliance to a greater degree, perhaps, on German agents. Within the United Kingdom, British control of those agents was surprisingly thorough, and perhaps as complete as claimed in a postwar report.[4] Whatever the reasons, the preparations for Operation TORCH were completed and the landings began without interference.

Early in the war the basic book of a German Air Force code in use by reconnaissance and combat aircraft was captured by the British.[5] That document went through three editions, each consisting of 1,000 three-digit groups arranged, like the German Army's counterpart, by subject matter and equated with words, phrases, numbers, and an alphabet with variants. In messages, the code was enciphered by daily sheets of 500 digital groups. In the Mediterranean area the German Air Force used other codes for special purposes and for relatively brief periods. Probably because of suspicion that the system had become readable by the Allies, the volume of traffic transmitted in it during operational flights dwindled.

Operation TORCH

The enemy realized that the Allies were preparing an operation for which Gibraltar appeared to be a staging point. Allied special intelligence indicated that the enemy was alerted at least to that extent. The TORCH convoys were not only observed[6] passing the Strait of Gibraltar but some deck cargoes indicated that they were bound for beach landings rather than simply the resupply of Malta. Once they had entered the Mediterranean, it became obvious that they were not heading for a second attempt to take Dakar. German fighters and short-range bombers (JU-87s) were concentrated at fields in Sicily and Sardinia for attacks on the Allied ships when they came within suitable range.

The Allied convoys made their southward turns toward Oran and Algiers unobserved after dark. The Western Naval Task Force arrived off the Atlantic coast of Morocco before the lights ashore were extinguished, indicating the degree of surprise. All three task forces thus began their landings without German or Italian resistance.

German intercepts furnished the Axis with information on the Allied landings and their progress. The Allied landing parties used radios of various types. One was the American SCR-299, a truck-and-trailer-borne equipment which turned out to have a transmitting range, with a whip antenna only, of more than 2,000 miles. Whether from SCR-299s or other radios, Allied signals from the Mediterranean were clearly heard in the vicinity of Bergen, Norway, and in the Netherlands, at German intercept stations. Soon the messages were recognized to contain terms like those in traffic that had been collected during the Dieppe raid, and as time passed, Americans could be heard reporting the absence of determined opposition by the French.

The French Navy headquarters at Toulon received reports from Dakar, presumably tele- phoned to Dakar from Rabat or Casablanca, on the course of the invasion ashore in Morocco. French messages from Dakar to Toulon describing the course of the invasion were intercepted by U.S. Navy RI units. These reports gave a running account of the action. A report made about 2200 hours on 8 November 1942 gave the situation from 0800 to 2000 hours:

> ***First, the dissidence in Morocco had been suppressed. Heavy bombardment of Casablanca harbor had produced serious losses. Strong***

forces landing at Safi and Fedala had been strongly resisted, and at all points Morocco was being resolutely defended.

Second, off Arzew and west of Oran, numerous enemy had landed. Two enemy craft had been sunk, and one French destroyer and one French torpedo boat had been lost.

Third, at Algiers, troops landed during severe sea and air attacks had been able to encircle the city because of disaffection among troops at Blida airfield. Most of Algiers is occupied by British and Americans.

Fourth, no attacks had been made in Tunisia.

Fifth, except for the case at Blida airfield, troops and populace have shown perfect loyalty and it is understood that order continues in France.

During the next evening, the situation at 1300 hours was again reported from Dakar to Toulon:

First, Port Lyautey had been occupied by invaders with tanks. Three columns were attacking Casablanca from Fedala, combining tanks with other forces. American PT boats had been sunk by AA guns and dispatch boats, and 76 prisoners had been taken. The French battleship Jean Bart had been struck on 8 November by six naval shells and one air bomb, but was still firing. The French Navy had suffered serious losses in aircraft and ships. French personnel who had been repatriated to Casablanca by steamer from Dakar just before the invasion had arrived in time.

Second, at Oran the general attack in great strength was still being resisted. AA batteries were still operating. A destroyer and a torpedo boat had tried to return to Toulon unsuccessfully.

Third, everywhere else the situation remained the same, with no clash in Tunisia. [7]

General Nogues reported to Vichy from Fez on 9 November 1942 what the situation was as of 1830 hours:

1. In Morocco. Our mobile forces are in close contact with troops that have landed at three points. Landings there are continuing. The maneuver against Casablanca pointed out in my preceding telegram is continuing. Our forces which are strongly pressed are making a stand east of the city. The situation remains very serious.

2. I have not yet been able to meet General Boisseau, who is now encircled by the enemy, whose troops are at the gates of the city, but I am still in close telephonic communication with him. Tomorrow four columns will converge on Oran from the directions of Ain Temouchent and other interior points.

3. Near Algiers fighting continues.

4. Nothing has occurred in the southern region.

5. General Juin is at Algiers. In Morocco, enemy forces are growing hourly. They have overwhelming superiority, especially in armament I call attention to the magnificent attitude of the troops, honorable and

loyal to the orders of the Marshal. For instance, one town was occupied by the enemy, was retaken yesterday by the 1st RTM, then lost that evening and retaken during the night, lost again this morning and recaptured this afternoon, thereby obliging the enemy to halt debarkation farther south. The native population is deeply impressed by the news from Algeria, which is beginning to be circulated in spite of our precautions…

On 11 November 1942, from Rabat to Vichy (No. 1370-1372), Nogues sent a report "For Marshal Petain, Chief of State" as follows:

Yesterday, November 10, about 1400 by way of____, then again about 1630 via Oran, a telephone message came to me from Admiral Darlan, who in your name ordered suspension of hostilities for the whole of North Africa. In spite of the apparent authenticity of this last message, transmitted by General Boisseau himself, I waited for the written confirmation which had, at the same time, been promised me. It came to me about 9 o'clock by Commander Dorange … and later by coded telegram.

Since no communication from the Government had reached me, and the substance of the radiogram had been communicated to me only at about three o'clock, I never doubted that this order conformed to your directive.

The situation having deteriorated gravely during the day, with Port Lyautey captured, the road to Marrakech opened, and Casablanca threatened by a general offensive, my decision was adapted to the necessity of the moment. I executed the order received and commanded that firing cease in the course of the evening, and that the Americans be notified.

Admiral Michelier agreed with me that it was no longer possible to make any effective resistance.

At 1500 I went to meet the Commander-in-Chief of the forces landed at Fedala to discuss with him the conditions under which hostilities would cease. I have just received a liaison agent from Admiral Darlan, who informed me of the terms accepted by the Americans at Algiers: strict neutrality in the politics and administration of the three countries, maintained by military armament.

I shall report to you the result of the parleys at Fedala.

That report was made on 12 November 1942 in Rabat-to-Vichy, No. 1374:

The conference proceeded in a very much eased atmosphere. After the American general had paid a tribute to our bravery, he presented a plan of agreement that had been drafted in Washington and whose terms were more… than the Franco-German armistice agreement. I observed that this text did not correspond at all to the circumstances which were anticipated in the agreements…at Algiers, and that before recognizing these terms, it was necessary to reach an understanding on points of most importance to a settlement, with regard to French sovereignty and to retention by French authorities of enough

military forces to fulfill the French mission.

It was agreed that the country's military and political administration would remain strictly un-changed and that French forces would immediately resume their stations; that the Americans could use our ports, our airdromes, and our means of communication; that since the Americans are using Morocco as a base for a drive to the eastward, these various facilities would continue to be operated and protected by the usual French personnel; that the use of these facilities would be regulated by direct contacts between the manager of French military transportation and his American counterpart.

It was further decided that the conferees having agreed that relations would be resumed on a basis of mutual confidence, these terms would be subject to conformity with conclusion of the Algiers agreement.

[My translation differs slightly from that of French Diplomatic No. 55235, 12 November. Note: Patton and Colonel Hobart Gay, his CIS, remembered the conference as one in which Patton took the initiative in declaring the alternate terms drafted in Washington as inappropriate. One set assumed French acceptance without resistance and with immediate participation in the war against the Axis as a belligerent. The other set assumed resistance to the point of a surrender abject because of being destroyed and overwhelmed by force. The actual circumstances fell in between. The French quit before they were beaten but took a neutral position rather than adopting the course of a belligerent. The "much eased atmosphere" may well have summarized the Patton toast in champagne and the luncheon that brought Hewitt and Michelier as well as Nogues and Patton to the same table.]

If Allied plans had led to enhanced radio intercept coverage from Gibraltar, Malta, and Egypt during the TORCH landings, the Axis traffic then collected might temporarily have been more open to analysis, and SIGINT on Axis countermeasures might have been ampler. One can only surmise. But even so, the G-2 Section, AFHQ, advance command post at Gibraltar was able to combine information that came via London or directly from the three task forces and from agents at key points, so that it yielded a fairly clear understanding of the military and political situation in French North Africa during the first phase of Operation TORCH.

By diverting to Tunisia reinforcements that had been assembled in southern Italy for transit to Field Marshal Rommel's command in Libya, the Axis quickly built up a German Corps in Tunisia, and then a Fifth Panzer Army Headquarters that controlled both German and Italian Corps. In Tunisia enemy battle groups (Kampfgruppen) and task forces, rather than divisions, would do the ground fighting. Only the 10th Panzer Division staff functioned as a normal divisional headquarters. German divisions were likely to vary widely in numbers of personnel and to be commanded by colonels rather than by general officers. Allied regiments and combat commands were likewise temporarily split and deployed in task forces specifically directed by army and corps commanders.

Axis field SIGINT was able to exploit the insecure communications of British and American battalions and regiments (or armored combat commands) during the critical days in December near Tunis. That information, for example, contributed to the failure of the Allies at first to get past Tebourba and Djedeida into Tunis and later to gain control of a key topographic feature known as "Longstop Hill."

Before the landings, German communications showed no evidence that the Allied intentions were recognized. Italian and Vichy French SIGINT likewise revealed no threat to the landing forces. Special intelligence provided

the reassurances assignable to silence. After the landings, special intelligence quickly disclosed to AFHQ that the Germans were pressing Vichy to oppose the Allies and to admit German forces. Next it reported the German seizure of Tunisian airfields near Bizerte and Tunis for air transport of German and Italian forces, and the German intention to consolidate the two areas into one bridgehead. That elements of Panzer Regiment 104 had been ordered from Italy to Tunisia, that German antiaircraft units would defend the air fields, and that a Colonel Lederer was given command there were all made known through special intelligence to AFHQ and to the British commander of British First Army. General Nehring's transfer from the German Afrika Corps to relieve Lederer and be subordinated to O. B. Sued (Kesselring) was next added to the important information provided through Ultra.

If the occupation of Tunisia by Allied forces, with whom the resident French could join, were to be successful, the Allied command knew that it would have to be accomplished by getting there in strength faster than the Axis command could reinforce the bridgehead. Although the Allies gained control of ports and airfields between Algiers and Tunisia, they could not provide sufficient air support or quite enough coordinated assault forces on the ground. German and Italian forces, including armored and aviation units, used sea transport and port facilities so effectively that they won the race.

That situation was understood by the Allied command on the basis of special intelligence and some "Y" intelligence, but the means of thwarting Axis intentions were unavailable. Before the end of November, General Eisenhower knew that the Germans had accumulated enough strength in the Tunisian bridgehead to start extending along the coast southward beyond Sfax and Gabes and southwestward to Gafsa and Tozeur.

The reconnaissance spearhead of the Eastern Task Force (known as "Blade Force") got within about ten miles of Tunis before first being checked. When enough Allied strength had been concentrated for a sustainable effort, the enemy ground and air units demonstrated the superiority of their coordinated tactics. Near Tebourba the Allies were thrown back toward Medjez el Bab in a decisive engagement. German interception of communications among Allied units on the tank frequency band elicited without difficulty "some very useful information." Then and later, chatter between American fighter pilots disclosed takeoffs and approaches by Allied aircraft.[8]

Axis reaction, besides establishing what they called their "bridgehead," consisted principally of air bombing of ports, ships, airfields and troop convoys along the coast from Algiers to Tabarka. Until radars were installed and working, "Y" furnished the needed warning. An RAF "Y" unit at Gibraltar, where Luftwaffe signals were not well heard, moved to Algiers, and thence to Bóne, where the signals came in strongly. At G-2, AFHQ, one officer was so knowledgeable about the German Air Force that he could quickly recognize in tactical messages evidence showing the nature of any formation on its way to deliver an attack. The principal air intelligence officer had previously been in command of the RAF party in a division at Bletchley Park.

The Allied force remained concerned lest the Germans should somehow use Spain to control the Strait of Gibraltar, and thus cut Allied lines of supply and reinforcement. Near Oran, British 55 Wireless Section (headed by Captain Hugh Skillen) worked with a detachment of the U.S. 128th Signal RI Company on French and Spanish traffic. They used nine or ten positions to watch for indications that Spanish forces were mobilizing, or that Spanish radio circuits were carrying German messages. The three 122d Signal RI Company detachments originally with the Western Task Force, reinforced on 18 November 1942 by the rest of the unit, also engaged in monitoring for evidence of hostile reaction in Spanish Morocco, or at airports in southern Spain, southern France, Majorca, Sardinia, Corsica, western Algeria, all French Morocco, and French colonies to the south. The two units, one under G-2, Western Task Force,

and the other under G-2, Center Task Force, exchanged products and technical information.

Looking back in 1943 on what lessons might be learned from Operation TORCH, the SIGINT personnel advised that only a small reconnaissance detachment of any independent SIGINT unit should come ashore with the assault forces, that two officers and three enlisted men would be enough. Their mission should be to make detailed plans for the most effective use of the operating units that should come on follow-up convoys with full equipment. The small detachment could expedite the preparations absolutely necessary for work to start.[9] On the other hand, the intercept platoons of a divisional signal company (as then constituted) were needed in an assault. They would not be at a loss, as would the other type of unit, for support facilities and personnel.

Even before the Allied thrust toward Tunis and Bizerte came to a halt in December, the Axis sought to protect a coastal corridor southward to the boundary between Tunisia and Libya and southwestward toward Gafsa. In the hill-studded zone between the great ridges (the Eastern and Western Dorsals), the Allies either disputed Axis efforts or established blocking stations. They appeared to the Axis leaders, however, to be in a position to strike offensively southeastward from Gafsa to Gabes in strength whenever such a maneuver became opportune.

Tunisia: Organization for the Second Phase

By 6 January 1943 Allied "Y" units were preparing to move eastward in conjunction with Headquarters, British First Army, Headquarters, U.S. II Corps, and later, Headquarters, British V Corps, which had not yet arrived in Tunisia. Headquarters, First Army, at Constantine, would have with it a British team. On 15 January British 55 Wireless Intelligence (under Captain Hugh Skillen) and the U.S. 128th Signal RI Company (under 1st Lieutenant Shannon D. Brown) moved from the Oran area to a site in Dernaia Pass near Tebessa at the Algerian border, to join Head-quarters, II Corps. In support of the U.S. Twelfth Air Force, the British 380 Wireless Unit and the U. S. 122d Signal RI Co., which arrived at Boufarik in January, would cooperate closely. Before the end of January, the U.S. 849th Signal Intelligence Service (SIS) Battalion would bring 33 officers and 192 enlisted men to the Algiers area, where they would train with an experienced British field SIGINT team.[10]

At AFHQ the coordination of "Y" operations was supervised by a "Y" Northwest Africa (YNA) Committee; Lieutenant Colonel Harold G. Hayes, chief american SIGINT officer, Signal Division, AFHQ, was the chairman. The other members represented ground, sea, and air "Y" organizations, and with one exception were British officers. The Signal Intelligence Section of the Intelligence Division (SIGS I, G-2), AFHQ, was headed by British Lieutenant Colonel Forrer.

The section's mission was to handle all SIGINT matters for G-2, including the organization and control of fixed and mobile "Y" units, liaison on "Y" matters with the War Office in London and other commands in the Mediterran-ean, and liaison with all the "Y" services of the Allies in the theater. Distribution and security of "Y" information and preliminary examination of captured signal equipment and signal documents were also its responsibilities.

Control of forward intercept operations from First Army's Headquarters near Constantine was difficult to correlate, while collection there could not match that in Libya because of the intervening 150 miles or so of mountainous terrain. Coordination at First Army Headquarters of all the DF operations was ineffective until the campaign was almost over. From First Army, weekly predictions of callsign changes were distributed to intercept units that lacked the necessary documents and technical data. They might thus avoid intercepting traffic of concern primarily to Eighth Army, or reconstructing codes already broken. But the organizational paralleling in Tunisia of SIGINT

resources used in the Western Desert did not yield comparable SIGINT service. Production in Tunisia was to disappoint the British for several months, and the American novices in SIGINT production were unavoidably affected. At the same time, the Germans retreating ahead of Eighth Army and in Tunisia in January 1943 adopted new methods of improving their own communications security. Daily changes of the encipherment of the three-letter codes, insertion of sections in Playfair cipher to complicate, a message in three-letter codes, and frequent shuffling of the code names of units – all increased the difficulties for Allied analysts in the field.

The SIGINT Section of British First Army issued daily and weekly summaries based on "Y," and after its activation late in February 1943, 18 Army Group began combining material from both First and Eighth Armies in a Daily Summary. The field sections of First Army sent daily decrypts to SIGS I, G-2, AFHQ and to the staff SIGINT officers at 18 Army Group and First Army.

British Eighth Army's daily intelligence summary included material attributed specifically to "Yorker," but others – Army Group, "AFHQ- in-the-Field," and G-2, AFHQ – were less explicit. Information gained from "reliable sources," for example, constituted one paragraph. Although no references were made to special intelligence, the estimates of enemy intentions in AFHQ's Weekly Intelligence Summary were stated with a confidence which reflected sources of the highest reliability.

Early field intercept operations by teams associated with British First Army were, for the most part, not well guided. Lacking basic technical data about enemy radio nets, First Army's intercept operators covered some of the same links copied by SIGINT units with Montgomery's British Eighth Army, and an unusually high proportion was found to be German Air Force traffic. Exploitation also produced redundancy, as First Army personnel tried to solve codes previously broken at Eighth Army. At the same time, First Army was not prepared to exploit Italian traffic until late in the Tunisian campaign, after personnel from the Middle East Command had been transferred to 18 Army Group. Radio direction-finding operations in Tunisia were not effective until First Army began to coordinate them very late in the campaign.

General Kenneth Anderson's principal SIGINT officer did not arrive at Headquarters, First Army, in Constantine until January 1943, and then found himself at least 150 miles from the fighting front at a place where it was impossible to intercept enough pertinent traffic. Despite the semi-aridity of wide areas in Tunisia, the terrain there differed greatly from the Libyan desert. Mountain chains and clusters of hills not only forced the ground forces to employ different tactics, but also seemed to interfere with good radio reception. Moreover, the Axis forces used unfamiliar gridded maps and "target points" to indicate their positions; until such maps were captured, the bases for the indicators remained unknown.

As a further restraint on the application of "Y" to operations, many intelligence officers of corps and divisions in First Army neither appreciated the useful potentialities of "Y" nor realized how much more effective it could be if all "Y" efforts and the results obtained in the whole First Army area were shared. General Alexander, however, brought to the staff of 18 Army Group in late February as his principal SIGINT Officer the man who had held a similar position on the staff of British Eighth Army and who knew the benefits of pooled "Y" information. Alexander also caused 101 Wireless Intelligence Company to be flown to Tunisia from Headquarters, British X Corps, then in reserve. Thereafter, the SIGINT efforts of both Eighth and First Army were better coordinated.

Action during January 1943

When the U.S. II Corps moved to the Tebessa area in January 1943, the ground forces in its command consisted primarily of the mobile 1st Armored

Division, reinforced by elements of the 1st Infantry Division and the 34th Division. Eventually those entire divisions and the 9th Infantry Division were to be assigned to II Corps, but the beginnings were smaller. French troops of the XIX Corps, commanded by General Louis M. Koeltz, were stationed in January at various points along the Eastern Dorsal, the mountain barrier that separated the eastern coastal plain from the higher ground and mountains of the Tunisian interior. Axis troops sought possession of the openings where roads through the Eastern Dorsal connected the interior with Kairouan, Sousse, or Sfax. French, British, and American troops were interspersed within the II Corps area.

The Axis high command, Italy's Comando Supremo, advised by the German theater commander, Oberbefehlshaber Sued (Field Marshal Albert Kesselring), intended to maintain an overland route from Tunisian ports to Field Marshal Rommel's German-Italian Panzer Army, Afrika, then retreating westward across Tripolitania. The Allies, after first planning to use the U.S. II Corps to break through to the coast at Sfax (Operation SATIN), and to cut the Tunisian line of supply to Rommel, abandoned that plan during consultations at the Casablanca Conference. The British Eighth Army's pursuit of Rommel's command, the Allies reasoned, would leave the latter free to send veteran German armored units against the unseasoned U.S. II Corps in an area of Axis air superiority. General Eisenhower therefore directed II Corps to concentrate the 1st U.S. Armored Division on the southern flank, able to move in strength against any Axis thrust.

German tactical SIGINT was efficient. American troops were to discover that fact repeatedly as their own "Y" service kept improving. It was nonetheless possible for Allied radio deception to lead the enemy to believe that he was facing a much larger force than was actually the case, perhaps almost twice as large. Allied SIGINT kept a daily watch on enemy reports of Allied order of battle and observed the discrepancies between those reports and the actualities. The enemy SIGINT units could by DF spot Army and Corps headquarters, and by traffic analysis generally infer the divisions in each corps. They could recognize the appearance of new formations in corps' nets without being able to appraise their strengths, and sometimes they could determine the components of divisions.

German SIGINT, supplementing captured documents, interrogations of prisoners, agents' reports, and photographic reconnaissance, left the Axis commanders still unable to estimate Allied intentions in the area between Gabes and Sfax. They correctly concluded that the Americans on the south wing intended in January 1943 to cut the coastal corridor and to seize Sfax, but they did not recognize before the end of the month that the project had been abandoned. They seem to have been uncertain about the strength of American forces there, and to have been pleasantly surprised by the successes they achieved in February between Faid Pass in the Eastern Dorsal and Kasserine Pass in the Western Dorsal. They would doubtless have been appalled by the accuracy with which the Allies usually understood the Axis situation and plans.

After El Alamein, Rommel recommended that all German forces leave Africa, but since such drastic action was not countenanced by Hitler, he continued falling back into Tunisia, where he might use the old French fortified Mareth Position, or a naturally strong one near Gabes, to block the advance of British Eighth Army. General Montgomery's forces would be far from his Middle East base. Tripoli would be a demolished port. At Mareth the odds against the Axis army would therefore be reduced.

General Jirgen von Arnim, commanding the Fifth Panzer Army, thinned his defenses in the north and created task forces able to dislodge the French from the passes, including that at Faid. The French were able to draw reinforcements from the American elements at various points. The U.S. II Corps, as SATIN Force, had been scheduled

to control the 1st Armored, 1st Infantry, and 34th Divisions. By committing elements of those divisions as reinforcements elsewhere, First Army kept postponing the kind of concentration in Central Tunisia that General Eisenhower had prescribed.

South of Faid, the Eastern Dorsal swings southwesterly. With other adjacent mountains it provides the northerly edge of another east-west corridor, bounded on the south by extensive areas of marsh and salt lakes (chotts). From Gabes a highway in that corridor links the coastal zone with the oasis of Gafsa and communities west of it, while from Gafsa roads and railroad thread many valleys eastward and northeastward in the ridge-strewn region of Central Tunisia. Allied and Axis concern about vulnerability applied to the Gabes-Gafsa route, as well as to passes farther north near Faid and Fondouk.

On 3 January 1943, while the Allies were working out their plans and arrangements for the sequel to the discontinued Operation TORCH, the Axis forces seized and occupied the pass at Fondouk, through which major roads went northwestward and southwestward into the regions held by scattered British, French and American forces. As a sort of offset, on 11 January French units obtained control of two gaps farther north, between the coastal plain of the Kairouan area and the Ousseltia Valley. They were dislodged about ten days later by a German task force that included a number of the very heavy "Tiger" tanks, a force which pushed down the valley from the north and cut off French defenders on the eastern heights. Units from three different U.S. divisions were brought into the area in circumstances that revealed the deficiencies of Allied command and control in the field and brought about successive measures to improve it.

II Corps, after Operation SATIN was cancelled, planned to retake Fondouk in an American-French attack on 23 January, but the Ousseltia Valley battle made cancellation of the Fondouk operation necessary.

II Corps then planned to occupy Maknassy and the gap east of it through which ran a railroad and a highway connecting Gafsa and Sfax. As two task forces moved on Maknassy, the enemy launched an operation against Faid Pass and Faid Village. The French defenders held out valiantly for two days. Attempts by U.S. II Corps failed either to relieve them or to regain the pass from the enemy. II Corps called off the attack at Maknassy; instead, it placed sufficient elements of the 1st Armored Division (and attached infantry) near enough to the passes from Fondouk to Maknassy to contain any incursions through them by Axis columns. Although the elements of II Corps were not concentrated on the southern flank, their mobility was expected to result in a swift concentration whenever that was required.

The enemy, because of the need to control the rear of the Mareth Position and the narrows north of Gabes (often called either the "Chott Position" or the "Wadi Akarit Line"), redrew the boundary between the areas of Rommel's and von Arnim's commands on 2 February 1943 so that both Sfax and Gafsa were within the former's area of responsibility.

Special intelligence confirmed the interpretation of Axis intentions that went into the Weekly Intelligence Summaries from G-2, AFHQ. An order issued by O.B. Sued on 24 January 1943 made clear what was in store. The enemy expected Allied attacks against both the Bizerte-Tunis bridgehead and the Sfax-Gabes corridor. Von Arnim's command, while parrying such thrusts in the north, was to refrain from any large offensive operations that would tie down his reserves. At the southern extreme, while the Mareth Position was being occupied and developed, a mobile force would be built around Headquarters, 21st Panzer Division. To gain initiative for the Axis forces, a mobile battle group under cover of the Mareth Position would drive toward the Allied base at Tebessa, doing so before the Allied forces could launch the flanking

attack on Gabes about which the Germans expressed great apprehension.

At the end of January 1943, the Allies recognized that the enemy was already regrouping his forces in Tunisia in order to form a mobile striking reserve. Its mission would be to counterattack any Allied effort to break through to the coast of eastern Tunisia. Meanwhile, by local operations, the enemy would try to prevent the Allies from concentrating for a major offensive against any of the more vulnerable Axis positions. To achieve the best results, the enemy might place some elements of Rommel's command at the disposal of von Arnim. Ultimately, the Axis forces would strike at the Allied line of communications in eastern Algeria, both to isolate the garrisons in south central Tunisia and to prevent direct contact between the Allied Force in Tunisia and the British Eighth Army. The bases for that estimate were said to be recent Axis advances west of Sfax through Faid Pass toward Faid and Sidi bou Zid, and farther south toward El Guettar.[11]

Notes

1. See George F. Howe, *Northwest Africa: Seizing the Initiative in the West*, passim. (Washington, D.C., 1957)

2. The Western Task Force received weather reports by message up to the eve of the assault landings. On 10 November 1942 Headquarters, USAAF, commended the Signal Intelligence Service (SIS) for that contribution. Secret Annual Report for FY 1943, Cryptanalysis Branch, SSS; see also AFHQ G-2 Intelligence Reports Nos. 8 (26 Oct 42) to 14 (6 Nov 1942).

3. Winterbotham, *The ULTRA Secret*, 90-91.

4. See J. C. Masterman, *The Double-Cross System in the War of 1939 to 1945*. (Yale University Press, 1972).

5. It was known as the *Aukatafel,* an abbreviation of *Aufklaerungs und Kampfllieger Tafel, Land and Sea*.

6. Special Intelligence disclosed that Kesselring's command was insistent that his air units needed reinforcement by long-range reconnaissance aircraft and that such planes were shifted from Norway, to the benefit of Murmansk convoys, and from Bordeaux, so that the TORCH convoys were not observed while in the Atlantic en route to the Strait of Gibraltar. The planners were able to route the convoys in the light of that intelligence. Colonel Alfred McCormack reported that he had learned of this accomplishment while visiting the U.K. in 1943. *NSA Hist Coll*., Book No.9, 3-5.

7. Paraphrase of messages in L-921 TL No. I, A*llied Communication Intelligence and the Battle of the Atlantic*, 6 Vols., Vol. II, Part D., App. II to Chap. XII, 228-251; Part A, App. B.

8. Captain Sidney L. Jackson, *Tactical Communications,* 91, citing information gained during interrogation later of a German pilot.

9. Operation TORCH, Lessons Learned in Chief Signal Officer, AFHQ, para 16. Copy on AFHQ Microfilm Reel lG.

10. Msg, Forrer for Lycett, MI 8, 061214Z Jan 1943. No. 4393.

11. AFHQ G-2 Intelligence Report No. 23, 1 February 1943 (Reel 23A). Special Intelligence reflected those intentions but suggested that they were not solid.

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MARETH POSITION
MÉDENINE
TRIPOLI
EASTERN DORSAL
SALT LAKE
TRIPOLITANIA
BATTLES IN TUNISIA

Chapter 3

Axis Initiative in February 1943

Axis Plans – Allied Expectations

Less than a week later, after Faid Pass had indeed been taken and held by Axis troops despite counterattacks by II Corps, the Allied estimate was confirmed and expanded. The Axis forces were now expected to try to contain as much as possible of the Allied force in the north and to improve their hold on mountain passes in the Eastern Dorsal, in order to avoid either an Allied penetration of the bridgehead or an Allied turning of the "Tunis position." The Axis mobile striking force could be expected to move into areas from which to threaten Sbeitla and perhaps Maktar farther north. The objective of Axis operations still further south would be to strengthen the defense of Gabes. Lastly, work on the Mareth Position would be pushed in order to contain a frontal attack there by British Eighth Army. New defensive works southwest of the existing ones would be designed to prevent infiltration or a wide turning movement. The activities of II Corps had stimulated greatly increased Axis air activity, particularly in the areas near Faid and Sened villages.[1]

Early in February, possibly from their own SIGINT operations, the Axis high command learned that the U.S. II Corps had abandoned its plan to execute Operation SATIN (the offensive across the Eastern Dorsal and the coastal plain to seize the port of Sfax and to cut the land communications between northeastern and southern Tunisia). SIGINT later disclosed that the Axis leadership realized that the "American Army" did not intend, for the time being, to continue its advance. Allied SIGINT showed that the Axis command had decided, in consequence, on 11 February 1943 to modify its own concept of operations.[2]

Further SIGINT disclosure to the Allies of Axis intentions led to an appraisal of where, if not when, the enemy could be expected to strike. The enemy would try to capture the Ousseltia plain and passes west of it, moving into the valley from the north and east; he might also make one direct westward thrust from Kairouan, and another, as flanking support, from Faid. Besides maintaining the Axis hold on Faid Pass he would endeavor to increase his control of the heights southwestward between Faid and Gafsa. Ultimately he would advance to Sidi bou Zid. If that did not precede the drive across the Ousseltia plain, it might occur at the same time or be coupled instead with an advance upon Gafsa. The great enemy interest in controlling Gafsa seemed likely to induce a direct attack there soon and even before that, an attempt to establish a defensive ring around it while Axis mobile forces were being strengthened.[3]

These deductions by Allied intelligence concerning Axis intentions, however correct, were reached without knowledge of the conflicting views and ambitions among the enemy. General von Arnim and Field Marshal Rommel disagreed over priorities and objectives. Each had uses to which he wished to commit, under his own command, the mobile 10th, 15th and 21st Panzer Divisions.

Rommel's mood fluctuated between pessimism and hopefulness. Once he himself had seen the dilapidated condition of the "Mareth Line," his doubts about its strength were confirmed. He concluded that successive spoiling attacks against both Allied armies must be made, if only to gain time. While von Arnim's command sent one battle group to take Sidi bou Zid, he would send another to take the oases at Gafsa and Tozeur. But if he were to press on afterward into Algeria to strike the Allied base at Tebessa, he would need the 10th Panzer Division too. The attacks which opened on 14 February were intended only to drive the Allies back from the Eastern Dorsal and from Gafsa. Exploitation

thereafter would depend upon prospects indicated during the first stage. Rommel and von Arnim had conflicting plans for subsequent operations. The former wanted to destroy Tebessa and perhaps to threaten farther north the long line of communications of the British First Army. The latter wanted to expand the northern bridgehead. Each would need the 10th Panzer Division for his attack. The arbiter had to be Kesselring. Ultimate authorization had to be gained from the Comando Supremo in Rome.

Presumably concerned about the signs of enemy interest in taking Gafsa, II Corps on 12 February queried First Army about the Axis intention to defend the Mareth Position. First Army replied that apparently "Rommel intends to defend the Mareth Line" and to develop delaying positions in front of it to provide more time for strengthening the defenses.[4] Late that day, Colonel B. A. Dickson, G-2, II Corps, relayed from the II Corps "Y" unit to the commanding officer at Gafsa word that an Axis unit, ARKO 104, had been sound-ranging Allied Gafsa guns that morning. ARKO 104 was known normally to operate with a division or a divisional task force, one that included the Ramcke Brigade of Rommel's Afrika Korps (DAK).

(During February and March 1943, ARKO 104 was using a code designated among the Allies as APE 20, consisting of 400 groups alphabetically arranged against numerical groups from 001 to 400. An encoded text was enciphered by using ten letter-for-number equivalents that changed daily. Plaintext messages were enciphered in a separate, daily changed, randomly mixed alphabet.)

On 13 February 1943 the Allies were expecting Axis action; they were uncertain chiefly about the routes of attack and the strength of enemy forces. The main thrust might be made either west of Kairouan or west of Sfax. If Fifth Panzer Army supplied the major striking force that would certainly involve the 10th Panzer Division. If it struck near Pichon, certain II Corps units might move north to reinforce Combat Command B, 1st U.S. Armored Division. If the 10th Panzer Division moved south to penetrate the Faid area, Combat Command B could release troops via Sbeitla to reinforce Combat Command A, already deployed according to II Corps orders in the vicinity of Sidi bou Zid.

Advance Headquarters, First Army, advised II Corps and other subordinate commands on 13 February that reliable sources reported (wrongly) that only a few days earlier Rommel had undergone an operation at the Civil Hospital in Tunis.[5]

Allied Reversals, 14-17 February 1943

At first light on 14 February 1943, one column of armored and mobile German troops came through Faid Pass to encircle defending forces on a hill rising from the rolling desert while another crossed the Eastern Dorsal farther south to isolate forces on the other hills near Sidi bou Zid. Those columns were elements of Battle Group Ziegler, Fifth Panzer Army. Before dark they had driven Combat Command A, 1st U.S. Armored Division, out of Sidi bou Zid and had marooned American troops on the nearby hills.

Kampfgruppe DAK, a mixed German and Italian Battle Group controlled by the Head-quarters, German Afrika Korps, approached the town of Gafsa cautiously, and prepared to attack only after being reinforced by part of Group Ziegler. During the night of 15/16 February the Allied garrison withdrew in haste, and many civilians evacuated Gafsa. The next day the enemy marched in unopposed.

Throughout the first day of the attack, Colonel B. A. Dickson, G-2, II Corps, was unable to determine that any captured troops were from von Armin's 10th Panzer Divison: "As the 10th Panzer Division does not seem to have moved south, the tanks engaged in the Sidi bou Zid area and to the south appear to be from either or both the Panzer Battalion 190 and the 21st Panzer Division (of von Arnim's mobile reserve). Late report gives prisoner of war identification from the 21st Panzer Division." The report that Mark VI (Tiger) tanks were near Faid, if it could have been confirmed, would have established participation by Panzer Battalion 501, which, like 10th Panzer Division, was under Fifth Panzer Army command.[6]

On 14 February 1943, however, German prisoners taken near one of the hills were positively identified as being from infantry and artillery units of the 10th Panzer Division; at least part of that formation had indeed moved south to make the attack. Two German reconnaissance units and elements of the Italian Centauro Division had also been identified, probably by SIGINT, in the force moving along the roads approaching Gafsa from the northeast and southeast.

The weakly armed French troops that once had defended the eastern passes without being relieved in time by mobile, well-armed Americans, now had their counterparts among the American forward elements stationed on the isolated hills near Sidi bou Zid. Unable themselves to oppose the enemy effectively, they became bait, luring a would-be relieving force into an attack in which it was outmatched.

Intelligence might have identified that first Axis attack of February 14 for what it was, a main effort rather than a diversion. But the surprise applied not only to the weight of the Axis attack but also to the tactics that they employed and to the accuracy of their tank and artillery fire. Moreover, although the skill and power of Axis air support of ground troops were not new, the strength in this instance greatly exceeded that which the Allies had experienced during recent battles.

The British 55 Wireless Intelligence Section, under Captain Hugh Skillen, provided G-2, II Corps, with certain unit identifications and some information concerning enemy movements. The enemy had an observation post on Djebel Orbata, southeast of Gafsa, connected with a German artillery unit. On 15 February Captain Skillen warned that the artillery unit was preparing to move toward Gafsa. On 16 February he followed movements by the German 580th[7] and 33d Reconnaissance Units (RU). The former moved to the vicinity of Sened Station and sent elements into Gafsa. The latter went farther north.

On 17 February Group Ziegler advanced slowly toward Sbeitla from Sidi bou Zid. The 1st U.S. Armored Division was then deployed for only a delaying action at Sbeitla. The enemy had learned that from his own SIGINT service. Elements (33d RU) of the 21st Panzer Division reconnoitered in force along the roads from Gafsa to Feriana, Thelepte, and Kasserine.

After relinquishing Sbeitla, the Allies pulled back west and northwest to the farther side of the Western Dorsal. The main body of II Corps retreated through Kasserine Pass from Sbeitla and Feriana. Other routes to the west were defended in an atmosphere of emergency and improvisation.

The seizure of Sidi bou Zid had been accomplished by elements of the Fifth Panzer Army. The associated attack to take Gafsa brought forces under Rommel (Kampfgruppe DAK) into the area between Maknassy and Sened Station. On 15 February the abandonment of Gafsa without a fight surprised Rommel. He sent in a garrison the next day and reconnoitered toward Feriana, while the decision was reached for Fifth Panzer Army to push from Sidi bou Zid to Sbeitla, using primarily the 21st Panzer Division. For his planned attacks in the Fondouk area and toward Bedja and Medjez el Bab farther north, von Arnim wished to move the entire 10th Panzer Division northeastward as soon as Sbeitla had fallen. Rommel, on the other hand, having concluded that the American troops were much less formidable than he had supposed, awaited the results of the attack on Sbeitla and of the successful reconnaissance in force that he sent to Feriana and Thelepte airfield. He then proposed, on 18 February, that he drive through the Western Dorsal to Tebessa.

Through Kasserine Pass

Over von Arnin's objections, Rommel was authorized by Kesselring to use both the 21st and 10th Panzer Divisions and the German-Italian mobile and armored units under the Deutsches Afrika Korps for a thrust through the mountains to the valleys beyond. Comando Supremo did not accept the choice of Tebessa (across the Algerian border) but instead designated Le Kef (well to the north in Tunisia) as Rommel's objective. Success there would disrupt Allied operations then in progress

and, by threatening the First Army's vital line of communication, might either cause that command to pull back from the bridgehead boundary, or so weaken the Allied defenses there that von Arnim could press forward successfully. Fifth Panzer Army could itself help Rommel's thrust by dropping paratroops near Le Kef, sending a force by sea to Tabarka from which to threaten British First Army's northern flank and rear and by holding Allied troops along the bridgehead line.[8]

Very early on 19 February 1943, five days after the initial Axis assault on Sidi bou Zid, Rommel started his main attack into Kasserine Pass. During the afternoon of 20 February 1943, the II Corps' "Y" unit reported a request by the 33d Reconnaissance Unit for maps of the Tebessa-Bone area.[9] German infantry had already been reported to be holding various heights along the pass and their objective was presumed to be Tebessa. When the Axis force in the pass emerged, one portion did head toward Tebessa to block any Allied attacks on the western flank of the main body. The other portion took the other branch of a road junction within the pass and headed northward toward Thala on the way to Le Kef, as ordered by Comando Supremo.

For the next two days they probed, struck, and almost broke through Allied defenses hastily established near Thala, as reinforcements streamed toward what the Allies had learned from special intelligence would be the critical spot. [10]

During the night of 21/22 February, a liaison officer at 18 Army Group relayed to II Corps a report that the enemy armored columns were going to withdraw through Kasserine Pass, beginning that same night.[11] The actual withdrawal occurred twenty-four hours later, after Rommel, conferring with Kesselring near the town of Kasserine, persuaded the latter that the attacking force must pull out.

Discouraged by indications that the Allied defense was becoming stronger rather than weaker, and mindful of the necessity of gaining time to strengthen the Mareth Position by attacks on the van of British Eighth Army far to the southeast, Rommel had concluded that he must break off the whole operation toward Le Kef. He was authorized late on 22 February to retire through Kasserine Pass and was directed to leave one garrison at Gafsa and others at key points between the Western and Eastern Dorsals.[12]

Back through Feriana and Gafsa to Gabes, back past Kasserine and Sbeitla to Sidi bou Zid, Faid, and Maknassy, and through the mountains to the Sfax-Gabes corridor, most of the enemy withdrew. What had begun as a testing of U.S. II Corps had grown into a deep penetration. It ended simply as a disorganizing attack.

AFHQ-in-the-Field (General Eisenhower's forward Command Post) reported that German armored forces were still in the area between Thala and Kasserine Pass on 22 February [Stott en Group and Panzer Grenadier Regiment Afrika (from Panzer Army Afrika) and II Battalion, 69th Panzer Grenadier Regiment (from 10th Panzer Division) were identified]. Next day, "Y" identified the 334th Mobile Battalion as having moved to the vicinity of Thelepte. A German-Italian order of battle, compiled at that time from SIGINT and other sources, listed the locations of all but three German units.

For several months, a former headquarters security detachment under Rommel's command had functioned as a motorized reconnaissance unit, the Kampfstab Oberbefehlshaber, abbreviated as the KASTA O.B. In the February operations it was working with Panzer Grenadier Regiment Afrika. "Y" sources were able to identify and track it as it reported by radio in a readable system.[13]

Advance First Army kept providing "Y" of concern to II Corps. By noon on 24 February 1943, they were advising that Panzer Grenadier Regiment Afrika and Group Stotten would return to the DAK. The 10th Panzer Division was going to an area from which it might renew an attack in the Ousseltia valley. The 33d R.U. and Centauro Division, possibly reinforced by more German troops, would defend Gafsa. The 21st Panzer Division

would stop near Blida (Sbeitla) or Faid village. The next day, Advance First Army relayed a report from Eighth Army "Y" that Group Stotten expected to have reached its parent regiment on the 27th of February.

A letter found near Thala, presumably on a German casualty, and dated 22 February 1943, included the sentence: "Yesterday we were again visited by General Rommel, who is commanding here."[14] The Allies circulated that bit of intelligence.

Another trophy of the Faid-Kasserine Pass operations was a German code book found under the seat of an immobilized tank about five miles south of Sbiba. It contained the order of battle of the 21st Panzer Division, confirming information previously obtained, and was passed by the Acting G-2, 34th Division, to the II Corps SIGINT unit on 28 February 1943.[15]

On the other side of the picture – communications security – American units were less than perfect. When the 34th Reconnaissance Troop neared Sbiba, north of Sbeitla, its commanding officer reported in the clear that he had arrived north of the town; enemy artillery soon fell there. The Troop quickly moved to the south, and he again reported in the clear where he was. Enemy fire shifted at once to that area.

Recapitulation

Neither the Axis nor the Allied commands had begun the February battles with a correct view of its enemy's strength or intentions. The surprise on 14 February was not the attack itself but, as in the later cross-channel attack into Normandy, the site of the main effort. The logical operation for the Axis to attempt had seemed so apparent that a general officer commanding British First Army's line of communications wrote out an argument for it in the form of an imaginary intelligence appreciation that Rommel might have presented to high command. The AFHQ intelligence estimates also showed an accurate appraisal, or foreknowledge, of the time but not the point of main attack.[16]

Nor did AFHQ realize the clumsiness of Axis command relationships. Rommel was using mobile and armored elements from the German- Italian Panzer Army. Von Arnim was committing, among other troops, the 21st Panzer Division, which Rommel had previously sent ahead into Tunisia but which had had to be re-equipped with tanks upon arrival. After von Arnim succeeded in the initial action at Sidi bou Zid, he was to release them to Rommel's control so that Rommel might be strong enough to take Gafsa. Axis forces met no resistance in taking Gafsa, which the Americans and French had abandoned. The American counterattack to retake Sidi bou Zid failed; II Corps then abandoned Sheitla and Feriana, as well as the airfield at Thelepte, offering nothing more than rear-guard actions. At that stage things were going so well for the Axis forces that Rommel persuaded Kesselring to approve the use of all mobile Axis divisions in a drive to Tebessa. Von Arnim, who opposed a project that would absorb elements of his command to which conflicting missions had already been assigned, was slow in releasing the 10th Panzer Division. The high command changed Rommel's objective from Tebessa to Le Kef in hopes of so threatening British First Army's line of communications that their forces would have to pull back westward and thus allow the Tunisian bridgehead to expand at least to include certain north-south roads.

Rommel's drive through Kasserine Pass, though slower than he thought satisfactory, did cause a quick American exodus from Tebessa. The blocking forces that Rommel had sent toward Tebessa and elsewhere left him too weak and too far behind schedule to push through Thala to Le Kef. At all times he was looking over his shoulder toward the Mareth Position near the Tripolitanian border, where he felt that he must be able to launch a spoiling attack against Montgomery's pursuing forces. He may have become aware that his actual objective, Thala, was recognized and that Allied preparations there would greatly strengthen the resistance he would receive if he kept on. He obtained authority to end the operation and withdraw, but

some of his opponents found it hard to believe that the Axis attack was really over.

Two Opposing Army Groups

As the Axis forces were preparing to exploit their successes against the Americans of II Corps, the Allies were completing a reorganization that established 18 Army Group under General Sir Harold Alexander. Operations of the British First and Eighth Armies, French XIX Corps, and U.S. II Corps would be coordinated by that headquarters at Constantine in eastern Algeria. Alexander actually assumed command late on 19 February 1943. His staff, though Anglo-American, consisted predominantly of British Army officers who had participated in victories over the German-Italian Panzer Army, Afrika, while serving in GHQ, Middle East, or in the Eighth Army. His principal intelligence officer was Brigadier T. S. Airey; the chief signal officer was Major General W.R.C. Penney. (Both men brought abilities to their jobs that later carried them upward, during and after World War II. Brigadier Airey was to participate with General Lyman L. Lemnitzer in negotiating the surrender of German forces in Italy in 1945. Both men were later to hold important positions in the NATO military establishment.)

Upon activation, Headquarters, 18 Army Group, assumed control of the SIGINT operations of First and Eighth Armies. The functions covered by "control" were specified in a memorandum from G-2, AFHQ, to Brigadier Airey, on "Intelligence Procedure," dated 10 February 1943. The objective was to coordinate the production and interchange of pertinent information, both military intelligence and technical "Y" data (WTI). SIGINT from the armies would go to 18 Army Group, which would send a daily summary of "Y" activities, as well as supplementary reports, to the SIGINT Subsection of G-2, AFHQ. The latter would forward through 18 Army Group any technical information, documents and the like to the two armies.

As long as 101 Special Wireless Section (flown with equipment from X Corps in Eighth Army reserve) and 40 Wireless Intelligence Section ("this 'Y' unit") were not placed under control of either the First or the Eighth Army SIGINT staff but remained at Constantine among the vans and trailers at Alexander's headquarters, they would receive direction from 18 Army Group's SIGINT subsection.

To insure AFHQ's proper control of theater SIGINT operations, all moves of "Y" units were to be reported to G-2, AFHQ; and all communications on "Y" matters with MI 8, War Office in London, or MI 8, Mideast in Cairo, were to be conducted through G-2, AFHQ. When necessary, 18 Army Group would look to AFHQ for an advisor on communications security matters. On all matters of personnel, it was later agreed, First Army could continue to deal directly with AFHQ. An SLU at Headquarters, 18 Army Group, handled the special intelligence available to General Alexander.

When the Axis thrust toward Le Kef in February ended, Axis forces were also redeployed and reorganized. On 23 February 1943 the Axis established Headquarters, Army Group Afrika, at Sbeitla and put Field Marshal Rommel in command until he left Africa on 9 March 1943. He was then succeeded by General Jirgen von Arnim, who, in turn was succeeded in the command of Fifth Panzer Army by General Gustav von Vaerst. What had been termed the German-Italian Panzer Army, Afrika became the Italian First Army under General Giovanni Messe, who exercised nominal command over the remnants of the German Afrika Corps (DAK) through a German deputy.

General Alexander used a lull in central and northern Tunisia to sort out the units of different nationalities, to get them into defined sectors, and by reinforcement, resupply, and other necessary measures to have them ready for offensives by mid-March. U.S. Corps acquired Major General George S. Patton, Jr. as its new commander on 6 March 1943. Major General Omar Bradley was his deputy and, by prearrangement, his successor about one month later, when Patton began devoting himself to the impending campaign in Sicily.

The adversaries in Tunisia had certain major actions to execute. For the Axis, time was essential

to acquire resources sufficient to thwart the Allied offensive in the making. To gain time, during which the fortified lines at Mareth and Wadi Akarit might be rendered stronger, the Italian First Army, while still controlled by Rommel, sought to blunt the British Eighth Army's spearhead near Medenine. It was reasoned that by falling on the advance elements with strong mobile forces and perhaps with surprise, Rommel might deliver an effective spoiling attack. The corridor between northern and southern Tunisia had to be kept open, whether to maintain Italian First Army or to permit withdrawal from the Mareth to the Wadi Akarit position, and thence into the main bridgehead. To keep the Allies from attacking the rear of the southern Axis defensive positions or disrupting the line of communications in the corridor or accumulating superior strength at critical points along the perimeter of the bridgehead, the much reduced 10th, 15th and 21st Panzer Divisions (or their mobile elements) were to be used as much as possible as a mobile reserve from which to make limited attacks that would keep the Allies off balance.

The Allies correlated all other operations with Montgomery's effort to get past the Mareth Position. Corps was to seize and defend Gafsa, holding it as a base of supplies for Eighth Army to use when it came north. U.S. II Corps was to recover Thelepte airfield and establish others from which to furnish air support to Eighth Army. II Corps was to draw Axis reserves from the path of Eighth Army, weakening the opposition at the Mareth position and Chott position. The French XIX Corps, after rearming, was to defend routes through the mountain passes on the southern flank of British First Army. The latter was to prepare for a renewed drive into the Axis bridgehead to begin after Eighth Army had succeeded in coming north as far as the enemy's Enfidaville Line.

The Intelligence Section, 18 Army Group, which was responsible for coordinating all intelligence activities of the First and Eighth Armies, did not collate intelligence but provided up-to-date information of the enemy derived from AFHQ, regarding the broad picture, and from the armies, regarding the battle picture. Into that information went the SI of its own SIGINT unit. Both armies furnished daily situation reports by wire to AFHQ and 18 Army Group, and issued written intelligence summaries giving detailed information not included in the daily message.

Captured documents and reports of interrogation of prisoners of war were handled similarly. The prisoners taken by First Army were passed back to the Allied POW camp at Constantine, while those taken by Eighth Army in southern Tunisia were evacuated through its line of communications to Egypt, until the Army had moved up the coastal corridor to Enfidaville. U.S. II Corps obtained "Y" from the British 55 Wireless Intelligence Section under Captain Hugh Skillen, and Detachment A, Intelligence Branch, 849th Signal Intelligence Service, working together on the low-level German Army traffic intercepted by the 128th Signal Radio Intelligence Company. These units were attached to Headquarters, II Corps. Most of the intercepted traffic was in three-letter or jargon codes, enciphered by transposition or simple substitution systems. G-2, II Corps, received spot SIGINT from a liaison officer at Headquarters, 18 Army Group, and daily summaries from 18 Army Group and AFHQ-in-the-Field. The tactical SIGINT came from a few enemy units whose messages were being read quickly, and from traffic analysis. The 10th Panzer Division used a reciprocal system in which code groups were identified by cipher groups during stated periods of perhaps six days before a new table of cipher groups became effective.

Identification of Axis units at known locations was imperfect but helpful. The II Corps SIGINT unit, known as "Snoopy," kept track of the German 580th Reconnaissance Unit, the artillery unit ARKO 104, and the mobile "*KASTA O.B.*," mentioned above.

Notes

1. AFHQ G-2 Intelligence Report, No. 24, 6 Feb 1943.

2. CX/MSS2118/T13 deciphered on 14 Feb 1943, while the attack began, cited in *GCCS Air and Military History*, IV, 308.

3. Ibid., No. 25, 15 Feb 1943. G-2, AFHQ deduced from Ultra that the main attack would be that west of Kairouan, while that at Faid would be a feint. See *Eisenhower Diary*, V, A-236. That error led to the relief of Brigadier Mockler-Ferryman by Brigadier Kenneth Strong.

4. Ibid., No. 16.

5. II Corps G-2 Jnl for 13 Feb 1943, item No. 34.

6. II Corps G-2 Periodic Report for 0001 - 2400A, 14 Feb 1943.

7. The 580th Reconnaissance Unit from February through March 1943 used a code designated as Rabbit 42, or WSW, because that was its code group for zero. The alphabetical sequence of code groups and equivalents each ran in the same direction, like most but not all German field codes; in some, the equivalents were alphabetically in a reverse sequence.

To obtain greater security, users of those German codes and others like them periodically slid the equivalents so that the last part of the alphabet came before the first part. A few code groups might be omitted or some new groups inserted, having the effect of site ring the new interval between code groups and former equivalents. Occasionally, blocks of equivalents were shifted by randomly scrambling the alphabetical sequence. Changes like those were readily made at set times, in addition to the regular changes made at periodic intervals of one or more months. The 10th Motorcycle Battalion, for example, slid one group per day, or more than one after three such daily changes, and altered the sequence of equivalents as well.

8. CX/MSS/2140/T11.

9. The basic code used by the 33d Reconnaissance Unit had been captured. It was found to contain 482 code groups taken from the German Army Signals Table (HST) with 482 meanings, both in alphabetical sequence. The code groups, however, were organized to provide equivalents for numbers, compass directions, thrust line references, map scales, times, light signals, radio procedures, indicators, place names, tactical terms, and then the main body of general subjects for communication.

10. CX/MSS/2140/T11, cited in *GCCS Air and Military History*, IV,312.

11. Telephone call, General Porter to Colonel Honeycutt, 2240/21 Feb 1943, in II Corps G-2 Jnl, 21 Feb 1943, no. 73.

12. CX/MSS/2161/T11; 2172/T20.

13. AFHQ-in-the-Field, G-2 Report No. 109, 25 Feb 1943.

14. AFHQ-in-the-Field, G-2 Report No. 111, 27 Feb 1943.

15. Memo for G-2 II Corps, from Acting G-2, 34 Div (Lieutenant Colonel Hubert H. DesMarais), 28 Feb 1943.

16. A contemporary record is an excerpt from the unpublished version of General Eisenhower's War Diary kept by Captain Butcher, as follows:

> ***An explanation of the defeat, as seen by Ike, lies in a misinterpretation of radio messages we regularly intercept from the enemy. This source is known as Ultra. It happens that our G-2, Brigadier Mockler-Ferryman, relies heavily upon this source. It has frequently disclosed excellent information as to the intentions of the Axis. However, the interpretation placed by G-2 on the messages dealing with the place of attack – an attack that has been expected several days – led Mockler-Ferryman to believe a feint would be made where the attack actually occurred through Sidi bou Zid, and that the real and heavy attack would come farther north. Our reconnaissance and air observations plainly showed the massing of tanks and troops, presumably for attack, in the Sidi bou Zid area, but did not show considerable additional forces, particularly tanks, which had been cleverly hidden. Basing his judgment on the reliability of Ultra, Mocker-Ferryman was confident the main attack would come to the north. As a result, General Anderson kept in reserve approximately half of the First Armored Division to meet an attack that never came. The result was that***

the other half of the First Armored Division was chewed up by overwhelming forces, particularly by Mark VI tanks (Tigers).

Now we are told by General Paget that Mockler-Ferryman had been released by him for lack of imagination. He said he was surprised Mock had been assigned to TORCH. He suggests sending as his relief another British G-2 [Brigadier Kenneth Strong] whom he describes as knowing how Germans think and act, as he was for a considerable time Military Attache in Berlin.

General Paget left this morning in [sic] route to the U.K. and is to handle with Sir Alan Brooke (the C.I.G.S.) the replacement of Mock in such a manner that he will not be discredited. His error was simply a misinterpretation of the meaning of the intercepted German messages. However, Ike insists we need a G-2 who is never satisfied with his information, one who procures it with spies, reconnaissance, and any means available. Ike thinks Mock relied too heavily upon one source of information - the intercepts. [See excerpt version in Ronald Lewin, **ULTRA Goes to War,** ***273-4.]***

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Chapter 4

The March Offensives

Expectations

The enemy thinned out his positions in central Tunisia in order to attack in the north at the beginning of March 1943. On 2 March, 18 Army Group passed on a report from the Allied defenders that twenty-five Axis tanks were lying abandoned in front of their positions after a half-hearted attack by two battalions from the 47th Grenadier Regiment and one from Regiment Barenthin. Another Axis drive along the road through Sedjenane was only partly successful and quite costly. On 3 March these attacks were renewed without understandable objectives and were interpreted as possibly "the execution of rigid orders no longer applicable to the present situation."[1] Of thirty tanks immobilized at one point, and others elsewhere, at least twenty were demolished.

The Allies took advantage of the situation to retake Pichon, where the enemy was either too weak or too surprised to put up serious opposition, and took no steps to recover it.

When the Axis attack at Medenine began on 6 March, as expected by Eighth Army, the enemy simply dug in along the roads in the northern sector where he recently had been stopped. "Y" disclosed that he was sending an infantry/artillery battle group from the north to central Tunisia. One more Axis offensive in the far north, near Tamera, began on 8 March, while in the extreme south, at Medenine, Rommel broke off his spoiling attack after having sacrificed about one-fourth of his tank strength to no purpose.[2]

One illustration of the way in which field SIGINT could be turned to account so impressed a German SIGINT officer that he remembered it with relish after the war. During a conference at Headquarters, O.B. Sued, a current message reporting to the Eighth Army command that a heavy traffic jam had developed in a certain wadi was intercepted and read. Although the exact location of the wadi was uncertain, its general position could be guessed. Air reconnaissance was therefore ordered at once. Even before the enemy conference was over, the commanders there had received a further report that the vehicle-filled valley had been bombed.[3]

In March the enemy sent his mobile armored divisions to an area from which they could protect the rear of the Mareth Position and also threaten the Allied southern flank in the vicinity of Faid and Maknassy. An Allied force in the Ousseltia valley discovered that it had become an extensive "no-man's land," where only patrols were likely to be met.[4]

Believing that Rommel was still in command, Alexander concluded that another attack around Feriana was likely; it would be a characteristic attempt to anticipate the expected Allied attack on Gafsa, and to spoil it. But when "Y" showed on 15 March that the 580th Reconnaissance Unit had moved to Gafsa, the probabilities changed; the 21st Panzer Division was thought more likely to operate offensively in the vicinity of either the Maknassy-Gafsa or Gabes-Gafsa roads than on the Feriana plain. Patrols toward Gafsa showed that the enemy there was aware of the imminent threat to Gafsa being prepared by II Corps.[5]

The Italian Centauro Division evacuated Gafsa before the U.S. 1st Infantry Division attacked it; the German 580th Reconnaissance Unit acted only as a rear guard.[6] The enemy was therefore believed to be shifting to stronger

positions near El Guettar and between Sened and Sened Station, positions that were blocking the roads leading from Gafsa via El Guettar to Gabes and from Gafsa via Maknassy and Mezzouna to Gabes. While accepting the possibility of a counter-attack, General Alexander's Intelligence Section thought it unlikely that another thrust would come through Faid, since concentrating for that attack would leave the defense of the southern Gafsa-Gabes route almost wholly to the Centauro Division, a risk believed to be "incon-ceivable."7

The German-Italian Panzer Army, Afrika, awaited Montgomery's attack on the Mareth Position, uncertain for about one week when it would begin. Then, on both 13 and 14 March, a British battalion sent the same message to subordinate units: "Remember to observe radio silence until 2200 hours, 16 March." That brought about a timely alert to the Axis commanders in Africa via O.B. Sued, based on German SIGINT.

II Corps Attacks: Gafsa, Maknassy, and El Guettar

The area of the offensive operation in March planned by U.S. II Corps was drenched by downpours of heavy spring rains beginning on 14 March and continuing for three days. Combat Command B, 1st Armored Division, moved through it to block the road from Sidi bou Zid to Gafsa, while the main body of the 1st Armored Division got into position northeast of the town for an attack through Sened and Sened Station to Maknassy. To avoid being mired, that operation had to wait until the night of 20/21 March.

The 580th Reconnaissance Unit was traced by "Y" from a screening position east of El Guettar to the Maknassy road, where it opposed the advance of the 1st Armored Division beyond Sened and then beyond Maknassy. The latter was evacuated during the night of 21/22 March.

The Germans intercepted an Allied report in the clear that observers could see German soldiers digging in at a certain site. Without delay, that led to better concealment. Another Allied report, that observers could see the sun flashing off the windshields of German vehicles, caused the enemy to correct his defective camouflage.

On the other hand, reports by enemy reconnaissance of the movements of II Corps elements were intercepted and read by Allied SIGINT personnel as Allied advances toward and east of El Guettar began on 21 March.

The enemy sought to offset his weakness in numbers by using every advantage of position. He pulled back, while offering little or no resistance, to rugged hills where he had the advantage not only of good observation but of protected bases of fire. He placed his antipersonnel mines most effectively. II Corps expected intervention, at least by the 21st Panzer Division, as soon as the weather allowed mobile operations. Until 22 March 1943, II Corps' mission of drawing off forces otherwise available to oppose British Eighth Army at Mareth had not been realized. As the enemy calculated the risk that II Corps might break through into the coastal corridor, however, he was bound to forestall that danger, if he could, by counterattack.

After occupying Maknassy on the morning of 22 March, the 1st Armored Division might have pressed on a few more miles into the hills to seize the highway and railroad pass in the mountains east of that town. Had their mission called for it, they would have done so. Had intelligence been able to warn them that the pass was weakly held by a mixed force (chiefly Italian) but that German reinforcements were being rushed there from further north, the division would have saved itself from many adverse consequences by pushing ahead on 22 March. Instead, for lack of reasons to keep moving for the third straight day, into an area inadequately reconnoitered, they waited to make the attack until night, and almost, but not quite, obtained control during the following day.

On 22 March 1943 General Alexander altered the II Corps' mission by requiring seizure of the Maknassy Pass in preparation for sending armored

raiding forces through it. Up to that time, the only evidence of possible enemy reaction had been heavy wireless activity by the 10th Panzer Division which was understood to be moving south after refitting.[9]

East of Maknassy, other Axis reinforcements arrived to defend the pass under the command of Colonel Rudolf Lang, one of General von Arnim's troubleshooters. The Allies learned about his presence and identified his German tank and infantry units from "Y." When not in the pass itself, Colonel Lang directed operations from a headquarters discovered by Allied intelligence to be two miles south of Mezzouna. Tiger tanks later joined his force, which enabled him to counterattack strongly on 28 March.

On 22 March, a 10th Panzer Division Battle Group, including about fifty tanks, made two attacks against the 1st Infantry Division's positions along the Gafsa-Gabes road on the other side of the mountains from Maknassy.

After shelling Allied observation points with artillery and smoke shells, German infantry and tanks, both medium and heavy, assaulted twice, and Stukas also dive-bombed during the intermission. The attack failed to dislodge the Allies, who remained under further air bombing through the ensuing night, when Gafsa also was bombed. Although the Axis forces then went back to the defensive, they continued successfully to block any further advance eastward by II Corps. The U.S. 9th Infantry Division vainly tried to get control of certain southern mountains from which the enemy could spot all American movement. Despite this disadvantage, a U.S. armored force tried to push toward Gabes through mine fields and antitank fire, and it too lost its best chance.

The enemy's last counterattack against the Allied threat along the El Guettar-Gabes road came on the night of 25/26 March. He then tried what he had failed to accomplish in daylight three days before, and after breaking off the first attempt about 0200, he resumed his offensive in the afternoon. Allied intelligence concluded that the 10th Panzer Division Battle Group had failed to make any progress, although he had committed all his reserves to prevent an incursion by II Corps into the coastal corridor. As soon as it became apparent that the enemy, after leaving the Mareth Line, would make another stand at the Chott position (Wadi Akarit), General Alexander directed that II Corps press toward the rear of the Gabes position. Stabilizing the II Corps pressure east of Maknassy and stepping up threats at passes further north, he called for action by the 1st Infantry and 9th Infantry Divisions in the El Guettar area, to open the way eastward for an American mobile armored force.

The Germans and Italians on the heights along the Maknassy road to Gabes thwarted those infantry operations. Behind minefields and barbed wire positions, their antitank guns, artillery, mortars and machine guns, all aided by excellent observation points, were too strong for the Americans to penetrate. The II Corps SIGINT unit identified elements of the enemy's battle group and ascertained that on 31 March Germans were complaining of desertion by Italians. Other messages showed that the blocking force expected to move into the coastal corridor before very long.

By then, General Alexander had revised the mission of II Corps once more. An armored Combat Command under Colonel C.C. Benson, 1st Armored Division, was ordered to plunge ahead without waiting for the infantry to open the way. The Eighth Army's attempt to break through the enemy's main line of resistance at the Chott position would be aided by the II Corps' drive against the enemy's flank and rear, if additional Axis forces were thus drawn from the path of the Eighth Army.

The enemy apparently recognized a danger and did send the mobile elements of 21st Panzer Division to reinforce the 10th Panzer Division Battle Group. Axis air attacks in the II Corps area of attack multiplied. The II Corps column, known as "Benson Force," could not get through on 30 March.

They almost made it on 31 March but thereafter were stopped until the enemy rear guard had slipped away on 8 April. Contributing to the failure of Benson Force was a deplorable lack of secure communications on its command net. Unit designations, locations, plans and intentions were given freely in clear text.[10]

On 2 April, by 18 Army Group orders, II Corps went back to the plan that the infantry should open the way through the successive defiles on the Gabes road until Benson Force could press through without such losses from antitank fire as it had experienced during three successive days.

The II Corps SIGINT unit ascertained where Axis ammunition dumps were located. It listed artillery units and their operational weapons, established unit identifications, and interpreted miscellaneous indications of enemy movements. When an Allied reconnaissance team captured a motorcycle from the German 580th Reconnaissance Unit, and the latter planned to get it back on 4 April, "Snoopy" was able to pass the warning.[11]

On 2 April a code list of the 21st Panzer Division was captured, showing that it had incorporated a Marsch Battalion, redesignated as IV Battalion, 104B Infantry Regiment.

The Enemy Retreat to the Bridgehead

Air observers noted a thinning out of the enemy forces near Maknassy beginning on 4 April. On 5 and 6 April, the roads running northeast and north from the El Guettar area began bearing long columns of Axis trucks, tanks, and guns. Allied air then gave them some of the same kind of treatment that Axis air had been meting out to Allied vehicles and men for so long.

On 6 April II Corps met tank and artillery fire near El Guettar from a rear guard. At that time the enemy was pulling northward from the Chott Position, too, and to hasten his departure, General Alexander ordered II Corps to provide maximum aid to Eighth Army. General Patton furnished it in the form of a lunging drive along the Gabes road by Benson Force. Once within Eighth Army's zone, Benson Force was ordered back before encountering Axis opposition, although many enemy troops had surrendered to it. At Maknassy Pass, the enemy pulled out after dark on 8 April, as did enemy units in the area north of it as far as Faid Pass. During 9 April Allied forces went through the undefended passes after lifting mines. The next day, an American armored column went through a minor gap (between Maknassy and Faid Passes) to the eastern edge of the Eastern Dorsal, then northward as far as Fondouk Pass; it then retraced its route as far as Faid Pass and returned westward through that defile to rejoin the 1st Armored Division.

The enemy, meanwhile, had been moving north in the coastal corridor toward his next defensive position, the "Enfidaville Line," thus evacuating the small, shallow ports of Sfax and Sousse and the many airfields and other facilities near Kairouan. On occasion, when communications difficulties denied to Field Marshal Kesselring the periodic situation reports from Tunisia that would have helped to keep his headquarters abreast of developments, German SIGINT then supplied him with information derived from deciphering Allied reports of Axis locations. Concentrated henceforth within the bridgehead, the enemy sought reinforcement and resupply. If he could not outstrip the Allies in those activities in April as he had in November and December, he would lose his African bridgehead entirely. If he could not hold it, despite the nearness of his Sicilian and Italian bases, how could the Axis expect to escape ultimate defeat?

While U.S. II Corps began its efforts in mid-March to draw as much as possible of the Axis reserves from the path of Eighth Army, the condition of Allied field SIGINT units was being reviewed by the "Y" Northwest Africa (YNA) Committee. American participation remained in substance that of an auxiliary, or client, of the British "Y" organization. With the U.S. II Corps, Captain Skillen's British 55 Wireless Intelligence Section was

reinforced by ten Americans in Detachment "A," 849th SIS. The 128th Signal RI Company that provided field intercept was not yet fully manned or fully equipped, though much had been done to replace its vehicles and equipment, lost at sea off Oran.

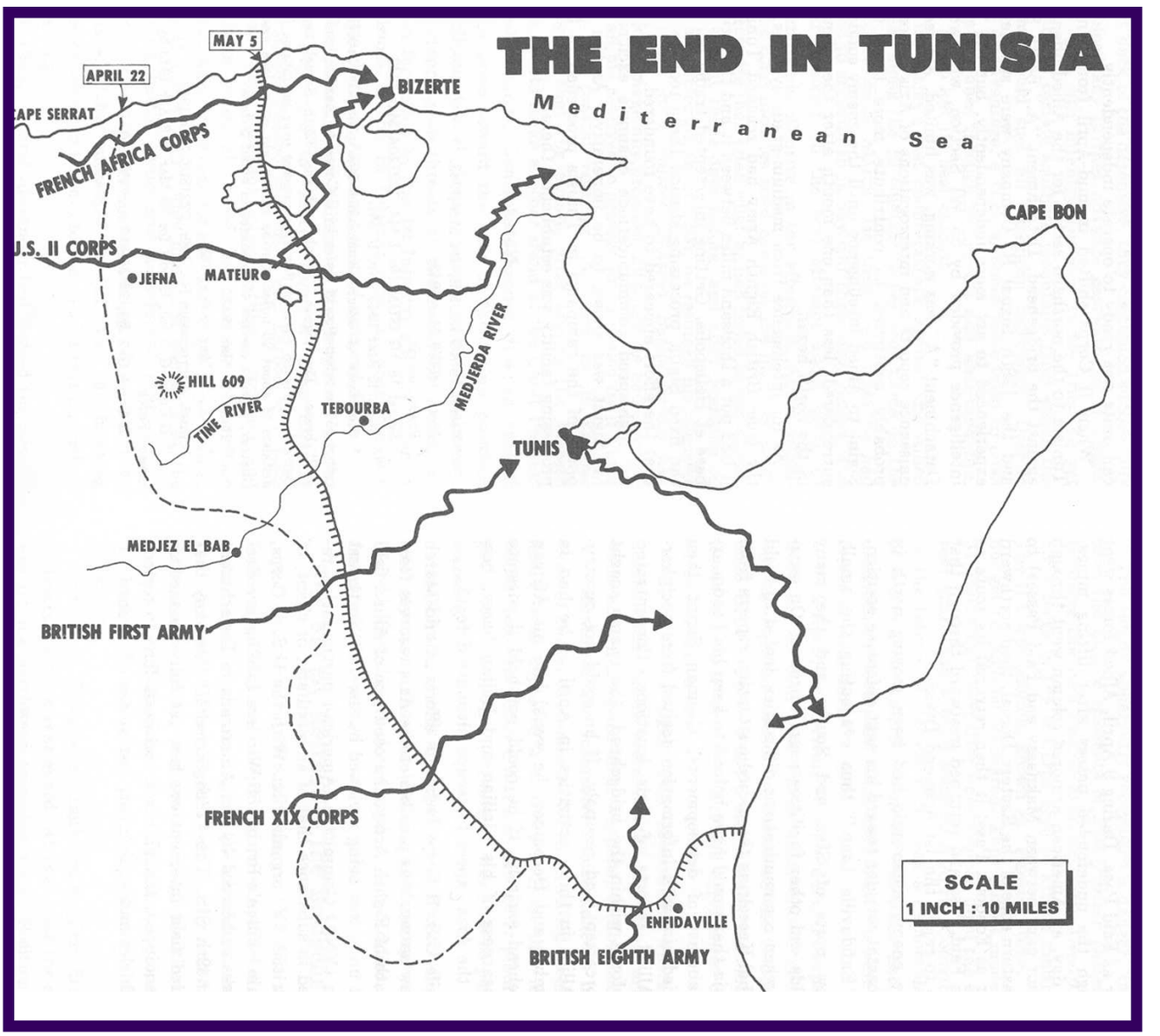
Other U.S. SIGINT personnel arrived in the Algiers area only a short time before the March operations. The YNA Committee agreed that none of the American units was ready to operate independently.

When II Corps shifted in mid-April from central Tunisia to the northern sector for the Allied offensive against the bridgehead, Detachment "A," 849th SIS, and the 128th Signal RI Company were sufficiently experienced to act more independently, but the "Y" intelligence provided by 55 WI Section, with which Detachment "A" was working, was limited. Air reconnaissance reports and interrogations of Axis prisoners probably continued to contribute more than field SIGINT to Allied intelligence until the enemy suddenly surrendered, less than one month after the offensive in the north began.

As for intelligence from medium-grade systems, by the time British Eighth Army had reached Tunisia, it had put a thousand miles between it and the British base at Heliopolis. Getting intercepted traffic back to the fixed SIGINT processing station there took so long that the effort appeared to have foundered. The need for high-speed communications channels exclusively for SIGINT was shown to be imperative. As the last phase of the campaign in Tunisia proceeded, a field processing facility was established there.

Notes

1. 18 AG ISUMS, 3/4 Mar 1943.
2. Ibid., 1800/8 Mar 1943.
3. Praun, *German Radio Intelligence*.
4. 18 AG ISUM No. 1/144, 122140A Mar 1943.
5. Ibid., 15 Mar 1943 (No. 1/155).
6. One form of secure communications promptly brought a report of the occupation of Gafsa by II Corps, to rear headquarters at Tebessa. The pigeon "Yank" of the 829th Signal Service Battalion's Pigeon Platoon, flew the message over mountains for a distance of about ninety miles. During subsequent operations near El Guettar, pigeons carried forty-five messages in about five days.
7. Ibid., 17 Mar 1943.
8. Ibid., 22 Mar 1943 (1/183).
9. Intell Appreciation No. 1/89, 222130Z Mar 1943
10. II Corps G-2 Jnl, Report for 30 Mar to 8 Apr 1943 by S-2, Benson Force.
11. II Corps G-2 Jnl, 30 Mar-3 Apr 1943.


THE END IN TUNISIA
MAY 5
APRIL 22
BIZERTE
Mediterranean Sea
CAPE SERRAT
FRENCH AFRICA CORPS
CAPE BON
U.S. II CORPS
JEFNA
MATEUR
MEDJERDA RIVER
HILL 609
TINE RIVER
TEBOURBA
TUNIS
MEDJEZ EL BAB
BRITISH FIRST ARMY
FRENCH XIX CORPS
ENFIDAVILLE
BRITISH EIGHTH ARMY
SCALE
1 INCH : 10 MILES

Chapter 5

The Final Phase in Tunisia

Summary

The U.S. II Corps moved in April 1943 from central to northern Tunisia to occupy a sector on the northern wing of First Army. The main assault was to be delivered on their right by British V and IX Corps, supported by most of the Allied aviation. British Eighth Army released divisions to First Army for commitment as part of a powerful armored and infantry thrust on a relatively narrow front. Lieutenant General Omar Bradley, now commanding II Corps, operated directly under 18 Army Group, which expected him to play much the same role in respect to the First Army's attack that Patton's II Corps had been assigned when Eighth Army faced the Mareth and Chott positions. In short, II Corps was to push hard enough to pin down as many enemy forces as it could while the main effort broke through. After Tunis had fallen to British First Army, it would send elements to join II Corps in seizing Bizerte.

The campaign did not work out that way. II Corps had a French component at the extreme north, the U.S. 9th Infantry Division in the center, and the 1st Infantry Division at the south. As the front developed, the 34th Division went into line near the center, and the infantry of the 1st Armored Division attacked among the hills on the extreme south flank, next to British V Corps. The armored elements of the 1st Armored Division, except for small-unit operations in support of infantry, remained in reserve until they could be committed on terrain better suited to armored offensives than was the zone of steep-sided hills and narrow deffies where the infantry struggled. The attack advanced slowly until the tired enemy lost whole groups of mutually reinforcing hills at the same time, and then fell back to defend other such groups. Once the way had been cleared, II Corps made rapid progress, first to cut all connections by land between Tunis and Bizerte, and next to envelop and occupy Bizerte and its valuable port. That occurred on the same day that British troops entered Tunis.

The Attack Begins

At 1400, 15 April 1943, the II Corps Command Post (CP) opened about two miles from Bedja after the Corps moved, by divisions, from central Tunisia. At 1800, 19 April, II Corps assumed control of its area.

The 128th Signal RI Company established itself in vans nearby with nine sets monitoring medium frequency (MF) and two sets monitoring very high frequency (VHF) voice transmissions. For DF they had a SCR-255 at hand and, about ten miles out on the diverging roads from Bedja to Mateur and from Bedja to Medjez el Bab, two SCR-200s with semi-portable loop antennas. They used a telephone line to Headquarters, II Corps (G-2) and were in touch with Headquarters, First Army, by radio on a two-hour schedule. During the advance by II Corps from 24 April to 11 May 1943, through the mountains, across the Tine River Valley, and over the last hilly barriers to the coast, the company intercepted a total of 2,766 messages on about 50 different frequencies.[1]

The analysts were soon able to produce useful SIGINT: 55 Wireless Intelligence Section identified and located V Battalion, 90th Armored Regiment, and sought recognizable signals from the 580th Reconnaissance Unit. The VHF radiotelephone used by elements of Regiment Barenthin was heard reporting that the Allied line facing them had been reinforced and seemed to be moving toward an attack. The voice traffic of that unit could be heard thereafter at distances of fifteen to twenty miles. In

time, they could read traffic of the dismounted 10th Motorcycle Battalion (operating as an infantry unit), which transmitted in a system involving resetting a code by sliding. The meanings of an alphabetically arranged code, in which all digits were in the "W," were slid one group daily in the *Heeressignaltafel (HST)*, the basic German Army book of codes. At intervals, the daily shifting was augmented by random rearrangement of blocks of code meanings from that of the HST. Captain Skillen's unit could also read traffic on a link between Headquarters, ARKO 104 and one of its batteries, plus traffic of the 580th R.U., of I Battalion, 43d FLAK Regiment and Regiment Barenthin.

Before the Allied attack opened on 23 April, the Corps "Y" unit gave G-2 a series of items. On 19 April, about an hour after intercepting a report that showed which areas had been covered by night patrols during the preceding night, the unit furnished a translation to G-2, II Corps.[2] Another report showed that the ration strength of the 3rd Company, II Barenthin Regiment, was less than 194, plus one horse and four mules, and that effectives were less than 10 officers, 33 NCOs and 105 enlisted men.

II Corps was not yet sufficiently familiar with the terrain ahead of it when its attack began. SIGINT identifications of the order of battle and positions of the foe were therefore the more important. Air reconnaissance by bombers on their return from bombing targets well within the bridgehead contributed information that was "fragmentary and scanty." At first, requests of the XII Air Support Command, to which II Corps looked for aerial reconnaissance, had to be submitted via British First Army headquarters in time for a committee that met daily at 1900 hours. The committee then decided what requests would be accepted for execution the next day. Spot requests were made through air-liaison parties with the division headquarters. For the first two days all requests from II Corps were rejected; on the third day, weather precluded air reconnaissance.

At the beginning of the Allied attack, a captured set of code lists showed the composition of various enemy formations.[3]

The daily G-2 reports from AFHQ-in-the-Field, beginning on 25 April 1943, contained an annex in which units and locations were identified. The information was largely attributed to interrogation of prisoners and interpretation of captured maps and documents.

First Army furnished a daily "Y" Summary to the three SIGINT sections with V Corps, IX Corps, and adjacent U.S. II Corps, summaries in which identifications, locations, and activities of the Axis forces facing each of them were made available.[4]

From readable Barenthin traffic, "Snoopy" reported on 26 April that I/Barenthin was moving that night. On 27 April the "Y" unit reported at 0200 hours the enemy's quiet withdrawal from Hill 407 but not from Hill 473. Troops from the former became company reserves in a sheltered ravine exit. Other shifts were noted in advance of evacuation, and the enemy's situation on various hills was ascertained by SIGINT.

On 27 April 1943 First Army informed II Corps that German military leave to Europe, even under compassionate conditions, was no longer permitted. Presumably that came from Ultra. The enemy was obviously becoming desperate.

The End in Tunisia

On 2 May 1943 almost all reports to II Corps from the 9th, 34th, 1st Infantry, and 1st Armored Divisions showed that the stubborn Axis forces facing them either had already withdrawn, were withdrawing, or had become scattered and inactive. Early next morning, the 1st Armored Division ran the thirty miles to take Mateur. On 3 May there was further "Y" evidence that elements of the Barenthin Regiment were pulling back generally south and east of Mateur. Meanwhile, British V Corps was grinding down the 7th Panzer Regiment,

the 10th Panzer Division, and other enemy formations opposing the main British assault toward Tunis.

II Corps moved its Command Post eastward on 3 May 1943, as the 1st Armored Division attacked out of the narrow valleys onto the plain, and pressed northeastward into Mateur. At the same time, the 1st Infantry Division attacked eastward toward the enemy's improvised line on the far side of the Tine River Valley. One armored force thrust through extremely rough terrain to a point of vantage above the coastal plain southeast of Bizerte while other II Corps troops encircled Bizerte's closer landward approaches. A British mobile reconnaissance unit coming along the road from Tunis toward Bizerte found Americans already solidly established and German forces scattered in separate, disorganized, and surrendering segments. Both Tunis and Bizerte were occupied by the Allies on the same day, cutting the Axis forces off from support by sea. Soon, more or less immobilized for lack of motor fuel, the enemy facing the Eighth Army south of Tunis was attacked from the rear and forced to surrender.

The end of the Battle for Bizerte brought praise from II Corps, G-2 for the "Y" service that it had received. Some SIGINT had been derived from the traffic of enemy formations that had formerly operated within the II Corps area in central Tunisia but which, in northern Tunisia, faced British V or IX Corps. The SIGINT unit quickly discovered the vulnerability of the VHF communications of Regiment Barenthin and exploited it fully; timely SIGINT information enabled the 1st and 34th Divisions to benefit materially, and II Corps to sense the trends.[5]

Perhaps because American officers were unaware of how much intelligence the Allies gained from enemy radio signals, they could not recognize the need for adequate communications security.

> ***It is shocking, reported one divisional signal officer, to find the number of officers who have no idea what this term (signal security) means. Officers are prone to discuss all plans, present and future, over the telephone. Names of commanders and units are frequently mentioned... Radiotelephone was used to a great extent. Signal security was violated extensively. Codes and ciphers were available but no use was made of them. For some unknown reason telephone directory names are used as addresses over the air [Monitoring] gleaned the information that one unit was in danger of being cut off and that artillery and mortar fire of the enemy was extremely accurate. Our reconnaissance troop always telephoned when it started out...and when it was returning...***

At the end of the campaign in Italy, one captured German general said, during an interrogation (as translated):

> ***I recollect especially the interception of wireless messages sent in clear by U.S. units in Tunisia. The enemy situation became known to us by this means right down to the setting of detonators in mine fields and the minutest changes inside enemy units.***[7]

"Why are you not observing the truce which has been in effect since 1200 hours?" Thus on 9 May 1942 Headquarters, Fifth Panzer Army, queried its subordinate division commanders according to radioed orders in normal form, using correct callsigns and the right frequencies. It was in fact an instance of Allied radio deception, recalled by the army's chief SIGINT officer during an interrogation four years later. If it was ineffective, because of detection and exposure, it may have been that surrender superseded any truce.[8]

German SIGINT became more valuable to German commanders as reports of air observations dwindled, either because of weather conditions or because of Allied air supremacy. When the interrogation of Allied prisoners of war yielded scanty results, German SIGINT provided information from men as yet uncaptured. As Axis commands in Tunisia failed to provide information on which Kesselring's headquarters in Italy could base its periodic reports to Hitler's headquarters, SIGINT provided an alternative source of information. From the intercepted reports by Allied field commanders in Tunisia to higher headquarters there, German SIGINT enabled O.B. Sued in Italy to determine the Axis situation in various parts of Tunisia.

The end was a quick collapse. In the bridgehead the Axis forces fared no better than farther south in respect to supplies of ammunition, fuel, food, and ordnance. Their routes of resupply from Italy were less varied and the Tunisian terminals fewer than had been the case before the concentration. Tunisian airfields used by the Luftwaffe either for combat operations or air transport were less widely dispersed and correspondingly more vulnerable to Allied air attack. Protection of ports, airfields and sea approaches diminished. Ultra furnished advance notice of Axis shipments. By sea and air the Allies cut down the tonnages brought to Tunisia, more than offsetting the shortened routes of overland delivery. Despite the rapidly deteriorating situation, the Fuehrer allowed no substantial evacuation, even of highly valued specialists, until too late. FAK 621 was captured. Left to become Allied prisoners of war were Italian troops that might have defended Sicily, and German commanders and veteran troops that could later have strengthened the defense of continental Europe.

Notes

1. Captain Sidney L. Jackson, *Tactical Communications in North Africa*, 145, OCMH, DA, records. See also G.R. Thompson and others, *The Signal Corps: The Test* (Washington, D.C. 1957), 386.

2. II Corps G-2 Jnl, 15, 19 Apr 1943.

3. AFHQ-in-the-Field, G-2 Report No. 166, 23 Apr 1943.

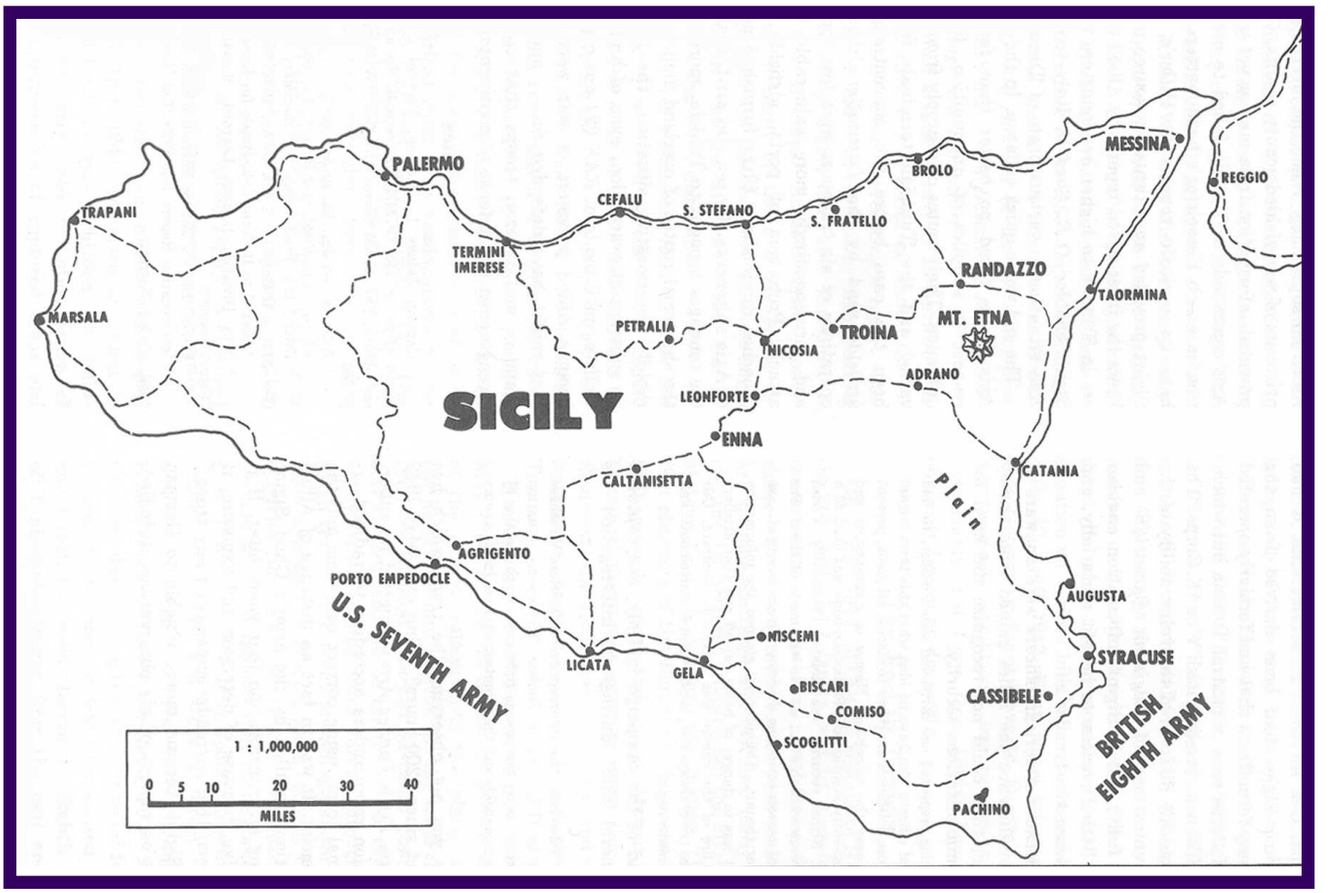
4. GSO I (S), First Army "YO" Summary, 2245/24 Apr 1943, (No. 314) in n Corps, G-2 Jnl, 25 Apr 1943, No. 21.

5. Annex C to II Corps G-2, Battle for Bizerte, 13 May 1943.

6. 34th Division, Lessons Learned, Signal Officer, para on "Signal Security."

7. CSDIC/BP/No. 297 on Microfilm Reel, Source, Boehme.

8. Interrogation Report No. 5929 (Col. Ludwig Karn), 27 Feb 1946. IF-204.


SICILY
PALERMO
TRAPANI
MARSALA
TERMINI IMERESE
CEFALU
S. STEFANO
S. FRATELLO
BROLO
MESSINA
REGGIO
RANDAZZO
TAORMINA
MT. ETNA
TROINA
PETRALIA
NICOSIA
ADRANO
LEONFORTE
ENNA
CALTANISETTA
CATANIA
Plain
AGRIGENTO
PORTO EMPEDOCLE
U.S. SEVENTH ARMY
LICATA
GELA
NISCEMI
BISCARI
COMISO
SCOGLITTI
AUGUSTA
SYRACUSE
CASSIBELE
BRITISH EIGHTH ARMY
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Chapter 6

From Africa to Europe

Decisions in 1943

The conclusion of hostilities in Tunisia cleared the way for future Allied operations. Seizure of Sicily was to be next, as decided in the preceding January during the Allied conference near Casablanca. Components of the Allied force for the Sicilian operation had been selected, and final plans and preparations occupied the next month and a half. At Quebec another Allied conference produced a decision to invade southern Italy as soon as Sicily had been secured, with the goal of liberating Rome. Surrender by the Italian government to the Allies was expected to precede the second invasion. Forcing a withdrawal of German forces up the Italian peninsula to the Po Valley or the Alps was also thought to be not only possible but probable.

For the invasion of Sicily (Operation HUSKY), American ground forces were to be known as the U.S. Seventh Army under Lieutenant General George S. Patton, Jr., a command consisting of U.S. II Corps under Major General Omar Bradley and, as circumstances developed, a U.S. Provisional Corps under Major General Geoffrey Keyes. The British Eighth Army, under General Sir Bernard Montgomery, was expected to land at the southeast corner of Sicily and attack generally north along the coast, past Mt. Etna, to Messina. The Seventh Army was to cover his western flank and sweep up the western part of Sicily and gain the harbor of Palermo near its northwest corner, before pushing north of Mt. Etna to Messina.

Controlling both armies was Headquarters, 15 Army Group, under the command of General Sir Harold Alexander, the ground force commander of the Allied Force. At that stage of the war in the Mediterranean area, British confidence in the performance of American troops, whatever their potentialities, had not yet been fully established.

The decisions to attack Sicily and mainland Italy confronted SIGINT planners with overlapping problems. They had to provide adequate "Y" service for the Seventh Army in Sicily and the Fifth Army in Italy, as well as for the Twelfth Air Force and for the commander, U.S. Naval Forces in North African waters, supporting the two armies. They had also to develop the level of competence of American "Y" units. A brief review of the SIGINT situation at this point may be useful.

The technical aspects of U.S. tactical SIGINT production remained for more than a year under the impediment of a NATOUSA security policy which obligated intelligence personnel to withhold from intercept personnel even the technical cryptologic information and intelligence requirements underlying their tasks. Instead, the intercept operators received daily assignments to cover specified frequencies and callsigns while SIS personnel supervised in order to ensure proper coverage. The production of "Y" by American SIGINT personnel had begun in Northwest Africa with field training; it required from three to five months for a unit to be able to perform well. That period was one of tutelage, while the more experienced British "Y" organization did what could be done to expedite the process. At the same time, all production of "Y" required endless adjustments and innovations by the British themselves to cope with the enemy's ingenuity in providing security for his radio communications and to surmount technical difficulties in collection. For the British, especially in the first months of campaigning with the Americans, it was tempting to continue improving their own SIGINT organization and to use Americans in a contributory role rather than to devote the

necessary British resources to train Americans until they might act in a coordinate role. However strong the temptation, it could not wholly prevail against the determination of the U.S. Army to acquire the competence appropriate for its longer-run interests.

While American SIGINT personnel learned how to produce "Y" effectively in field conditions, American field commanders and staff officers had to discover for themselves the solid merit of SIGINT. Like their British counterparts, the American field commanders were skeptical of its validity and careless about using what they got. In Tunisia they had to be shown. In Sicily American ground troops got along without much "Y" until the last few days. In Italy the U.S. Fifth Army and Twelfth Air Force began to make full use of "Y." On the Anzio Beachhead, "Y," like Ultra, played a major role.

For the British "Y" organization, once they had accepted the determination of their American allies to develop a tactical SIGINT service, the immediate goal was to insure that the overall Allied "Y" service operated efficiently; a second goal, to expedite training of the Americans. Partially trained Americans either had a few more experienced British personnel with them on temporary duty, or they "double-banked" with a whole British unit. Intercept operations were conducted at forward sites to provide more effective coverage as soon as that became practicable.

At AFHQ, as we have seen, the "Y" North Africa Committee became the instrument for coordinating activities and agreeing on policy. Meeting in March 1943 and semimonthly thereafter, it dealt with preparations for Sicily and Italy. The original chairman was Colonel Harold G. Hayes. The four British members varied, but each represented his armed service in the Signals Intelligence Section of G-2, AFHQ.[1]

French Aid

In French North Africa a French SIGINT organization had operated clandestinely before Operat-ion TORCH, in spite of the presence of German and Italian armistice commissioners. The location of the French unit had been known to the British. After the French in North Africa joined the Allies as belligerents, their SIGINT unit cooperated. By April 1943 about twenty-five intercept operators and analysts were engaged in collecting and analyzing traffic from German Air Force and Italian networks. Both raw traffic and analytic results came to AFHQ.

After French forces reoccupied Corsica, a detachment of the French "Y" service operated for a time at Calvi. Collaboration between British and French SIGINT producers focused on the German Air Force. The British gave to the French SIGINT chief (Commandant Black) a full set of the German Air Force codes known at GCCS as the "Orchestra" series. He was also told that the Allies in the Mediterranean area were benefiting from a SIGINT service based upon a greatly extended intercept cover directly from the UK, but that participation in it could not be broadened to include the French. The disclosures may well have allayed French suspicions that they were being denied knowledge of matters about which they should be informed.[2]

Beginnings of the 849th Signal Intelligence Service

The first two United States "Y" units in the Mediterranean area, like the other combat troops in Operation TORCH, came from two geographically separate sources. The 122d Signal Radio Intel- ligence (SRI) Company with the Western Task Force crossed the Atlantic directly to the western coast of Morocco. The 128th SRI Company was sent from the UK to Oran, Morocco, as part of the Center Task Force. At Casablanca and Oran, detachments of each company were in the first or second convoy to arrive; the remainder of each company followed before the end of November

1942. With each detachment and each company as a whole were intelligence personnel detached from another American SIGINT unit, or, in the case of the 128th SRI Company, the British 55 Wireless Intelligence Section (WIS), consisting of three officers and twenty-two of other ranks. All were assigned to the Allied force. They were under the staff supervision of its chief SIGINT officer, the head of a SIGINT section in the Signals Division, AFHQ.

After the landings had succeeded and the French in Northwest Africa had joined the Allies in fighting the Axis forces there, the immediate objective of the Allied "Y" Service was to assist in the swift seizure of Tunisia. The 849th Signal Intelligence Service (SIS) was activated to provide American Army elements of the Allied Force with a field SIGINT center and with teams of intelligence personnel working with intercept operators of SRI companies. The teams would be attached to ground commanders (Army and Corps) and air commanders (Numbered Air Force or Air Support Command).

Compared to the United States, Iceland, or Northern Ireland, England was a better place for intercepting live German Army and Air Force radio traffic and for learning the intricacies of effective coverage. The work could be done in tents, huts, or vehicles adapted for the purpose, but actual, rather than simulated, ground combat conditions in the West were to be experienced in 1943 in the Mediterranean area only. Before it could be known how extensive and prolonged the campaigns there would be, ETOUSA sent more personnel to Algeria to become the basis of an American "Y" Service, while others went there directly from the United States. When NATOUSA was activated on 3 February 1943, the 849th SIS became the theater equivalent there of SIS, ETOUSA, in the UK. The latter could not avoid thinking of the diversion of its SIGINT personnel to the Mediterranean area as a drain instead of a seasoning process, but the experience gained was to be turned to account in preparing for the campaigns in western Europe.

The 849th SIS was activated at Fort Devens, Massachusetts, on 2 December 1942 with a strength of sixteen officers and 102 enlisted men. On 14 January 1943 the new unit, under Captain Richard L, Downing, embarked for Algiers, where it arrived on 1 February 1943. Meanwhile, another group of intelligence analysts, trained at Vint Hill Farms Station and Arlington Hall Station of the Signal Security Agency, was formed on 8 November 1942 as Signal Intelligence Detachment 9251-A and shipped to the United Kingdom for advanced training in SIS, ETOUSA. After that training was completed, it moved to Algiers, arriving there on 20 February 1943. Its strength was then fourteen officers and seventy-seven enlisted men. It provided much of the original personnel of the Intelligence Branch, 849th SIS.

Men like Major Herrick F. Bearce, who had come to Morocco with the Western Task Force, Major Millard F. Rada, who had been in London with Signal Intelligence Division (SID), ETOUSA, and Captain Richard J. Doney, who had been there

Captain Richard L. Downing, 1942 (Photograph courtesy of the Department of Army)

in the original SIGINT Section, AFHQ, were already in Africa when NATOUSA was established and before the 849th SIS arrived. They and a few other officers were assigned to the 849th SIS.

In the United States, when the 849th SIS was being planned, it had been expected that it would become an AFHQ staff element. The table of organization and the special list of equipment for which War Department approval was obtained were based on the belief that direct support would be received from Allied headquarters units. Instead, it was sent to operate in the field at Hammam Melouane, about thirty miles from Algiers, without the necessary "housekeeping" personnel and equipment. Major Rada became its commanding officer.

Like SIS, ETOUSA, the 849th was responsible for communications security, as well as communications intelligence, among United States Army organizations. Part of its mission was thus distribution and accounting for cryptologic systems, equipment, and material, and the security monitoring of their use.

The site taken by the 849th SIS at Hamman Melouane included buildings previously used by the French. At first, the electric power supply that had met French requirements with a thirty-kilowatt transformer gave much trouble. Fuses blew and had to be repaired rather than replaced. Circuit breakers separated. Insulation burned. Until the supply could be increased, it was necessary to establish a rotating schedule for the use of power for light in offices, mess halls, kitchens, day-rooms and quarters, and for operating the photographic laboratory and the communications equipment. An auxiliary five-kilowatt generator was found and a certain amount of rewiring lessened the inconveniences. Not until June 1944 did the 849th obtain two new diesel-powered, thirty-kilowatt generators. After a move to Italy, two more generators were added.

Communications technicians in the 849th SIS installed telephone and radio connections, and organized a message center which linked the Intelligence Branch at Headquarters with its detachments by radio and teleprinter. A captured German fifty-watt transmitter was first used with a U.S. Army receiver. In August 1943 an SCR-188, then one of the Army's better receivers, was installed, enabling the communicators to use a wider range of frequencies and more power, and, when replacement parts were needed, to obtain them more rapidly. Later a 500-watt transmitter came into service.

Headquarters, 849th SIS, had executive, administrative, and "overhead" personnel. The two main operating elements were the Intelligence and [Communications] Security Branches. A third element was the Enemy Equipment Intelligence Service, which included a Laboratory and Analysis Section, Editing and Publications Section, and two field detachments. The Intelligence Branch was supervised by the SIGINT Section, Signal Office, AFHQ (Lieutenant Colonel Harold G. Hayes), through Headquarters, 849th SIS, which furnished its products to G-2, AFHQ, through the same channel. The Telephone Monitoring Section of the Security Branch was also in direct touch with the Signal Office, AFHQ.

In February 1943 the new Intelligence Branch, 849th SIS, consisted of sections concerned with traffic analysis and cryptanalysis ("solution"), all working on low-grade German Army and Air Force traffic collected by the SRI companies as they arrived and set up their apparatus. A unit known for a while as the "Fusion Section" coordinated intercept and exploitation tasks, controlling intercept with information gained from a variety of intelligence sources. By May 1943 the changed nature of its work was reflected in a new designation, Records and Research Section. For almost a year more, it maintained records on German Air Force order of battle, compiled in the main from special intelligence and supplied via SID, ETOUSA, in London.

Detachments and Detachments

The Intelligence Branch, 849th SIS, created eight detachments. They were allocated, in association with parts of the four SRI companies that came to the Mediterranean, to Army and Army Air Forces commands. The 128th SRI Company, after participating in Operation TORCH, moved to Tunisia from the Oran area in January 1943. The 122d SRI Company, also in Operation TORCH, left the Atlantic Moroccan coast in January 1943 for training near Algiers. The 123d SRI Company arrived in Algeria directly from the United States in March 1943. Like the 122d, it served the Twelfth Air Force. The fourth SRI Company to arrive in Africa was the 117th, which came by sea directly from the United States to Oran, and thence to Boufarik, Algeria, on 30 March 1943.

Three detachments of the 849th SIS and two SRI companies were trained in North Africa to produce air tactical SIGINT. Detachment "D," formed in February 1943, and Detachment "F," formed in July 1943, worked with parties from the 122d and 123d SRI Companies on German Air Force low-security radio and VHF radiotelephone communications. Detachment "G," the third, was organized in July 1943 to process encrypted weather reports intercepted by a segment of the 122d SRI Company, and to pass them to intelligence units of the American tactical (Twelfth) and strategic (Fifteenth) Air Forces from a station near Foggia, Italy. Detachments "D" and "E" (VI Corps) both participated in the campaigns at Anzio and in southern France. Detachment "F" was involved, with the 123d SRI Company, in the formation of the 9th Radio Squadron, Mobile, USAAF.[3]

Comparable to German low-level ground force communications intelligence was that from German Air Force units. Aircraft-to-aircraft in flight, ground nets supplying navigational aids to aircraft in flight, messages passed point-to-point dealing with aircraft movements, reports by pilots of ship sightings, traffic on the enemy's safety service (rescue) nets, and miscellaneous items, when correlated, became the means of recognizing take-offs, air bases, and aircraft in flight on long-range bombing missions. Analysts developed competence gradually, aided by the instructions furnished by experienced analysts of 329 Wing, Royal Air Force, stationed near Algiers. Beginning in March 1943 they got their intercepted material from the 123d Signal RI Company. At Headquarters, 849th SIS, all but one section of the Intelligence Branch worked on low-grade German air traffic.

The practice of German air-reconnaissance pilots of radioing detailed reports when they observed Allied shipping or land convoys enabled Allied monitors to take bearings on the transmissions. Several reconnaissance planes were intercepted and shot down before the practice of reporting directly from aircraft was stopped. Later, at Anzio, the interception of such reports made it possible to warn ships, ground installations, and even artillery spotter planes to expect German air attacks. Occasionally, German ground controllers were heard vectoring fighters for attacks on Allied aircraft in flight, thus allowing a flash warning to be passed to the intended victims.

German communications were mostly plain language intermixed with jargon codes. An experienced monitor could tell whether the transmission was coming from a ground station (characterized by a lack of motor noise), a fighter aircraft (which employed standardized procedures and frequencies and was characterized by a larger number of voices during combat and by stereotyped orders concerning altitude and course), a reconnaissance aircraft (which made references to weather), or a training flight (which contained instructor's maneuver commands).

During flight, either aircraft were heard reporting their own positions, or they made it possible to locate them by taking DF bearings on their transmissions. Allied intercept operators were often able to report the number, type, position, altitude, course, and mission of an enemy formation and the fact that it had reported seeing Allied aircraft. Voice

traffic among the German pilots could be heard well before Allied radar scopes disclosed their position. The extent to which SIGINT successes were masked from the beneficiaries by attribution to radar or other sources of intelligence was to leave largely unappreciated the actual role of SIGINT teams.

In June 1944 two detachments with Army commands were reorganized and redesignated. Detachment "A," with Headquarters, Fifth Army, became the 3200th SIS Detachment (Type A), working with intercept operators from the 128th SRI Company. Its authorized strength under the new T/O rose from three officers and eighteen enlisted men to five officers and thirty-eight enlisted men. Detachment "E," with VI Corps, became the 3201st SIS Detachment (Type B), with a strength of three officers and eighteen enlisted men. In its new status it accompanied VI Corps into the Seventh Army under General Alexander Patch as that command made ready for Operation DRAGOON. A third unit, Detachment "B" (five officers and twenty-six enlisted men) and the 117th SRI Company in 1944 became the Seventh Army's Headquarters "Y" section but underwent no unit redesignation.

In May 1943 a new phase in the field training of American "Y" units began. The intelligence personnel at headquarters were distributed elsewhere. The original Solution Section and part of the Traffic Analysis Section were assigned to a new Detachment "F," 849th SIS. The men moved from Hammam Melouane to Boufarik, Algeria, in order to train with RAF "Y" service experts. The other part of the Traffic Analysis Section moved to Constantine in eastern Algeria to work with a party from the 122d SRI Company, which was engaged for a short period in attempting to intercept high-grade traffic for transmission to Arlington Hall in Washington for processing. They also collected German and Italian encrypted weather reports.

At the end of the month, as plans for developing SIGINT capabilities that were commensurate with American Army and Army Air Force undertakings in the Mediterranean seemed to promise success, they received a severe jolt. As far back as 10 February 1943, the War Department had been asked to authorize and man a pool of SIGINT personnel in the Mediterranean, a group able to process German and Italian military communications by radiotelegraph and radiotelephone. It was planned that analysts would reach the Mediterranean after a period of suitable training in the UK The 849th SIS would manage their use. When they arrived, however, the specified requirements had been disregarded. The Signal Security Agency had had no opportunity to screen the officers and men selected. Proficiency in German or Italian languages had not been assured.

The Signal Security Agency had not been able earlier in 1943 to meet a requisition from the chief SIGINT officer, AFHQ. He had been given officers trained in Japanese, French, and Spanish, and meteorological SIGINT, whom he was ready to have returned to the United States for assignments where they could be better used, and to keep only two officers who knew German.

Detachment "H" was the last to be created. Most of its members had come to Northwest Africa in September 1943 after passing a short course in the analysis of low-grade German Army systems. They then began a few months of training in Sicily before moving to Italy (near Caserta) in December, with a detachment of the 128th SRI Company and, temporarily, Detachment "A," 849th SIS. From January 1944 to the end of the war, Detachment "H" was the SIGINT unit with Headquarters, II Corps, being redesignated in February 1945 as the 3915th Signal Service Company (RI).

These items pertaining to the union of detachments of the 849th SIS and detachments of the SRI companies demonstrate that in the Mediterranean area production of tactical SIGINT was accomplished by improvising suitable units. To look ahead, the operations in which those teams of intercept and intelligence specialists were to

participate demanded flexibility in organization. The campaigns included five major amphibious assaults. They extended from southern Tunisia to northern Italy and southern France. Air operations from the bases in Italy ranged far into southeastern Europe. The SIGINT team went through intermediate and advanced training under combat conditions and then into full production. The administrative processes of the U.S. Army called for standardized organization determined by adequate operational tests. In 1944 and 1945, certain new designations for modified tables of organization were applied in the theater.

An important consequence of the establishment in 1944 of Corps Signal Service Companies (RI) was the termination of the dual chain of command over SIGINT teams when two types of detachment interceptors and analysts were united. Under NATOUSA policy, SRI intercept operators had been denied access to technical SIGINT information, including the information governing selection of their intercept assignments. They received daily assignments to cover specified callsigns and frequencies; the SIS personnel had supervised intercept activities to insure correct coverage. After the merger, the barrier between the two types was abandoned. That was a major change for the 3915th Signal Service Company with II Corps, and in the 3916th with the IV Corps (under General Willis D. Crittenberger) in northern Italy. IV Corps had been served by the British 100 Special Wireless Section and a detachment from the 128th SRI Company until the new 3916th was formed; the British stayed on until April 1945, while the American analysts became expert. Since the central effort to change organization was that of ETOUSA, the subject will be taken up in more detail in that portion of this history.

During the westward movement of British Eighth Army across Libya into Tunisia after the Battle of El Alamein, the lengthening distance from the advancing SIGINT units with the Army Headquarters, the three Army Corps, and the Western Desert Air Force, to the base SIGINT center back in Egypt affected production adversely. On 20 February 1943 the shift of Eighth Army's subordination from GHQ, Middle East, to the new Headquarters, 18 Army Group, Allied Force, required adjustments in the SIGINT structure. When Eighth Army was selected to make the main effort in Sicily with a five-division assault, that also prompted adjustments. Once it was decided in July 1943 that, after Sicily, the Allied force would invade southern Italy, the prospect for Allied operations in the Balkans or eastern Mediterranean areas diminished greatly. Some British SIGINT resources in the Middle East had already been used in Tunisia and Sicily; in order to be well employed, others had to be brought west.

To cope with SIGINT production from Italian traffic, British Army and RAF sections that had worked in the Western Desert on Italian Army communications were flown into Tunisia. There they supplemented what a cooperating French "Y" organization was able to provide.

With General Alexander at Headquarters, 18 Army Group, at Ain Beida were British 40 WIS and 107 Special Wireless Section, operating in vans.

The 122d SRI Company moved to Constantine on 28 March 1943, relinquishing its quarters at Boufarik to the 117th SRI Company, which shifted eastward from Oran. In May the 122d moved via Bone, to La Marsa, near Tunis; the 117th shifted from Boufarik to Bedja; and the 123d SRI Company, with Detachment "F," 849th SIS, then moved to Boufarik.

Within a week after the Axis surrender in Tunisia, a small British intercept unit began operating at Fort du Kebir, three miles from Bizerte. Soon elements of two U.S. intercept companies occupied adjacent sites. At Bone the Royal Navy and at La Marsa the RAF developed stations for producing field SIGINT. SIGINT communications from Bizerte to Algiers, for relay to London and Washington, enabled the Americans to pass intercepted enemy

traffic in high-grade and medium-grade systems for processing at national centers.

It was not long before U.S. participation in producing special intelligence from German communications was covered by an Anglo-American agreement, causing American intercept resources in Tunisia or Algeria to be turned to other targets.

SIGINT before Operation HUSKY

For a while after the Axis surrender in Tunisia, a dearth of enemy high-level radio communications seemed to confirm an apprehension that on the continent such traffic would be carried by wire. Production of special intelligence like that accomplished while the German Army and Air Force commanders in Africa kept in radio touch with their superiors in Europe seemed likely to have come to an end. Happily for the Allies those forebodings were shown to be false during preparations for, and the actual defense of, Sicily. Both the German Air Force and the German Army on the mainland resumed the kind of radio traffic from which special intelligence of great value to the Allies could be extracted.

Special intelligence on the buildup of Axis forces in Sicily was carefully sought and studied. The transfer to Sicily of German troops from the mainland was observed in some detail. The divisions, tanks, guns, and vehicles became known, and their disposition was inferred. The calculation set the total at about 45,000 German ground troops and over 100 German tanks, most numerous in eastern Sicily. Attempts by the Allies to mislead the enemy so that he prepared for an attack elsewhere were only partly successful. In the event, the main cause of tactical surprise at the time of the landings was to be like that experienced later in Normandy: the onset of stormy weather while the convoys were en route.

The concentration of Allied vessels in the ports from Oran to Tripoli did not go unnoticed or unopposed by the enemy. One of the objectives of Allied "Y" service was to anticipate German air attacks on the coastal convoys and the ships moored in ports behind barriers of mines, under concealing smoke, and within a screen of antiaircraft artillery. When a German aircraft shadowed an Allied coastal convoy (if so ordered by its controller), it emitted homing signals which guided attacking planes to the target for action after dark. Interception of enemy reports and homing signals might, however, lead to a disrupting Allied air operation before the vessels could be struck. Enemy submarines also preyed on convoys between Algiers and Bizerte and had to be watched. The Lac de Bizerte was a high-priority target for German bombers, especially during the first week of July 1943 – a target protected by antiaircraft guns and Allied fighters, with the assistance of radar and SIGINT to furnish specific warnings.

In June a German reconnaissance plane reported seeing a certain number of vessels at Bizerte. Both British and American intercept operators copied the report, but the British and American decrypts differed. The former translated the message as reporting forty-six ships, twelve under steam, while the latter construed it to be fifty-eight under steam.

The Mediterranean Air Command and the Northwest African Air Forces in May 1943 set up a command post at La Marsa to control all air operations against Sicily and mainland Italy relevant to Operation HUSKY. The Chief Intelligence Officer, (Group Captain R. H. Humphreys), Mediterranean Air Command (MAC), organized his division into sections making use of special intelligence or "Y," and sited them adjacent to a Special Liaison Unit. The SLU worked twenty-four hours per day and gave direct service from the Air Ministry, Bletchley Park, and Headquarters, Mediterranean Air Command, in Algiers. One American officer worked with four British officers in the section handling SI on the German Air Force.[4] In a separate area for combat intelligence, three American officers dealt with "Y" and collateral non-SIGINT material. In a

nearby trailer, one American and one RAF officer handled target intelligence.

The Combat Intelligence Section was in close touch with Headquarters, Northwest African Air Forces (NWAAF), at Constantine, which relayed data from its elements to La Marsa. At La Marsa Airfield, the photographic interpretation unit provided information gained from reconnaissance missions which were recommended, in the light of intelligence and operational requirements, as necessary. "Y" information came to the section directly from the "Y" unit at La Marsa.

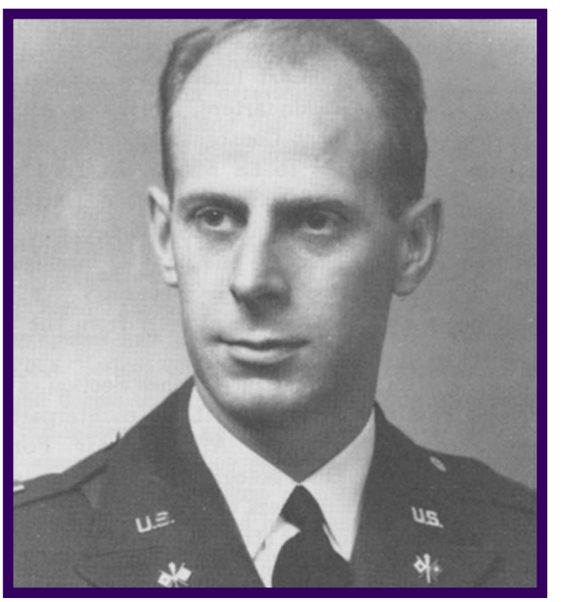
The Target Intelligence Section of the Command Post was in touch with its counterpart at Headquarters, Northwest African Air Forces (NWAAF), and with the Photographic Recon-naissance Unit at LaMarsa. Its dossiers were assembled to meet the requirements of either strategic or tactical bombing missions, as indicated by general policy, by SI, or by other sources. When SI indicated that intended targets had already been sufficiently bombed, changes were made the next day. The guidance provided through these arrangements, and the execution of the missions which they supported, damaged severely the German Air Force in Sicily and Italy.

"Force 141," the planners for Operation HUSKY, provided for "Y" service to ground and air commands from command ships during the landings and from units ashore during subsequent inland penetration.

To provide field SIGINT to American ground troops of the U.S. Seventh Army in Sicily, the American SIGINT units that had been training in Tunisia set up three detachments of intercept operators, each with a section of analysts. As Signal Intelligence Officer, Major Herrick F. Bearce, who had been in Tunisia attached to the "Y" unit supporting II Corps, was attached for Operation HUSKY to the Signal Section, Seventh Army. The three groups of analysts were to be Detachment "A," 849th SIS (with Headquarters, Seventh Army), 52 Wireless Intelligence Section and Detachment "B," 849th SIS (with II Corps), and Detachment "E," 849th SIS (with 3rd Infantry Division, Reinforced). About 10 officers and 310 enlisted intercept operators and analysts were involved in those preparations.

Small advance parties, equipped with transmitter-receivers, a special cipher system, and one 3/4-ton truck for each party, were prepared for landings with the three segments of the American assault force. The remainder would continue working in the Bizerte area until the beachhead extended about ten miles inland and would then move to Sicily. There they were to take up their tasks at sites to which the advance parties would guide them.

Those plans were never executed, although by 20 June all were ready. A little later the advance parties embarked. The main body never heard from them again until near the end of the invasion. Not until 9 August did the main body arrive in Palermo; the next day two detachments joined Headquarters, Seventh Army, near San Stefano; the third went to Headquarters, II Corps.



First Lieutenant Herrick F. Bearce, 1941 (Photograph courtesy of the Department of Army)

"Y" service for Allied air controllers during the landings was to be supplied by one unit with each invading army. They would have to await the establishment of Sector Operations Rooms before their information could be applied, so they were assigned to the D+ 5 follow-up convoy from Tunis. Two RAF SIGINT units were designated to join RAF 211 Group and the XII Air Support Command, respectively. The RAF 380 Wireless Unit was ordered to form and equip one self-contained, mobile radiotelephone team large enough to cover two HF and four VHF channels and to operate two DF vehicles (HF and VHF). They were to work at Headquarters, XII Air Support Command. Enemy use of radiotelephone communications in Sicily, however, yielded little material for Allied "Y" production compared to later developments in Italy.

For British ground forces, General Harold Alexander's Headquarters, 15 Army Group, acquired a British "Y" unit at Bizerte before the invasion, and General Montgomery's Eighth Army Headquarters had a similar one. The two Corps used in the assault, 13th and 30th, each also had field "Y" units of standard organization. The intermediate field SIGINT processing center, known as the 7th Intelligence School, which provided analytic support during the invasion of Sicily, discovered that interception from Tunisia was unsatisfactory. It met that situation by working on traffic collected by forward elements and sent back by airbag until an analytic unit could be shifted from Tunisia to Sicily.[5]

"J" Service

When the British Eighth Army came into Tunisia and some of its innovations became known at AFHQ, they were thought to be worth adopting. One example was a "J" Service, a monitoring of the communications of Eighth Army nets for two purposes. The "J" units could report accurate information swiftly to the intelligence and operations staff divisions at Army and Corps levels. They could also detect breaches of communication security and report them through Corps to the offending divisions for correction and discipline.

The Combined Signal Board, North Africa, on 26 March 1943, favored such an activity for the Fifth Army, then training in eastern Morocco. Brigadier General Lowell Rooks, G-3, AFHQ, directed the chief signal officer to form an "American Staff Information Intercept Organ-ization" from Fifth Army personnel, which would commence training by 19 April 1943.[6] AFHQ also ordered two British officers on 29 May 1943 to provide "J" Service to U.S. Seventh Army during Operation HUSKY. They were attached to Head-quarters, I Armored Corps, Reinforced, and placed under control of the Corps G-2. The RI platoons of divisional signal companies did the monitoring, under control of Division G-2. They caught many examples of insecurity.[7]

The mobile forward "Phantom Teams" of observers provided information of great value, despite occasional inaccuracies, on the locations, situations, and intentions of the individual units in combat. Corps headquarters rarely reported the exact locations of individual units, so the "Phantom" reports to higher headquarters filled a gap in information. Moreover, their reports arrived in a more timely way. Because the reports described a unit's situation without the benefit of a bigger picture, they tended to be less "balanced" than they might otherwise have been. Their reports of Allied intentions were obtained usually at a level too low to be reliable. But whatever the shortcomings, Allied commanders found invaluable the information about units of the different corps on their flanks, information which thus became available to them via Army headquarters. Allied commanders seemed to be reticent about passing information directly to flank and higher echelons.

Invading Sicily

Defense of Sicily came under command of General Alfredo Guzzoni on 30 May 1943, a few weeks before the attack. As commanding general, Italian Sixth Army, he controlled four Italian and two

German mobile divisions, the second of which, the Herman Goering Panzer Division, crossed to Sicily in June. General Guzzoni had also under his command six coastal defense divisions and lesser formations of Italian reservists. A German general with a small staff and a communications unit was liaison officer from O.B. Sued. The Sicilian populace was weary of the war and expected the Allies to win it. The island was short of food and transportation.

General Guzzoni's headquarters were at Enna, a central hill town southwest of Mt. Etna. The Italian XII Corps was responsible for the western, and the XVI Corps for the eastern, part of the island. At German insistence he split the armored elements into two major parts which were close enough to oppose Allied attacks wherever they began.

Although coastal defenses were spread rather thinly, three maritime areas were much more strongly prepared than others to deny access to ports. Under the command of the Italian Navy, clusters of coast artillery, antiaircraft guns, mobile batteries, motor torpedo boats, mine fields and special troops protected areas adjacent to Trapani on the west coast, Syracuse-Augusta on the southeast coast and Messina-Reggio on the Straits of Messina at the northeast corner. Having thus obliged the Allies to land over beaches, the defenders intended to delay by coastal defense forces and air bombardment the establishment of deep Allied beachheads. During the delay, mobile and armored columns would move to deliver overpowering counterattacks and to force withdrawal. If the Allies instead retained their beachheads, seized and captured a good port, they could be expected to grow stronger and become too powerful to be dislodged. The Axis forces would then face the choice of defeat by capture or defeat by withdrawal.[8]

The Allied Force established an advance command post on Malta, where General Eisenhower and his principal ground and sea commanders and their staffs kept their fingers on the push buttons. The headquarters of Air Vice Marshal Arthur Tedder, his air commander, remained in Tunis.

Two enormous naval task forces of warships, transports, landing craft, minesweepers, and other vessels conveyed the assault forces from African ports through seas that became stormy and rough but then abated during the transit. The Eastern Naval Task Force, under Vice Admiral Sir Bertram Ramsay, RN, carried the British Eighth Army of five divisions; about 250,000 men were aboard nearly 800 ships with 715 landing craft. The Western Naval Task Force, commanded by Vice Admiral Henry Kent Hewitt, USN, carried General Patton's Seventh Army; about 228,000 men were aboard 550 ships and 1,100 landing craft. Both armies included airborne troops to be dropped inland at key points to impede counterattacks and protect bridges from demolition.

Under General Alexander's Headquarters, 15 Army Group, the Allies entrusted the main effort to General Montgomery's experienced Army. Its initial goal was to capture an air base near Cape Pachino and the ports of Syracuse and Augusta, which were well prepared to oppose attacks by sea and air but less strongly organized against ground attack.

The key to Syracuse was a bridge (Ponte Grande) on the main coastal highway which extended over a canal and the wide, deep Anapo River, just south of the city near the head of the harbor. About 200 British airborne troops were dropped on a peninsula southeast of Syracuse. Eight officers and sixty-five enlisted men got to the bridge, removed the demolition charges, set up defenses against Italian counterattack, and held out for hours against infantry, artillery and tanks until relieved by advance elements of the British 5 Infantry Division. Only nineteen men survived. Their sacrifice enabled the Eighth Army to enter Syracuse before midnight of 10 July and to turn back German counterattacks later. By 14 July British troops and ordnance were being unloaded from transports in Syracuse harbor. The Eighth Army

pushed north to the Catania plain, but there it was held to a slow advance at great cost.

The U.S. Seventh Army (Patton) had divided its assault forces into three elements which were headed for more than forty miles of coast – near Licata, on the west, Gela, in the center, and Scoglitti, on the east. Twenty miles farther east, the British beach landings took place. General Patton's first mission was to protect the western flank of the Eighth Army in a beachhead that extended far enough inland to encompass enemy airstrips and all positions from which the ships and beaches could be shelled. Reinforcements and resupply would have to come ashore over the beaches; no ports of consequence would be available. Like the Eighth Army's assault landings, those of the Seventh Army would benefit from naval gunfire. In fact, they were to find it invaluable.

Allied planes had previously bombed all but two or three of Sicily's airfields and seaplane , bases out of service, and had forced aircraft to take refuge from them at airfields on Sardinia and near Foggia. Those airfields also had been hard hit. The enemy was understood to have in Italy 600 bombers and 850 fighters. Northwest African Air Forces had about 3,680 aircraft. At first, the Allied fighters were used mostly to escort bombers that were striking enemy targets rather than to maintain combat air patrols over the armadas or to intervene quickly as enemy bombers approached. Requests by the commander of the Western Naval Task Force for air support had to be relayed through Admiral Cun-ningham on Malta to Headquarters, Mediterranean Air Command, in Tunis, whence orders went to aircraft that might be available.

HMS *Largs* was the command ship for the Eighth Army and its supporting air. The air "Y" unit aboard the ship had arranged with No. 10 Field Unit (RAF) on Malta to perform an essential service. At Malta all radio information and radar plots pertaining to the invasion were to be filtered from the normal welter of traffic and broadcast to Largs at half-hour intervals. The transmissions were given the codename CLATTER; they were helpful. The eleven positions on *Largs* could not, like the many receivers at Malta, monitor the numerous frequencies on which important information was passed; the Malta arrangement was turned to the advantage of all three services as material came in.

The *Largs* unit had borrowed from 10 Field Unit a noncommissioned officer who was adept in German Air Force traffic in order to avoid having to rely on a specialist in the very different German E-Boat traffic who had been officially assigned. From 13 to 15 July, the "Y" unit on Largs passed data to the RAF Senior Controller on HMS *Bulolo* and relayed some information to the XII Air Support Command (ASC) near Licata.

Near beaches where certain American units had landed, an American minesweeper engaged in intercept on an involuntary one-time basis. A carrier pigeon landed on the ship, and an alert sailor obtained the message, which was in Italian. In it, a division commander was reporting to his superior that the Allied forces were "overwhelming," and that they were unloading material, undisturbed, from hundreds of anchored ships. Upon receiving this bit of "intercept," Admiral Kirk determined that it was not too highly classified to share. He had it broadcast over the ship's loudspeaker system to all hands.**9**

The arrival of paratroopers of the 82d Airborne Division during the night of 9/10 July 1943 alerted General Guzzoni that the attack had begun. He telephoned warnings to subordinate commanders. The commanding general of the Herman Goering Panzer Division (General Conrath) lost his wire communications with XV I Corps (General Rossi) and the Sixth Italian Army before his reconnaissance patrols could report encountering Allied paratroopers. A radio message from Kesselring's Headquarters at Frascati informed him that a major attack was in progress.

The American forces were unable to maintain their schedule for inland advance. The troops

ashore dispersed coastal defenders and seized numerous key points, but the beaches became a confused mess of broached landing craft and disorganized material. Antitank guns and tanks to combat counterattacking armored columns were too few. Only the most determined resistance by infantry units, with the aid of naval gunfire, turned back the enemy – in one case when the enemy was close to the beach. At one stage on 11 July the German defenders believed that their SIGINT had intercepted an Allied order for the U.S. 1st Infantry Division to return to the ships. The enemy came perilously close to sweeping along the Gela beaches and giving that division no choice in the matter.

Enemy air struck mainly at the landing operations off Gela on 11 July but also struck farther east. That night was very calm and clear, ideal for a second Allied airborne operation. It was equally suited to a heavy bombing attack by the Luftwaffe against the tired and jittery troops on land and the flotillas offshore. Unfortunately for the Allied airborne operation, its route of approach took its planes and gliders over Allied ships and antiaircraft batteries where they were not expected, where they were not identified, and where they drew fire of the kind appropriate for the enemy bombers which had just preceded them.

On D+ 2, however, when Kesselring flew from Frascati to consult General Guzzoni at Enna, the Allies were ashore to stay. Syracuse and Augusta had either fallen or been encircled. Airfields had become available to Allied aircraft. The U.S. Seventh Army faced a mountainous area through which General Guzzoni was shifting forces eastward, trying to stop Patton's advance and to reinforce the opposition to the Eighth Army. Kesselring concluded that delaying tactics alone remained feasible and so reported by radio to Hitler. The next day Hitler ordered such a defense, and on 14 July approved Kesselring's decision to send more German reinforcements. A German XIV Corps headquarters under the capable General Hans Hube, plus two more German divisions (1 Parachute Division and 29 Panzer Grenadier Division), and certain corps units were soon en route.

That night, Allied bombers destroyed Guzzoni's headquarters at Enna. He moved it to Randazzo, on the northern side of Mt. Etna, where General Hube also set up Headquarters, XIV Corps. All available mobile troops in western Sicily were called eastward to thwart the Allied plans.

Orders from General Alexander for the next phase of the Sicilian operations came to the commander of the Seventh Army on 13 or 14 July. While one corps of Eighth Army drove north along the east coast to take Catania and another corps moved via Enna and along the western slopes of Mt. Etna to the northern coast, Seventh Army was merely to engage those enemy forces that might otherwise oppose Eighth Army, but it was not to get tied down in a battle in southwestern Sicily.

Allies Push – Enemy Pulls Out

General Patton sent a "reconnaissance in force" that, aided by air bombing and naval gunfire, took Porto Empedocle on 16 July and Agrigento on the next day. He then persuaded General Alexander to approve offensive plans for the capture of Palermo. At the same time, the German high command (OKW) directed that the defense of Sicily be conducted in such a way that the three German divisions [Herman Goering Panzer (which absorbed 1 Parachute Division), 29 Panzer Grenadier, and 15 Panzer Grenadier)] could be removed from Sicily. General Guzzoni concurred in General Hube's program to accomplish that and planned to withdraw his Italian formations at the same time. Fitting nicely into that scheme was the change in Eighth Army's plan of attack.

After finding progress across the Catania plain slow and costly, General Montgomery persuaded General Alexander to approve a shift of Eighth Army's main effort to the west of Mt. Etna, what he called a "left hook around the enemy's defense line." It took his main effort away from tank terrain

into mountains, and far from the seaboard where he could, had he wished, have been assisted by naval gunfire; the new route would be beyond its range. The time required to get set for the new plan provided an opportunity for the opposing 29th Panzer Grenadier Division, as well as the paratroops, to be well deployed, and for the plans and means of German evacuation to be prepared.

Before Eighth Army's revised attack started, Seventh Army had entered Enna on 20 July and Palermo on 22 July; soon afterward it swept up all organized opposition in western Sicily, Trapani included. Though the port of Palermo was a handy target for enemy bombers and was cluttered with the results of German demolitions, it soon relieved the Seventh Army of dependence on southern beaches and miles of trucking for reinforcements or supplies.

Seventh Army was next brought into the revised Allied attack as a "prime spearhead" along the western and northern slopes of Mt. Etna. Beside the Canadians in the Eighth Army (moving via Leon-forte and Adrano) was to be the U.S. 1st Infantry Division (heading for Petralia and Troina). Along the northern coastal road were to be the U.S. 45th and 3d Infantry Divisions. To expedite the advance toward Messina by Seventh Army, U.S. Naval Task Force 88, under Rear Admiral L. A. Davidson, on 31 July 1943 began operations out of Palermo. While defending Palermo, it also furnished naval gunfire on request to troops fighting along the coast, provided transport and fire support for naval end runs around enemy defense positions, and ferried troops in order to relieve the burden on the coastal road. (Two cruisers and five destroyers were the escort and fire-support ships at the outset.) On 1 August the U.S. 9th Infantry Division arrived off Palermo in transports from Oran, and, after waiting out a heavy German dawn bombing attack on the city and harbor, landed and headed for the Troina area.

On 3 August the evacuation of Italian troops across the Strait of Messina began; on 10 August, the parallel German program (Operation Lehrgang) started. Special intelligence released on 6 August disclosed major aspects of the German program and the orders to practice ferrying. On 8 August more SI gave Kesselring's report of two days earlier that the Germans would withdraw across the strait by stages which had already begun and would continue through 12 August. General Hube had set successive main lines of resistance and had fixed the times to pull back from one to the next.

Seventh Army tried three end runs to cut off use of the northern coastal road for retreat by the 29th Panzer Grenadier Division. The first, on the night of 7/8 August around San Fratello, where the U.S. 3d Infantry Division had been stopped for five days, was fairly successful. The enemy was not cut off. He pulled back eastward, probably as much because of the loss of Troina, at the inland end of that line of resistance, as because of an unhinging at San Fratello. The second, on 10/11 August, to Brolo, was less satisfactory. The enemy learned from his own SIGINT that it was in progress, and sent bombers against the Allied ships. The troops that had gone ashore unopposed were later attacked from both east and west, and were also bombed by friendly aircraft. The troops inland with which they were to link up were not close enough. The Brolo operation was unable to check the eastward withdrawal by the enemy during the night of 11/12 August; indeed it may have speeded up the retreat.

The third end run, on a larger scale and including paratroops was intended to overtake the enemy. He was then probably already in Italy across the Strait of Messina.

The occupation of Sicily was already complete when the principal U.S. Army officer in charge of communications security received examples of violations during the operation, examples taken from intercepted German reports that were graded as SI. Those American messages disclosed military information of significance. They revealed the participating commands, certain intended

operations, places, times, and other details to the enemy. The route by which they had come to the knowledge of the officer commanding the Signal Security Agency precluded uninhibited use. It was a case of security impeding security.[10]

In the hotel in Taormina which had housed part of the German Air Force command in Sicily, records of its Horchdienst (Listening Service) covering a few days preceding the Allied assault landings, were found by Allied intelligence. A daily air situation report for the twenty-four hours before 0700 showed the efficiency and limitation of the German SIGINT service.[11]

Some Results

After the severe defeat in Tunisia, the Axis coalition began to collapse. The Italian Army had lost so large a portion of its best troops there that Hitler proffered five German divisions for the defense of Italian soil. Two of them were already in Italy en route to Tunisia. Instead of three more, Mussolini agreed in mid-May 1943 that one more would be acceptable, but he required that all three in Italy be under Italian tactical control. He did not then think it prudent to have too many German troops in Fascist Italy.

By the time he had changed his mind and was ready to accept more, Hitler had recognized that the Italians might eject Mussolini from power and seek a separate peace, so the matter remained uncertain even when Mussolini was indeed overthrown.

The Allies occupied Sicily as a step toward accomplishing Mussolini's downfall and "knock Italy out of the war." What ensued after Il Duce's incarceration was foreseeable. The Badoglio government first sought to reach an armistice or peace between the Axis partners and the Allies. Hitler would have none of that. Under various plausible pretexts, German divisions moved into northern Italy without either the consent or the resistance of the Italians, and while preserving the amenities with their Italian brothers-in-arms, all but invested Rome in the guise of protecting it from Allied invasion. The Badoglio government, recognizing that Italy's interests demanded peace, then entered into clandestine negotiations with the Allies. The Allies, on 20 July 1943, had finally decided to move into the Italian peninsula from Sicily and Africa, employing the British Eighth Army, the new U.S. Fifth Army, and naval and air components that had just participated in the Sicilian landings. Whether the Allies would receive active assistance from the Italian Army or passive resistance, or might even have to rescue them from German reprisals, remained in doubt. After Mussolini's fall, more than six weeks passed before Allied troops first entered the Italian peninsula.

While the occupation of Sicily was progressing successfully and other operations against the Italian mainland were in prospect, it was apparent that some British "Y" units in the Mediterranean should be shifted to sites where they could be used more efficiently. By the time the invasion of southern Italy began, the strategic situation of the Middle East was more thoroughly altered. The Western Desert and Northwest Africa, as separate fronts, had merged. Northwest Africa was the base from which the campaign in Italy would be sustained. Intercept stations in Tunisia had to shift to Sicily or the Italian peninsula to be effective against weak and fading signals. "Y" resources in the Middle East needed pruning. If unified control of air and sea operations in the Mediterranean could be established, control of "Y" activities would seem to require parallel treatment. For the RAF "Y" organization, that would involve termination of one Wing, transfer of its personnel to other "Y" units or to other duties, and only a temporary prolongation of British involvement in "Y" service to the U.S. Twelfth Air Force.

Thus, while the Americans were nearly ready to meet the "Y" requirements of their ground and air forces in the Mediterranean area, the British were obliged to consolidate their Mediterranean "Y" resources, and to squeeze out unneeded, experienced

personnel for employment in western Europe or in the Pacific.

Major Millard E. Rada, the commanding officer of the 849th SIS, went in July 1943 to GHQ Middle East for more information about British "Y" operations. He learned there what was done with German Army and German Air Force double Playfair encipherment and with Italian traffic in various systems and noted that AFHQ was better equipped for voice monitoring than was the British theater.[12]

Notes

1. An incomplete set of minutes is to be found on Microfilm Reel 37-C of the Mediterranean Air Command records with others of AFHQ, at NARC, Suitland, Md. Also in AHA records.

2. Memo from Chief SIGINT Officer, Mediterranean Air Command, to O.C. No. 276 Wing, O.C. No. 329 Wing, 15 Dec 1943, Subj: Liaison with French "Y" Service; Memo from MAC to DDI 4, Air Ministry, 5 Oct 1943, same subj.; msg from Chairman, London SIGINT Board, to Chairman, YNA Committee, 1 Dec 1943.

3. Hq, 849th Signal Intelligence Service [NATOUSA/MTOUSA], Operational History, (in NSA Hist. Coll) submitted to CSigo, War Dept (Attn: SPSIS) , 27 July 1945. Preface signed by Lt. Col. M.E. Rada, SC, Co., 849th SIS.

4. Humphreys, "The Use of ULTRA in the Mediterranean and Northwest African Theatres of War." (Oct 1945). Copy in NSA Hist Coll.

5. See "Report on Visit to North Africa/Sicily, July 28th-August 23rd" 4 Sept 1943, by Major J.M. Browning, for the disposition of British field "Y" units. AFHQ Film A/52/2. (Most Secret).

6. Minutes from A.C. of S., G-3, to SIG, 27 Mar 1943, Subj: Staff Information Radio Intercept Organization. AFHQ Microfilm Reel 58-I.

7. Report of Signal Section, Seventh Army, "Historical Data and Lessons Learned in the Sicilian Campaign." 319.1 Box 34/11, AHS Recs.

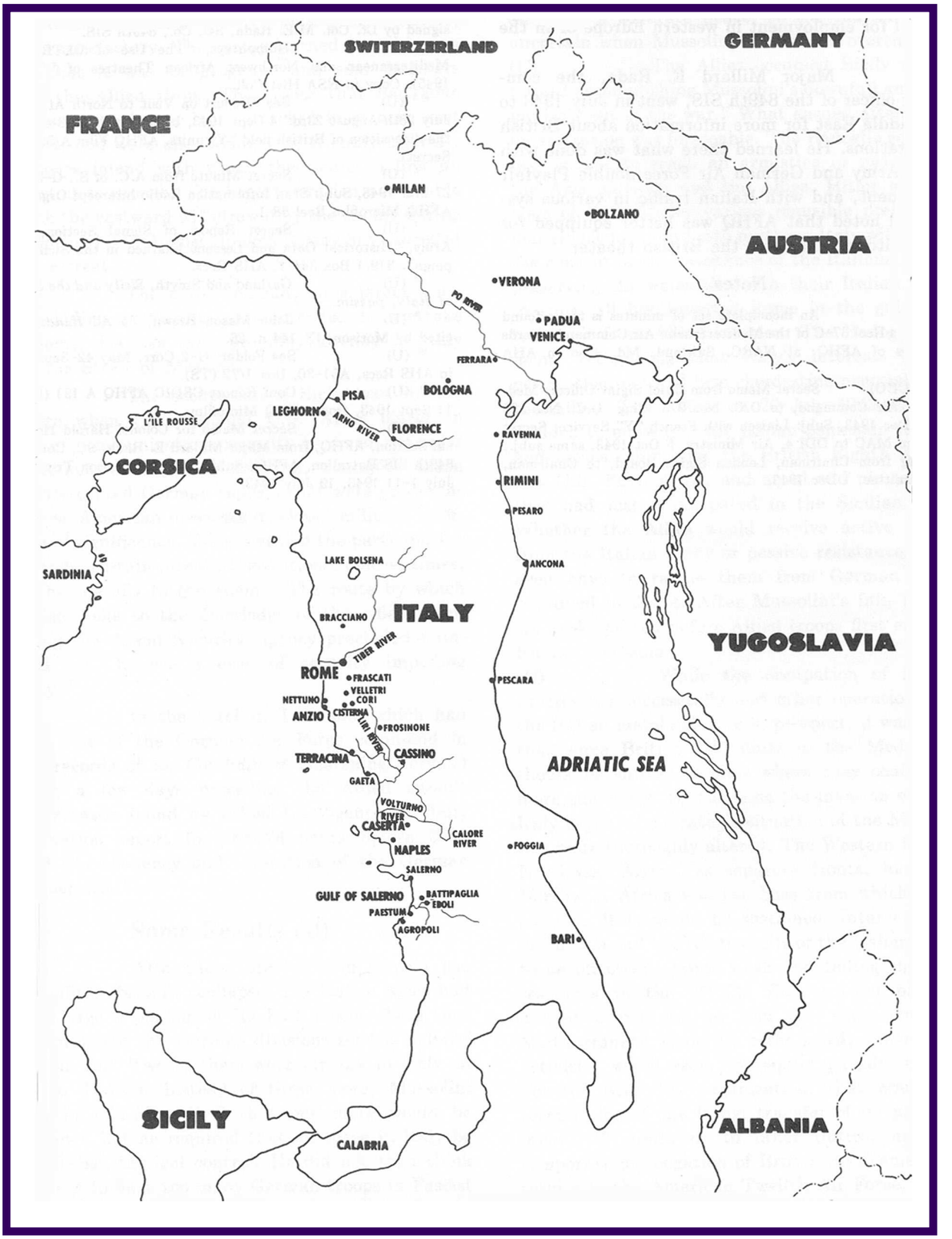
8. Garland and Smyth, *Sicily and the Surrender of Italy*, passim.

9. John Mason Brown, *To All Hands*, 144, cited by Morison, IX 144 n. 26.

10. See Folder: G-2 Corr, May 42-Sept 43. 20.1 in AHS Recs, A51-30, Box 1/72.

11. Report CSDIC AFHQ A 191 (F.N. 644) 11 Sept 1943, from AFHQ Microfilm.

12. Memo for Colonel Harold Hayes, Signal Section, AFHQ, from Major Millard E. Rada, SC, Commanding 849th SIS Battalion, AFHQ, Subj: Notes on Liaison Trip to Cairo, July 1-11 1943,19 July 1943.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TERRACINA
CASSINO
ADRIATIC SEA
GAETA
VOLTURNO RIVER
CASERTA
CALORE RIVER
FOGGIA
NAPLES
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Chapter 7

Salerno to Rome

Preliminaries

The third major amphibious assault in the Mediterranean area, that at the Gulf of Salerno, was much smaller than that at Sicily. It did not go wholly "according to plan," as the saying goes, and one might well ask, "What plan?" Not that it was unplanned, but, because the planning was subject to so many contingencies, it bristled with amendments of alterations of changes. Before the invasion of Sicily, the nearest that Allied leaders could come to an agreement on the next operation in the West was to charge General Eisenhower with drafting a plan for reaching certain conflicting goals. They would then review the plan and decide later what should be tried.

The operation that followed Sicily, they prescribed, must eliminate Italy as an adversary and tie down as many German divisions as possible, yet enable the Allies to make a cross-Channel attack in great strength beginning in May 1944. Part of that strength would have to be drawn from the Allied forces in the Mediterranean. Moreover, sealift and covering naval ships from the Mediterranean would be required for both a November 1943 amphibious assault in Burma, and a May 1944 invasion of France. The planners of AFHQ concluded, when Operation HUSKY (Sicily) was about to start, that its sequel would be governed by the rapidity with which the Allies succeeded in Sicily. General Eisenhower advised the Combined Chiefs of Staff (CCS) that he could certainly expect to cross the Strait of Messina and crawl through Calabria and that he might be able to enter Italy farther north at the Gulf of Salerno.

The Combined Chiefs of Staff believed he should plan to seize Naples, and when Mussolini fell from power on 25 July 1943, they approved an attack at Salerno with the resources already at the disposal of the Allied force. At Quebec in mid-August 1943 they confirmed that project, with the knowledge that the government of Marshal Badoglio was making overtures to the Allies for an armistice. Such a document was ultimately signed at Cassibele, Sicily, on 3 September 1943.[1] The decision at Quebec was followed by orders to British Eighth Army to cross the Strait of Messina and advance into Calabria as soon as possible in August.

In Africa and Sicily the Allied force accumulated men, ordnance, vehicles, and supplies for Operation AVALANCHE, which was scheduled to begin with beach landings on the Gulf of Salerno at 0330 hours, 9 September 1943.

The enemy was aware of the preparations but not of Allied uncertainties concerning destination, participants, and detailed plans that persisted as long as the role of the Italians remained in doubt. The Germans had already prepared plans for the military seizure of Italy as they had done for the military occupation of "Unoccupied France," almost one year earlier. While negotiations between the Badoglio government and the Allies were in progress, the German forces in Italy moved to positions enabling them to assume complete military control. The next question for the Allies was whether they could, in conjunction with Italians who would gain control of Rome, oblige the Germans either to pull back north of that city or be cut off in southern Italy. Until the last moment, such an operation was seriously contemplated. American airborne troops, they reasoned, could land on a Rome airfield that would be protected by Italian troops during their arrival, and be followed by seaborne reinforcements and support. All was kept in readiness to the last minute, but that airborne project was abandoned as was an airdrop previously

planned – one designed to prevent troops in the Naples area from moving south to reinforce the defenders at Salerno.

The enemy did his best to shatter Allied preparations for embarkation at Bizerte. On the nights of 17 and 18 August, large bombing raids inflicted substantial damage there, and on the night of 6/7 September an even larger attack occurred. As the convoys heading for Salerno moved along the northern coast of Sicily, they too fought off persistent air assaults.

The Eighth Army's postponement of departure for several days gave the enemy forces in Italy more time to prepare for the landings. And the end of a period of radio silence tipped the enemy off, but Eighth Army troops encountered only token resistance when they came ashore on the peninsula on 3 September. A few days later, in trying to run along the coast to block retreat, they had the misfortune to approach the shore just as a German column was rolling by. The column stopped, swung into action, and inflicted considerable damage among the boats before resuming its withdrawal.

At the Gulf of Salerno, early on 9 September 1943, the Fifth Army intended to land 55,000 troops, using about 450 ships, and 250 landing craft, to establish a beachhead and to bring in 115,000 more men for an advance to Rome. On some of the approaching ships men heard the BBC announcement of the Italian surrender on 8 September 1943, inducing a wave of misplaced optimism. Despite the many reasons for believing the invasion was expected by the Germans, Fifth Army planned to begin its landings at first light without preparation fire from the ships, lest the bombardment eliminate surprise.

A few hours earlier the king of Italy, his premier, Marshal Badoglio, and his chief of the Comando Supremo, General Ambrosio, barely escaped from Rome. The German plans for seizing military control and disarming Italian forces went into effect. The 2d Parachute Division and 3d Panzer Grenadier Division in the vicinity of Rome acted under orders of General Karl Student to disarm the Italian troops. As the Italian field commanders pulled back toward Tivoli, Germans occupied the headquarters and captured many Italian generals and other officers. Hitler expected all Italians to be treated as prisoners of war. Kesselring, who doubted that the Italians would defect from the Axis, was mainly concerned with the need to get unimpeded access to Rome at once for General Heinrich von Vietinghoff's German Tenth Army in the south, and was willing to allow his former allies to stack their arms and disperse. Rome he agreed to treat as an "open city."

For a day or so, an Allied airborne attack there was a subject of some anxiety, but the lines to German troops in southern Italy remained open. The Italian people, deprived of leadership – either political or military – made little difficulty for the Germans.

In accordance with the armistice terms, elements of the Italian Navy tried to sail to an Allied port. Many succeeded but almost fifty combat vessels were destroyed in Italian ports, or by air attacks while en route. German forces also overcame Italian bases in the Aegean Islands. Certain captured Italian officers were handed over to the new puppet government, headed by Mussolini, after his rescue on 12 September. They were then put to death.

Operation AVALANCHE

For Operation AVALANCHE at Salerno, the Allied Force used the American Fifth Army in its first campaign. The first American troops to go ashore were the Fifth's 36th Division. That division was part of a large array, neither wholly American nor wholly new to amphibious operations. Unlike the dispersed beaches of Sicily, the Gulf of Salerno faced a crescent strip of sand at the edge of a rolling alluvial plain enclosed within swiftly rising hills in a vast amphitheater. The streams that meandered through the plain, especially the Sele River and its

tributary, the Calore, were too deep and wide to cross except by bridges. Fields and orchards crowded the plain, but most dwellings were on higher ground around the edges.

The attacking force was opposed by the 16th Panzer Division, deployed a few days earlier in time to get set for an invasion from the sea. Although thinly spread, they had prepared strong points to cover the approaches, beaches, and exits with machine gun and artillery fire and had mined the sea approaches and mined and wired the beaches themselves. Tank traps and batteries of mobile antitank guns would limit Allied armored support for an infantry that might succeed in getting off the beach. Antiaircraft gun positions were made ready. German tanks would move to danger points above the beaches.

Against those preparations, the Allies sent an Anglo-American naval force commanded by Vice Admiral Henry Kent Hewitt, veteran of Operations TORCH and HUSKY, who was aboard the USS *Ancon*. His armada divided into two Anglo-American attack forces, of which the northern had a Royal Navy commander and the southern, an American.

The U.S. Fifth Army, under Lieutenant General Mark Wayne Clark, consisted of the British 10 Corps, under Lieutenant General Sir Richard McCreery, and the U.S. VI Corps, under Major General E. J. Dawley. Three battalions (1st, 2d, and 4th of U.S. Rangers) and a British Commando Unit formed a part of 10 Corps, which contained the British 46th, 56th, and (in reserve) 7th Armoured Divisions. General Dawley had the American 36th and 45th Divisions in the assault and the 3d Infantry Division in reserve. In Sicily, the 82d Airborne Division waited in Army reserve.

The landings were to be supported by both carrier-based and land-based aircraft. Two fleet carriers of the Royal Navy and five small carriers would endeavor to protect the ships; the XII Air Support Command (Brigadier General E. J. House, USAF) of the Northwest African Air Forces would provide tactical air support in the battle ashore. Allied fighters from Sicilian airfields could operate over Salerno for only about twenty minutes before turning back with just enough fuel to get home. An Italian airfield at Montecorvino near the inland edge of the 10 Corps' sector was therefore a major D-Day objective.

The goal of Operation AVALANCHE was to occupy the small harbor at Salerno, the Salerno plain, the airfield at Montecorvino, and the road and railroad center at Battipaglia, nearby. In the steep-sided mountains between the Gulf of Salerno and the Bay of Naples to the north, the Allied Force intended to occupy the passes and adjacent heights. Firmly ashore, the Fifth Army would wheel left through those passes and over roads farther inland to capture Naples. After clearing the port at Naples of the expected demolitions, Fifth Army would bring in the reinforcements and supplies necessary to reach planned totals of 225,000 troops, 34,000 vehicles, and 118,000 tons of material.

A beachhead line to be reached, if possible on D-Day, ran along the hills ringing the plain. It embraced Vietri and Salerno on the north, Battipaglia, Eboli, Persano, and Ponte Sele in the center, Agropoli, Paestum, Capaccio, Albanella, and Altavilla, with an adjacent Hill 424, in the southern sector.

Like other amphibious assaults, AVALANCHE might have begun a race to establish stronger forces at key inland points. Instead, the 16th Panzer Division was there to greet the landing craft of the Italian surrender on on their way in, and to subject the troops of VI Corps and 10 Corps to a harsh reception. Next, it became a struggle to occupy and hold, or if driven away, to return and hold, key areas while opposing reinforcements approached. Lastly, it was a contest to strike weary troops, dispersed at various vulnerable points on the flanks or along the corps' boundary, with stronger troops concentrated to attain superiority in numbers and fire power.

On 9 September 1943 the Fifth Army got ashore despite the preparations to stop them en route or on the beaches. The enemy used his prepared positions plus his mobile tanks and artillery batteries in such a way as to make impossible any deep inland penetration. At the extreme left, a force of U.S. Rangers and British Commandos developed a separate beachhead on the steep-sided Sorrento peninsula, and got control of certain passes through the heights. At the right, elements of the 36th Division got to Paestum and Capacclo. But in both 10 Corps and VI Corps zones, the advance was not deep, and retention was possible only because the enemy's tanks had been neutralized or destroyed by naval gunfire, by two battalions of field artillery carried to the dunes by amphibious trucks (Dukws), and by resolute infantry armed with bazookas and grenades.

The British 10 Corps landings were preceded by shelling and rocket fire on the beaches south of the port city of Salerno. Their landings may thus have been less disrupted than those of VI Corps, but the enemy fought hard to hold them from access to the Salerno-Naples routes.

General von Vietinghoff, commanding the German Tenth Army, had two related missions. He had to hold the way north open for the 26th Panzer and 29th Panzer Grenadier Divisions in Calabria. He had also to stop Allied Fifth Army where it could later be destroyed, as soon as he could assemble superior strength. He called back the two mobile divisions from Calabria, where they had been obstructing the advance of British Eighth Army, and he summoned from the Naples area the Hermann Goering Panzer and 15th Panzer Grenadier Divisions. They and other formations moved toward the passes leading to the Salerno plain. Part of the 29th Panzer Grenadier Division was near enough on 9 September to begin assuming positions on the battle line before daylight. So Vietinghoff that night brought to the northern sector various units facing VI Corps. Fuel shortages slowed the movements of the 29th Panzer Grenadier Division, which straggled in during the next two days. The effect was to minimize opposition to General Dawley's VI Corps on the second day (D+ 1).

On 10 September 1943 Dawley brought in his floating reserve, while the leading troops on the right reached the hills, and in the center started a push to Ponte Sele. The next day, the 36th Division extended its hold to all heights from Agropoli on the extreme right to Hill 424, near Altavilla. At the same time, the 45th Division took over the left sector of the Corps zone, which was enlarged northward beyond the Sele River. The narrowing of the British 10 Corps zone permitted stronger British thrusts to take Montecorvino and Battipaglia and was an adjustment to the presence of more of the enemy in that zone. Salerno and Montecorvino were taken, but enemy artillery fire denied their use to shipping and aircraft. Around Battipaglia the battle surged in and out of the town.

By the night of 11/12 September, the situation looked favorable to the Allies. They were ashore to stay. The enemy's reinforcements might make an advance to Naples more difficult but did not seem to have brought about more than local counterattacks. Vietinghoff, however, did have a chance to strike back before the British Eighth Army arrived near enough to draw German formations away from Salerno. On 12 September he showed growing power in action after action.

To help provide effective air support during the amphibious phase of Operation AVALANCHE, SIGINT parties were placed aboard the headquarters ship, USS *Ancon*, and two British vessels, H.M.S. *Euryalus* and H.M.S. *Palomares*. *Ancon* was equipped with an elaborate system of telephones, teleprinters, and pneumatic tubes between the offices of various commanders, the staff operations rooms, and message centers. An RAF flight lieutenant and three Royal Navy seamen radio operators were reinforced by a voice intercept team consisting of an American 1st lieutenant, an RAF sergeant interpreter, and three American enlisted men. The four Americans were from Detachment "B,' 849th SIS. All were fluent in German but only the officer

and the interpreter were familiar with German Air Force voice communications during combat operations, and the latter had been obtained luckily at the last moment before embarkation, as an exchange with the party on Palomares.

At Salerno the RAF adopted a method of distributing SIGINT that had proved successful during the invasion of Sicily – a broadcast from Malta of pertinent SIGINT based on the much wider intercept coverage possible at the fixed station in Malta. This time, the material that came via Royal Navy channels was slow in arriving. The broadcasts were not heard distinctly. After the first three days, the unit therefore turned to a parallel broadcast from RAF 329 Wing at La Marsa, Tunisia which could be heard fairly well. The wide intercept coverage at La Marsa that supported production of SIGINT enabled that station to advise, through the unit on *Ancon*, the commanders at Salerno concerning the state of German Air Force units within striking distance. As Allied countermeasures weakened enemy air, SIGINT picked up a report to a higher headquarters by the German command at the Foggia airfield that a considerable number of JU-88s and DO-217s were there. Soon Allied bombers hit that target, and commanders at Salerno realized that the diminished German air activity would not soon revive.

"Y" from *Ancon* was a means of offsetting the Germans' misuse of the same frequency employed by the Allied Fighter Director Officer. Their "phony" air raid warnings could be counteracted by prompt recognition.

The team from Detachment "D," 849th SIS, had two receivers that had to be manned continuously. Contrary to expectation, they found that even night bomber pilots broke radio silence when over the target area and, even during the last stage of an approach to it, kept asking if the target had been sighted. Radar frequently noted an approaching flight, but voice intercept confirmed the nature of the enemy formation. Moreover, radio interference from transmissions on the command ship affected radar more than it did the SIGINT radio receivers.

Voice intercept materially helped the air defense of the ships and beachhead. The communications of fighters, fighter bombers, bombers, and reconnaissance aircraft became readily distinguishable. The fighter pilots talked the most, even though obviously aware that they might be heard. Before combat with Allied aircraft, the leader of the formation gave orders to the other pilots, usually prefacing the orders with word of sighting an Allied plane that might be entirely unaware of being seen. That enabled the Allied listeners to pass a warning to the endangered Allied pilot. Frequently the German pilot, upon seeing an Allied plane, would report his own altitude and that of the one observed. In reporting to controllers or other aircraft in flight where a pilot was, he also sometimes used a German grid system known to the SIGINT team, at other times a visible landmark which the team learned to recognize. The pilots used callsigns that permitted a close estimate of the size of a formation.

A German pilot having engine trouble usually reported that he was turning back to base; such an aircraft was therefore often vulnerable. When fighters reported that they had dropped their extra gasoline tanks, Allied aircraft could be warned that the enemy aircraft might become more maneuverable in any impending encounter. If a pilot reported that his gasoline supply was down to a certain level, that often indicated that he was going to turn back to base with an amount calculated to get him there. If verbal air reconnaissance reports were heard, the information was presumably to be used by a formation perhaps already airborne, and if no such reports were heard, it might indicate a night bombing to come. The talk between bomber pilots about their targets occasionally disclosed how thoroughly informed the enemy was about shipping, as in the case of USS *Ancon* and later, H.M.S. *Palomares,* which controlled the carrier aircraft committed to supporting Operation AVALANCHE. Once the "Y" party had learned which callsigns and frequencies

to watch, it could give about twenty minutes advance warning of a bombing attack on the ships. For about five days, the alerts brought response from Royal Navy Sea fires and other aircraft. Then, as the Allied planes were "worn down," the enemy began getting through to target shipping and the warnings went to ships' skippers.[2]

Elements of three incoming German divisions had been committed at Salerno by 12 September. For a time it looked, before that day began, as if the Germans might have decided to withdraw, having lost the race. British 10 Corps had gotten the enemy out of the town of Salerno and its port and off the airfield at Montecorvino, even though both remained under enemy artillery fire and were unusable. VI Corps had almost reached Ponte Sele, and held Altavilla and Hill 424. But on 12 September the course of the battle reversed. The enemy's reinforcements drove both 10 Corps and VI Corps units from their more advanced positions. As an offset to those setbacks, the U.S. Rangers on the 10 Corps flank near Castella Mare opened to the enemy a disturbing possibility of an Allied advance on Naples along the coast. U.S. engineers completed the preparation of air landing strips near Paestum and Salerno. During that night, in anticipation of enemy pressure in the zone between 10 Corps and VI Corps, General Dawley shifted battalions of the 36th Division to that flank.

General Clark, while on the *Ancon,* was in touch with GCCS via Admiralty channels and thereafter via a Special Liaison Unit with the Fifth Army CP ashore. Special intelligence was thus available before and during the landings. Information concerning the German strength in Italy was known, though German intentions there were obscure, perhaps because they were not definite until the Allies had been ashore more than a month. Intelligence showing the tactical disposition of the German ground formations that might oppose the landings was late in arriving. Cryptanalytic difficulties delayed a report from GCCS until the morning of 10 September, identifying general locations of some elements of the German Tenth Army. After Kesselring's first situation report to OKW had been sent at 2200 hours on 9 September, GCCS could send its import to General Alexander only a little more than one day later. Subsequent SI gave advance notice of enemy reinforcements and their disposition and of the tactical plans for counterattacks.

For the first two days, the German Air Force provided a relatively moderate resistance to the invasion. Bombing of the ships suddenly increased on the night of 11/12 September, when eighty-five hits by rockets and radio-controlled glider bombs occurred. During the afternoon of 12 September, General Dawley began strengthening his left flank by shifting all of the 45th Division north of the Sele River, leaving the 36th Division with thirty-five miles of front to cover. That afternoon, both General Clark and General House moved their command posts ashore. *Ancon*, known to be a special target of German bombers, was released only to be recalled when almost at Algiers and was then kept at Salerno until 19 September. Navy planes began using an airstrip near Paestum. While those actions on 12 September may have been based on Allied confidence that Fifth Army was ashore to stay, on 13 September the enemy's success in blocking Allied seizure of inland objectives, and in launching counterattacks that regained lost ground, led Vietinghoff to believe that the Allied invasion had stalled before gaining a firm lodgment. Partly on the basis of German SIGINT, he actually believed for a time that the Allies were preparing to pull out. How else could one explain the gap he had recognized between British 10 Corps and U.S. VI Corps? He therefore prepared his strongest counterattack to exploit that avenue to the beaches.

The enemy had enough new power on 13 September to frustrate Allied attempts to regain Hill 424 and Altavilla. His main effort was a heavy armored counterattack down the center near the Sele River. After almost wiping out American infantry in its path, his tanks ran onto a salient bounded by the Sele and Calore Rivers at their junction, perhaps expecting to use a bridge there that had been

demolished. Facing that narrowing area were two battalions of field artillery and other elements of the 45th Division. Converging fire struck the tanks as they reversed their course.

The night of 13/14 September was a time of intense effort by Fifth Army. Aware of the German intentions and tactical plan, the Fifth Army's Staff Information and Monitoring Company (SIAM) Service intercepted a message early that morning in the 45th Division's traffic that said: "Fifth Army expects a coordinated attack this morning, possibly northwest from Albanella or south from Persano."[3] The Allied command brought over Fifth Army's reserve, the 82d Airborne, in three sections. The first were dropped that night. The second came by air, and the third by sea on the 15th. The 3d Infantry Division was alerted for transfer from Sicily by 18 September. General Alexander killed an idea that General Clark had discussed with Admiral Hewitt as a possible maneuver, should the enemy's success require it. That was to shift by sea the troops of one corps into the zone being defended by the other. Instead, he encouraged the Fifth Army in its plan to give up some ground for the purpose of establishing a shorter and stronger defense line and to put into the line as reinforcements not only the newly arrived paratroopers but also all available service troops. They were to reinforce 10 Corps right and the VI Corps left, where the enemy's attack was ultimately contained. In part that was accomplished by stalwart resistance at the Allied defense line. The enemy's maneuvers could not have suffered from learning, from a 36th Division message sent in the clear at 1120 hours: "CUB need 57mm ammo at once."[4] In part successful defense came from heavy naval gunfire and from stepped-up air bombing further inland on concentrations of enemy armor and troops. Particularly in the area near Battipaglia and Eboli, the enemy found it costly to mount his thrusts. At the beaches and above the ships the air superiority of the Allied force was unmistakable.

By 15 September the enemy had accomplished the first of Vietinghoff's missions, and had concluded that any opportunity to drive the invaders off the beachhead had gone. While the German high command weighed the merits of defending south of Rome or farther north, the German Tenth Army began a slow withdrawal, hinging on the passes at the base of the Sorrento peninsula. It retreated to the northern bank of the Volturno, relinquishing Naples and the surrounding area to the Allies.

Enemy air attacks on the ships offshore, some of them over the horizon from the beachhead, came to a climax on 15 September with the crippling of H.M.S. *Warspite*. That battleship had been sent, in response to Admiral Hewitt's request, to provide naval gunfire far inland and had contributed some fifteen-inch shells to the devastating cascade near Altavilla. Radio-controlled glider bombs, however, scored two hits and two near misses that required that the battleship be towed back to Malta.

The "Y" parties on *Ancon* and *Palomares* were convinced that the glider bombs were being dropped from a higher altitude during lower-level diversionary attacks by other aircraft. When alerted, the Allies put aircraft still higher to terminate the practice. The next day they brought down two of the German bombers, and that success coincided with a general diminution in enemy air activity. He no longer could seriously affect the Allied operations ashore by interfering with the ships.

On 21 September the U.S. 34th Division began landing over the Salerno beaches rather than in the port of Naples as originally scheduled. A week later, as a storm suspended operations at the beaches for several days, the invaders found the enemy nevertheless releasing his hold on the passes and moving north. Naples was entered on 1 October by Fifth Army advance elements, while the Allies also gained control of Foggia. On 14 October unloading shifted from Salerno beaches to Naples. Meanwhile, the Fifth Army reached the south bank of the Volturno River.

Enemy Strategy

Kesselring believed that the Allies could be held south of Rome indefinitely by using the topographic features and by building a series of major defense lines, of which the first would run across the peninsula through Mignano, ninety miles south of Rome, and the second, through Cassino, about twelve miles closer to the city.

Enemy tactics in the mountainous terrain made astute use of the limited road net, the vulnerability of stream crossings, and the advantages of ground observation points and sheltered artillery positions. Allied mobility was negated by mines, demolitions, and prepared fields of fire that obliged the attacking troops to make wide swings around road blocks, to construct their own bridges, and to engage in endless outflanking maneuvers on foot before a stretch of narrow road could be opened for vehicles.

As the Allies were about to cross the Volturno, the Badoglio government formally declared war against Nazi Germany. Italy became a cobelligerent, not an ally.

German troops on Sardinia were meanwhile moved to Corsica, and thence to Leghorn, while the battles in the south were in progress. They were then marched to the area southeast of Rome to reinforce the opposition to the British Eighth Army.

In the light of special intelligence, the Allies had begun operations in Italy expecting that the enemy would quickly relinquish the peninsula as far as the northern Apennines but would hold there in a prepared defense line shielding the Po Valley. Resistance in the south to gain time enough for construction in the north could be expected. The Allied objective at first was to liberate Rome, and they doubted that the Germans would make a stand south of that city. When they did just that, doubts emerged that the liberation of Rome would be worth the costs, but those doubts passed, and eventually it began to seem desirable to establish Allied control of the Po Valley.

Three weeks after landing on the Salerno beaches, the Fifth Army was in Naples. One week later it had reached the Volturno River. According to the schedule of withdrawal to a strengthened line of prepared defenses, the Germans pulled back from the Volturno toward the “Gustav Line” along the Garigliano-Rapido Rivers. It took the Allies several more weeks to break past an intermediate “Winter Line” and to advance through prominent hills and higher mountains. Hitler, after his initial uncertainty about a proper point at which to stop an Allied advance, on 4 October 1943 reached the conclusion that Kesselring, the optimist, had been right while Rommel, less hopeful, had been mistaken. The Germans would defend south of Rome, and continue to hold that political prize. Instead of entrusting the top command in Italy to his Army field marshal, he would give it to his Air Force field marshal. Army Group B in northern Italy was dissolved in November 1943. Its divisions passed to Kesselring’s command. The Germans reasoned that only in the air would Allied superiority persist, and possibly that situation might also be reversed.

Tactical SIGINT Service

The first SIGINT teams with Fifth Army, during the amphibious assault, were provisional units placed on command ships to support air defense. On the second day of the invasion, the regular VI Corps unit came by LST from Sicily. It consisted of Detachment “E,” 849th SIS, and about one-third, known as Detachment “R,” of the 128th SRI Company. At the beach on 11 November that LST was hit by a shell that injured two men of the intercept company. The VI Corps unit covered medium-frequency nets between lower echelons, on which the traffic was about equally three-letter (T/L) codes and plain text, and between middle levels of command, in Playfair ciphers. The daily SIGINT report to VI Corps G-2 was sparse and insignificant until the action reached the area between Naples and the Voltumo River. Certain units could then be heard

and their messages read, particularly the Engineer Battalion of the Herman Goering Panzer Division, the Reconnaissance and Artillery units of the 26th Panzer Division, and the Reconnaissance Battalion of the 3d Panzer Grenadier Division.

The Fifth Army had "Y" sections operating with army headquarters and each corps headquarters after Naples had been taken. On 16 October 1943 an Army Group "Y" Section attached to Fifth Army began DF operations. Colonel Edwin B. Howard, G-2, Fifth Army, reported then that the SIGINT service was well set up, and was producing a large amount of information quickly and accurately.**5**

When the campaigns in Italy began, German Army low-level traffic was increasingly transmitted on VHF links. In Africa, almost all of it had been on MF/HF (1-4 MHz). British experience there showed that an intercept unit was needed at Army headquarters level to maintain MF/HF coverage of enemy links that Corps units either could not hear or lacked enough resources to cover while monitoring targets of higher priority. The Army headquarters also needed an intelligence unit to guide collection, process the traffic collected, and interpret to G-2 the SIGINT obtained. But in Italy, as VHF traffic expanded and MF/HF traffic shrank, that arrangement had to be altered.

Since VHF transmissions were low-powered and line-of-sight, they could be heard usually only at forward sites by units working for Corps headquarters. Instead of reading current messages, the Army-level SIGINT units developed research, filing, and record-keeping techniques by which they reexamined traffic and logs in order to assist the work of the corps units.

Those changes attributable to alterations in communications technology were further encouraged in 1944 by new German signal security procedures. The resort to frequent and randomized callsign changes and the substitution in medium-grade traffic of Rasterschluessel ("Raster") for Playfair further complicated the situation.

Fifth Army tactical SIGINT was thought to be best obtained and used at the corps level by combining SRI detachments of 2 officers and 90 to 100 enlisted men with SIS detachments of three officers and fifteen enlisted men. The latter directed the intercept coverage, including search. The operators manned from eight to ten positions, normally enough to cover a corps front and to communicate by radio with an army detachment. The SIS element analyzed and interpreted the traffic. Its men were trained to recognize enemy networks, to break simple codes and ciphers and to translate and/or interpret decrypts. The senior SIS officer reported results to the corps G-2 either in daily morning reports or, if more urgent, by wired telephone.

For the first stage of the campaign from Salerno to Cassino, the Fifth Army Headquarters "Y" unit consisted of a detachment (3 officers and 115 enlisted men) from the 117th SRI Company teamed with the British 44 WTI Section (four officers and sixteen other ranks). In January 1944, after an overlapping period, they were relieved by the Headquarters Detachment, 128th SRI Company (Captain Shannon D. Brown, CO, one other officer, and 119 enlisted men) teamed with Detachment "A," 849th SIS (three officers and eighteen enlisted men). That combination remained the Fifth Army "Y" unit to the end of the war.

The VI Corps "Y" Unit, as we have seen, was a similar combination – a small detachment ("E") of 849th SIS (2d Lieutenant Sidney Reisberg) teamed with another detachment of the 128th SRI Company.

The II Corps "Y" Unit brought together a third detachment of the 128th SRI company (Lieutenant Francis H. Smith) and Detachment "H" of the 849th SIS. (Headquarters, II Corps, took command on 18 November 1943 of a sector of the Fifth Army's front.)

British 10 Corps was served by a British Special WTI Section and attached WTI Section.

849th SIS Mediterranean Theater (128th SRI), 2 1/2-ton camouflaged intercept van (Photograph from the NSA History Collection)

Overlapping coverage by the army and corps units occurred by design. Either for speedier service on certain matters to the Army G-2, or for guaranteeing hearability, or for the coordination and control of all corps-level units, some duplication seemed desirable. The army unit studied the summaries and technical reports by corps units, conducted research on enemy codes and ciphers, engaged in traffic analysis, distributed results to the corps units, and kept them from repeatedly duplicating part of each other's efforts.

After AFHQ had assigned the 128th SRI Company to Fifth Army, AFHQ retained no control over it. The 849th SIS detachments, on the contrary, although attached to the Fifth Army and completely under its operational control, remained under the administrative control of the 849th SIS at AFHQ. The detachments of the 128th SRI Company with the VI Corps and II Corps were only semi-independent, for they operated under corps G-2 control and received routine administation from corps headquarters, but they remained under Headquarters, 128th SRI Company (at Fifth Army) for matters involving personnel and equipment. An SIS officer assigned to G-2, Fifth Army, coordinated the operations of the Corps and Army "Y" units.

Headquarters, 15 Army Group, coordinated Fifth Army, Eighth Army, and 15 Army Group "Y" operations. The flow of technical information from research sections at Army Group aided the operations of Fifth Army sections immeasurably, in the judgment of the Signal Officer, Fifth Army.[6] Direction finding in Italy was accomplished at army level. While each corps "Y" unit in Fifth Army had one apparatus of British make, and found useful the single line bearings thus obtainable, it found that it could not manage DF nets. The 15 Army Group furnished the personnel for it to the two armies. On the Fifth Army front, three mobile DF teams in one net concentrated on enemy division and regimental traffic. After the DF data were processed at Army Headquarters, G-2, Fifth Army, sent the finished product to corps SIGINT units and corps G-2 sections.

Fifth Army controlled one SIGINT communications net; the Army unit itself, within a SIGINT net controlled by 15 Army Group, passed intelligence reports, technical information, and essential administrative messages. In the SIGINT section at

G-2, a daily "Y" report, segregated from intelligence gained in other ways, was prepared. When the codeword PEARL (for low-grade decrypts) and CIRO-PEARL (for medium-grade decrypts) went into effect, G-2 had a "PEARL Section." Its daily intelligence reports tagged items for CIRO-PEARL, and in the case of the results of traffic analysis and direction finding, as THUMB 1 or THUMB 2, respectively.

Headquarters, Fifth Army, responding to instructions from AFHQ, created the 6689th Staff Information and Monitoring Company (SIAM), Provisional, which performed the functions of what the British Eighth Army had termed its "J" Service. Radio intercept operators in three corps and four divisional platoons monitored communications among Fifth Army units to detect violations of signal security that might benefit the enemy and to keep close watch on the positions, circumstances and intended actions of units at the front line. Their reports were intended to keep division, corps and army headquarters immediately aware of events at lower echelons and, at the same time, to keep the latter abreast of developments among the units on their flanks.

At the end of the war in Italy, the SIAM Service was appraised as efficient, desirable and "considerable," and if kept fully mobile, worth maintaining at one platoon plus one additional liaison officer with each division.[7]

The ability of the VI Corps "Y" unit to monitor communications of the Hermann Goering Division Engineers yielded early reports of demolitions and thus showed the pattern of German delaying tactics to be expected as the Fifth Army moved north. On 12 October the 3d Panzer Grenadier Division was identified as coming into the enemy line at the Volturno River. Its ability implied that it might be about to cover a withdrawal rather than to reinforce a longer stand at the river. By 15 October coordinates of the enemy's main line of resistance had been determined. The entire German Tenth Army had pulled back to that line, conforming to a schedule of withdrawal that gave time for the strengthening of the so-called "Gustav Line" along the Garigliano-Rapido Rivers and at Cassino. The 3d Panzer Grenadier Division had relieved the 16th Panzer Division so that the latter could be sent, at Kesselring's insistence, to face the British Eighth Army on the Adriatic side of the Allied advance. The relief had the effect of interrupting certain defense preparations at the Volturno and of weakening the opposition to be met by the U.S. 3d, 34th, and 45th Divisions as they crossed the Volturno and pushed up to the "Winter Line."

Another example of the merit of SIGINT in yielding intelligence from the area behind the enemy's main line came on 29 October 1943. The enemy was using a highway bridge at Mignano to move north. Allied bombers struck that morning with uncertain effect and were held available for a second attack. The VI Corps unit learned by noon from the Hermann Goering Division Engineers that the bridge was no longer usable, and that German road traffic had been rerouted. Early that afternoon the alternate bridge was also bombed out of service.

The American "Y" units in Italy moved in trucks and vans. Between 1943 and 1945 Detachment "A," 849th SIS, with the Fifth Army used a large trailer which had been modified by cutting out windows and a side door. The walls held shelves and maps. Along the sides were tables, a packing case converted into a desk with drawers, and a file cabinet. Gooseneck lamps, two electric fans, typewriters, telephone, teleprinter, and an M-209 converter formed part of the equipment used by the analysts and reporting personnel. Other detachments of the 849th SIS and those of the 128th SRI Company used two 2-1/2-ton trucks with solid walls and camouflaged canvas roofs at heights enabling men to stand under them. The vehicles would be parked rear-to-rear, connected by a platform to which a set of steps could be attached. Receivers were put on shelves and tables across the front and along the sides. Antenna lines and power and communication cables came in through openings. Each truck

had an exhaust fan for ventilation. Some had screens over windows. Tents were pitched beside them.

One or more of the intercept units mounted an H-shaped antenna on a rotatable shaft running vertically through the roof, turned by a wheel at the base. Calibration of the circle was marked on the ceiling.

When an intercept unit could occupy a dwelling, it set up shop in relative comfort among a swirl of wires coupling the receivers with the antennas outside.

Early in 1944 the 849th resumed extensive processing and research at its headquarters in Algeria. The field center developed only after many of the personnel had gained experience working with SIGINT units in Tunisia, Sicily, and Italy.

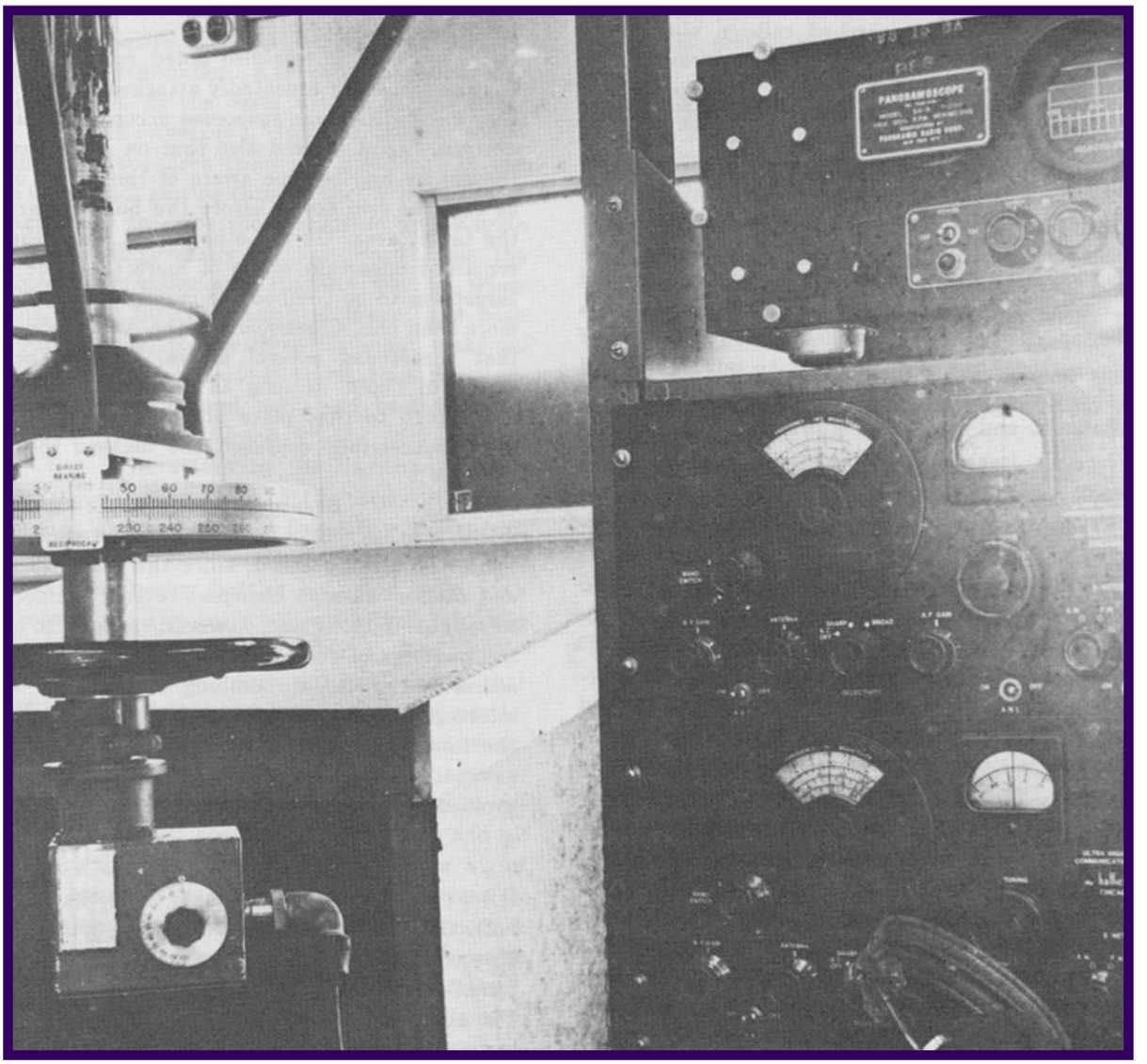
The Intelligence Branch 849th SIS was ready to undertake work on German Army and Air Force medium-grade (Playfair and double-Playfair) communications when months of preparation came to fruition in February 1944. A new Solution Section for that purpose then began operations. The preparations for it began with training in the United Kingdom of analysts who spent several months there becoming expert in Playfair analysis after preliminary analytic training in the United States. The first such group (three officers and twelve enlisted men) arrived in Algeria in July 1943. It was promptly added to a party from Detachment "B," 849th SIS (four officers and twenty-four enlisted men) and from the 117th SRI Company (two officers and ninety-seven enlisted men), all of whom went to Santa Flavia, Sicily, to develop their skills in covering the communications links on which medium-grade German Army traffic was being passed.

The second group (five officers and twenty-six enlisted men) reached North Africa in November 1943. In the following February part of that group (three officers and twelve enlisted men) was assigned to the new Solution Section. Almost immediately afterwards, the cryptanalysts who had been with Detachment "B" at Santa Flavia, Sicily, returned to work in the new unit. The table of organization (T/O) of the Solution Section contained "slots" for six officers and eighteen enlisted men for the rest of the war, and although the turnover of personnel was considerable, at the end of the Playfair period in November 1944, nine of the original thirteen enlisted men were still on duty there.

The Solution Section tried to analyze traffic in medium-grade cryptographic systems with the benefit of all obtainable collateral and all the collaboration available from other analysts. To anagram Playfair, an analyst needed familiarity with the usual addressees, signatures, routine formats, personalities, and other recurrent probabilities. Of secondary value were the frequency and combinations of bigrams. The British center for such work in the Mediterranean in 1944 was a Special Intelligence Company at Bari, Italy. Duplication of effort was reduced to a minimum, in part because of the slower delivery of traffic to the Solution Section. By the time the Solution Section could work on it, 7 SI Company had either broken the ciphers for that period or had turned to subsequent messages, leaving earlier ones unread. The Ameri-can output was normally available from five to seven days after the time of interception.

The Intelligence Branch had a Laboratory Section with both photographic and chemical units. The latter tested for the presence of secret inks, working in Sicily and Salerno with the Censorship, and later with the CIC and the OSS. When the needed photographic equipment finally arrived, the photographic unit was able to assist others at AFHQ as well as the 849th SIS.

In January 1944 the Intelligence Branch established a new Traffic Analysis Section of sixteen enlisted men, who had come to North Africa after a training period in the U.K. The section controlled the intercept operations of a station (at L'ile Rousse, Corsica) that collected German Army traffic from



849th SIS Mediterranean Theater, interior of van showing DF controls and Hallicrafter receiver and Panoramoscope used by Detachment "D" (Photograph from NSA History Collection)

northern Italy and southern France. The personnel of that station consisted of American intercept operators and traffic analysts who had previously been at Santa Flavia, Sicily, in the same group from which the cryptanalysts were to be taken for the new Solution Section of the 849th SIS in February 1944. Another detachment of the 117th SRI Company, one that had been working in Italy, rejoined the company in Corsica. The station there was then manned by 5 officers, 1 warrant officer, and 201 enlisted men of the 117th, plus 4 officers and 32 enlisted men attached from other units. Intercepted traffic went daily by air to Hamman Melouane.

There the new Traffic Analysis Section examined traffic logs for repeats, transmissions, references in plain text, names of communicators, and other clues of value in reconstructing nets. The unit maintained files and researched callsign allocations. When predictable systems of allocation were replaced by random assignments, the Traffic Analysis Section focused on identifications by other means in order to assist forward detachments.

Both the Traffic Analysis Section and a new Coordination Section assisted the Solution Section. The former issued weekly reports on German ground radio networks and filed data on the Italian and Balkan nets in which the Solution Section was interested. The latter compiled data on order of battle, personalities, codenames, map references, and other matters relevant to Playfair traffic from Italy, the Balkans, and southern France.

About the same time that the other general command organization in the Mediterranean was changed, making it primarily a British responsibility, the RAF "Y" structure in that theater was altered. On 14 January 1944 Headquarters, RAF 276 Wing moved from Heliopolis, Egypt, to Conversano, Italy, and assumed control of all British RAF "Y" Units in the theater. It took over the "Y" broadcasts. Headquarters, RAF 329 Wing, which had been created to control such activities in the Western Mediterranean, became simply a personnel pool for assignments to duty in the Mediterranean or elsewhere. The ten subordinate RAF SIGINT Field Units were renumbered; some were to move up the peninsula as the front shifted, while others were to remain at Conversano and Caserta. At Conversano with Field Units 2 and 3 was Detachment "F," 849th SIS, and a party of intercept operators from the 123d SRI Company.

During the months of long-range bombing from bases near Foggia, such missions were accompanied by airborne voice interception teams. The logs of their collection efforts were studied in July 1944 for evidence of patterns in the defensive operations of the German Air Force; the study reproduced a fairly complete picture.

Locations and callsigns of the German controls were identified. From radar and visual observation posts, and from shadowing aircraft, it was noted that reports of the positions of Allied bombers were passed to a central controller, who relayed that information to fighter controllers. The latter got fighters airborne, assembled in formation, into and out of an attack, and then back on the ground. Also, if large numbers of Allied bombers and escorting fighters were reported to be approaching a target along several different routes, the controller would often confine himself to relaying observation reports leaving the choice of actual defensive tactics to the leaders of fighter groups.

It was also noted from these studies that as the Allies repeatedly attacked certain targets, they elicited German responses according to a regular pattern. SIGINT showed also that on several occasions the enemy had become aware of the Allied objective as early as two hours before the bombers arrived in the target area. On the other hand, when the enemy remained uncertain which of more than one possible target was to be bombed, he put fighters up to oppose more than one. Consequently, the Allies took a course that threatened several places, leaving the actual target in doubt as long as possible, and making a sharp turn to that place at the last minute. These feints successfully confused and delayed the enemy's response.[8]

Eventually studying the logs ceased to identify fighter units or to determine where specific fighter units were based, since the resort to frequent and random callsign changes prevented timely access to reliable data. It was, however, possible to calculate the numbers of enemy aircraft involved. Also, in the course of an Allied bombing mission, an airborne intercept operator could sometimes warn the leader of the formation that enemy fighters were approaching or that an intense antiaircraft barrage could be avoided by a change of course.

In the "Winter Line"

By 4 November 1943, having crossed both the lower and upper stretches of the Volturno River, the Allied force had reached the "Winter Line," which ran near several major Allied objectives. The advance took them through and over mountainous terrain, along dirt roads that the enemy had mined, and across streams where the enemy had demolished the bridges not previously wrecked by Allied air or artillery. Air support at that stage took the

form of prearranged missions rather than attacks on targets of opportunity in front of Allied infantry. Fifth Army became exhausted during the first phase of its efforts to break through the "Winter Line." It broke off the attack in mid-November when the enemy was almost as tired.

It was possible for "Y" produced by VI Corps SIGINT unit to inform G-2 that elements of the 26th Panzer Division were reinforcing the 29th Panzer Grenadier Division in front of the U.S. 45th Division on 6 November. Three weeks later, the 26th Panzer Division was reported to be moving east to relieve the 16th Panzer Division on the Eighth Army front.

Both Allied armies girded themselves to renew the offensive. The U.S. 1st Armored Division arrived during November. A French Expeditionary Corps came, too. In the east, British Eighth Army sought to reach Avezzano, where it would threaten the Rome area from one direction. In the western zone, after getting through the "Winter Line," Fifth Army was to cross the Garigliano and Rapido Rivers and push generally northwestward along the Liri-Sacco River valley and Highway No.6. When Frosinone, about fifty miles south of Rome, had been taken, Fifth Army, it was thought, might make an amphibious landing at Anzio-Nettuno, thus threatening the enemy's flank and rear and hastening the Fifth Army's progress to Rome.

The attack by the Eighth Army fell short of its objective. The Fifth Army was also unsuccessful. The end of 1943 found it still south of the Garigliano and Rapido Rivers facing about two more weeks of slogging battles before it could even launch a crossing. The projected Anzio "end-run" had been necessarily shelved by the delay.

The "Y" units in Italy found that certain German divisions and lesser units were particularly valuable sources. The more mobile they were, the more likely they were to communicate by radio in simple systems involving minimal complication in encipherment. The basic codes stayed the same and all changes were quickly followed. The VI Corps SIGINT Unit faced some of the same formation successively between Salerno and the Volturno, again at the "Winter Line" and once more at Anzio. The Hermann Goering Division (especially its Engineer Battalion), the reconnaissance units of the 26th Panzer Division and 3d Panzer Grenadier Division, and the former's 93d Artillery Regiment-all proved to be valuable sources in action beyond the Volturno, as did the 764th Heavy Artillery Battalion. During the relatively gradual approach to the "Winter Line," they found few plain language transmissions on MF/HF but much more at lower echelons on VHF, both voice and radio. From battalions of the 26th Panzer Grenadier Division they obtained more and more. Then, at the "Winter Line" itself, during the stalemate in December and January, even though the enemy used wirelines to a greater extent, much material could be taken from MF/HF and VHF radio nets. Later, at Anzio they found the 764th Heavy Artillery Battalion and the 3d Panzer Division's Artillery Regiment each using its own type of letter-code on MF/HF nets, and the 65th Infantry and 4th Parachute Division, each with VHF nets differing from the other's. To the communications of German parachute divisions the Allied SIGINT producers felt greatly indebted.

The 15th Panzer Grenadier Division, which the U.S. II Corps Unit faced during the winter and the VI Corps fought during the breakout in May 1944, transmitted on MF/HF and used chiefly three-letter code; it was a generous source of SIGINT. During the Allied offensive of 11 May 1944 until the breakout, the II Corps "Y" Unit derived much of its material from the 71st and 94th Grenadier Divisions, particularly the latter's 267th Grenadier Regiment, which passed voluminous amounts of traffic in long, nonalphabetic, jargon code. Other elements of the two divisions indulged in much plain language and three-letter code on VHF links.

During the cold, rainy winter campaign of 1943-44, both sides were reinforced. By January, the German Tenth Army of fifteen divisions

(so-called) along the Gustav Line faced the eighteen Allied divisions of the U.S. Fifth and the British Eighth Armies. Fifth Army included the U.S. VI Corps and II Corps, British 10 Corps, and the French Expeditionary Corps, while Eighth Army had British, U.S., and Polish divisions. The Fifth Army advanced to the Garigliano-Rapido River's southern bank along both sides of Highway No. 6. There the Allied advance again stopped. Successive attempts to open the way into the Liri River valley for exploitation by American armor were finally abandoned after the enemy had held on stubbornly to his dominating position at Cassino through March. British Eighth Army, after being checked short of Pescara, took over the eastern part of the Fifth Army front at Cassino.

Operation SHINGLE at Anzio

Among Allied resources were sealift and navy escort for amphibious landings behind the enemy's main line of resistance. Such an attack at Anzio, in the western coast about twenty miles from the Alban Hills and thirty-five miles southwest of Rome, remained under consideration for many weeks.

The first plan of an Anzio operation called for a thrust toward the Alban Hills from the west in coordination with another from the south. It was reasoned that it might force the enemy to withdraw beyond Rome. The next plan entertained for a week in December 1943 was to draw German forces away from the Gustav Line to the Anzio beachhead and thus to facilitate the long-sought breakthrough. Failure to take Frosinone caused the first plan to be dropped. Inability to move far enough and fast enough, after breaching the Gustav Line, to establish mutually supporting drives by II Corps and VI Corps (at Anzio) caused the second plan to die. Since the sealift for an operation at Anzio was subject to the higher priority of a cross-Channel attack, for which many LSTs would have to leave the Mediterranean early in 1944, the chance to expedite the liberation of Rome via Anzio seemed to be slipping away as the new year approached.

By decisions in December 1943 and the following month, command in the Mediterranean area shifted from General Eisenhower to General Sir Henry Maitland Wilson. The British high command assumed the degree of responsibility previously held by the U.S. Joint Chiefs of Staff. The prime minister strove successfuly to bring about a two-division assault landing at Anzio in January 1944, at a time when, he hoped, the enemy might have to divert formations from the Cassino front in order to prevent the Anzio force from cutting the German line of communications to Rome.

Operation SHINGLE was executed by U.S. VI Corps under General John P. Lucas, who had relieved General Ernest J. Dawley as its commander on 20 September, just after the critical days at Salerno had ended in victory. The landings at Anzio were scheduled for 22 January, with British 1 Infantry Division on the northerly side and the experienced U.S. 3d Division, plus Rangers and others, on the right, or southerly side. After rehearsals near Naples, the landing force would embark there to make a surprise, night attack.

Kesselring was alerted by German SIGINT to the fact that the Allies were about to make such an attack somewhere, but he lacked air reconnaissance reports to suggest the probable place. Admiral Canaris, then head of the Abwehr (counterintelligence organization), on a visit to Kesselring's headquarters, assured Kesselring that no indication of such an operation in the near future had been ob- served. On 18 January Kesselring ordered two veteran divisions (29th and 90th Panzer Grenadier) and Headquarters, I Parachute Corps, to move from the Rome area to the mouth of the Liri River valley, there to relieve and reinforce the German troops facing the Fifth Army. On that same day, rehearsals for the Anzio landings turned out to be a sad fiasco; many Dukws and other craft, and the valuable, self-propelled 105mm guns that they otherwise would have borne ashore at Anzio, were lost.

At 0200 hours on 22 January 1944, 40,000 men and 5,200 vehicles started to land at Anzio Beach from 242 transport vessels and landing craft, escorted by minesweepers, destroyers, and other combat ships totaling 112. Tactical air support came from both British and American components of the Mediterranean Allied Air Force. The landings were not strongly opposed on the ground; by midnight the transports were 90 percent unloaded. Every three to four hours, however, German bombers struck.

General Lucas was expected to move his command inland as far and as rapidly as he could without becoming vulnerable to counterattacks. He would have to depend on daily convoys along the coast to maintain his force. Everything would be unloaded at a small port and on an exposed beach under bombing from the air and shelling from artillery. As the beachhead pushed inland, the line kept lengthening. To put the beach out of range of field guns and provide adequate area for dispersal, the line had to be long and thinly held. He doubted the possibility of penetrating far enough to interrupt completely the enemy's line of supply leading to the Gustav Line farther south.

"Y" Service during the First Phase at Anzio

The main opposition on D-Day came from mines in the lanes of approach and from mines planted in the sandy beaches, supplemented by artillery able to reach some of the shipping, and by aircraft that broke through Allied fighter defenses to hit beaches and some of the ships. During the next two days, the air attacks increased in strength and frequency and sought particularly to disrupt the influx of material. On D+ 3, despite bad weather that afflicted all unloading except within the small port of Anzio, enemy air pressed its program of curtailing the growth of VI Corps ashore while German troops assembled to contain the beachhead. Deliberate, savage German air attacks on illuminated hospital ships embittered the invading troops.

Generals Alexander and Clark came from Naples during D-Day to observe the action. General Alexander came back three days later to check on the progress toward the distant Alban Hills. He seemed then to approve the decision by General Lucas not to send raiding columns into the growing assemblage of German forces but to insure retention of his beachhead base against the threat that rapid German reinforcement was forging.

To cope with German Air Force attacks, the Twelfth Air Force had provided a considerable Fighter Control Squadron for the assault force and had put fighter-director teams on ships, as at Salerno. They found plenty to do. The results were mixed. On the ships, the fighter-director team on H.M.S. *Royal Ulsterman* was not kept informed of the movements by friendly aircraft, and the team on LST 305 specialized in defense by night fighters. The "Y" party with the latter was equipped to intercept traffic on VHF, inaudible during the periods from dusk to dawn when the control party was on duty, and audible only when the controllers were off. On USS *Biscayne*, the flagship, a fighter-director party kept in touch with others ashore. On the destroyer escort *Frederick C. Davis*, which provided protection for follow-up convoys, a "Y" team that had served on it as an air-warning unit before Operation SHINGLE, was able during the Anzio operation to earn a warm commendation, particularly mentioning T/5 Eric Marx of the 849th SIS.[9]

The small team from Detachment "D," 849th SIS, that went ashore on D-Day consisted of Lieutenant Pierre de St. Phalle and four enlisted men. They worked with the 82d Fighter Control Squadron.[10] The main body of Detachment "D" came later from Naples. The team first operated from its vehicle beside the road from Nettuno to Littoria. On 31 January 1944 it shifted to a site near a water tower north of the prominent Villa Borghese and placed an antenna where DF reception was better. Dependent for rations on the 82d Fighter Control Squadron, the team aptly named that unit GRUBSTAKE for coded calls. Keeping in close touch with GRUBSTAKE, reinforced by three


OPERATIONS IN ITALY
VERONA
VENICE
TRIESTE
BOLOGNA
WINTER 1945
YUGOSLAVIA
FLORENCE
4 AUG 44
PISA
17 JUNE 44
ITALY
PESCARA
8 OCT 43
9 JUNE 44
ROME
5 JUNE 44
ANZIO
25 SEPT 43
FOGGIA
14 SEPT 43
WINTER LINE
NAPLES
SSAULT LANDINGS
22 JAN 1944
28 SEPT 43
U. S. FIFTH ARMY
9 SEPT 1943
9 SEPT 43
SEPT 1943 - APRIL 1945
CALABRIA
9 SEPT 43
MESSINA
SICILY
BR EIGHTH ARMY

DF operators and better equipped, the unit gained experience and reported important information for all Air "Y" service.

The team tested different methods and found some worth describing. By attaching loudspeakers to both receivers, the duty officer was free to telephone information at once to fighter control while the intercept operator controlled the set. The two receivers could be tuned to catch traffic transmitted on alternate frequencies. The DF set was also connected to a loud speaker; directional bearings were determined by the yield at the speaker rather than by using earphones and a carrier indicator. That arrangement improved the DF results.

When the unit began getting data from POW interrogations and documents that revealed the identities of many German units, their locations, types of aircraft, and state of training, its production improved correspondingly.

The "Y" detachment was able to aid the air warning service in determining the need for an air raid alert. It passed warnings to probable early targets of enemy air attacks as shown in radioed reports of enemy air observations.

From Landing to Stalemate

Although General Lucas, the VI Corps commander, was eventually relieved, as his predecessor at Salerno had been, his decision to consolidate his hold on the Anzio beachhead before sending a column charging the enemy's line of communications seems today to have been the wiser course. The enemy reacted to the Anzio landings with amazing speed and power. General Clark and presumably General Lucas had known from special intelligence that the Germans had been preparing, by reorganization and reinforcement, to counterattack near Cassino and that no major German formation was in a position from which it could counterattack at Anzio before the VI Corps was well ashore. They learned, however, during the morning of D+ 1, that the enemy was moving quickly to challenge them.

Kesselring concluded that his line farther south could hold without the reinforcements that had just begun to take their places there. Headquarters, XIV Panzer Corps resumed the control of divisions it had assigned to the I Parachute Corps. That command, directly under Kesselring, was shifted to control other troops being sent to Anzio.

The enemy sent "pick-up" formations from the Rome area, called back others from the Liri-Sacco valley, brought one division from the Adriatic side and others, more slowly, from the Balkans and southern France. To control the buildup and launch the counterattack, Headquarters, German Fourteenth Army (General Eberhard von Mackensen) was summoned from Verona. By 25 January 1944 he was in charge at a command post near Rome. Four days after the landings had begun, elements of eight German divisions were already in place and five more divisions were en route. Special intelligence kept General Lucas aware in detail of the German regrouping.

VI Corps was ready on 30 January to expand the beachhead by attacking near the flanks. First, General Lucas sought to take Campoleone on the left and next, Cisterna, on the right. Campoleone was taken at considerable cost. The enemy, ready for the other thrust, ambushed and decimated the Rangers and checked the 3d Infantry Division short of Cisterna. The enemy's line had almost broken by the time VI Corps broke off the attack on 1 February and reorganized to meet the coming series of local German counterattacks and a German effort to drive the Allies back to the sea.

The Allied offensive began just before Kesselring believed his own forces could start their push. On 3 February Fifth Army learned from SIGINT how he had planned his main counterattack, and that he had hoped (in vain) to start it two days

849th SIS Mediterranean Theater (3916th Signal Service Company) intercept van with double bank of receivers (BG 342 and BC 344) and the S-36 (VHF) in the middle (Photograph from the NSA History Collection)

earlier.[11] Only on 15 February, however, did the suspense end and the big attack begin. It had become apparent that the enemy was concentrating near Aprilia for a drive from the northwest on a narrow front. Attacks elsewhere would be local and diversionary.

By that time, VI Corps had about 350 tanks and 498 guns, and had established a good system of resupply. Although medium tanks could not operate effectively on the semisaturated marshland and mud between the roads, immobilized tanks could supplement field artillery. Assembled enemy troops would find little shelter anywhere from concentrations of Allied artillery fire.

The German thrust down the main road between Albano and Anzio on 16 February drove a gap between British and American troops. Next day, a heavier ground and air attack exploited that gap. Overrunning the 2d Battalion, 157th Infantry, 45th Division, they caused the desperate battalion commander, under orders to hold at all costs, to warn the regimental commander of his plight. The tactical information that he radioed was quickly read by German SIGINT personnel and exploited by the attacking forces.[12] The enemy's attack was weakened by Allied artillery and checked by determined infantry. It came to a faltering stop on 20 February, still short of the "final beachhead line." If it represented the strongest drive that the enemy could mount, the Allies were at Anzio to stay.

Detachment "E," 849th SIS (nineteen personnel) and an element (seventy-nine personnel) from the 128th SRI Company, as the VI Corps "Y" Unit, were at Anzio. Its advance party, carrying three VHF receivers, landed on D-Day. The remainder came ashore with Headquarters, VI Corps, on D+5. As the enemy formations moved to face VI Corps, the "Y" team strove to identify and locate them. Differing characteristics of the communications procedures of divisions and artillery units made that problem easier to solve.

During General von Mackensen's preliminary attacks, a German battle group on 8 February 1944 was supposed to secure a mound known as Hill 72 and to join the enemy's thrust at Aprilia. SIGINT disclosed that the battle group was too weak and that it was staying on Hill 72, thus exposing the left flank of the enemy's attack for the defenders to take advantage of.

When a noon message on 15 February 1944 revealed that the 29th Panzer Grenadier Regiment had come into the line at Carroceto next to the 809th Infantry Regiment, it tipped off VI Corps to the imminence of a stronger enemy offensive there. On 20 February, the last day of that attack, the VI Corps Unit decrypted orders sent to the 105th FLAK Regiment to fire, between 1720 and 1750 hours, a total of 2,600 rounds on Allied troop concentrations along certain routes of approach. G-2 thus warned the troops at least one hour in advance of the shelling.

During the German counterattack, Major General L. K. Truscott, Jr., commanding general, 3d Infantry Division, became General Lucas's deputy commander. After it ended on 22 February, he relieved General Lucas as commanding general, U.S. VI Corps.

General von Mackensen made one more attempt. On 22 February 1944 he began regroup- ing for it, and SI disclosed that it would come on the other flank, along the axis of the Cisterna-Nettuno road. By the time it could be started, on 29 February, General Truscott knew what enemy forces would be committed and had regrouped his own formations. Allied air support was also primed. for it. By the second day, the enemy knew that this counterattack would also fail. As skies cleared on 2 March, Allied bombers struck behind his lines and Allied ground troops dispersed all attempts to penetrate the beachhead. Kesselring had already decided to go on the defensive both at Anzio and the Gustav Line.

In March 1944, since the Allies had found themselves unable to break through near Cassino and the enemy had proved himself unable to crush the Allied forces at Anzio, the situation on both fronts was a stalemate. That condition lasted more than two months, until 11 May. The opposing forces sparred and jabbed. The Allies reinforced the Fifth and Eighth Armies, regrouped, accumulated fire power, wore down the German Air Force, and by extensive training got ready for the May offensive.[13]

During the long stalemate, as before it, enemy artillery fire struck endlessly at targets throughout the beachhead. Protection was achieved by digging in, by camouflage and smoke. "Anzio Annie," nickname for any of the colossal railroad guns fired by the enemy, dropped shells from great distances. Detachment "E," 849th SIS developed some special methods for coping with German artillery fire. It compiled detailed records of each German artillery group, the location and alternate location of its batteries, each fire mission and the rounds fired. Voice frequencies were continually watched. All radioed reports were tabulated in order to verify the number of rounds fired and the ammunition still on hand. Enemy reports of Allied counterbattery fire were used as correction data for Allied guns, and as SIGINT stalked the positions of certain enemy batteries, they were ultimately broken up by hits and forced displacements.

The Liberation of Rome — 4 June 1944

The spring offensive for which the "Allied Armies in Italy" had been preparing was scheduled to start when it might have the effect of keeping forces in southern France away from the forthcoming cross-Channel attack. On the southern front, General Alexander's attack began with an unprecedented artillery preparation an hour before mid-night on 11 May 1944. On the Anzio front, the Allied offensive was timed to begin several days later, after reserves available to Kesselring might have been committed to holding the Gustav Line. Subsequent success in breaking out from the Anzio

beachhead might then, by threatening to block the long, motorized lines of communications to German Tenth Army, contribute to the progress of the southern attack.

The Allies had extended the Eighth Army to cover a wider front from the Adriatic southwestward. It faced the hitherto impregnable Cassino- Monte Cassino section of the Gustav Line and the adjacent Liri River Valley. Fifth Army's French Ex- peditionary Corps, greatly enlarged to almost 100,000 men, was now ready to break into other mountainous parts of the enemy's defense system. From the Tyrrhenian Sea inland to the Minturno area was U.S. II Corps, consisting of the 88th and 85th Divisions; in II Corps reserve was the 36th Division. In the Anzio beachhead under VI Corps were British 1 and 5 Divisions, U.S. 1st Armored, 3d Infantry, 34th and 45th Divisions, and 1st Special Service Forces.

The enemy's Fourteenth Army at Anzio included two corps headquarters controlling eight divisions to contain the Allied forces and guard the coast north of Anzio. The German Tenth Army had two corps and ten divisions. In reserve were the familiar 26th Panzer and 29th Panzer Grenadier Divisions, the 90th Panzer Grenadier Division and, in the Leghorn area, the Hermann Goering Panzer Parachute Division.

Allied air superiority amounted to a ten-to-one advantage in aircraft. The German Air Force could manage only weak and infrequent strikes at the port of Naples and at the shipping off Anzio, while Mediterranean Allied Air Force (MAAF) had rendered the railroads unreliable south of Florence, and so had forced extensive resort to trucks. Along the coast Allied bombers struck enemy ships and ports.

The French Expeditionary Corps overcame desperate resistance in the mountains west of the lower Garigliano and immediately south of the Liri valley during the first eight days of the May offensive and broke through the Gustav Line. It helped both the Eighth Army on its right and the U.S. II Corps on its left. The latter also drove through the Gustav Line and captured Formia, Gaeta and Itri. Tactically, Allied success reflected accurate intelligence concerning the locations of enemy strong points, their artillery observation points, and the best routes for Allied penetration and encirclement. Strategically, the offensive quickly drew miscellaneous units to confront II Corps, after one German division there had been demolished, and attracted the 26th Panzer Division to try to stop the French Expeditionary Corps.

The enemy made a determined stand at Fico because of its importance in a defense line extending northeastward to Ponte Corvo, the next set of defenses beyond the Gustav Line. The French took Pico on 22 May. They had then advanced so far beyond the Eighth Army in the Liri-Sacco Valley that, for a time, General Alexander weighed the merits of swinging the Fifth Army northward to reach that valley. Despite heavy casualties, Eighth Army began crumbling the defenses it faced; so Fifth Army continued generally northwestward along the Tyrrhenian coast.

On 24 May II Corps was able to drive the Germans out of Terracina, where Highway No.7 ran along a narrow shelf between mountains and sea. That made it possible to link the two segments of Fifth Army by overland communications. And it enabled II Corps to bring more of its forces by land to join the 36th Division, which had gone to Anzio by sea, and to assume responsibility about one week later for pursuit of the enemy along Highway No. 6 to Rome.

By the time the Allied breakout from Anzio beachhead had begun on 23 May, the enemy was trying to bring the German Tenth Army back to the last prepared belt of defense south of Rome, that extending between Ardea near the coast to Avellano. It was not as strong as the Gustav Line had been but, south of the Alban Hills between Velletri and Campoleone Station, it was most formidable.

On 23 May 1944 General Truscott sent the 1st Armored Division, on the left, and the 3d Infantry Division, on the right, across the sector of the beachhead line held by the 34th Division, that between Carano and Conca. The objective was to take Cisterna, block Highway No.7 between Cisterna and Velletri, and control the approaches to the gap north of Cisterna between the Alban Hills and the Lepini Mountains. Cori, northeast of Cisterna, and Velletri, northwest of it, were to be separated by further advances toward Valmontone in the valley and to Artena, on the southern edge of the gap. Although Cisterna was strongly defended, it was isolated and captured, while Cori, and beyond it Giulianello, were taken.

The enemy's counterattacks were scattered and weakened by heavy Allied air attacks on jammed roads and by other factors that denied him opportunity to coordinate his efforts. During the fluid battle, Allied SIGINT was the main means of locating enemy units, though air reconnaissance noted concentrations and interrogation of prisoners yielded identifications. The enemy at one time was desperately trying to bring in armored reinforcements on the same roads that broken units were using to move in the opposite direction.

As Combat Command B, 1st Armored Division, headed for Cori on 24 May, a message sent by the German 105th FLAK Regiment divulged the location of a strong antitank barrier of mines and guns in the planned path of approach. Warning came in time to reroute the American force, which successfully eliminated the position and forced large numbers of enemy troops to surrender.

SIGINT also disclosed the enemy's reactions to Allied progress. An element of the German 715th Division reported at 0910 hours an Allied breakthrough near Cisterna on 24 May and its own withdrawal northward to Bassiano. At 1608 another report described the Allies as again attacking Cisterna from the direction of Privorno. Later that day the 105th FLAK Regiment reported that the Genzano-Velletri road, close to the Alban Hills, was impassable because of bomb craters.[14]

On 26 May General Clark stopped VI Corps short of its original objective and switched the axis of its attack, sending it along the southwestern fringe of the Alban Hills to hit the enemy's prepared main line of resistance between Velletri and Campoleone Station. II Corps was made responsible for the Allied line from the Lepini Mountains to Velletri, on the right of VI Corps.

Arrival of the Hermann Goering Artillery Regiment was noted on 26 May, and by 280150 Fifth Army reported that DF bearings on a Hermann Goering Panzer Regiment showed it to be moving along Highway No. 6; other PEARL items indicated that the main body of that division was in the valley, west of Valmontone. It held the 3d Infantry Division away from Highway No. 6 for several days.

Velletri was located on heights and approachable by draws that cut into terraced hillsides. Taking it was a job for infantry, not armor, and was unsuccessfully attempted by the 1st Armored Division for several days before they handed it over to the 36th Division and shifted to the attack on the Campoleone section of the enemy's line. Lanuvio and Velletri held after Ardea and Artena both succumbed on 30 May. During the night of 30/31 May, the 36th Division climbed up Mt. Artemisio, where the enemy had depended for defense on the terrain, after shifting troops to other points where they were even more needed. Elements of the 36th Division moved over the hills and blocked the roads from Nemi and Genzano to Velletri as well as cutting Velletri off from Valmon tone. The Americans withstood a counterattack on 1 June and then took Velletri, while the enemy's last bastion, at Lanuvio, held out one more day.

During 31 May "Y" units were able to report the locations, and reduced strengths, of elements of the 105th FLAK Regiment, the 93d Artillery Regiment, and the 33d Artillery Regiment. By DF they located the command posts of the 334 Division, 1st

Parachute Division, 15th and 26th Panzer Division, 115th Regiment, a tank regiment of the 26th Panzer Division, and a battle group based on the 67th Regiment. It was obvious that the enemy's forces had been configured into improvised aggregations at various points, and that the retreat by large units behind stalwart rear-guard actions resulted in neither a rout nor a wholly orderly retreat. That night, German units were heard calling for artillery fire on designated areas and reporting where they thought the Allies would next strike.[15]

The German SIGINT service also supplied information of immediate tactical value to its commanders. One instance that impressed them enough to be remembered vividly in detail involved the French Expeditionary Corps. Its role in breaking through the Gustav Line was outstanding. Its drive through mountains toward the German line of communications in the Liri-Sacco Valley showed remarkable skill in adapting tactics and organization to the situations that arose. But on 31 May, French units in the vicinity of Gorga transmitted, in the clear, messages which enabled the Germans to avoid a critical situation. Higher German headquarters had believed that Allied forces were then in the vicinity of Carbineto. A German divisional intercept team learned from French messages that the 2d Tabor of Goums had already cleared Monte Pilocco and was going to Gorga for the night.

Gorga was so situated that it would have blocked German retreat in that whole sector. If the French had carried out their plan and had taken advantage of the favorable terrain, they could have disrupted German motor transport on the Via Casilina. The headquarters of the 29th Panzer Grenadier Division at Villa Magna would have had to surrender or run the gauntlet at great cost. The Germans instead were able to concentrate in time a force in Gorga that held the place for two more days while all other German units succeeded in getting out.[16]

On 2 June SIGINT showed that the German Army ration dump at Frascati would close that night; two nights later, the next issue of rations would be at a dump four kilometers north of Bracciano, well beyond Rome.[17]

On the first three days of June 1944, the Fifth Army advanced its line to the edge of Rome from the southeast and east. Highways No.5, 6, and 7 and intermediate shorter roads through the suburbs of Rome were the scene of stubborn defensive measures to gain enough time for German Fourteenth and Tenth Armies to pass through or around the city. Into Rome went the 1st Armored Division (from VI Corps), an element (Task Force Howze) of that division operating with the 1st Special Service Force (from II Corps), and elements of the 88th Division. The welcoming crowd did what German troops could not accomplish: they forced the tanks and other vehicles to stop.

The city escaped any significant combat as the Germans pulled out and allowed Allied seizure intact of bridges across the Tiber. The Allied troops that entered on 4 June were followed by more, but none was allowed to linger. The enemy had to be pursued and pressed before he could reorganize, reequip, and construct another intricate defensive line.

On 6 June 1944 came the Normandy landings, executed in part by troops, commanders, naval forces, and airmen seasoned in the Mediterranean or trained in the light of the campaigns there. In the ensuing campaigns in western Europe, not only they but the SIGINT organization that served them would reflect lessons learned in the Mediterranean.

Notes

1. See Garland and Smyth, *Sicily and the Surrender of Italy*.

2. 849th SIS Report on Voice Intercept during Initial Phase of Operation AVALANCHE, 2 Oct 1943, by First Lieutenant Pierre de St. Phalle, Sig C; Log of "SALE" messages received from 329 Wing, Algiers.

3. VI Corps, G-2 Jnl, 14 Sep 1943.

4. Ibid.

5. Fifth Army G-2 Biweekly Report, 16 Oct 1943. G-2 Jnls, 1943-45, NARC Box 184.

6. Report, Adv Hq. FUSA, SIG I and Radio Intelligence Activities, Inclosure No.1, 20 Jan 1944, "Extracts from answers by the Signal Officer, Fifth Army, dated 6 Jan 1944, to a questionnaire submitted to him by the Signal Officer, First Army." AHS A52-20 Box 34/3 Folder: 322.

7. Fifth Army, Signal Section, Lessons Learned during the Campaigns in Italy. Fed Rec Ctr, Suitland, Md., 105-04.

8. MAAF SIGINT Service, "Results Obtained from Study of Airborne R/T Logs," 1 Aug 1944, by First Lieutenant J. D.Simmonds, RAF.

9. Besides Rear Admiral Lowry's commendation of 15 Feb 1944, Lieutenant Commander R. C. Robbins, USNR, commanding DE-136, on 1 December 1943 transmitted to CO, 849th SIS, a message received from a sister ship that "Your 'Y' team certainly saved our lives."

10. Report on Voice Intercept during initial Phase of Operation SHINGLE, 10 April 1944, by Lt. St. Phalle, Sig C, 849th SIS.

11. CX/MSS (Ser 2) 83/T7.

12. Remembered as an example during an interrogation of captured German generals at the end of the war. AFHQ Records, Reel 89-1. See also 45th Division, G-2 Jnl, 16-18 Feb 1944. (Seen at Suitland.) Study of the 157th Infantry Regiment's S-3 Jnl for February 1944 shows that the 2d Bn, 157th, had assumed control of its part of the front line during the night of 15/16 February, an hour before the enemy opened up his heavy artillery preparation. For the next four days it was under successive tank-infantry attacks. The enemy alternated between the 2d Battalion, 157th and adjacent British units, but on 18-19 February, concentrated on the former until night bayonet attacks seemed to have cleared the way for infantry infiltration and then a tank-infantry exploitation. Twice on 19 February the battalion requested help. When at noon the enemy sent an attacking infantry column down the road to break through, that column was cut to pieces by artillery, mortar, and long-range machine-gun fire. A somewhat similar decimation by Allied artillery had occurred during the previous night on another road. On 20 February the enemy's intermittent artillery fire seemed intended to discourage Allied interference with the removal of his vehicles and the digging in at his forward positions.

13. SI produced long reports of plans and timing as well as of the current situation to the Fuehrer from DB Suedouest (Kesselring), 28 Feb and 1 Mar 1943.

14. Fifth Army, G-2 Jnl, Sitrep, 24 May 1944; Fifth Army, ISUM No. 260, to 252200 B May 1944, PEARL Section, Sigs I, G-2; Hq, AAI Sitrep, 25 May 1944, PEARL Items.

15. Fifth Army ISUMS Nos. 226-267, PEARL Section.

16. AFHQ Microfilm Reel 26A, AFHQ Intell Notes No. 68, 8 Aug 1944.

17. HQ, Allied Armies in Italy (AAI), ISUM No. 822.

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Chapter 8

The Final Months in the Mediterranean Theater

Pursuit to the Arno and Beyond

The German strategy of resolutely defending successive belts of prepared positions across Italy south of Rome enabled the enemy to absorb Allied offensive power while inflicting heavy losses. It used up Allied resources that might have been used elsewhere, perhaps more injuriously. The same could be said, however, about the German divisions that remained in Italy instead of providing in France the defense in depth that might have turned the scale in the invasion of Normandy. The concept of the defensive line sustained the mistaken notion that battles were for territory rather than for the destruction of hostile firepower. On Hitler's specific orders, place after place was held "at all costs"; the resulting action became more brittle than elastic. Once the Gustav-Hitler Line was pierced anywhere by strong forces, the whole line was threatened, and the formations had to pull back to, or through, the next line south of Rome. No matter how well executed, the retreat and rear-guard actions were inevitably costly.

Four of the German divisions emerged from the Allied offensive below Rome as mere shells. Seven others were drastically depleted. On 5 June 1944 both the German Tenth and Fourteenth Armies were weak and in retreat. A persistent, ruthless Allied pursuit could then have harried them swiftly to the outposts of the incomplete "Gothic Line" across Italy, north of the Arno River and through the Apennines to the Adriatic near Pesaro. Allied pursuit was neither strong nor quick, while the opportunity was most promising, but German reinforcements, including four new divisions, were speedily moved to northern Italy from the Balkans, Denmark, Holland, and Germany. Fourteenth Army received a new commander, General Joachim Lemuelson, on 6 June, in place of General von Mackensen. Kesselring intended to delay the Allied advance at every advantageous intermediate position so that the Allies would, at best, reach a belt of defenses north of the Arno too late to break through the Po Valley before winter.

For a few weeks it remained uncertain whether Alexander's 15 Army Group would be allowed to remain at full strength until its adversaries in Italy had surrendered. An alternative claim upon some of the resources at his disposal would be an Allied amphibious invasion in southern France. That operation had been included among understandings between the Allies and Stalin; it had been a goal of the militant French at least since 1942 and perhaps since 1940. As a method of facilitating the success of Operation OVERLORD, the earliest possible invasion of southern France would be more than two months too late. As a contribution to Allied success in overcoming Germany, it might be argued that pushing all German forces from southern France into northern Europe would not accomplish anything more valuable than would defeating completely all German forces that could be drawn into northern Italy. Advocates of a campaign in southern France, to include the capture of Marseilles, finally prevailed at about the same time that the Germans were able to arrest the Allied pursuit north of Rome. The U.S. Seventh Army, commanded by General Alexander Patch, would land in southern France – Operation DRAGOON.

Transfers from the U.S. Fifth Army to the U.S. Seventh Army, for participation in Operation DRAGOON, took away from 15 Army Group the U.S. VI Corps of three divisions, the French Corps of four divisions, plus many nondivisional American units. In Italy IV Corps took over from VI Corps on 11 June 1944. The French left a month later. Many of General Alexander's supporting air

formations were switched to support of Seventh Army. Thus, at the same time that Kesselring's Army Group C was being replenished, the Allied force opposing him was reduced. After Hitler learned of the Allied reorganization, and in the face of crumbling German defense on both Eastern and Western Fronts, he withheld some of the reinforcing divisions promised to Kesselring. Eventually both the U.S. Fifth Army and British Eighth Army were strengthened in time for the final push to the floor of the Po Valley.

At first the Allied pursuit in June 1944 was led by the French Corps. After the French were withdrawn to embark for their return to France, Fifth Army moved up to the Arno River, with U.S. IV Corps along the west coast, U.S. II Corps further east, and, British Corps on the eastern wing. Ancona and Leghorn were captured on 18/19 July as valuable ports to support the renewed Allied drive. British Eighth Army successfully masked the swift shifting of the bulk of its strength to the Adriatic sector. Instead of making the main effort directly north of Florence through the Futa Pass and along the Florence-Bologna highway No. 65), 15 Army Group struck along the Adriatic coast. Eighth Army broke through the Gothic Line, took Rimini on 4 September but stopped short of Ravenna. After Kesselring had moved troops eastward from the center of his line, in order to hold the Eighth Army, the Fifth Army on 10 September-began its attack; it started as the pursuit of a withdrawing enemy. On 13 September, however, the Americans reached the main German defenses and fought a hard battle. Near Firenzuola, II Corps found a way to outflank a key pass on Highway 65 and thus to start working down through the northern mountains toward Bologna at their base. On 27 October, when Kesselring rushed troops to check that attack short of Bologna, Eighth Army resumed its advance. On 4 December it finally captured Ravenna, but it had reached an area of streams, marshes and lakes fed by the rains and snows of winter, where the roads were often causeways. The terrain was reminiscent of the Anzio beachhead in those respects.

Italian Fascist forces fighting for Mussolini's government on the side of the Germans tried in the Senio Valley during Christmas week to duplicate the contemporaneous Ardennes offensive, on a smaller scale. It was a feeble effort.

From January through March 1945, stalemate along a static front prevailed among the ground troops. On both sides, important changes in command occurred. Kesselring went to Germany to direct the final defense. Vietinghoff moved up to become Oberbefehlshaber Sudouest, commanding Army Group C. Lieutenant General Traugott succeeded him in command of German Tenth Army. From AFHQ at Caserta, Field Marshal Sir Henry Maitland Wilson went to Washington to take up the mission there of the late Field Marshal Sir John Dill in the Combined Chiefs of Staff. General Alexander succeeded him as Supreme Allied Commander, Mediterranean Theater, and General Clark left U.S. Fifth Army to succeed Alexander as commanding general, 15 Army Group. General Oliver Leese turned over British Eighth Army to Lieutenant General R. C. McCreery in order to move to Burma. To command the Fifth Army, Lieutenant General Lucian Truscott was brought back from U.S. VI Corps, then in France.

The I Canadian Corps and its two divisions left Eighth Army for western Europe to join the First Canadian Army in the 21st Army Group. Fifth Army gained the new U.S. 92d Division and the specially trained U.S. 10th Mountain Division.

Po Valley and Surrender

The renewed Allied drive through German defenses shielding the Po Valley opened on 2 April 1945 with diversionary operations on the two coastal wings. A week later, preceded by an extremely heavy artillery and air bombardment, the Eighth Army headed for Ferrara and Bologna. On 14 April Fifth Army attacked on a relatively narrow front along mountain streams and over adjacent heights, to approach Bologna from the south and southwest. In turn, each army shared the benefits

of Allied air supremacy in support of its offensive. By nightfall on 20 April both Fifth and Eighth Armies had come to the valley floor, where mobility and armor could begin to play decisive roles.

The enemy had not been permitted by the highest command to develop strong defenses along the northern bank of the Po River and in the foothills of the Italian Alps. Since Allied bombers had destroyed all bridges across the Po, the enemy had to lay pontoons, to use boats and ferries, and after crossing, to develop defenses hastily that might have been better built if done during the previous winter. To reach the river he had to cross terrain that furnished little shelter from air observation and harassment. He was already short of fuel. Heavy vehicles and weapons had to be abandoned on the south bank. Moreover, the extensive road net in the valley offered the Allies an opportunity to separate the German forces into segments, and to cut them up further until their remaining forces were fragmented and their resistance uncoordinated. Hundreds of road blocks hampered retreat. Allied fighter-bombers and Italian partisans supplemented the guns of Allied ground units.

During the last ten days of April, as Eighth Army unhinged the last German defense line and both armies closed in at Bologna, Allied armored units began their deep penetrations, shattering German control of many towns at the centers of road nets. Part of the enemy got across the Po, leaving tanks and about 50,000 prisoners behind. As the Germans moved toward the mountains in the north, Allied forces also crossed the river in time to intercept and capture many more.

For several months, beginning before Kesselring had gone to Germany, highly secret negotiations for surrender in Italy had been conducted on neutral ground by representatives of AFHQ and certain German commanders in Italy who could see no benefit to be gained by further sacrifices. On 29 April, at Caserta, the surrender was signed, to be effective at noon on 2 May 1945. By that time, Hitler was dead; surrender to the Anglo-American Allies, the Russians, and the French would end all hostilities in Europe in less than a week.

Negotiating the German surrender in Italy was not easy. On the Allied side, one impediment was the suspicion of the Soviet Union that the Anglo-Americans would make a separate peace detrimental to Soviet interests. Having yielded to opportunism in the Nazi-Soviet Pact of 1938 and having been willing to meet von Ribbentrop to discuss an accommodation in 1943, they could fear a similar opportunism on the part of the Allies.

On the German side, the main difficulty arose from the divisions among them and from the intention of some officials to extract advantage from the way the cease-fire eventually came. The German Army and Luftwaffe officers were burdened by a personal oath to Der Fuehrer. The initiative and momentum of negotiations was maintained by an SS general directly under Himmler, a regional commander who saw no point in continuing a hopeless struggle in Italy. He was sustained by a German diplomat, Dr. Rudolph Rahn. Lesser officers and officials brought them into touch with American and British representatives in Switzerland. The train of negotiations began on 25 February 1945 and ended about two months later, on 29 April 1945, after the Allied offensive into the Po Valley had succeeded.

First, the negotiators on each side had to demonstrate their good faith. Then they had to insure that terms once agreed upon by representatives would be executed by the principals. At that point in a series of meetings, when unwillingness to accept the personal risks of ending the war in Italy seemed to have been overcome, the Combined Chiefs of Staff (CCS) in Washington, responding to a Soviet protest, on 20 April 1945 ordered termination of all contacts.

A week later the CCS had been persuaded to reverse that order; soon arrangements had been completed for emissaries of General Heinrich von Vietinghoff, the principal German commander in

Italy, to be taken to Caserta to complete and sign a document of surrender in the presence of a Soviet general. That transaction occurred on 28-29 April 1945. The time for all hostilities to end was set at 1400 hours, 2 May. That would allow enough time for the German envoys to return from Caserta via a French airfield, then by ground transport across Switzerland into Austria, and thence to Bolzano in Italy. Italian partisans and German police were avoided only to find that at Headquarters, O.B. Sudouest, and among the German Army commanders, an unwillingness to issue the necessary ceasefire orders persisted. Even after Hitler was known to have killed himself and the end had come for Nazi Germany, turmoil in Italy persisted. The orders did go out in time, but the instrument of surrender was not officially validated until later that afternoon.

On 4 May 1945 German and Allied staff officers began spelling out the processes of pacification. Two days later, in southwestern Germany Army Group G, facing General Devers' 6th Army Group, surrendered.

After the surrender in Italy, General von Vietinghoff and some of his principal subordinates were interrogated about the role of SIGINT in their experience of command. They pointed out that they had been obliged to rely more and more on it because of the drying up of their other sources of intelligence. SIGINT provided data on activities in rear areas from which they might judge what the nature of future Allied operations would be SIGINT became the chief means of learning about reinforcements or reliefs by fresh Allied divisions. The communicators of Allied divisions had characteristic transmission traits. In view of the many different nationalities of the formations in British Eighth Army, reflected in languages, dialects, and to radio transmitters, it was easy to distinguish them. Traffic analysis showed the components of the Allied corps.

The communications among military police controlling highway traffic revealed Allied troop movements. Messages defining bomb lines disclosed places where streams were about to be crossed, or where other operations were impending.

During battles and pursuits, communications repeatedly revealed to German SIGINT teams the names of Allied officers and military units, artillery targets, bombing targets, and local tactical intentions. Bombing missions were compromised again and again in time to avoid damage by timely warning. If Allied aircraft were heard reporting that they had sighted concentrations of German tanks, the tank regiment was quickly warned. The generals were happy to say that in three-months' time, only one tank of the 26th Panzer Regiment had been totally destroyed in an air attack. Whenever Allied bombers took off, German SIGINT furnished a general warning even before the target of the mission had been identified. Radio silences were considered to be indications of pending Allied offensive action.

German SIGINT was never acknowledged as such by the staff officers who used it. They adopted such euphemisms as "Reliable Source," or covernames like "*Ludwig Meldung*" or "*Otto Meldung,*" whenever they referred to it. A rough appraisal rated the reliability of German SIGINT as 75 percent.

The SIGINT to which these interrogations and replies applied was tactical, not strategic. A German Army in Italy assigned the equivalent of a small Allied "Y" unit to most divisions. The German Supreme Command had ordered the inclusion of such a unit in every Army division, specifying that it consist of a noncommissioned officer in charge (NCOIC), two linguists, and three intercept operators. Equipment was to consist of one fixed and two pack receivers, reference books, and maps. The unit was expected to keep logs and, by traffic analysis, to reconstruct Allied networks. Its reports went to a corps unit able to provide competent interpretation.

An Alsatian who had served in the German Afrika Korps as an interpreter was captured after serving in the SIGINT unit of the 29th Panzer Grenadier Division in Italy. He described the divisional intercept unit as operating four receivers in a radio vehicle at a site three or four kilometers forward of the division staff, with which it was connected by telephone.[1]

Southern France: Operation DRAGOON

The protracted efforts of 15 Army Group in northern Italy, before achieving victory there, could be attributed to the weakening transfers from the Fifth to the Seventh Army for the invasion of southern France in August 1944. That operation, and certain beneficial consequences that offset the arrested development of the opportunities in Italy, are summarized below. It should also be noted that until a few days before the landings, the prime minister persisted in efforts to reverse the decision to invade southern France, and he never became reconciled to it.

The southern invasion began shortly after Allied forces, far to the north, broke out of the hedgerow country in Normandy and began their swift advance across France. The troops of the U.S. Seventh Army came ashore on 15 August 1944 on portions of the coast between Toulon and Cannes, near the Gulf of Frejus. There the valley of the Argens River led inland, a natural invasion route to the two primary target areas – the coastal cities of Toulon and Marseilles and the inland valley of the Rhone River.

As the invasion forces approached southern France, the German radars that might have indicated their positions were jammed by transmitters of the 1st Signal Service Platoon (Special). The unit had spent several months on Corsica, identifying the sites of all German radars along the coast of mainland Europe and preparing for the critical occasion.[2]

After silencing German gun positions on islands and headlands, the Western Naval Task Force brought the troops of three divisions and certain special units to a series of beaches in bays and coves. The assault troops soon gained control of a beachhead extending inland about fifteen miles.

The German Army defenders were organized as seven infantry divisions. After the Germans became convinced that southern France was about to be invaded, one armored division started there from the vicinity of Bordeaux while the Allied convoys were at sea. Four of the German infantry divisions were stationed between Spain and the delta of the Rhone. One garrisoned Marseilles and another, Toulon. One held the area where the assault landings occurred. The coastal defenses resembled those that had recently been overcome in Normandy, but the tidal strip was much shorter because of the steeper pitch of the Mediterranean coastal shelf. Another difference was the ingenuity of the enemy in disguising gun positions as villas and other innocent structures. Perhaps not so different as it was surprising was the quantity of mines, moored offshore and buried in the earth near the water's edge.

German Navy forces were not great. They occupied the French naval base at Toulon. One submarine moored there tried unsuccessfully, while escaping, to attack a large Allied ship. Two corvettes tried to reach Marseilles on the night of 16/17 August but were sunk. Several small and speedy boats from that area and from the vicinity of Genoa made nuisance raids but accomplished little. From an old French battleship, perhaps one scuttled when the Germans moved into unoccupied France in Novem-ber 1942, a turret of great 340-mm guns had been transferred to a cape south of Toulon and installed in a casemated position. It was adjacent to elaborate underground facilities for its crew and ammunition, and for defenders manning other guns emplaced nearby.

The German Air Force, greatly reduced and endlessly harried by Allied air formations,


SOUTHERN FRANCE — OPERATION DRAGOON
15 AUGUST 1944
NANCY
GERMANY
EPINAL
VESOUL
0 10 20 40 60 80
MILES
DIJON
BESANÇON
Saone River
SWITZERLAND
FRANCE
Lake Geneva
River
LYONS
Rhone
ITALY
Isère River
GRENOBLE
LIVRON
MONTELIMAR
SISTERON
AVIGNON
Durance River
ARLES
CANNES
MONTPELLIER
BRIGNOLES
ST. RAPHAEL
SETÉ
GULF OF FRÉJUS
ST. TROPEZ
MARSEILLES
CAVALAIRE
U.S. VI CORPS
TOULON
ILES d'HYÈRES
FR. II CORPS
SEVENTH ARMY
Mediterranean Sea

could assemble strength enough for a few attacks, generally at dusk. But for two previous weeks, Allied planes had struck several coastal areas, masking their actual choice of one for the assault, while damaging and destroying enemy defenses in them all. The results of such repeated bombings were supplemented by a final strike at the beachhead just before the landing craft approached on 15 August 1944. Perhaps 30,000 enemy troops were near the assault areas, and they were dazed and dispirited. The much larger number that might have been sent in as reinforcements could not be moved over destroyed bridges and disrupted roads or railroads with sufficient speed to equal the rate of Allied buildup. Allied air support from escort carriers and Corsican airfields was supplemented by new airstrips in the beachhead area.

Operation DRAGOON was a triumph attributable to the application of experience during planning, organization, training, and execution. Participants in earlier amphibious assaults were to be found at all levels, from commanders to GIs and able seamen. Vice Admiral Henry Kent Hewitt, USN, had been a naval task force commander in TORCH, HUSKY, and AVALANCHE. Lieutenant General Alexander Patch had commanded in the Pacific. Major General L. K. Truscott, Jr., had accompanied the Dieppe Raid by British Commandos and since then had had commands in TORCH, HUSKY, AVALANCHE, and SHINGLE. The 3d, 36th and 45th Divisions had each been in one or more such assaults, and were veterans of tough battles ashore. Training under conditions resembling those in southern France had taken place in the Naples area. Moreover, after certain preliminary diversions and deceptions before daylight, the assault landings began in daylight. H-hour was 0800 hours. And unlike earlier Mediterranean operations of the same type, they were preceded by heavy naval bombardment, as well as by air bombing. The success was no accident. Even an airborne force was dropped, for the most part, where it was needed.

On a misty morning, the troops approached the beaches through mine-swept lanes to find their inland objectives covered with clouds of dust and smoke. The left wing of VI Corps was the 3d Infantry Division, commanded by Major General John W. O'Daniel. Two of its regimental combat teams went ashore on opposite sides of a cape south of St. Tropez. Resistance was weak. Before noon the division CP was ashore. By nightfall, advance elements were about six miles inland. At midnight the inflow, in round figures, amounted to 16,000 men, 2,150 vehicles, and 225 tons of supplies.

In the center of the assault was the 45th Division, commanded by Major General William W. Eagles, which landed smoothly without opposition at points along three miles of sandy beach. Land mines gave some trouble there, but before D-Day had ended, thousands more men and vehicles had landed. The troops overcame opposition at villages inland, and cleared the way for the division commander in the morning and the VI Corps commander in the afternoon to establish headquarters ashore.

The 36th Division, under command of Major General John F. Dahlquist, came in nearest to the Gulf of Frejus as the right wing. St. Raphael, on the northern shore of the Gulf, was a major objective. Despite the preparation fire and bombing, the invaders met considerable opposition. The plan called for eliminating enemy gun positions that covered the Gulf so that the waters could then be swept free of mines, after which assault troops would land during the afternoon of D-Day. The schedule could not be met. The earlier landings were accomplished in part by switching one regimental combat team (RCT) to a portion of the beach being used by a second RCT and in part, aided by naval gunfire, by clearing the enemy from headlands and high ground along the coast. The available beaches served for landing some 30,000 men and 5,000 vehicles during the first three days, but only then could the sheltered beach at the head of the Gulf of Frejas be used.

Late on D+1, General Patch was satisfied that the beachhead was firmly held. The French II corps under General De Lattre de Tassigny was then coming ashore despite an enemy air attack. Another French Corps would soon arrive. Patch's Head-quarters, Seventh Army, left the USS *Catoctin* to occupy a villa near St. Tropez.

During the next two weeks the invaders gained control of the French coast from the border of Spain to that of Italy. Cannes and Nice were occupied by 30 August. A 1st Airborne Task Force in the hills and along the Var River, and a screening naval force offshore, protected the beachhead from possible depradations originating in northern Italy. On the western flank, French forces ashore and Allied naval units cleared the enemy from small ports and protecting islands. But the main objectives of the invasion were to gain two great ports – Toulon and Marseilles – and to press the German Nineteenth Army northward up the Rhone Valley, and perhaps destroy it.

In planning tactics, General Patch was able to disregard the risk of an enemy attack along an extended flank because from Special Intelligence, he knew that the Nineteenth Army had been ordered to retreat to the German lines much farther north. About two days after the landings began, Hitler ordered the withdrawal. On 17 August 1944, within five hours of their transmission, the orders conveying the decision had been decrypted and provided to SHAEF. General Patch thereupon sent a blocking force far ahead of the pursuing main body.

The 3d Division alone attacked up the Rhone valley while the 45th Division protected its east flank, and while the 36th Division and an armored task force tried, by a longer route, to block the German retreat at defiles near Montelimar or Livron. The attempted encirclement used a route through Sisteron and Aspres to the Drome River, which could be followed westward to the Rhone. Part of the 36th Division did not turn west but continued over the divide into the Isere River valley as far as Grenoble. Although part of the German forces avoided capture, about 57,000 men did not.

The French, moving westward from the bridgehead, encircled Toulon and began to invest Marseilles, while a naval force sought to open the way into Toulon harbor, past the islands and headlands on which German defenders remained. For about one week their 340-mm battery and some of the other guns defied the shells of Allied ships and the renewed Allied air bombing. On 26 August resistance there ended. Two days later, affected in part by news of the liberation of Paris and in part by the obvious strength of the Allied invading force, the enemy at Toulon and Marseilles surrendered. Remaining pockets of enemy in the coastal area were soon eliminated.

As early as 3 September, use of the port at Marseilles began while the demolitions were being cleared and repairs effected. In case Marseilles had held out longer or had been left unusable for too long a period, the Allies had cleared the mines at another port, Port de Bouc, some twenty miles west of Marseilles, and had opened a canal from that point to the Rhone River at Arles. By 25 September the captured beachhead was no longer needed; unloadings there had totaled more than 320,000 men, 68,000 vehicles, nearly 500,000 tons of supplies and large amounts of gasoline. (At the end of hostilities in Europe, through the port of Marseilles, supplemented by Toulon and Port de Bouc, 905,000 more men and over four million tons of cargo had moved inland.)

The arrival of French I Corps resulted in establishing a French Army "B," temporarily subordinated to the U.S. Seventh Army but soon superseded by a French First Army which, like U.S. Seventh Army, came under the control of 6th Army Group. The latter, having moved from Bastia, on 15 September 1944 assumed control at Lyon under Supreme Headquarters, Allied Expeditionary Forces. Seventh Army was then already in contact with the U.S. Third Army, first at Sombernon on 11 Septem-

ber, and later at other points. On 21 September, XV Corps shifted from Third to Seventh Army control.

The tactical SIGINT service available to Seventh Army in the course of its invasion of southern France was inconsiderable by comparison with what came later. The VI Corps SIGINT unit consisted of the newly designated 3201st SIS Detach-ment (three officers and eighteen enlisted men) formerly known as Detachment "E," 849th SIS, in combination with Detachment "B," 117th SRI Company (3 officers and 105 enlisted men), and under command of Lieutenant Frederick V. Betts. The intercept operators had been working since March at a station on Corsica covering enemy traffic from southern France. The intelligence personnel had been preparing since June for the shift from Italy to France. They all sailed from Naples divided among three transports of the D+ 5 convoy. Assembling at St. Tropez, they moved 180 miles inland on 24 August to Aspres. A week later they were in Charnacles, and by 9 September were in the vicinity of Besancon when VI Corps, with all of Seventh Army, came under control of SHAEF.

The SIGINT unit at General Patch"s Headquarters, Seventh Army, consisted of five officers and twenty-six enlisted men. Detachment "B," 849th SIS, was combined with Detachment "A," 117th SRI Company (3 officers and about 143 enlisted men), and commanded by Captain Edward J. Heinen. The unit moved from Corsica, where it had been training with Lieutenant Bett's detachment, to St. Tropez on the night of 30/31 August 1944. Three days later it moved almost 240 miles to the vicinity of Grenoble; by 20 September it was at Vesoul.

Relatively little use was made of tactical SIGINT during the landings and inland advance of Seventh Army, because of the fluid nature of the rapid advance, as the enemy withdrew. More important to Seventh Army's pursuit was the monitoring of communications among its own forward units.

The 3151st Staff Information and Monitoring Company (SIAM), commanded by Captain Reinardo R. Perez, was an instrument for control by Seventh Army G-3 rather than for producing signal intelligence information for G-2. Fifth Army had had such a provisional unit from which it transferred all but a cadre to form the 3151st SIAM. After activation at Cecina, Italy, on 18 July 1944, the new unit assembled the personnel needed for its platoons. Besides a headquarters platoon, it consisted of platoons for each of two corps (U.S. VI and French II) and four divisions, supplemented by several liaison officers. Actual strength was 14 officers and 225 enlisted men.[3]

The platoons monitored all radio nets within Seventh Army for adherence to radio and cryptographic security instructions, but their main function became that of conveying to commanders the substance of messages passed at lower echelons that showed American positions, situations, and intentions. Instead of relying on periodic reports and other messages specifically intended to keep higher headquarters informed, the commanders benefited from what amounted to SIGINT about their own units. And from the SIAM company's own radio nets the platoons copied, for their commanders, all tactical messages of consequence; the system was thus a means of prompt lateral as well as vertical movement of information. When enemy SIGINT was heard, it was, of course, passed to G-2 via its SIGINT Section. During a pursuit like that by Seventh Army from southern France to Alsace, the SIAM company served its purpose so well as to draw observers from Third Army and 12th Army Group to see how that was accomplished.

One of the liaison detachments of the 3151st SIAM Company first reported that Seventh Army and Third Army reconnaissance units, the first from southern France and the other from Normandy, had made contact near Sombernon on 11 September 1944.

When XV Corps was transferred from Third Army to Seventh Army, it obtained a new SIAM liaison team on 29 September.[4]

After AFHQ had mounted Operation DRAGOON, the U.S. Seventh Army moved under SHAEF operational control and a little later under the administrative and logistical services of the European Theater of Operations, U.S. Army. As we have noted earlier in this history, the Mediterranean Theater shrank within a boundary that ceased to include southern France. The route through Marseilles and Toulon became that over which a tremendous volume of reinforcements and supplies reached the fighting front in eastern France and in Germany.

The Mediterranean became the secondary theater, as the Americans at least had expected. The cross-Channel invasion and the campaign in western Europe was executed by much larger forces using means and methods tested in the Mediterran-ean. Those campaigns were a culmination of Allied experience.

By 7 September 1945 two increments of the 849th SIS had already returned to Fort Monmouth, N.J., from the Mediterranean Theater of Operations. One had been allocated to reinforcing the 2d Signal Service Battalion; the other was scheduled to augment the 3126th Signal Service Company (RI) for duty in the Pacific – events there made such deployment unnecessary. Both groups remained in the 849th SIS until its deactivation later that year.

Notes

1. AFHQ Interrogation Report, Microfilm Reel 98-1; AFHQ Intell Notes, No. 68, No.1 02, on Reel 26A.

2. The unit had previously prepared for operations to retake Kiska Island in the Aleutians, and after that episode moved to the Mediterranean. From Corsica it returned to the U.S. for redeployment to the Central Pacific. History of the SSA in WW II, Vol. X, 62-3.

3. Fifth Army organized the 3326th SIAM Company around a cadre from its provisional unit in September 1944.

4. Historical Record Report, 3151st SIAM Co., 20 Aug 1944.

Part Two

Western Europe

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Chapter 9

The Forming of Signal Intelligence Service, ETOUSA

Derivation and Beginnings

The formation of SIS, ETOUSA, reflected both the early organizational concept of the SIS, War Department, and the experience gained overseas, particularly in the Mediterranean. When the United States became a belligerent in December 1941, both Army and Navy SIGINT centers in Washington operated in buildings of World War I vintage situated on lower Constitution Avenue and backing on Potomac Park. (Both structures survived until after the Korean conflict.) To cope with wartime requirements, each center moved to larger quarters which could be better segregated from non-SIGINT personnel of the same armed service. Each acquired a girls' private school: the Army – Arlington Hall in Virginia; the Navy – Mt. Vernon Seminary in the District of Columbia. This narrative treats Army (and Army Air Forces) SIGINT production in ETOUSA, leaving Navy SIGINT operations for separate consideration.

The interception and processing of most nonmilitary communications, on which both Army and Navy had largely trained their SIGINT specialists before Pearl Harbor was attacked, were relinquished by the Navy to the Army altogether for the duration of the war. The Navy devoted its growing resources to the war at sea. When the war began, the Army SIS had six intercept units at fixed stations; it added a seventh (Vint Hill Farms Station near Warrenton, Virginia) in 1942, and five others before the war ended. Until 1943 those stations were unable to produce enough raw traffic for analysts to reach early solutions. As more stations and positions were added, radio and wire links to the Washington center were unable to deliver the swollen quantities; much raw traffic came by mail, reaching Washington from one to three months after it had been collected. IBM runs at Arlington Hall had to be deferred until the mail brought messages missing from series that had been partly transmitted electrically. Whenever a cryptosystem became readable, much back traffic became subject to exploitation. By 1943 it became apparent that tactical SIGINT had to be produced, as in World War I, by mobile units along the front in combat areas, and by processing centers in the theaters.

The Signal Intelligence Service, ETOUSA, was an American counterpart to the British "Y" Service, a part of the U.S. Army Forces in the European Theater concerned with producing and distributing what the Army then called "radio intelligence." Its origins and organizational history reflected the tumultuous circumstances of expansion and reorganization of the U.S. Army in 1942-43. An important contribution to its operations was made by the British participation in training Americans to cope with the methods of German communicators of World War II, methods that had not been used during the prewar period.

As early as May 1941, before the Japanese attack on Pearl Harbor, the U.S. Army established a Special Observers Group in the United Kingdom. After the United States had become a belligerent, the observers were succeeded on 3 January 1942 by a Headquarters, U.S. Army Forces, in the British Isles (USAFBI), with a broad staff. In the Signal Section of that staff, the SIGINT service officer was 1st Lieutenant R. J. Doney. Besides Captain Solomon Kullback at Bletchley Park, four young officers were student observers concerned with interception methods at fixed and mobile British Army and Royal Air Force stations. The Air Ministry agreed to train some American officers in the analysis of machine ciphers. The War Office considered the ways in which American radio intelligence units brought to the area might be

assisted to engage in operational training in the light of British experience. At Carrickfergus, Northern Ireland, a platoon of the 122d RI Company, under 1st Lieutenant Shannon D. Brown and 2d Lieutenant James B. Hubbard, manned an intercept station beginning on 15 May 1942.[1]

As we saw in Chapter I, the Army SIGINT effort was supervised by and responded to the Military Intelligence Service. That relationship prevailed in the theaters. When other sources of military intelligence dried up or became ambivalent and vague, the intelligence requirements placed on SIGINT became the more urgent.

The relationship of the War Department to ETOUSA (or other theaters of operations) affected the ways in which SIS, ETOUSA, was able to function. General Eisenhower, as commanding general, ETOUSA, received missions from the chief of staff of the Army, missions for the execution of which his own staff determined requirements of men and material. If possible, "Washington" met the requirements, though not without considerable transatlantic negotiation and inevitable delay.

In Washington the Army SIS claimed personnel, got them trained, and assigned them to duty with Signal Corps units. Once these troops arrived in an overseas theater, they remained under the command and control of the theater commander as exercised through the theater chain of command. When the Army's chief signal officer or his representative visited ETOUSA, he was primarily concerned with technical matters. If the solution of problems required a departure from ETOUSA orders and regulations, such exceptions had to be authorized by the theater command. If differences arose between SIGINT and non-SIGINT unit commanders, they were resolved at higher levels in the theater chain of command.

In ETOUSA, the commanding general allocated resources to Army and Army Group, or to the Services of Supply. The components of the theater SIS could, however, be attached for rations and supply rather than assigned to a field command and could thus remain under the operational control of the director, SIS, ETOUSA, who exercised that control in meeting the requirements of the theater military intelligence service.

Who was the director, SIS, ETOUSA? "Under another hat," as the saying went, he was the director, Signal Intelligence Division, Office of the Chief Signal Officer, ETOUSA, namely, Colonel George A. Bicher. He was responsible for both SIGINT and COMSEC operations, including training, organization of units, production, and administration. He had operational control of all SIGINT producing units in ETOUSA and all SIGINT personnel engaged in training in the UK.[2] He was advisor to the assistant chief of staff, G-2, ETOUSA, on all technical aspects of SIGINT production, but he exercised no supervision over personnel of the Special Branch, Military Intelligence Service (MIS) who were sent to the theater for detached service and grouped in the MIS, War Department, London Branch. Their duties were kept entirely separate and supervised by Lieutenant Colonel Telford Taylor. Colonel Bicher did have technical and administrative supervision of the work of the Signal Security Agency liaison officers, successively Captain John N. Seaman, Captain Walter J. Fried, and finally Mr. Albert W. Small.

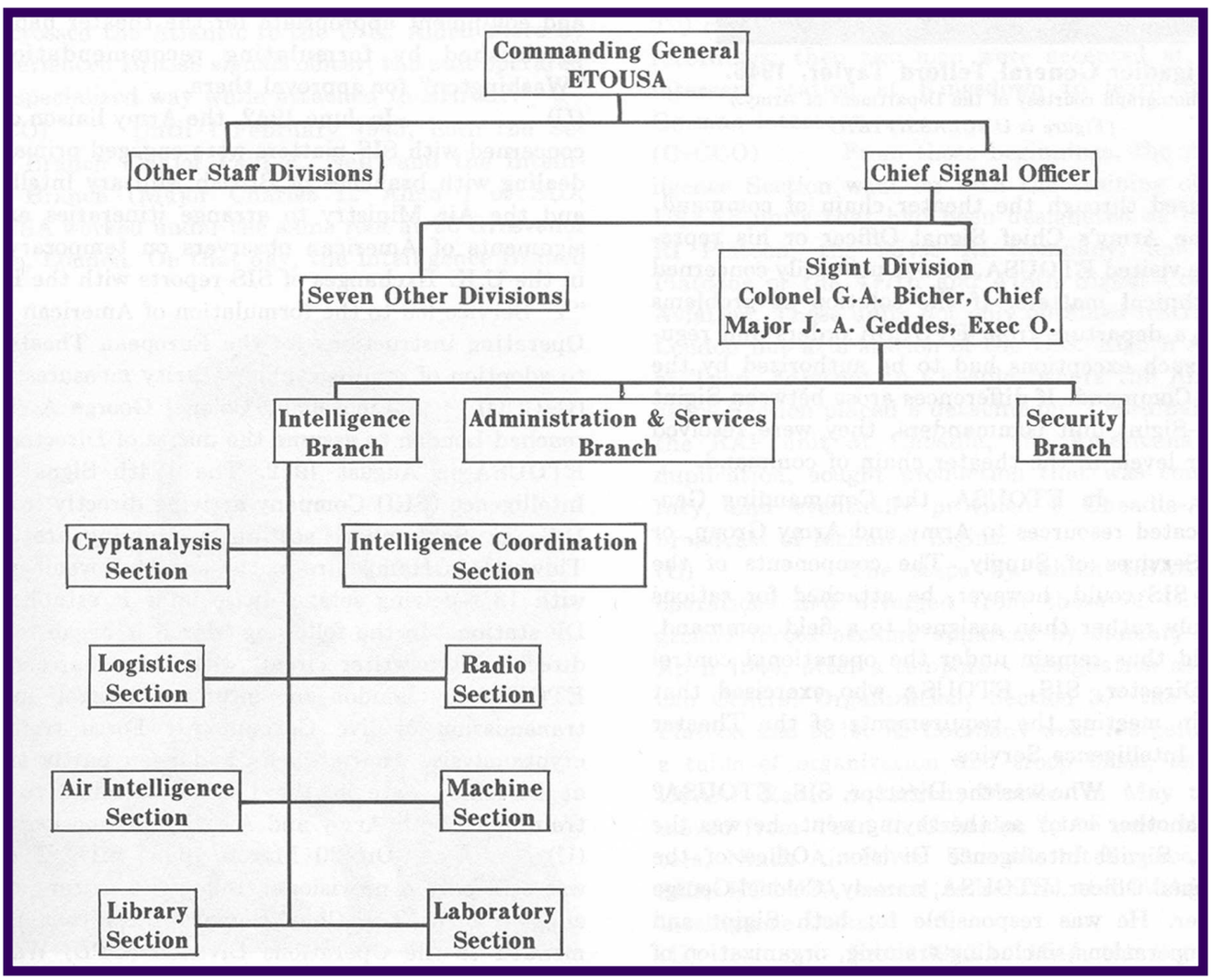
From 1942 to 1944, SID, ETOUSA, had to plan for the future and to cope with problems of the present. While cryptanalysts and traffic analysts were being trained in Britain to deal with German cryptosystems, intercept operators were trained there also in techniques of major effectiveness against German military communications. Tables of organization and equipment appropriate for the theater had to be established by formulating recommendations to "Washington" for approval there.

In June 1942 the Army liaison officers concerned with SIS matters were engaged primarily dealing with branches of British Military Intelligence and the Air Ministry to arrange itineraries and assignments of American observers on

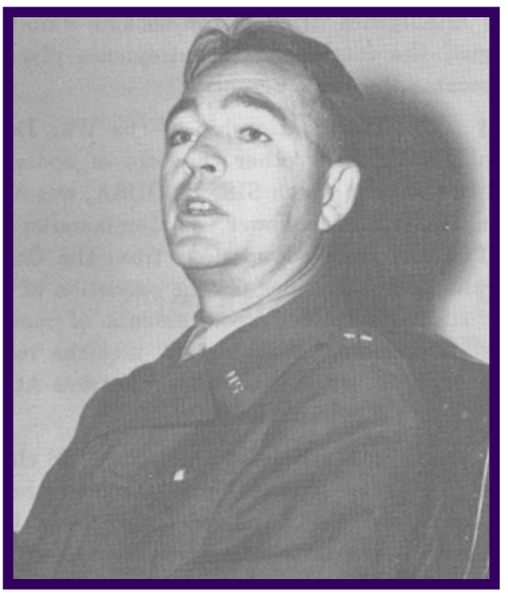
temporary duty in the U.K. Exchanges of SIS reports with the British "Y" Service led to the formulation of American Signal Operating Instructions for the European Theater and to adoption of cryptographic security measures.[3]

Lieutenant Colonel George A. Bicher reached London to assume the duties of director, SIS, ETOUSA, in August 1942. The 124th Signal Radio Intelligence (SRI) Company, arriving directly from the U.S. in September, set up a training station at Tidworth in Hampshire at the end of November 1942 with eighteen receiving sets; a little later it established a DF station.[4] In the following March it began to use a direct teletypewriter circuit with Headquarters, SIS, ETOUSA, in London for intercept control and the transmission of live German Air Force traffic for cryptanalysis. Analysts who had been partly trained at Bletchley were at the London terminal to guide training in both Army and Air "Y" production.

On 20 March 1943, SID, ETOUSA was still only a provisional unit of thirty-four officers and fifty-eight enlisted men. The chief signal officer then recommended to the Operations Division (OPD) War Department that its authorized strength be 46 officers and 207 enlisted men, using equipment



SIGINT organization at Headquarters, ETOUSA, 1944



Brigadier General Telford Taylor, 1946 (Photograph courtesy of the Department of Army)

prescribed by the CG, ETOUSA, and organized in conformity with a table of organization originating at SIS, ETOUSA, but reviewed and modified at Headquarters, Signal Security Service.[5]

The structure of SID, ETOUSA, consisted eventually of a Headquarters Section, a (communications) Security Branch, an Intelligence Branch, and a Training Section. The Security Branch contained sections concerned with the compilation, distribution, and accounting of field codes, with maintenance of cipher machines, and with the protection of communications security. The Intelligence Branch was divided in sections concerned, respectively, with identifying enemy equipment, with coordinating signal intelligence, and with performing traffic analysis, cryptanalysis, and laboratory work on secret inks.

A related, later activity of the Signal Security Agency was the conduct of radio-countermeasures (RCM), such as jamming and deceptive radio communications traffic. In January 1944, the 3103d Signal Service Battalion (31 officers and 708 enlisted men) crossed the Atlantic to the UK Aided there by an experienced British signals officer, the unit operated in its specialized way while attached to SHAEF.[6]

Until 1 February 1943, both the Security Branch (Major Paul E. Neff) and the Intelligence Branch (Major Charles L. Allen) of SID, ETOUSA, worked under the same roof at 20 Grosvenor Square, London. On that day, the Intelligence Branch began operating at 59 Weymouth Street. As mentioned above, in the following month the Intelligence Branch was directly connected by teletypewriter with the 124th SRI Company at Tidworth. Analysts working on live German traffic previously furnished by GCCS in time could use material attained from American interception and could develop the correlation of analysis with intercept control.

The Air Intelligence Section of the Intelligence Branch was drawn by the character of its target communications into closer association with RAF SIGINT operations. American officers who learned RAF methods at Newbold Revel, Rugby, as early as September 1942, and at the RAF intercept station at Cheadle, applied their experience in January 1943 in organizing an Air Intelligence Section, and in training others to work on intercepted traffic provided by the RAF and by the American unit at Tidworth. In June 1943 the Air Intelligence Section began training in interception and analysis of "voice" (British term "R/T") communications. At first they worked from taped recordings; then two men were accepted at an RAF intercept station at Kingsdown to learn from live German intercept.

From those beginnings, the Air Intelligence Section went on with the training of certain USAAF units that had been designated as the 926th RI Platoon, the 951st RI Company, and the RI Platoons of the 417th and 418th Signal Companies, Aviation. Those units obtained instruction not only in London but at a station of the U.S. Eighth Air Force at Tean, adjacent to Cheadle, where the Air Intelligence Section placed a detachment. Coordinating with the RAF unit at Cheadle, the Americans avoided duplication, sought production that was complementary, and eventually provided

a Cheadle-American broadcast of technical SIGINT.[7]

The steps by which USAAF SIGINT operations had diverged from those of U.S. Army ground forces became apparent by January 1944. In April 1944, after a temporary designation as "American Central Organization, Section 3," the 926th RI Platoon and 951st RI Company were reorganized with a table of organization and troop basis, as the 3d USAAF Radio Squadron, Mobile. In May that unit moved from Tean to Uxbridge to be near Headquarters, Ninth Air Force. The Air Intelligence Section, SID, ETOUSA ceased to control the USAAF Radio Intelligence Units.

From 1942 to 1944, the Signal Intelligence Service, ETOUSA, kept growing. Its activities consisted at first of beginning training while achieving efficient organization. Matters of liaison and administration led to the training of more and more individuals and units in interception, processing, and the derivation of intelligence. The need to train men for service in NATOUSA was for a time allowed to inhibit the production of current SIGINT in connection with the training. In October 1942, while the 3d Platoon, 122d SRI Company was at Tidworth, it was redesignated as the 128th SRI Company and became a cadre of that new unit later sent to the Mediterranean. The 124th SRI Company arrived in England in September 1942 for extended training; it also contributed to other units formed there in 1944.

Another group paused in the UK for training before continuing to Algiers to join the 849th SIGINT Service in the Mediterranean.

In February 1943 SIS ETOUSA began issuing SIGINT bulletins, summaries, and periodic ETORIG reports of T/A operations that went not only to CG, ETOUSA, but also to Allied Force Headquarters, GCHQ (Military Wing) and to Washington (SPSIS).[8]

The American Army SIGINT personnel stationed in ETOUSA and subject to the administrative responsibilities of Colonel Bicher as Director, SIS, ETOUSA, increased in the latter part of 1943 with the arrival of men assigned to the "Special Project Group" concerned with learning how to produce Ultra. Their status is treated in Chapter 11.

Planning in the Theater

Before the decision in July 1942 to invade Northwest Africa during the ensuing autumn, all planning by American SIGINT officers for operations in the West had looked toward the requirements of forces that would be attacking across the English Channel. A tentative plan called

Lieutenant Paul E. Neff, 1941 (Photograph courtesy of the Department of Army)

for training in the UK of more than twenty-three radio intelligence units. Any cross-Channel invasion was deferred in order to execute a series of campaigns in the Mediterranean area, but such an undertaking never ceased to be primary in American thinking. Although the opportunity to become capable of a successful invasion was hampered, it was not forfeited. When plans for limited attacks in 1943 had been shelved and May 1944 had been set

as the date for an all-out attack, planning entered a new phase.

Until General Eisenhower arrived in the U.K. in January 1944 to assume command, all planning and preparations had to remain tentative. Thereafter the pace of plans and preparations accelerated until the invasion began on 6 June 1944. The previous concepts were superseded by the judgments of those who would actually command. General Sir Bernard Montgomery was designated to command all Allied ground forces in the field during the assault landings and the subsequent acquisition of an Allied lodgment in France. He insisted, as he had before invading Sicily, that the initial landing forces should be more widely dispersed and thus gain a wider choice of areas for penetration. The resulting plan provided for simultaneous amphibious operations by the troops of four different corps under the control of two armies, with other corps to come ashore subsequently. The British Second Army (Dempsey) would attack on the left opposite Caen, and the U.S. First Army (Bradley) would land farther north (on Omaha and Utah Beaches) to cut off and then seize Cherbourg. Each corps would commit two divisions and special units on D-Day and reinforce them with a third division soon afterward. Then a third corps with stronger, armored elements would land.

As the bridgehead in Normandy expanded, the Canadian First Army (Crerar) and the U.S. Third Army (Patton) would cross to Normandy, there to control several more corps that would eventually be engaged in exploiting a break-out near the base of the Normandy peninsula. At the time the U.S. Third Army became active, General Bradley would activate a Headquarters, 12th Army Group, and relinquish his direct command of First Army to Lieutenant General Courtney Hodges. Similarly, General Montgomery's command over the British and Canadian armies would be exercised through a Headquarters, 21 Army Group. He would continue to be responsible for coordinating the operations of the two army groups until General Eisenhower, as Supreme Commander, Allied Expeditionary Forces, assumed direct command of the army groups, as well as of the Allied air forces.

After the Normandy landings had succeeded, landing craft needed for an amphibious assault in southern France would be salvaged and transferred to the Mediterranean. That invasion (Operation DRAGOON) was to bring the U.S. Seventh Army (Patch) into southeastern France and to open a new line of supply from Marseilles and adjacent smaller ports to the combat zone. The Seventh Army would contain a French army corps. It was to be reinforced by another, and thereafter both would be controlled by Headquarters, French First Army (De Lattre de Tassigny). Both the U.S. and French armies would then come under a 6th Army Group (Devers), itself, like the other two army groups, under SHAEF (Eisenhower).

The planning in London for the invasion of Normandy recognized that additional corps headquarters and more American divisions would be provided by the U.S. and would be placed under command of the U.S. Ninth Army (Simpson) in time to participate in any prolonged campaign to effect unconditional surrender.

By the winter of 1943-1944, Anglo-American collaboration in SIGINT had progressed from tentative, pre-Pearl Harbor beginnings to solid cooperation. In respect to special intelligence, the U.S. remained more a client than a full partner, though it contributed to production. In the production of tactical SIGINT (British term "Y"), American determination to achieve parallel competence using American personnel was unmistakable. To get that far as quickly as possible, the benefits of British experience were pursued and freely offered. A Theater "Y" service thus developed within the general framework of collaboration between the SIGINT establishments of the two countries. The British accepted not only leading American analyst but a stream of trainees. Beginning on 10 January 1943, some of the trainee officers became in turn instructors of Americans more recently arrived in the UK,

either en route to the Mediterranean area or earmarked for SIS, ETOUSA.

The decisions concerning the chain of command among U.S. Army ground forces in the invasion seem to have been reached during the first weeks after Eisenhower's arrival in the United Kingdom. On the scene were Bradley and Hodges. Bradley's Headquarters, FUSA, had already been established on 20 October 1943 at Bristol, where it replaced Headquarters, U.S. V Corps. The latter went to Taunton. VII Corps at the same time settled at Braemore, near Salisbury. XIX Corps Headquarters arrived at Warminster on 14 January 1944. Hodges was promoted to lieutenant general and officially transferred to FUSA as Bradley's deputy on 26 March 1944. On that day, having been summoned from Sicily two months earlier, Patton became officially CG, Third U.S. Army (TUSA).

On the FUSA staff were thirty-eight officers who had served at one time under Bradley (as CG, U.S. II Corps) in the Mediterranean area, supplemented by many more who had come directly from the U.S.

Patton persuaded General Devers, as CG, NATOUSA, to release from the Seventh Army staff in Sicily fifteen officers who had served there with him, and who thus came to the new TUSA. Late in January 1944, the *Queen Mary* brought from the U.S. thirteen officers and twenty-six enlisted men for Headquarters, TUSA. The staff was located at Knutsford, near Chester, about five-hours' drive from London, and grew to exceed 1,000 by the end of March.

While planning was being done in the London area, the Headquarters, SOS, under the Deputy, CG, ETOUSA (Major General John C. H. Lee) was at Cheltenham, near which many of the service units for the two U.S. Armies prepared for the invasion. In London a small 1st U.S. Army Group (FUSAG) headquarters engaged in planning and preparation that included the eventual use of SIGINT services provided by means that are described below.[9]

The Invasion Begins

For weeks representatives of both American Army staffs remained in London for detailed planning. On 2 June 1944, Bradley's Advance CP was established aboard the USS *Augusta*, the same ship from which General Patton had gone ashore to take command of the Western Task Force in Morocco (on 8 November 1942). FUSA troops were then either already on the ships that would take them across the Channel, or en route to ports of embarkation. V Corps (Gerow), VII Corps (Collins), and after them XIX Corps (Corlett) – including two armored divisions – were FUSA's principal subordinate commands. VIII Corps (Middleton) from TUSA was temporarily attached to FUSA, and would go into action in Normandy on 15 June to hold the western section of the American line while VII Corps invested and overcame Cherbourg. That city surrendered on 26 June, after which VII Corps (with extraordinary speed) came into the line east of VIII Corps, and the First Army's push southward began.

TUSA's other three corps – XV (Haislip), XX (Walker), and XII (Cook) – as well as many separate units that comprised Army troops, next moved to Normandy. They brought the total American strength ashore by the end of August 1944 to more than 1,000,000. An advance echelon of Headquarters, TUSA, opened south of Salisbury on 29 June and by 4 July began crossing to Normandy. There they set up near the road-center of Valognes. The rear echelon of Headquarters, FUSA, was not far away. Bradley moved his command echelon from Grandcamps-les-Bains near Omaha Beach to a point inland near Vouilly on 2 July. In Normandy, TUSA welcomed opportunities for its units to become seasoned in combat in operations being controlled by FUSA. When the time came for a breakout, their better performance would reflect the earlier combat experience.

The First U.S. Army Group (FUSAG) had been first activated on 19 October 1943 in London in accordance with HQ, ETOUSA, General Order No. 74, dated 16 October 1943.

The structure known as First U.S. Army Group was removed from that designation and transferred on 14 July 1944 by HQ, ETOUSA, General Order No. 73, to a new organization, the 12th Army Group. All units and personnel passed to the new command. The old command, FUSAG, supposedly under Patton, remained as a phantom in order to induce the enemy to believe that the main attacking forces, under FUSAG control, were still in the UK awaiting the favorable moment for what would be the primary assault across the channel. With the same purpose in mind, the presence of General Patton in Normandy and the fact that he commanded TUSA were kept as secret as he would allow until after TUSA had begun to fight as such.

On 1 August 1944 TUSA went into action. On that day, headquarters, 12th Army Group took command of both FUSA and TUSA, as authorized on 25 July by the Supreme Allied Commander. At the same time, 12th Army Group remained under the overall operational control of General Sir Bernard Montgomery until the Supreme Commander was ready to assume direct control of Allied ground forces. That occurred on 1 September 1944.

FUSAG was officially deactivated on 18 October 1944. Back in 1943, when that headquarters began functioning as a planning group, its Signal Section contained a "Security and Countermeasure Branch" with the responsibility "to coordinate all signal security and signal intelligence matters within the First U.S. Army Group, including armies and the Zone of Communications. It will also coordinate these matters with SHAEF, SIS ETOUSA, Navy, 21 Army Group, and other British Services..." The same individual officer represented FUSAG and SID, ETOUSA for SIGINT planning.

The Structure of SIS, ETOUSA

The initial concept on which planners in FUSAG, ETOUSA, and the War Department focused their concern called for providing each U.S. army with two signal construction battalions and one large signal information and monitoring (SIAM) company, and, for each of the seven corps, a signal service battalion that would contain one radio intelligence company. A program for issuing cipher machines and all other items of secure communications systems for the dissemination of SIGINT was also a feature of the planning. The planners contemplated establishing an army group SIGINT service as well as a SIGINT service in each army and corps. The War Department withheld approval from any project to create an army group SIS paralleling that at the theater headquarters, just as it objected to having the Headquarters, FUSAG, duplicate the scope of tasks performed at HQ, ETOUSA, and HQ, SOS, ETOUSA.

The 12th Army Group Headquarters was thus given instead an attached Signal Security Detachment "D" (SSD "D") of the Signal Intelligence Division, Office of the Chief Signal Officer, SOS, ETOUSA. The Army Group staff itself had relatively small SIGINT and COMSEC groups, as well as two Signal Radio Intelligence Companies among its Special Troops.[10]

With which type of ground combat unit should tactical SIGINT units be placed? How self-sufficient should they be? How mobile? How large? What equipment would they need? What kinds of specialization, and in what proportions, would be required? The answers to such questions could be provided on the basis of certain known factors, but since the enemy's communications and cryptographic, technologies would not remain static, even current experience might be insufficient. Adaptability might also become essential.

At first, after Pearl Harbor, the Signal Corps had planned to place radio intelligence (RI) platoons in each division's signal company, and a

small RI company in each corps signal battalion. For armies, there would be large signal RI companies. Processing centers (in Washington and perhaps at a theater headquarters) would reinforce field processing at an army group level. By the time the SIS, ETOUSA, was being prepared, experience in the Mediterranean had given abundant demonstration that forward RI units were necessary but, if held at division level, were subject to excessively frequent displacement that curtailed their productiveness. If held near an army headquarters, they were too far in the rear for effective intercept of much important tactical traffic. The preferred level was therefore the corps.

The representatives of ETOUSA, 12th Army Group, FUSA and TUSA in the UK, and of the Signal Corps and OPD in Washington, participated in a prolonged effort to determine how SIS, ETOUSA, would be manned. The two armies (FUSA and TUSA) each intended to have an army SIS as well as an information service. As D-Day drew nearer without a decision, the theater commander authorized FUSA to establish three provisional signal service companies (RI) for the three corps: V (Gerow), VII (Collins), and XIX (Corlett). Then, in April 1944, the War Department gave final official approval to the activation of two successive groups of seven such units.[11]

SIS, ETOUSA, was therefore to provide one tactical SIGINT company for service with each corps. It would be assigned to an Army and attached to a corps but remain under the operational control of SID, ETOUSA. The unit would be mobile, moving when corps headquarters moved, and have its own communications, administration, mess, and maintenance elements. It should have its own direction-finding capabilities, technical library, and maps. It would include analysts who could read simple codes and ciphers, understand German, analyze traffic, recognize items of operational intelligence that deserved to be passed at once to a corps G-2, and provide good control of intercept operations in accordance with directions from Corps and Army.

The personnel for those companies were to be found, as far as possible, within ETOUSA. Cadres were taken from the larger SRI companies that had been activated earlier in the war, or even before it. To the cadres were added intercept operators from the RI platoons in division signal units and in the signal service battalions assigned to corps. Communicators came from the same sources. Men for nontechnical duties in SIGINT companies were found in a variety of other units – men to drive trucks and keep them operating, for example. Some came from Replacement Depots. Two types of SIS detachments (to perform traffic analysis) were attached to RI companies, after being trained at SID, ETOUSA. For the larger SRI companies – to be with Army, Army Group, and ETOUSA/SHAEF – the SIS detachments each contained three officers and twenty-nine enlisted men. For the corps signal service companies (RI), each such element consisted of one officer and fourteen enlisted men. Between March and 18 July 1944, five of the larger and seven of the smaller detachments had been provided.

The demand for intercept operators in ETOUSA extended to two other activities besides SIGINT. The first – security monitoring of friendly communications for the purpose of detecting vulnerabilities and disclosures – was to be provided by signal security detachments. The second – substantive monitoring of friendly communications as well as direct reporting from unit commanders by radio to provide current information to G-3 operations officers for purposes of control – was a task for which so-called SIAM ("Staff Information and Monitoring" or "Signal Intelligence [or information] and Monitoring") companies were established. The British in the Mediterranean had developed what they termed a "J" service, performed by teams that kept forward friendly forces under close surveillance by radio monitoring and liaison. In Africa, Sicily, and Italy such operations had served a valid purpose. During a war of movement by a widely dispersed command, especially such as the U.S. Third Army was to conduct in Brittany and northern France, the exercise of control could be greatly

helped by thus keeping track of subordinate and flanking units.

When it learned that the War Department could not supply a SIAM company for several months, the Third Army, on its own, organized what it called its Army Information Service (AIS) before the break-out from Normandy. It obtained personnel for this effort from the 6th Cavalry Group (Mecz). As the U.S. Seventh Army moved into the southern segment of the Allied line, its SIAM company of numerous platoons was observed by several officers from First and Third Army and from 12th Army Group. The latter had proposed that a SIAM Company for each Army be established according to a table of organization and equipment (TO&E) that the War Department approved.

The SIAM companies (3322d, 3323d, and 3325th), which totaled between 490 and 500 officers and enlisted men, were to operate with each corps in platoons of varying size. (The TO&E 11-875, 10 May 1944, authorized up to 12 officers and 700 enlisted men.) The 3324th SIAM Company was organized late in the war in the United States and did not see action. Its original complement consisted of personnel from a mechanized cavalry reconnaissance squadron. The three companies formed in the ETOUSA went into a three-month training program in the UK, after being drawn primarily from former cavalry squadrons.

During the first week of the invasion, SIAM reports from forward elements of Bradley's U.S. First Army were intercepted by SRI companies working for Headquarters, ETOUSA, and were decrypted; it was beneficial practice for units soon to be in Normandy, working there on the radio communications of a stubborn foe.

Only traffic in plain text or low-grade cryptographic systems would be examined at the corps SIGINT company for intelligence; all messages in medium-grade systems were to be processed in units at army or army group headquarters. In March 1943 during training in the UK, SID, ETOUSA, London, began to analyze low- and medium-grade German systems in traffic copied by British intercept units, to be supplemented by similar material which American intercept operators in southern England were learning to collect. After the invasion, those units were to be moved to the continent for operations with the U.S. armies and army groups.

SIS, ETOUSA, intended to link the scattered tactical SIGINT units in at least one SIGINT communications net, by which technical SIGINT data would be pooled to an appropriate extent. In any event, RI companies were expected to cover enemy activities in areas adjacent to their respective corps zones and be responsible for giving and receiving technical SIGINT information wherever it had originated.

The standard large signal RI company under Table of Organization 11-77, dated 11 April 1942, as modified in January 1944, consisted of 13 officers, 1 warrant officer, and 309 enlisted men. By TO&E 11-500, of 11 September 1944, the authorized strength was reduced to 10 officers, 1 warrant officer, and 268 enlisted men. Experience in the Mediterranean Theater showed that the large SRI company might remain administratively a unit, but in operations would be split into detachments. In ETOUSA, the principal problem for the large companies was the loss by transfer of officers and men to serve as cadres for the new corps companies.

The standard signal service company (RI) to work with a corps headquarters consisted of 8 officers and 121 enlisted men, under TO&E 11-500, dated 1 July 1943. It was organized into one company and two platoon headquarters (an intercept platoon and an intelligence platoon), a T/A unit, and eight teams. Of the eight teams, two were for intercept, one for D/F, three for communications (message center, teletype, and mobile radio), one for motor maintenance, and one for the mess. That organization turned out to need adaptation to actual operating conditions. The three headquarters

elements were combined into one by several of the signal service companies (RI), who thus found a more prudent use for manpower. One serious deficiency was the absence of a guard unit. The corps companies were often far enough forward to be vulnerable to sabotage and, on occasion, as during the Ardennes offensive in December 1944-January 1945, to being overrun. The two or three direction-finding teams of three men each kept a lonely vigil. Sabotage of wirelines in some areas was persistent, in one instance being attributed to "friendly agents (French cows)," but in another to the kind of enemy who booby-trapped each loose end of a severed wire.

The allocation of personnel under the TO&E, as amended on 22 September 1944, was as follows:

Company Headquarters	11
2 Platoon Headquarters	5 (each)
T/A Unit	14
2 Intercept Teams	31 (each)
D/F Team	4
Message Center Team	15
Teletypewriter Team	4
Mobile Radio Team	5
Motor Maintenance	2
Mess	6

SSD "D" was a provisional organization, an advance element of SIS, ETOUSA, attached for administrative purposes to Headquarters, 12th Army Group. The 114th and 118th SRI Companies, however, were assigned (not attached) to 12th Army Group. SSD "D" exercised direct operational control over the two companies, which were under administrative subordination to a 3900th Signal Service Battalion of a 3146th Signal Service Group, consisting of Special Troops, 12th Army Group. Whenever administrative requirements clashed with operational tasks, the usual compromise arrangements curtailed the SIGINT operations.

In addition to housekeeping chores and routine military activities, the men of the two intercept companies at HQ, 12th Army Group, were expected by the administrative officers to "sparkle" in all ways – uniforms, weapons, quarters, vehicles, equipment, and bearing – and to perform their military duties strictly according to regulations. Even when a tactical situation had the men working under great pressure in adverse field conditions, when the requirements of SIGINT production were simply incompatible with "sparkling" appearance, the former were obliged to yield to the latter.

In the Mediterranean, the 849th SIS also suffered from administrative vulnerabilities, primarily because it was converted from a theater headquarters unit to a field unit. At first it lacked a suitable table of equipment or other authorization for the means of meeting fundamental requirements. There, moreover, the SRI companies were broken into detachments, several of which lacked stable administrative support.

Signal Security Detachment "D" under Lieutenant Colonel C. L. Allen started in September 1944 with 24 officers and 147 enlisted men. It arrived at the end of hostilities with a strength and organization largely unchanged. Its 25 officers and 133 enlisted men were grouped as follows (as of 15 April 1945):[12]

During the preinvasion period of preparations, SSD "D" briefed the SIGINT sections of the FUSA and TUSA staffs thoroughly on what was expected of them. They were to coordinate communications security and communications intelligence activities within their respective armies. They were to perform cryptanalysis on medium-grade traffic using keys ascertained by research at higher headquarters. They were to get intelligence information into the hands of intelligence sections through intelligence channels of 12th Army Group. From the corps RI units the Army SIS could expect spot reports by telephone until a COMINT communications network by secure radioteletype could be established. They could expect from corps units daily activity reports timed to fit into the production of intelligence summaries, and they could expect, by courier mail, copies of the raw material intercepted.[13]

Final Stage of Training in the United Kingdom

All the mobile field units of SIS, ETOUSA, realized during their organization and training in the UK that they must make certain essential preparations while there if they were to be properly equipped to operate successfully. They adapted the vehicles that were to serve as their operating vans, got their receivers, typewriters, and other equipment suitably mounted and stowed, and did what they could to be ready for action in any kind of weather.

Experience with live German military traffic developed their ability to pierce the veil of enemy COMSEC practices by search and surveillance and to identify the more fruitful nets, aided by DF. They found that there were few shortcuts to competence. Once they faced the enemy at closer ranges, they would have to accumulate more technical data pertaining to enemy units in the area and to use the assistance that could be derived from technical data pooled at higher levels of command. They would discover that interception of VHF voice communications in ample quantity came only during combat operations and from sites close to the front.

The training of SIGINT units in the UK was based on experience in NATOUSA. There it had been ascertained that the primary sources for meeting corps needs were enemy reports of air reconnaissance and of army-air cooperation, or from communications between enemy panzer units and armored reconnaissance, artillery, and other enemy units opposite the corps front. Intercept operations yielded logs and raw traffic in three-letter (T/L) code, jargon code, and a mixture of code with plain language. That material, as it stood, could not be used by G-2; it had to be processed by traffic analysts and interpreted by men who could recognize the significance of detailed items.

The SIS, ETOUSA, prepared an Intercept Operators' Guide issued on 26 August 1943.[14] It was a twenty-one-page document that dealt with both German and Italian communications procedures. It emphasized the dependence of a great number of highly trained personnel on the way in which an intercept operator performed his tasks and on the activities of a "trick chief" in getting results. As the men of the RI units settled down in the UK to practice for the first time on live German traffic, this guide was available to convey knowledge that earlier had been orally provided by British officers.

The types of radio working were outlined: *Point-to-point*, in which double callsign procedure was used between two stations employing one frequency; "*kreis,*" or circle, in which three or more stations operated in the same fashion; "*linie,*" in which two important stations used the same callsign and the same frequency, thus concealing in which direction the traffic was flowing; and "*netzverkehr,*" in which the intercept operators' task was rendered much more difficult because each station had its own receiving frequency, to which its set

Major Charles L. Allen, 1942 (Photograph courtesy of the Department of Army)

was always tuned, but a transmitter which could use the frequency of the station to which it wished to communicate. Intercommunication of such a net was therefore possible between several stations at the same time, and the same intercept operator could never hear traffic passing both ways between two stations. The last type of communications net

	Officers	Enlisted
HQ and HQ Detachment	8	22
Intelligence Branch HQ	2	3
Field Units Coordination Section	-	2
Intelligence Coordination Section	5	12
Photographic Section	1	3
Traffic Analysis and Control Section	2	24
Cryptanalysis Section	4	33
Mobile DF Section	1	28
Signal Security Detachment	2	6
(at HQ, 12th AG)	2	6
	25	**133**

was the "*stern*" or star, found most common among German Air Force stations. In such nets, a control station worked with two or more outstations using the same frequency. Each outstation had its own callsign, but the control station had none, responding to calls from an outstation that used its own. Sometimes there was relaying by control, and sometimes direct communications between outstations. In the German Army, star nets were often used, especially by divisions and lower units.

In the interests of camouflaging their communications, the Germans had also contrived some variations on the five standard varieties of net. For American intercept operators, who had had little or no experience with such camouflage, the training experience in the UK was essential.

The value of the parallel material concerning Italian Army and Air Force communications was lessened by the Italian armistice after the Allied triumph in Sicily.

The training of traffic analysts in what the British called wireless telegraph intelligence was for some officers quite new as they began it in the UK. One such officer had never seen a radio log when he reached England in August 1943 for three months of training that would be spent, for the most part, at Bletchley Park. He learned how to reconstruct the nets of a German infantry division that was stationed in the vicinity of Le Havre, combining intercept data from operators' logs with information gained from captured documents. Among his early discoveries was the inadequacy of American provision for DF of enemy signals. Unable to take cross-bearings for a "fix," they had only line bearings and signal strength as guides to the enemy's location. (Since goniometry had been so prominent a part of radio intelligence during World War I, the deficiency in 1943 seemed hard to explain.) He was also introduced to the methods by which his British instructors analyzed the changing callsign system of German Army and German Air Force communicators[15] and thus anticipated the alterations.

Assignment of the SRI Companies

A month before the invasion of Normandy, eight of the larger signal RI companies were stationed in the United Kingdom. They had arrived over a considerable period by different routes. The two which were to work in behalf of SHAEF/HQ, ETOUSA, were the earliest. The 124th SRI Company (Captain William R. Dindinger) crossed the North Atlantic in September 1942 and moved at once to southern England, where it began learning how to collect live German traffic. In August 1943 it obtained an SIS Detachment of analysts (four officers and twenty-two enlisted men) and became a theater RI unit. The 121st SRI Company, commanded by Captain Alvin L. Burke, reached the UK in December 1943 after having been stationed for more than a year in Iceland. (Had it been assigned to XII Corps, it might have felt at home with the code designator of that headquarters, "Iceberg.") It was assigned to HQ, ETOUSA, and controlled by SID, ETOUSA, like the 124th.

The 121st, under Captain Cletus Beard as its new CO, trained at Lymington, housed in a girls' school called Elmer's Court. There it had direct telephone connection with SIS, ETOUSA, in

London as it began intercepting live traffic from the continent. It fitted out an intercept room with thirty-six positions, carefully organized and engineered, and connected with a good antenna system. Not scheduled to go to the continent until late in the autumn, it had plenty of time to make itself mobile. It prepared several 2-1/2-ton trucks to carry wooden huts high enough to permit standing under the roofs, equipped with windows along one side only so that they could be parked closely in pairs, under camouflage nets, with light in each. Entry was at the rear. The trucks were equipped with heaters, fans, lights, and accommodations for the equipment used by the various types of specialists. Seven huts each carried five intercept positions and seven "fishpole" antennas. Another hut housed the message center. Commercial power was used when available; at other times the unit's own generators were put to work. A control truck contained a power distribution panel which was connected by cables to the different huts. Another was the T/A vehicle. Other trucks or semitrailers were adapted for signal supply, signal repair, and DF operations. Those vehicles were accompanied by many that were used for purposes less directly engaged in SIGINT operations.

Into Action

The 114th SRI Company (under Captain Lynnford S. Wilson), assigned to Headquarters, 12th Army Group, was not fully trained at the time of the invasion in June. Like the 116th SRI Company, it was scheduled for transit to France in August, when 12th Army Group could use it there. By that time the company would be ready. The 116th, commanded by Captain Edward S. Barley, rode to Omaha Beach on the SS *Robert S. Peary* and debarked with some difficulty via barge on 9-10 August 1944. In its sixty vehicles, the unit moved to an assembly near Periers. The 114th arrived there on 19 August.

The 113th SRI Company, commanded by Captain Charles J. Schauers, was the first of the larger companies to reach the continent. It had arrived in the UK in December 1943 at a strength of 3 officers and 190 enlisted men and had begun its training at Perham Downs in Wiltshire. There it was joined by detachments from SID, ETOUSA, and from the 124th SRI Company for training. Among the lectures heard by the unit was one given on 10 February by an SID, ETOUSA, officer (Lieutenant Mendel) who had recently observed SIGINT operations in Italy. Late in March, assigned to FUSA, the 113th moved to a station in Devon. By the time the 113th went to Normandy, it had grown to 15 officers, 280 enlisted men, and 19 attached. Its SIS platoon (under 1st Lieutenant Bayard H. Hale) joined the unit the next day. With the 113th as a liaison unit were one officer and fourteen other ranks from the British 53 Wireless Intelligence Section, men who remained with the 113th until 17 September 1944. In two echelons the 113th reached Cricqueville, Normandy, on 14 June 1944. Two officers and three enlisted men from SIS, FUSA, were attached to the 113th SRI Company at that time.

TUSA placed its Army SIS under Captain (later Major) Charles W. Flint as SIGINT officer. His SIGINT Section included Lieutenants E. A. Devine, Orsen A. Dalton, and Deverton Carpenter. In May the 118th SRI Company was assigned to TUSA. One Corps Signal Service Company (RI), the 3254th, had already been activated on 16 April and three more were later assembled to complete the first block of seven corps companies. Captain Flint was also concerned with forming the Third Army's Information Service.

While HQ, TUSA waited for commitment in Normandy, Captain Flint obtained a large van and got it fitted out with desks, two teletypewriters, and other communications facilities to serve as the Third Army SIS operations center. To that van came intercept material from the 118th SRI Company (which reached Normandy on 15 July 1944), from the corps RI companies, and from the AIS. The van was therefore kept within the G-2/G-3 area.

The 137th SRI Company, commanded by Captain Michael F. Mishley, was assigned to HQ, U.S. Ninth Army (NUSA), on 17 April 1944. When the landings in Normandy began, the unit was not yet fully organized. The cadre was at Dartford, where, as men arrived and training proceeded, the intercept operators discovered how extensively they needed to adapt their earlier training if they were to cope successfully with actual conditions. In particular, they were impressed with the importance of good direction finding to production. Even though an SCR-291 was not on their authorized table of equipment, they managed to acquire one and to develop the techniques for its use. The 137th was an energetic unit which benefited from opportunity to salvage items of discarded equipment and take what it would need to France. In August, the analytic element (three officers and twenty-seven enlisted men) which had been training in London at SID, ETOUSA, reported for duty. Two more enlisted men came later.

Three SRI Companies followed Headquarters, 12th Army Group to France: the 116th on 8 August, the 114th on 11 August, and the 137th (which later went to Ninth Army) on 3 September. All three operated near the advance tactical segment of HQ, 12th AG. That meant successively near Periers, Laval, and Verdun.

By October 1944, SHAEF was ready to use on the continent the capabilities of the 121st and the 124th SRI Companies. Their intercept targets were strategic traffic in high-grade cryptographic systems; with some initial trial and error they found good sites at Pont-au-Mousson and St. Quentin.

When Headquarters, 12th Army Group, became operational near Periers, Normandy, on 1 August 1944, SSD "D" had not yet left the UK. It was not until 11 August that SSD "D" began working directly with the 114th and 116th SRI Companies at Periers, and started exercising technical control over other elements of SIS, ETOUSA. In the interval, U.S. SIGINT units obtained needed technical information from British 21 Army Group and by means of a special broadcast from the UK arranged by SID, ETOUSA.

By the time the pursuit across France was about to enter a "September pause," SSD "D" had developed closer relations with G-2, 12th Army Group TAC, at Laval and had established satisfactory control of the American SRI units. It was in steady communication with First Army's 113th SRI Company and Third Army"s 118th SRI Company. On 17 September the 113th went "on its own" in Belgium, where a British SIGINT detachment (one officer and fourteen other ranks) that had been working with the company for the previous six months, returned to its parent organization. The 3254th Signal Service Company (RI) worked at Headquarters, Third Army, while VII Corps was in Brittany but in October left Verdun to rejoin the VII Corps at Houffalize in the Ardennes.

The last of the large SRI Companies of SIS, ETOUSA, to reach France in 1944 was the 117th. That unit, commanded by Captain Edward J. Heinen, had seen long service in the Mediterranean and, with a Detachment "A," provided tactical SIGINT support to HQ, U.S. Seventh Army, and HQ, VI Corps, respectively, in Operation DRAGOON. The 117th and its Detachment "A" were reorganized at the end of 1944, months after 6th Army Group had been activated, and after Seventh Army had chased a German command from the Riviera to the upper Moselle. The Detachment, still commanded by 1st Lieutenant Frederick V. Betts, became the 3260th Signal Service Company (RI) attached to VI Corps. The 117th SRI Company under Captain Heinen remained with HQ, Seventh Army, and both came within SIS, ETOUSA.

The 129th SRI Company had been earmarked for assignment to the U.S. Fifteenth Army where it might be activated at a much later date. Instead of gaining readiness during the wait, the 129th was depleted in order to obtain enough SIGINT personnel for the three Corps RI companies going to Ninth Army. Successive transfers left the 129th

much reduced before it had an opportunity to serve on the continent as a unit.

Early Days for the Corps Signal Service Companies (RI)

The pattern of organization and training in the United Kingdom for the first corps RI companies, those that served with FUSA and TUSA, was common to them all but not identical. The new 3250th, 3251st, 3252d, and 3254th were formed in southern England for duty with the V, VII, XIX, and VIII Corps, respectively. They were destined to participate in the struggle to gain a firm lodgment in Normandy and to break out of confinement there into other parts of France. After activation in April, the cadres were drawn from the older, larger SRI companies and stationed at Tidworth on the Wiltshire Downs, or at Lyme Regis, or Burton Bradstock, Dorsetshire, closer to the English Channel where the German communications on the continent could be better heard. There they received a stream of newly reassigned personnel, drew equipment, and exerted extraordinary energy in learning their jobs and reducing their discomforts.

Detached service or temporary duty enabled some personnel to benefit from training elsewhere with more experienced men whose units had in turn gained from instruction by certain American and British officers, who had had SIGINT experience in the Mediterranean Theater. The commanding officer and usually at least one other officer were taken from one of the larger SRI units. The team of traffic analysts were trained at SID, ETOUSA, before joining the unit near the end of the period preceding transfer to France. By that time, the intercept operators of the unit were presumably able to provide live traffic suitable for analysis.

Communicators who had been combed from other Signal Corps units worked at acquiring greater speed with accuracy. An extraordinary effort was devoted to scrounging lumber and other materials and in constructing and mounting huts on 2-1/2-ton trucks, as mobile operations rooms. Carpentry furnished them with counters, shelves, and chairs or benches at which to work. Engineering mounted sets, antenna connections, power lines, lights and fans. When the time came to move to France, the vehicles had to be prepared for shipment, and the sensitive equipment had to be stowed in ways that prevented damage from rough handling.

The SIGINT units of FUSA moved to Normandy early in the attack. The 3250th Signal Service Company (RI), commanded by Captain Lee Brownfield, followed V Corps Headquarters inland from Omaha Beach and set up shop with its twelve receivers in bivouac near the village of Bernesque. Closer to the front it placed two DF teams. For a while, two of the receivers were used to monitor V Corps' own communications for security.

The 3251st divided into two detachments that went to Utah Beach by different routes. The first embarked at Cardiff in the Liberty ship *Ezra Weston* and sailed on 2 June in a convoy that drove off submarine attacks at sea only to be struck by coastal artillery while waiting for two days offshore. One man in the unit was killed, another seriously wounded, and a British liaison officer had to be hospitalized before returning to duty about three weeks later. When the detachment went ashore, the personnel were landed at one point and the vehicles – except for five that were unloaded and lost in deep water – came ashore far from the men. The men marched on foot to bivouac near St. Mére Eglise where the vehicles and equipment joined them the next day. The second detachment crossed from Weymouth to Utah Beach without misfortune, and the company, commanded by Captain Glenn E. Prahl, was in business on 13 June, serving VII Corps and FUSA.

At the same time, the 3252d company, under the command of Captain Alfred Jones,[16] crossed the Channel to Omaha Beach and staged through a XIX Corps assembly area near Longeville to

bivouac near Castilly on 15 June. There it remained until 18 July, without much success for the first two weeks.

The 3254th company, commanded by Captain Robert L. Hord, Jr., crossed to Utah Beach from 29 June to 2 July and began operations at a site near St. Sauveur le Vicomte in support of VIII Corps. It moved to La Haye du Puits on 11 July and to Coutances on 30 July as the campaign progressed. Attached were a British sergeant plus two officers and five enlisted men from SIS, ETOUSA, and representatives of the 118th SRI Company (with TUSA) and of SIS, FUSAG (soon to become 12th Army Group).

The 3254th Signal Service Company (RI) with VII corps was originally activated by TUSA, and like that corps expected to serve HQ, TUSA, in France. Circumstances altered that project, as we shall later see.

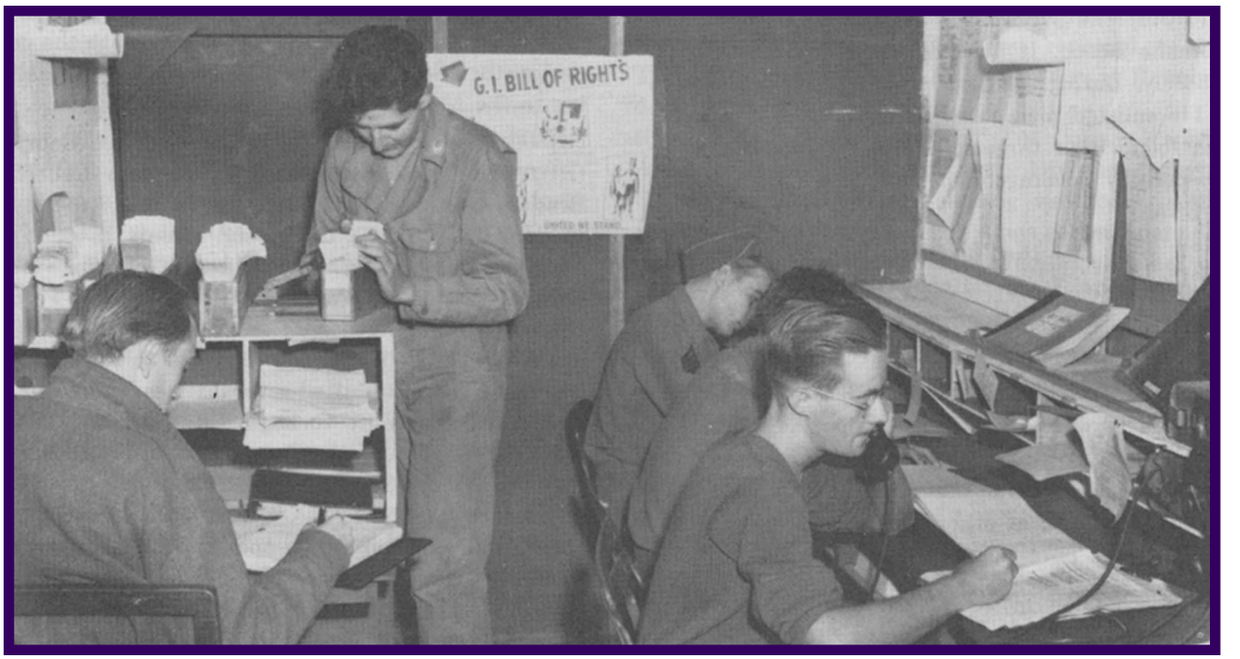
Another TUSA Corps was the XV, commanded by Major General Wade Haislip. Its Signal Service Company (RI) was the 3253d, commanded by Captain Emory L. Jones and organized on 25 April 1944. It trained until 8 June at Wincham Hall, Cheshire and then moved to quarters at Burton Bradstock, Dorsetshire, just vacated by the 3251st. On 10 July the 3253d arrived, from Southampton, off Omaha Beach. It pushed inland to Senonville on 12-13 July. During the next week, the unit's 5 officers and 116 enlisted men got their equipment in working order, found their targets, and on 19 July began twenty-four-hours-per-day coverage and daily reporting to SIS, ETOUSA.

At that juncture, HQ, TUSA was not yet "operational." Operation COBRA by FUSA was about one week away from its overpowering start.

In England the XII Corps (Major General Gilbert Cook) and its 3255th Signal Service Company (RI) were scheduled to follow XV Corps and the 3253d. (XII Corps was inclined to emphasize at the end of the war that that was the only time they followed XV Corps; at other times they believed that XII Corps was parallel and slightly ahead until XV Corps had left TUSA altogether to come under HQ, Seventh Army, on 29 September 1944.) The 3255th drew its commanding officer, 1st Lieutenant (later Captain) Walter M. Drozdiak, from the 121st SRI Company and other officers from that and the 118th SRI Company. Of the eight officers, one came from SID, ETOUSA, one from the 93d Signal Battalion that served XII Corps, and three from replacement units. Filling out the company's authorized strength was a slow process. In order to expedite the acquisition of necessary skills, some of the intercept and DF operators were placed temporarily with other units – for example, the 124th SRI Company and the 3253d Signal Service Company (RI) – which had stations near the coast. For the last few weeks the 3255th was itself stationed with 121st SRI Company at Elmer's Court near Lymington.

An advance party of HQ, XII Corps, reached Utah Beach on 23 July 1944 and procured a site in an apple orchard near Quettetot for the main body. The XII Corps had been made responsible for TUSA's part in receiving from the United States and forwarding to Normandy the numerous elements (divisional and army troops) that were to serve under General Patton's command. After TUSA was committed to battle at the end of July, XII Corps waited for the word to move. On 12 August 1944 General Patton ordered them to move to the vicinity of Le Mans, and there to regroup for attack to the eastward.

On that day also, the 3255th Signal Service Company (RI) reached Normandy and joined the thousands of American vehicles streaming through destroyed towns to its assembly area. On 15 August it went into bivouac four miles east of Le Mans and got in touch with the 118th SRI Company. With the code-designator "Sombrero," the 3255th soon began galloping to the Meuse and Moselle Rivers in Lorraine.



Traffic analysts (U.S. Seventh Army) working in a van in France, 1944 (Photograph from NSA History Collection)

The 3256th Signal Service Company (RI), which was commanded by Captain Robert L. Braden, was being prepared for operational duty in England from 5 May to the end of July 1944. It was assigned to TUSA and attached to XX Corps (Major General Walton H. Walker) and stationed at Perham Downs, Wiltshire. Between 4 and 7 August, a few days ahead of the 3255th, the unit moved to Normandy in echelons. There it shifted several times before settling at Courville-sur-Eure to begin intercept and DF operations on 17 August. Three days later it filed its first Intelligence Summary (ISUM). The unit was able to produce quantities of order of battle information and to maintain continuous operations by leap-frogging echelons during the incessant advances by XX Corps.

As noted above, during the summer of 1944 the War Department authorized HQ, ETOUSA, to activate a second set of seven Signal Service Companies (RI) for duty with Corps. The 3257th was activated by Ninth Army and attached to the XVI Corps at Dartford on 25 August 1944; the 3258th, at the same time and place to XIII Corps, and the 3259th, about two months later to III Corps.

The 3257th started out with a cadre of fifteen enlisted men taken from the 121st, 124th, and 129th SRI Companies. A first sergeant and thirty-four enlisted men from a replacement depot reported in on 27 August. A week later, five 2nd lieutenants, one of whom was to be the intercept and radiotelephone officer, arrived. More enlisted men reported during September. On 4 October the DF officer checked in. Not until 9 October was the CO, 1st Lieutenant Nicholas T. Lampos, assigned to the 3257th. At the end of October the unit had reached the authorized strength of 8 officers and 120 enlisted men. During the first week of December 1944, the 3257th moved up the Seine estuary to Rouen en route to an action station in Holland.

The 3258th Signal Service Company (RI) went through a somewhat similar experience. SIS, ETOUSA, assigned to it eight enlisted intercept operators from the 121st and 129th SRI Companies and, from its own staff, one officer and seven less-experienced intercept men. The remainder of the company came for the most part from replacement depots. The lieutenant and enlisted men of the T/A unit were selected and trained at SID, ETOUSA.

Familiarity with German language was the primary qualification. At Avon Tyrell, the bulk of the company accumulated vehicles and equipment and trained the men who straggled in.

The 3258th operated eighteen positions in vehicles and had two vans for analysts. The latter arrived from London in October and trained more of the company to work on traffic analysis, T/L codes, and "Fusion" work. The unit reached Rouen on 25 November 1944 and moved to Forges-les-Eaux to await travel orders. Three weeks of further training there, including work in DF, helped to raise the level of competence before this unit, too, moved to Wijnansrade, Holland.

HQ, III Corps, commanded by Major General John Millikin, was ready for operations long before the 3259th Signal Service Company (RI), under 1st Lieutenant Harold McCannel, was in shape to perform in combat. The III Corps had gone under TUSA instead of Ninth Army before the Ardennes offensive; it transferred to First Army from Third Army in February 1945. During the operations in Luxembourg in January 1945, III Corps was given the 3253d, during its temporary release by XV Corps, but returned that unit to XV Corps and employed the 3259th instead, beginning on 26 February 1945. The 3259th was at Mulartshoette, Germany, and III Corps was en route to the Remagen bridge.

The 3260th Signal Service Company (RI) was so constituted, as we have seen above in connection with the 117th SRI Company, while in the field with VI Corps in the Seventh Army zone. As Detachment "A," 117th SRI Company, it had plenty of experienced men, and as the 3260th it had only to induct others into the kinds of work provided by the German forces opposing VI Corps.

Three other corps SIGINT units that had been formed in the UK, beginning in November were sent to the continent before the end of hostitilities. The 3261st Signal Service Company (RI) – activated on 9 November 1944 and trained at Dartford – crossed to Le Havre on 28 February 1945, and moved on 8 March 1945 to a site in Baronville, Lorraine to support the XXI Corps, U.S. Seventh Army. It was commanded by Captain Falk Schilling. During the same month, the 3262d (1st Lieutenant Fred T. O'Day) started working with HQ, FUSA, as it encircled the Ruhr, and served with the XVII (Airborne) Corps while it mopped up the encircled area. The 3263d, commanded by 1st Lieutenant Albert W. Litschgi, reached its authorized strength in January 1945. It had collected officers and men from the 121st and 124th SRI Companies, from HQ, ETOUSA, from the radio platoons of the 67th and 94th Signal Battalions, and from replacement depots. Before hostilities ceased, it had reported to HQ, TUSA, for duty, and on 1 May 1945 was at Bammersdorf, Germany.

The relationship of corps to specific army commands resembled that of divisions to certain corps commands. While nothing was fixed, certain units tended to stay under the same commanders. The U.S. First Army, for example, at various times controlled seven different corps: III, V, VII, VIII, XV, XVIII, and XIX. Of them, V and VII Corps stayed throughout, from invasion to surrender – though the commanding general, V Corps (Gerow) moved up to command the Fifteenth Army.

The U.S. Third Army, before 5 May 1945, commanded five different corps: III, VIII, XII, XV, XX. It released XV Corps to Seventh Army, III Corps to First Army, and VII Corps (for three different periods) to First or Ninth Army. Third Army commanded XII and XX Corps throughout hostilities and got back III Corps. Fifth U.S. Army in Italy commanded II, IV, and VI Corps, but released VI Corps as the original American component of Seventh Army. When the French Corps in Seventh Army was reinforced by another French Corps and came under French First Army, the U.S. Seventh Army added the new XXI Corps to VI Corps and then on 29 September 1944 added XV Corps from TUSA to the other two. The 3253d Signal Service Company (RI) moved with XV Corps to U.S. Seventh Army. Thus VI, XV, and XXI Corps remained under

Seventh Army until the surrender and acquired additional divisions for certain operations.

Ninth Army commanded VIII Corps for three weeks in October 1944 and then exchanged it for XIX Corps from First Army, and took command of the new XIII and XVI Corps. XIII, XVI, and XIX Corps remained under Ninth Army "for the duration."

Fifteenth Army did not exist until 6 January 1945, and its two corps (XXII and XXIII) began their service in April 1945 along the Rhine protecting the river crossing and rear areas. XVIII Corps served with First Army, and then with British Second Army at the end. Certain divisions tended to remain under one of the corps either on the line or in reserve, but the general experience provided a kaleidoscopic shifting of divisions.

In the field after August 1944, the structure of SIS, ETOUSA, was as follows:

3d Radio Squadron Mobile and Its Detachments

While SIS, ETOUSA, took form in the United Kingdom, the U.S. Ninth Air Force (Brereton) included a Signal Intelligence Service of its own in its preparations to conduct tactical air operations during the invasion. General Lewis Brereton's headquarters moved to Ascot, England, during the autumn of 1943 from its location in Egypt, took over certain elements from the Eighth Air Force, and received a stream of reinforcements. By June 1944 its strength was about 170,000. It included the IX and XIX Tactical Air Commands and later the XXIX (Provisional) as well as other components of a "numbered" air force.

Tactical support was to be provided by IX TAC (Brigadier General Elwood Quesada) to the U.S. First Army, XIX TAC (Brigadier General Otto Weyland) to the Third U.S. Army, and XXIX-TAC (Provisional), (Brigadier General Richard Nugent) to the Ninth U.S. Army. The tactical air commands placed their headquarters close to the army headquarters and during the invasion formed closely cooperative teams. Ninth Air Force came under General Carl Spaatz's U.S. Strategic Air Forces for administration and under Headquarters, Allied Expeditionary Air Force, for operational control.

Officers of AEAF, USSTAF, and Ninth Air Force submitted to the War Department a program for building an SIS during the spring of 1944 by augmenting the basic unit in the UK. Specialists sent from the United States and other personnel already in the theater would provide the manpower. German linguists and communicators were in heavy demand. On 20 March 1944 the Ninth Air Force redesignated the 951st Signal Radio Intelligence Company (Aviation) as the 3d AAF Radio Squadron, Mobile (G). Major (later Lieutenant Colonel) Harry R. Turkel, at that time the SIGINT Officer on General Brereton's staff, became also the commanding officer, 3d RSM. Like the large SRI Companies in the Mediterranean Theater, the 3d RSM (540 officers and men) was reorganized during April into three field detachments for "voice" and one for CW radio. They were to provide "Y" service based on the intercept of German Air Force radiotelegraph, radioteleprinter, and radiotelephone traffic to the A-2 and the Tactical Air Commands of the Ninth Air Force.

Detachment "A" under Captain Brinson dealt with intercepted traffic other than "voice" communications, kinds normal for heavy, multimotored German aircraft, and ground bases, and processed it primarily for intelligence of strategic quality: order of battle, the scale of enemy offensive operations (bombers, nightfighters, transports, and reconnaissance), condition of enemy airfields, flak units, and enemy reconnaissance reports. The output produced by Detachment "A" was used by A-2, Ninth Air Force, usually in twice-daily briefings of the commander.

Detachment "B" under Captain (later Major) H. T. Silverstein, a former PW Interrogation Officer (understood by his unit to be a product of Harvard

University's graduate school) consisted of seven officers and seventy-two airmen when it was activated in April and attached to IX TAC. Most of the personnel had been working as a unit while on detached service from the 414th Signal Company (Aviation), and responded quickly to reorganization and training. IX TAC further attached Detach-ment "B" to the 70th Fighter Wing, near whose headquarters the unit soon moved and with which it landed in Normandy in June.

Detachment "C" was to work with XIX TAC. When it was activated on 20 April 1944, one officer (2d Lieutenant Kurt Heinrich) and three airmen were taken from Detachment "B" as the cadre; the remainder of the unit had to be constructed from the augmentation personnel obtained in May. Being attached to the 100th Fighter Wing, Detachment "C" moved near the headquarters of that command and scrounged for equipment, vehicles, supplies, and personnel.

Services of Supply ETOUSA
SIGNAL SECURITY DETACHMENT "D," SIGNAL INTELLIGENCE DIVISION

Signal Radio Intelligence Company	Assigned or Attached to:
114th	HQ, 12th Army Group
116th	HQ, 12th Army Group
113th	HQ, FUSA
118th	HQ, TUSA
117th	HQ, SUSA
137th	HQ, NUSA
129th	HQ, Fifteenth Army
121st	ETOUSA
124th	ETOUSA

Signal Service Company (RI)	Assigned or Attached to:
3250th	HQ, V Corps
3251st	HQ, VII Corps
3252nd	HQ, XIX Corps
3253rd	HQ, XV Corps
3254th	HQ, VIII Corps*
3255th	HQ, XII Corps
3256th	HQ, XX Corps[17]
3257th	HQ, XVI Corps
3258th	HQ, XIII Corps
3259th	HQ, III Corps
3260th	HQ, VI Corps
3261st	HQ, XXI Corps
3262nd	HQ, XVIII Corps (Airborne)*
3263rd	HQ, TUSA
3264th	SSD "D"

The SIGINT unit was attached at another time to a different corps.

Detachments “B” and “C” were primarily trained to intercept “voice” traffic, translate and interpret it, and forward it to officers engaged in air operations. Partly trained men were placed in RAF schools, where they worked on live traffic. The RAF also helped find vehicles (trucks or vans) to make the detachments mobile. Each unit had a van for intercept operations, another for intelligence operations, a third for direction finding, another for electric power generation, and others for communications and storage, plus trucks for the transport of men and their housekeeping requirements. The intercept, direction finding, and intelligence vans were connected by telephones. The intelligence van had wire communications with the Wing A-2 and the Fighter Director Center. Its radio receiver monitored intelligence broadcasts from Cheadle or other rear area transmitters.

Detachment “D” was created somewhat later and crossed the English Channel to Utah Beach on an LST late in October 1944, en route to a site near Paris. After gaining experience while occupying a station recently evacuated by a German SIGINT unit, Detachment “D” moved through the Ardennes area to a location near the Belgium-Netherlands border, where it supported XXIX TAC (Provisional) in its operations with U.S. Ninth Army.

Meanwhile, Detachments “B” and “C” had participated in the assault operations in Normandy. The German Air Force fought energetically to resist the invasion. Detachment “B” landed on Omaha Beach on 9 June 1944 and was directed by an MP along the route of approach of an armored attacking force – an action which led, in part, to this unit suffering a fatal casualty there on its first day. It was extricated after some delay. That was an abrupt introduction to conditions often experienced later. The unit was soon able to pass to the Fighter Director Center of IX TAC the purport of orders given from German ground stations or from a formation leader’s plane to the other aircraft of a Luftwaffe formation as it approached an area of combat.

Detachments “B” and “C” were able to report the location and altitudes of German aircraft and their positions during times when they reported observing American planes. The units could alert the center to the situations of enemy aircraft that had been damaged or were experiencing other difficulties that made them vulnerable. The detachments could transmit the substance of intercepted enemy reports of damage from Allied attacks and give warnings of enemy maneuvers to attempt retaliation. Various German air attacks on the Normandy beachhead were thwarted by timely Allied countermeasures taken with benefit of foreknowledge from SIGINT. Unescorted American bombers (from bases in the UK) toward which enemy aircraft were moving to attack, were warned in time to avoid the impending contact, or were given fighter protection.

A Detachment “E” was primarily used for communications, for the exchange of information among the detachments, and for passing along information obtained from broadcasts from England. Its radioteletype channel to A-2, Ninth TAC, during the latter part of the Battle of the Bulge was to be of particular value, enhanced by the failure of landlines that would otherwise have carried much of that traffic.

SIGINT was used defensively when the German Air Force gained a reprieve from Allied offensive air operations during Operation COBRA. Exploitation of the breakthrough then involved the commitment of American fighters and fighter-bombers to operations with American tanks and infantry against ground targets. In Normandy “armored column cover” was shown to be effective; an air-support party in an American tank in each column kept in touch by radiotelephone with pilots of aircraft overhead, whose observations could influence the action on the ground and who could themselves attack suitable targets instead of waiting for the tanks.

By 25 August 1944, as Paris was being liberated, air intelligence based on SIGINT enabled the Ninth

Air Force to plaster German air bases in two major areas.

The 3d RSM in France followed the pattern for which it had trained in England. At Headquarters, Ninth Air Force, Lieutenant Colonel Turkel and Major Edward Hitchcock conducted briefings twice daily. Their information was useful to the target intelligence and operations sections. A daily appreciation or situation report was sent to other Air headquarters, to SHAEF, and to the British Air Ministry. At the tactical air commands, the dual control over the RSM detachments by the intelligence and signals officers could create considerable friction, as at the IX TAC, or relatively little because of good teamwork, as at the XIX and XXIX TACS.

Colonel Turkel sought through interrogations of prisoners of war and alert searches of battlefield areas to gain cryptographic information that could be employed in producing "Y." He had considerable success. Even before the liberation of Paris, he had learned that his counterpart, a German SIGINT unit whose target was the Ninth Air Force, was the third battalion of a SIGINT regiment commanded by a Colonel Von Eick, located at La Celie St. Cloud in a chateau. After the site had been evacuated by the Germans, Headquarters, 3d RSM, found it was just what they wanted until the unit shifted by stages into Germany at Nuremberg.

The detachments of the 3d RSM(G) kept a statistical score of the German aircraft destroyed, probably destroyed, or damaged in operations to which their SIGINT had contributed.[18]

When the U.S. Seventh Army invaded France from the south, supported by XII Tactical Air Command, the latter, as we have seen, obtained SIGINT "Y" Service from a detachment of the 849th SIS. As those units came under ETOUSA, the 3d RSM(G) contributed intelligence reports and daily "Y" summaries to A-2, XII TAC, and brought it into the 3d RSM communications net.

The Signal Intelligence Service, ETOUSA, thus consisted of several different kinds of field units: large signal radio intelligence companies, moderate signal service companies (radio intelligence), detachments of the 3d Radio Squadron, Mobile, operating under army, army group, and theater headquarters. They carried out operations in interception, traffic analysis, direction finding, and the production of signal intelligence from radio messages in cryptographic systems of low and medium grades, or plain text, or voice.

The American products were the equivalent of what the British ally called "Y" Intelligence; "U," or Ultra, was separately produced and distributed. As described in Chapter XI, producing it was almost a British monopoly, shared with Americans when sharing became a necessity. Under Colonel Bicher's administrative control, a select few Americans arrived in England for apprenticeship in interception, machine processing, and cryptanalysis of German Army and Air Force communications enciphered by the Enigma machine. More is said about them in Chapter XI.

Notes

1. Report in Folder 314.7 History, 1942-1945, USAFET 723/931 11048(6) NARC.

2. WD Ltr, AG 3113(3-20-43) OB-S-B-M, 20 Mar 1943, Subj: "Intercept Directive"; HQ, ETOUSA Ltr, AG 311.5 MSIG, 27 Jul 1943, Subj: "Operational Control of Signal Intelligence and Radio Intelligence Units."

3. Quarterly Report on Signal Activities, USA-FBI, for the period 1 Mar 1942 to 31 May 1942; History of Signal Intelligence Division, HQ, ETOUSA.

4. The strength of the 124th SRI Company was then 7 officers and 236 enlisted men under command of Captain William R. Dindinger.

5. Memo for A.C/S, Opns Div, WDGS, from Lieutenant Colonel J. E. Watters, Sig C, thru CG, ASF, 20 Mar 1943, Subj: "Request for Approval of T/O, SIS, ETOUSA." Copy in AHS Rec, Box 11558, S-1569.

6. *History of the SSA in World War II*, Vol. X, 63.

7. See Lieutenant Colonel Harry R. Turkel, USAF (Res.), *The S.I.S. of the Ninth Air Force in World War II*, Feb 1951. (NSA Hist. Coll.) Also, SIS HQ, SOS, ETOUSA,

"Report on Signal Intelligence Service, HQ, SOS, ETOUSA," 17 Apr 1973. Ibid; History of the Air Intelligence Section, SID, OCSigO, HQ, ETOUSA, 14 Sep 1942-8 May 1945.(AHS).

8. Issuance of those reports is recorded in the *History of SID, ETOUSA*, but the documents themselves have not been found in SIGINT archives.

9. History of SIS, ETOUSA, Items R-8040 AHS and 8062 AHS; History of the Intelligence Branch, Signal Security Detachment "D," G-2 Historical Section, Box 6/33, AHS; History of SID, ETOUSA, 2 vols. Box 34/4 AHS. See also 12th Army Group, Report of Operations (Final After Action Report, Vol. XI, Section 5 [Signal Sections]), 134ff.

10. 12th Army Group, Report of Operations (Final After Action Report), Vol. XI, Sec. 5 (Signal Section), 134ff. NARC, Suitland, Md. Box 1750.

11. Cable, WAR-17502, 1 Apr 1944, and follow-up on 10 Aug 1944.

12. SID, ETOUSA, had three other Signal Security Detachments stationed, early in 1944, at Hall Place, Bexley, Kent; Eastcote; and Bletchley, respectively. They were redesignated as the 6811, 6812, and 6813 Signal Security Detachments, and engaged in intercept, processing, and analysis, for a Special Project (producing Ultra). Signal Security Detachment "D" retained its name. Personnel of SID, ETOUSA in the UK stayed at slightly more than 30 officers and 310 enlisted men; SSD "D" at about 25 officers and under 150 enlisted men. When Lieutenant Colonel Allen took command of SSD "D," Lieutenant Colonel Charles H. Hiser became Chief, Intelligence Branch, SID.

13. *History of Signal Intelligence Division, ETOUSA,* 3 vols, in AHS A5-20 Records, Box 34/4; and "Plan for the Operation of the Signal Intelligence Service, HQ, SOS, ETOUSA," 11 July 1943, in Folder 322 Sig 1 and Radio 1 Activities.

14. Intercept Operators' Guide prepared by the Signal Intelligence Service ETOUSA Intelligence Branch (18S1S 277). Copy in NSAHC, Folder No. 2000-B.

15. Weekly Activity Reports from Lieutenant R. S. Harrison covering the period, 1 Aug-23 Oct 1943, Copy in NSAHC, Folder No. 1857-A.

16. Taped interview in NSA History Collection.

17. See Summary of Opnl Activity of SSD "D," 1 Sep 1944 to 1 Apr 1945. AHS Box 34/4.

18. See, for example, Record of Accomplishments of 3d Radio Squadron Mobile (G), 8 June – 26 Oct 1944. Records of the History Section, USAFSS.

Chapter 10

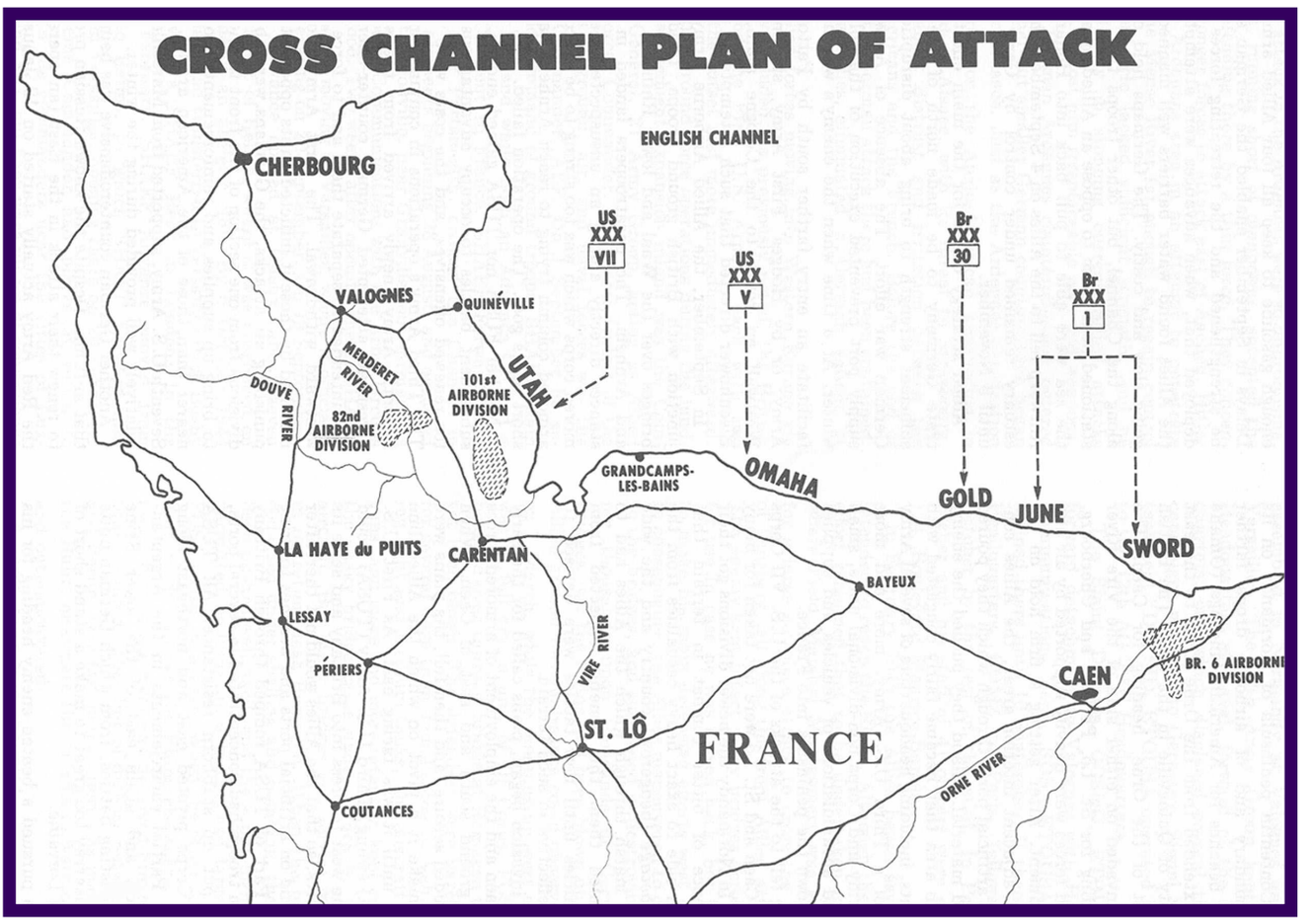
A Summary Version of the Campaigns in ETOUSA

In broad outline, the chronology of the war in the European Theater ran as follows:

Invasion and Buildup in Normandy	*6 June to 24 July 1944*
Breakout	*25 to 31 July 1944*
Driving the Germans across the Seine	*1 August to 25 August 1944*
Liberation of Paris	*25 August 1944*
Pursuit to Belgium-Luxembourg-Lorraine	*26 August to 14 September 1944*
From French Riviera to Contact with TUSA	*15 August to 11 September 1944*
Liberation of Brittany	*2 August to 28 September 1944*
Through the Westwall to the Rhine	*15 September to 21 March 1945*
Enemy Counteroffensives in Ardennes and Northern Alsace 16 December	*1944 to 25 January 1945*
From the Rhine to the Surrenders	*7 March to 11 May 1945*

Within those broader subdivisions, certain key features deserve identification:

Surrender of Cherbourg	*26 June 1944*
Surrender of Brest	*21 September 1944*
Defeat at Arnhem	*17-26 September 1944*
Opening the Scheldt as far as Antwerp	*8 November 1944*
Railhead at Liege	*18 September 1944*
Surrender of Aachen	*21 October 1944*
Surrender of Metz	*22 November 1944*
Liberation of Strasbourg	*23 November 1944*
Crossing at Remagen (FUSA)	*7 March 1945*
French Forces Enter Germany	*19 March 1945*
Rhine Crossing Begun:	
TUSA	*23 March 1945*
Seventh Army	*26 March 1945*
Ninth Army and 21 AG	*24 March 1945*
Encirclement and Control of the Ruhr Area	*28 March to 18 April 1945*
Penetration and Overrunning of Germany from Coast to Contacts with the Russians, and with Fifth Army, along the Elbe-Mulde Rivers, in Czechoslovakia, Austria, and the Brenner Pass	*24 March to 7 May 1945*


CROSS CHANNEL PLAN OF ATTACK
ENGLISH CHANNEL
CHERBOURG
US XXX VII
US XXX V
Br XXX 30
Br XXX 1
VALOGNES
QUINÉVILLE
MERDERET RIVER
DOUVE RIVER
82nd AIRBORNE DIVISION
101st AIRBORNE DIVISION
UTAH
GRANDCAMPS-LES-BAINS
OMAHA
GOLD
JUNE
SWORD
LA HAYE du PUITS
CARENTAN
BAYEUX
LESSAY
PÉRIERS
VIRE RIVER
CAEN
BR. 6 AIRBORNE DIVISION
ST. LÔ
FRANCE
ORNE RIVER
COUTANCES

The cross-Channel attack that began on 6 June 1944 consisted of amphibious landings on miles of beaches edging the Contentin peninsula of Normandy on its northern boundary and of airborne drops farther inland. The beaches for U.S. landings (Omaha and Utah) extended from the Orne River to the east of the vicinity of Quineville in the west. The British went in east of the Orne, heading for Caen. The Americans invaded on either side of the Vire River mouth, heading for St. Lo, Periers, and Cherbourg. Allied ground forces were heavily supported by air and sea bombardment. After getting a firm hold on the beaches and adjacent interior areas, the Allies constructed two artificial ports through which they poured in troops and material. Inland they pushed the enemy back from an area that became fairly congested with reinforcements, including headquarters of several army corps and of a third U.S. army, more and more divisions, Army and corps nondivisional units, small airstrips, and accumulations of vehicles and supplies for a push down the peninsula into France.

Cherbourg fell to the attacks of the U.S. VII Corps on 26 June. Caen and St. Lo were not taken for many more weeks. In Normandy the newer divisions got their first experience of bitter combat in terrain that enabled each side to exact heavy casualties from the other. The bocage (hedgerow) country and the wide stretches of marsh through which the Allies had to advance denied them the benefits expected from armored vehicles until new tactics were devised to make them effective in such terrain.

When the invasion began, plans called for the early capture of Caen and the employment of armored forces on suitable ground south and east of Caen. When Caen long eluded seizure and then fell, the plans were changed to make it a pivot on which the Allied line would swing until it was facing east. As the U.S. First Army (FUSA) swung, Third U.S. Army (TUSA) would emerge on the west to press into Brittany and seize its important ports, so that the Allies would not thereafter have to depend on artificial ports and beaches to bring in supplies. Part of TUSA romped through Brittany until German troops had concentrated in several ports, where they put up stubborn resistance. All TUSA except VIII Corps pivoted east and northeast along with FUSA. Partial encirclements in the Argentan-Falaise pocket and again east of the lower Seine followed exhausting battles, from which German units escaped in disarray too great to make a stand short of Belgium and Lorraine.

The Allies pursued a beaten enemy heading for his Westwall (Siegfried Line). But within Germany extraordinary efforts sent screening forces to positions in front of the Westwall. The Allies could not deliver enough gasoline to keep all four Allied armies going. Delays in September enabled the German screens to be strengthened and the retreating forces to be so deployed that, when advances were attempted again, the Allies found water barriers well manned and the going slow and costly. The Germans held onto ports along the Channel, but other troops that had been stationed near them to oppose an Allied invasion from the sea were able to pull back into Holland. While Antwerp fell to the Allies on 4 September, the Scheldt estuary remained under control by German troops until 8 November.

Allied strategy called for the main effort to penetrate Germany to be made north of the Ruhr in sufficient strength to bring about disruption of the German war effort. The absence of Antwerp as a supply port prevented execution of that plan before winter. At a time when the enemy's weakness might facilitate an entry farther south by Patton's Third Army, or by Hodges' First Army, striking at the Westwall en route to the Cologne plain, General Eisenhower directed that such attempts be made.

In September the Allied Airborne Army, in conjunction with British ground troops, tried to seize bridges over the Waal and lower Rhine at Nijmegen and Arnhem. The paratroopers landed in some instances directly among an unsuspected German armored corps which was too strong to be overcome. The armored column trying to reach

Arnhem was stopped short of its goal. The operation failed.

Neither FUSA nor TUSA gained enough ground in subsequent battles to occupy advantageous positions for renewed offensives, and the costs were very high. The Third Army's operations in conjunction with the Seventh Army (newly arrived from the south) did arrest an attempted German counter-offensive that was intended to separate them and to force American westward withdrawal. The First Army's losses were matched by those it inflicted on its opponents. Despite punishing air attacks, the Germans were able to shift divisions from one section of the front to another, and to bring up supplies and reinforcements from sources nearer than those of the American armies. Only the U.S. Seventh Army, supported from Marseilles, seemed relatively well provided during the winter.

Another German counteroffensive was being planned that autumn. Despite the known Russian preparations to renew their attack in the east (an operation that the Red Army actually started on 12 January 1945), Hitler committed to a winter attack in the Ardennes much of the new manpower and equipment that the Eastern Front required. Because of the conditions for an enemy attack in the Ardennes were so unpromising, the Allies, running short of manpower, accepted the risk of defending there by a thin force. They concentrated stronger forces to attack east of Aachen. Hitler chose the Ardennes area in an attempt to penetrate beyond the Meuse River far enough to regain control at Antwerp. He lacked sufficient strength, and he succeeded only in stopping current Allied attacks elsewhere. It cost him irreplaceable men and weapons.

As the German Ardennes counteroffensive petered out, another but smaller German counterattack began in northern Alsace. Just as the Ardennes penetration put a strain on the Anglo-American association in arms, that in Alsace, with its threat to Strasbourg, brought about distrust and irritation between the Anglo-Americans and the French. Before the end of January, the German attack there had been contained. Next, the Allies eliminated a German salient at Colmar.

The Allied forces moving into Western Europe via Normandy included, as previously noted, the British Second and the U.S. First Armies, each with two corps at the outset and more immediately afterward. Commanding ground force operations during the landings and subsequent expansion inland was the commanding general, 21 Army Group, acting as Allied ground forces commander. In general control of the operations of ground, air, and naval forces was the supreme commander, AEF. On 1 September he assumed field command of ground troops. SHAEF Main stayed in England while both an advance CP and a forward CP went to France. SHAEF Forward, first organized near Portsmouth, crossed the Channel in successive segments beginning 28 August and occupied a school at Jullouville, near Granville, on Normandy's western coast. Communications with the army groups were not good. Two weeks after opening there, SHAEF Forward began moving to Versailles, where it officially started operating on 20 September. On 19 September a SHAEF Advance opened at Gueux, about seven miles northwest of Reims, where it was ensconced on the grounds of an athletic club. By 5 October 1944 SHAEF Main had transferred to Versailles from Bushy Park, leaving a SHAEF Rear in London. In the following February, SHAEF Advance moved from Gueux into Reims, to which SHAEF Forward also moved from Versailles, opening there on 20 February. The supreme commander had places at which to confer with his commanders near the cities of Luxembourg and Spa, but they were places of convenience and security, not staffed for other purposes.

Before SHAEF Forward left Normandy for Versailles, the Headquarters, 12th Army Group had assembled in Normandy at Valognes and moved to Versailles. The 12th Army Group kept a tactical headquarters at Laval, forward of the main headquarters, one which displaced several times as the campaigns moved into Germany. Signal Security

Detachment "D," SID, ETOUSA, operated in proximity to the 12th AG TAC Headquarters.

The SIGINT Division, OCSigO, ETOUSA sent a forward detachment to Valognes with Headquarters, Communications Zone, SOS, ETOUSA which remained there until 10 September. It then moved with Headquarters, COMZ to Paris, followed there in October by the rest of the staff. In Paris, Colonel Bicher and his staff of forty-one officers were quartered at 124, Boulevard Maurice-Barres.

In February 1945 the Allies began several attacks intended to reach the Rhine. Although the main Allied effort remained that to be undertaken in the north, where Field Marshal Montgomery was getting ready for a large set-piece attack to cross the Rhine north of Duisberg, all along the front Allied attacks began. The enemy kept many bridges intact across the Rhine for use in case he was driven back, but he remained to make his main defensive efforts west of the river. In consequence, the Allies maneuvered to cut off access to the bridges, and succeeded in destroying or capturing thousands upon thousands of Germans. Most bridges over the Rhine had been blown up by the time Allied ground reconnaissance could observe them. But on 7 March, while the mopping-up west of the Rhine was in full cry, a unit of III Corps, FUSA, found a boarded-over railroad bridge at Remagen that had not yet been blown. The defenders were barely prevented for several days from demolishing it. Vehicles, including light and medium tanks, antiaircraft and assault guns, and more and more infantry, kept crossing while the shaky bridge came under attack by artillery and aircraft. But other bridges and ferries were also put in operation near Remagen. When the bridge finally collapsed under shelling and bombing, the enemy had been pushed well back, and the supplementary bridges permitted building up a bridgehead large enough for FUSA to use as a base. When the other Allied armies were ready to cross the Rhine elsewhere, the enemy's losses west of the river had deprived him of the means to maintain another line of defense between the Rhine and Berlin. One last major effort was made to protect the Ruhr; elsewhere the defenders were outnumbered and outmaneuvered.

A large force was encircled within the Ruhr and held there, separated and compressed, until over 300,000 surrendered. Elsewhere, as various Allied corps fanned out from their bridgeheads, they met sharp opposition at many scattered points but no concerted resistance of a regional dimension. The enemy tried without important success to reorganize and set up rallying points. The Allies, discovering the hideous and disgraceful prison camps and capturing V-2 rockets not yet fired, saw also the enormous destruction inflicted by Allied bombers. As the guns ceased firing, the turmoil of war became quieter but no less disruptive. Violence lay close to the surface of a suffering Europe.

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Chapter 11

Aspects of Collaboration in Special Intelligence

Beginnings

Anglo-American collaboration in special intelligence came somewhat later than that in other forms of SIGINT. All collaboration in intelligence was based, one must remember, on mutual advantage rather than on altruism. As it progressed, confidence grew, but neither country released anything to the other unless the action would benefit itself either directly or indirectly by the uses to which the other would put the assistance. When the likelihood of war applied primarily to the Japanese Empire, U.S.-British exchanges of information on Japan in the cryptologic field went further than in other areas. Benefits had always to be balanced against risks, and while the U.S. remained a nonbelligerent, Britain seemingly viewed U.S. security secondary to the protection required for special intelligence.

The United States moved toward belligerency by stages. Before the surrender by France in 1940, the U.S. was a neutral hoping to escape the conflict. Gradually it faced the prospect that not only France but Great Britain would succumb to Nazi German dominance unless the U.S. became an "arsenal of democracy" and furnished Churchill the tools which he needed to "finish the war." Delivery of the material made in America led to protection of convoys by units of the U.S. Navy along with the Royal Canadian Navy as far as a "chop" line in mid-Atlantic. The formula for American action became "all aid short of war." By 1941 the U.S. government had given the Nazi fuehrer occasion for declaring war against the U.S. had he needed an excuse. He would do so, though, only if more advantageous to him than refraining. Preparedness for war in the United States lagged far behind the requirements of readiness to meet such an action.

Steps in that direction included staff talks in the Washington area at which, in the supposition that the U.S. had gone to war, a grand strategy and certain major preparatory measures were agreed.

For the British, World War II had its phases too. While deprived of support by Belgium and France in 1940, and while acquiring Fascist Italy as a declared adversary, the British "stood alone," awaiting a probable invasion by the Germans. By surviving German bombing attacks, the British discouraged the invaders and diverted them to a vast attack on the Soviet Union in June 1941. As the Germans became enmeshed in a winter offensive there, the Japanese seized an opportunity (that may have seemed to be fleeting) to benefit from the involvement of the British, French, and Dutch as well as the United States in the European conflict. Pearl Harbor was quickly followed by Japanese triumphs in a selected part of the British and Dutch empires and by Japanese threats to isolate Australia and New Zealand. When Hitler and Mussolini declared war against the United States – while Japan withheld parallel action against the Soviet Union – the alignments of World War II were established.

During the stages of change in the war situation of the future Anglo-American Allies, certain factors that affected collaboration in special intelligence appeared. The producers of SIGINT in both governments were contributors to general intelligence used in connection with foreign policy, ground, air, and sea operations of the armed services, and various forms of warfare included within the concept of "total war" that then prevailed. The army and air forces of the United States had one SIGINT organization, although the air components tended to become independent as the war continued. The U.S. Navy Department had a second SIGINT

organization. Among the British, the Foreign Office, Admiralty, War Office, and Air Ministry kept their principal SIGINT producers under one umbrella, the GCCS; the latter distinguished sharply between special intelligence and "Y" intelligence. Different authorities controlled the two.

In the United States the same authorities, divided between army and navy organizations, controlled production of SIGINT of all grades. The Army's Signal Intelligence Service (later Signal Security Agency) tried to meet the requirements of the Military Intelligence Service. In the Navy, OP-20-G became part of an extensive reorganization in the months after the Pearl Harbor attack. OP-20-G tried to enhance its services to those engaged in the Battle of the Atlantic, while devoting most of its growing resources to Japanese matters.

The initiative to effect Anglo-American collaboration in SIGINT was taken by the British government through its ambassador in Washington, Lord Lothian, who in July 1940 suggested to President Franklin Roosevelt certain exchanges of broad and general scope.[1] Churchill, who had been prime minister for about two months of a country left alone to face grave danger, offered to exchange certain British scientific and technological accomplishments that had military application in return for access to American industrial productivity, particularly in the field of ultra-shortwave radio emitters. While not requiring any other quid pro quo, the proposal expressed a hope that the U.S. government would exchange scientific and technical information as well as allowing British procurement of military equipment.

On 11 July 1940 the cabinet adopted a position expressed by Secretary of War Henry L. Stimson (in which Secretary of the Navy Frank Knox concurred), that the U.S. government

> ***Give all information possible to the British to aid them in their present struggle, and furnish them such material assistance as will not interfere seriously with our own defense preparations.***[2]

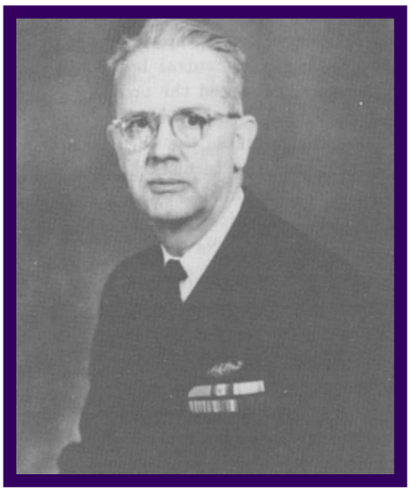
Secretary Stimson advocated that any British procurement arising from the agreement to exchange information be subject to approval by the U.S. Army or Navy Departments, in order to insure that it would not interfere with American programs of procurement.

The exchanges began, after the arrival of a British technical mission headed by Sir Henry Tizard, at a session on 28 August 1940. The representatives of the U. S. Army had been authorized to furnish not only "technical information on munitions, devices, or processes of manufacture owned by the U.S. Government," but also "cryptanalytic information," not, however, to include any information about our own codes, ciphers, and methods of cryptography. Intelligence gained abroad could be given to the British, but U.S. patent rights and trade secrets were to be protected.[3]

The president sought to obtain American military assessment of the British ability to withstand the Axis powers in addition to the counsel being provided him by Colonel William D. Donovan. In August 1940 Brigadier General George V. Strong, chief, War Plans Division; Brigadier General Delos Emmons, USAAF; and Rear Admiral Robert Ghormley, assistant chief of Naval Operations, went to England (at about the same time that the Tizard mission was in Washington) to observe and to discuss ways of assisting each other. Their soundings continued while, at home, Army and Navy SIGINT officials considered the possibility of exchanging cryptologic technical information and SIGINT products with the British government.

From London, General Strong, by cable of 5 September 1940, asked the chief of staff if the Army would agree to a full exchange with the British of German, Italian and Japanese code and cryptographic information. The U.S. Navy (Captain L. F. Safford, Chief, OP-20-G) was unwilling to exchange more than intercepts; the U.S. Army, on

the other hand, responded favorably to General Strong's query, though not to a continuous exchange of intercepts. By January 1941 contacts between GCCS and both G-2, SIS and OP-20-G were in progress, under the canopy of the Tizard mission and by an authorization to the National Defense Research Committee to deal with cryptologic exchanges.



Captain Laurance F. Safford, USN (Photograph from the NSA History Collection)

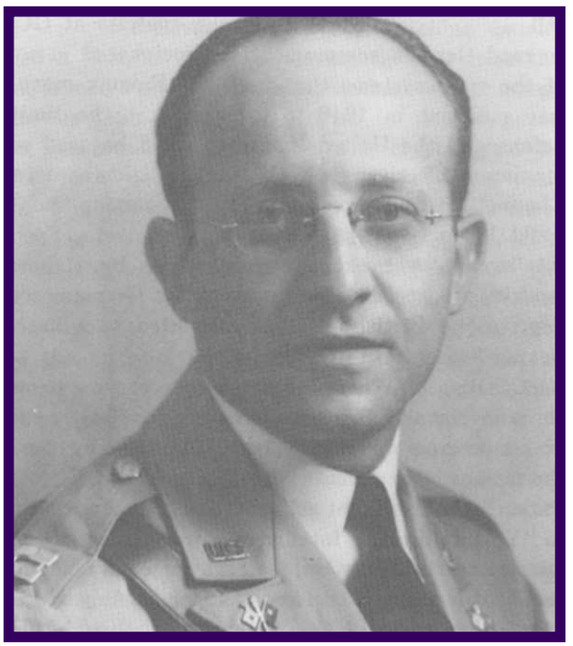
Actual exchanges of information with respect to cryptanalysis were somewhat gingerly approached. The British were then beginning to produce SIGINT from high-level communications of the German Air Force and Army, but their successes were limited, hard won, and often required amplification from other sources. German submarine communications enciphered by an Enigma machine presented analytic problems of immense difficulty, soon to be increased, on which the effort was intense. GCCS was working also on Abwehr (German Secret Intelligence) traffic and on intermediate cryptosystems of the German, Italian, Japanese, and other governments, and achieving important successes.

In the United States, while the navy worked on a Japanese naval attaché system, the Army SIS in the summer of 1940 was nearing the end of an arduous eighteen-month quest for an electromechanical analog device able to decipher the highest level cryptosystem used in Japanese diplomatic communications. Having in 1939 displaced a system previously known in Washington as RED, the new one was labeled PURPLE. Early in October 1940 came the first deciphering successes with "the PURPLE machine." A wiring diagram, technical data, and a considerable body of intercepted traffic were thereupon delivered by agreement to the navy cryptanalysts for use on work in progress on the same target. Secure navy engineering facilities then constructed six PURPLE machines, of which three went to the army, one to GCCS, and two to the navy.

As part of the exchanges in the cryptologic field, the British agreed to receive at GCCS two U.S. Army and two U.S. Navy cryptologists who would escort the PURPLE machine that the U. S. was giving to the British. They crossed the Atlantic from Halifax on a British warship. Representatives from each SIGINT organization, each a reserve officer, were designated. The Navy Department sent Lieutenant Robert Weeks and Ensign Prescott Currier; the Army had planned to send its leading expert, Lieutenant Colonel William F. Friedman, but illness caused his orders to be revoked, and Captain Abraham Sinkov thus became the senior Army officer, accompanied by Lieutenant Leo Rosen. At GCCS, where special machines to rapidly test analysts' ideas were in use, the American gift could be

Lieutenant Leo Rosen (Photograph from the NSA History Collection)

appreciated. Washington officials expected these officers to discover and learn all that they could to benefit the work to be done at home.



Captain Abraham Sinkov (Photograph from the NSA History Collection)

Captain Sinkov's report described how GCCS was organized and how its output was facilitated by interception, direction finding (DF), and technical radio intelligence (called by the British, Wireless Technical Intelligence or WTI). Both Army and Navy officers had observed much that was outside the realm of special intelligence; they knew only of the existence of special intelligence and were pledged not to reveal its existence except to specifically named individuals.[4]

The ability of the analysts at GCCS to read German communications enciphered in some of the cryptosystems that used the Enigma machine was sufficient in 1940 to promise that the limited defenses of the United Kingdom would be used with maximum effectiveness against any invasion across the Channel. Broader successes in the coming months could be expected at GCCS. The products, special intelligence, were kept utterly secret by elaborate security precautions. Awareness by the Germans could deprive the British of what amounted to a "secret weapon" essential to their survival.

When OP-20-G started trying to read German naval Enigma traffic early in 1941, considerable progress would have been facilitated by sharing the lessons of experience already learned at Bletchley Park. Technical SIGINT collaboration then was confined to "Y" intelligence. Intelligence provided by the Admiralty to the Navy Department may have included some SI in a disguised form. As late as August 1941, when Commander A. G. Denniston, then head of GCCS, conferred in Washington with officers of the U.S. Navy and U.S. Army SIGINT organizations,[5] he could not fail to observe how far from a consolidated, unrestricted commitment of American resources to preparedness still prevailed. The division of American public opinion over the right course of the United States concerning the war in Europe remained deep and emotional. Prominent were not only a "Committee to Defend America by Aiding the Allies" but also an "America First" committee.

Probably at the time of Commander Denniston's visit if not earlier, OP-20-G received from GCCS diagrams of wirings and wheels of an Enigma machine and descriptions of the wheel movements during encipherments. Such material was subjected to preliminary research by Mrs. Agnes P. Driscoll and others, but was allowed to drop out of sight.[6] Methods of solution that had worked on lower-grade systems could not be applied successfully. They were much too slow. Machine processing was required to cope effectively with such complex machine encipherings, a fact realized slowly at OP-20-G.

Although the U.S. Navy had been participating with the Royal Canadian Navy and the Royal Navy in protecting transatlantic convoys long before the attack on Pearl Harbor, German submarines in January 1942 commenced a campaign of sinkings along the eastern seaboard which the U.S. Navy was not able to oppose effectively. When the means

Left to right: Alistair G. Denniston, Director, GCCS; Professor E. R. Vincent; and Brigadier John H. Tiltman in London, 1942 (Photograph from the NSA History Collection)

of retaliation had been sufficiently increased through better information about the enemy's situation and centralized control of our shipping and escorts, the Germans found the campaign too costly and returned to other areas of the Atlantic.

Commander Rodger Winn, a sagacious British barrister turned Royal Navy Reserve officer, visited the United States in the summer of 1942 and succeeded in persuading navy authorities to institute a system of escorted convoys from the Caribbean to northern ports and to link that system with the convoys to European destinations. He also convinced navy authorities that something akin to the Operational Intelligence Centre (OIC) in the Admiralty, would strengthen American anti-submarine operations. The British OIC was soon visited by Lieutenant Commander Kenneth Knowles, who was to become the officer-in-charge of parallel activities in Main Navy, Washington. His unit, under a successively modified administrative organization, was the Atlantic Section, Combat Intelligence Division, U.S. Fleet (F-21) and eventually, a unit of the Tenth Fleet (FX).7 Its submarine tracking room used intelligence from all sources, and could advise the convoy and routing unit of the submarine situation affecting a convoy's course.

U.S. Navy Attempts to Produce Special Intelligence

Collaboration in the production of special intelligence tends to be focused on the invention and manufacture of high-speed machines for use by army, navy, and GCCS analysts. Some of the books published about how Ultra intelligence was used to win the war leave the impression that, on both sides of the Atlantic, men of genius conceived of mechanisms that enabled decryption to be performed by tenders of machines analogous, perhaps, to the shift in textile manufacture from hand-weaving to factory output. Instead of being watchers of bobbins, the analysts acted more like musicians whose instruments provided music when properly played, but which otherwise yielded only noise.

Several types of a machine usually called a "bombe" emerged during the war from the work of men who applied electromechanical technology that was then novel. The British in 1939 acquired from Polish and French collaborating cryptologists the prototype of a bombe,[8] and went on to devise their own. The Enigma in use from 1939 to 1941 had three wheels, or rotors, and could be additionally elaborated so that the paths of a maze of wiring between the same plaintext letter and its final cipher equivalent could differ several thousand times. The bombe enabled the analysts to discover the way in which the controls of the sending and receiving Enigmas had been set for an enciphered message to be converted to plaintext German. It was possible for an enciphered message to be a reencipherment necessitating a second deciphering with special keys available to limited recipients.

The three-wheeled Enigma was partially replaced on 1 February 1942 by a fourth-wheel version for some German naval communications. When the four wheels were used, GCCS lost the ability to decipher most Atlantic submarine traffic

for at least nine months in that year. The intelligence shared by the British Admiralty with the Navy Department with respect to protecting convoys and weakening the German submarine offensives abruptly declined in quality. Certain navy authorities, unaware of the reasons, concluded that the British were not meeting the obligations that they had assumed for full reciprocity in exchanges of cryptologic techniques. If the American cryptologists started as junior partners in producing SIGINT (other than Japanese), they intended to become equally competent by catching up. The material given to OP-20-G, including samples of plaintext messages with data about the Enigma, had been so quietly provided and so secretly retained there, that British action was probably unknown to the complainers.

The U.S. Army SIGINT organization in the throes of rapid growth, particularly in 1942, intended to acquire competence to produce SIGINT from all kinds of encrypted communications. It could not acquire German military traffic of sufficient quality and quantity for efficient processing from its own intercept stations, and it expected reciprocity – from GCCS for American contributions since 1940 concerning Japanese SIGINT – to include all kinds of material concerning German communications. Those expectations were for a time disappointed. The Military Intelligence Division, War Department, headed in 1942 by Major General George V. Strong, concluded that it was not being given all the SIGINT to which it was entitled and that it could not allow a condition of dependence on GCCS to persist indefinitely. No U. S. Army forces were even scheduled for operations against the Germans until the decision in July 1942 to seize French North Africa as a base for future operations in the Mediterranean region. The first landings there could not be made until the following November. During Allied discussions in 1942 of a cross-Channel attack to establish a second front in Western Europe to aid the Soviet struggle on the Eastern Front, and during

Bombe deck at OP-20-G, May 1945
(Photograph from the NSA History Collection)

the planning for Operation TORCH in Northwest Africa, the necessary intelligence was for the most part of British origin. During the Casablanca Conference in January 1943, the same situation persisted.

In 1942 the U.S. Navy Department's pressure on the British authorities led, finally, to an accommodation. Colonel John Tiltman, BA, as a temporary representative of GCCS in Washington, convinced his superiors in the U.K. that the U.S. Navy's "Y" authorities were determined to develop the ability to produce special intelligence to offset the British failure to furnish it. He was authorized to explain that the Royal Navy itself was being denied the kind of German naval intelligence that had once been available and that GCCS had not been able to produce it since the advent of the four-wheeled Enigma for Atlantic submarine communications. The closest possible collaboration by the British in producing and using "Y" intelligence could be expected, but recovery of special intelligence of first-rate quality, as before, seemed likely to depend upon a successful development of a high-speed bombe. GCCS had obtained authorization to exchange information about such a development, and would supply one bombe to OP-20-G.

By arrangement, two U.S. Navy officers, Lieutenant R. B. Ely and Lieutenant Junior Grade J. J. Eachus, went in June to GCCS in part to observe how the British made use of an expert analytical research group and, in part, to learn all that they could about the processing of naval Enigma traffic. Lieutenant Commander Howard T. Engstrom and others concerned with rapid analytical machines (RAMs) prepared the two visitors for their trip. Ely returned in August, Eachus in October, after having stayed to see tests of the British devices then under development. Those tests and others that followed were discouraging.

OP-20-G began a project, after Navy Department approval on 10 September 1942, to develop and then manufacture a device designed to operate at high speeds and to discover Enigma settings by testing possible cribs. That was to be the navy's bombe for the four-wheeled Enigma. As outlined by Commander Joseph Wenger a week earlier, the project would cost $2,000,000 (already available at the Bureau of Ships) and take about five months from the first model to reach a production rate of about one per day. Operating them would eventually require 30,000 square feet of space and 500 operators. (The exact total number to be fabricated was left for later determination. It was once set at 96, then increased to 112, plus more to be shipped to the UK for GCCS.) The Navy's contract with the

Commander Joseph Wenger (Photograph from the NSA History Collection)

National Cash Register Corporation of Dayton, Ohio, was surrounded by extraordinary security controls and given the highest priority and precedence in obtaining essential materials, after an appeal to President Roosevelt by Admiral Ernest King. Lieutenant Commander Ralph Meader, USN, was placed in charge of what was designated the Naval Computing Machine Laboratory at the Dayton plant. Joseph R. Desch of NCR Corporation was the contractor's principal engineer involved. Waves were sent to Dayton to assist in assembling and testing the first models. While the work there advanced, a special building for bombe operations was prepared at the Naval Communications Annex in Washington.

By June 1943 production models were available for tests which they passed well. Output reached four or more per week, and analytic operations were maintained in Dayton until September. Commander B. F. Roeder, USN, was put in charge of a new special unit of OP-20-G to process Enigma traffic and to disseminate results. Quarters for the Waves who would run the bombes were constructed across the street from the compound of the Naval Communications Annex in Washington. In September the bombes began working there as the transfer from Dayton became gradually complete. When the daily keys in German naval traffic had been ascertained, the bombes became available for other tasks, some of which GCCS requested.

The terms of collaboration in special intelligence by OP-20-G and GCCS were recorded in a written agreement negotiated in Washington for GCCS by Sir Edward Travis, its head, and reported to his superior by Commander J. N. Wenger, USN, on 1 October 1942. It was signed the next day. The British consented to full exchange of intercepts, keys, "menus," cribs, and all technical data applicable to German Navy and, in particular, German U-boat communications. The United States undertook to match the British primary responsibility for German naval SIGINT by assuming parallel responsibilities for the Japanese naval SIGINT problem. OP-20-G would send to GCCS the Japanese material intercepted at American stations and all American recoveries of cipher keys and codes to help GCCS retain its capabilities in Japanese SIGINT production.

In developing and using analytical equipment, GCCS would respond to requests for technical assistance and would send to OP-20-G certain technical personnel to obtain information about the American high-speed project. GCCS would also obtain certain items of special equipment that were manufactured in the United States.

By the collaboration thus defined, the intelligence needs of both the Navy Department and the Admiralty would be served. The arrangements might be expected to benefit the Allied protection of transatlantic convoys over the new sea lanes for supply and reinforcement of the Allied campaigns in the Mediteranean area.

U.S. Army Preparations to Produce Special Intelligence

While the Navy bombe project was in the developing stage, the Army too became restive at what seemed to be a withholding of reciprocal assistance by the British at GCCS. In May 1942 Major Solomon Kullback began a visit of several months at GCCS. He studied the cryptanalytic methods used at GCCS for treating a wide range of enemy cryptographic systems. Though he was shown operations in progress on Enigma traffic, it was not done in a way that enabled him to become an expert at that as he did with other cryptosystems.

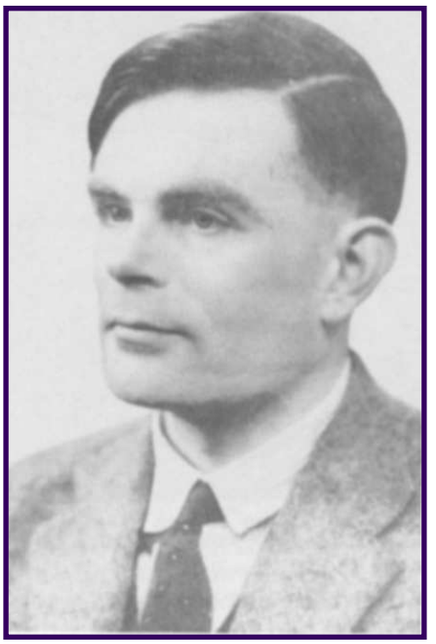
Probably before the navy actually launched its bombe project, the army SIS had decided to design a bombe that used relay switching instead of the rotary type to be employed in British and U.S. Navy versions. On 30 September 1942 the Army Signal Corps contracted with Bell Telephone Laboratories (BTL) to produce a test sample. Its subunits would be a single-frame apparatus analogous in its operations to those of a German three-wheeled Enigma. By November 1942 BTL could demonstrate successfully the sample model. BTL then undertook to complete 144 frames. To the uninitiated this bombe looked like metal shelving stocked with the insides of radio receiver sets in an orderly and interconnected arrangement.

In the winter of 1942-1943, GCCS had as a bombe building project one that involved ultimately choosing one of two methods for coping with encipherments from a four-wheeled Enigma. The U.S. Navy had another. The U.S. Army was well along on developing its bombe applicable to a three-wheeled Enigma. Officials of SIS and OP-20-G conferred in January 1943 on the progress made thus far with the Army's apparatus, and the

possibility of incorporating certain features in its further development. At that time, seventy-two frames (or half the total number) were expected to be ready early in April 1943.

Pursuant to the agreement with the Navy in October 1942, GCCS sent one of its leading cryptologists, Dr. Alan M. Turing, to the United States in December 1942. He had been closely concerned with the devices for machine processing that had been developed by GCCS. On 21 December he was escorted to the Naval Computing Machine Laboratory by several officials of OP-20-G and by Major Geoffrey Stevens, the British SIGINT Liaison Officer stationed by agreement at Arlington Hall Station.. The navy bombe as it then stood was of uncertain merit as he saw it, though he may have reconsidered and thought better of it later on.

When Dr. Turing's authorization to visit the Bell Telephone Laboratories and observe Army cryptologic projects there was sought from a junior American officer, he was suspected of trying to slip in somewhat clandestinely. His request was refused until the issue of his eligibility had worked its way through official suspicion at various levels to become the subject of correspondence between General Marshall and Field Marshal Sir John Dill, the head of the British Joint Staff Mission in Washington. On 5 February 1943 he and Major Stevens were finally received at BTL and were shown the army bombe and other devices then under development.[9]



Dr. Alan M. Turing, British cryptologist (Photograph from the NSA History Collection)

During the Anglo-American discussion preceding Dr. Turing's visit to BTL, some U.S. Army SIGINT officials expressed doubt that the British had been exchanging cryptologic materials with complete reciprocity, as agreed. When the army identified materials allegedly withheld, the British insisted that they had all indeed been released to the American cryptanalysts who had come to GCCS. The British maintained that, to fulfill their part of a "full and free exchange," they did not have to allow such materials to be used in Washington. The correspondence with Sir John Dill induced General Marshall's deputy to acknowledge that sending "us" the Enigma materials wanted by the U.S. Army did indeed involve an increased hazard of compromise that need not be incurred. Instead, he conceded that arrangements should remain as they then were.[10]

The British concluded that at the Bell Telephone Laboratories the U.S. Army was experimenting with what they believed to be a more efficient development of the same "high-speed analyzer" that had been shown at GCCS to several American officers. The prime minister had authorized this disclosure during their visit to GCCS in April-May 1941, and at later dates to Brigadier General Frank Stoner and Lieutenant Colonel George Bicher of Headquarters, ETOUSA. Major Solomon Kullback and Captain Roy D. Johnson of the SIS had subsequently worked at GCCS on the Enigma cryptanalytic problem, and had learned of the more recent developments. In the eyes of the British, the experiments at BTL should have been disclosed to them without waiting for ultimate success.

The Turing episode is important as an indicator of the U.S. Army's degree of self-confidence and the British appraisal of a proper partnership. Dr. Turing was a young mathematical genius whose doctorate had been won at Princeton University in 1938, after two years of leave from his Fellowship at King's College, Cambridge University. He had then declined the opportunity to work with the famous mathematician, John von Neumann, at Princeton as an assistant in order to resume the role of a Cambridge don. He had already produced, before the war, a paper with ideas concerning an electronic machine which could calculate automatically – a paper read widely among mathematicians because of its demonstration that some problems were not mathematically solvable even though mathematically stated.

GCCS had recruited him very soon after the war began, and at Bletchley Park he was known as "the Prof." because of his abstracted ways; he had shown various practical qualities too. They ranged from padlocking and chaining his tea mug to a radiator in his office to devising electromechanical means for sifting the cryptographic variables in enemy encipherments.

The records do not show whether the method by which his access to the Bell Telephone Laboratories as first sought was really intended to avoid drawing attention from those who ought to have been approached for approval. It was not the only time that Turing relied for necessary credentials on administrative channels which ignored requirements or took too much for granted. While the obstacles to his visit were being removed, he seemed to have found time to visit Princeton and to have enjoyed access to food more nourishing than Britain's wartime rationing permitted at home.

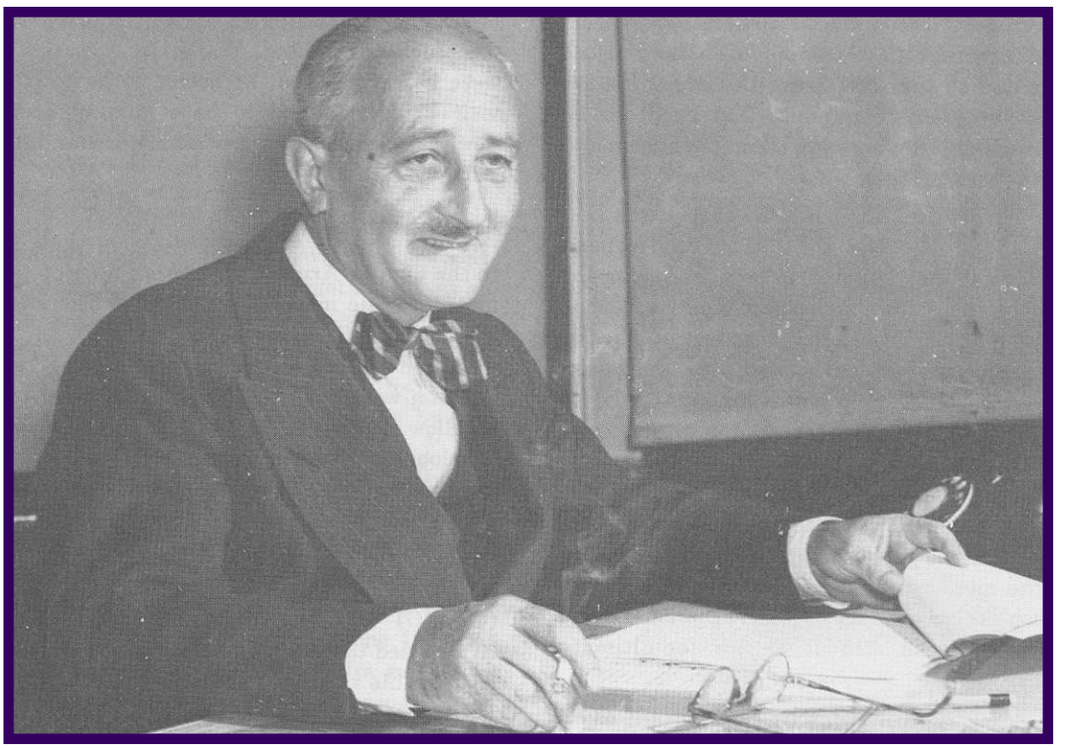
The main consequence of the episode was undoubtedly the demonstration that, when taken to the highest army level, the specifics of collaboration in cryptologic matters would follow the view of GCCS and not of G-2. Moreover, in spite of the navy's intention to protect its highest COMSEC system, the decision was made by the chief of staff of the Army to allow Turing to see such a cipher machine under development. In the discussion, General Marshall set a precedent for accepting the British view that all unnecessary risks of a compromise by transmitting SIGINT materials out of the United Kingdom should be avoided.

When, a few weeks later, the U.S. Army tried to obtain Ultra materials from the British comparable to what had already been released to the U.S. Navy's OP-20-G, the British declined. GCCS, supported by the Chiefs of Staff Committee, then insisted that its SIGINT collaboration with the U.S. Navy, including some SI, had been necessary in order to fight the German Navy in the Atlantic.

The U.S. Army – GCCS Agreement in May 1943

The availability of enough of the new army's rapid analytical machines (RAMs) for SIS work on German Army and Air Force Enigma communications could be foreseen in February 1943. Mr. Friedman on 8 February then advised Colonel W. P. Corderman, commanding officer at Arlington Hall, that the SIS could by 1 April 1943 begin assembling and installing "our E-solving machinery" and could expect to be operating soon afterward. Needed then would be trained operators, traffic, and traffic-intelligence materials, and certain special information and complex special procedures already developed at GCCS. Special cryptographic equipment for use in fully secure communications channels would also be required. While some German Army Enigma traffic was being intercepted in 1942-43 at Vint Hill Farms Station, or at an Army intercept station in Newfoundland and another in Iceland, the amount was small and the reliability of interception was inadequate for regular work. British intercepts would be essential to the program at Arlington Hall Station.

The British position in January 1943 at the time of the "Turing affair" had been that there should be no "exploitation" in the U.S. of vitally Top Secret



William F. Friedman at his desk at Arlington Hall Station (Photograph from the NSA History Collection)

traffic unless the British became convinced, as in the case of German submarine communications, that such exploitation in the United States was necessary. Colonel Tiltman persevered in upholding that position in conversations with Mr. Friedman. The latter insisted that the U.S. Army apparatus bore no external or internal resemblance to the British bombes or associated equipment and asserted that it was capable of solving several other types of cryptographic traffic problems. He proposed to expand U.S. interception of Enigma communications in Northwest Africa and to establish new Washington-Algiers telecommunications cryptochannels.[11]

The U.S. Army proposal to the British on 23 February 1943 meant that a second center for producing some German Army and Air Force Ultra would be established in the Washington area. Enigma traffic that had been intercepted by American and British operators, and then analyzed and interpreted, would require transatlantic communications for delivery of special intelligence from the U.S. to destinations in the theaters of war.

At that time, the Allies controlled no part of the European continent, and neither partner was ready to risk an Allied attempt to invade across the English Channel for lack of sufficient strength to remain. The British could still consider the United States to be a junior partner whose potentialities remained uncertain in the light of current events in Tunisia. They quite naturally recoiled from the prospect of relinquishing control over an instrument of war that they had produced and on which they depended so heavily. U.S. Army authorities knew that special intelligence was available to Americans at Allied Force Headquarters at Algiers and at ETOUSA in England, and would continue to be available to them on the principle of the "need-to-know." It was the ability to decrypt Enigma traffic independently that, in the long run, they believed they must acquire. They appreciated that the security of Ultra was fragile but believed that the risk in producing it in the U.S. was not too great.

Earlier agreements to exchange traffic with the British (and, as of 15 January 1943, with the Canadians) were bringing material of solid benefit to the U.S. Army. The traffic was chiefly diplomatic and

Japanese Army communications. At British sites, communications originating in neutral and German-dominated countries in Europe could be copied when no American station could hear them. In Canada, Australia, and British India, Japanese Army material copied by the British and furnished in the exchanges amounted to about thirty percent of that available to American analysts. The amount of duplication did not exceed what was warranted in order to eliminate garbles and to verify doubtful information.[12]

The attitudes of individuals at lower levels of the chain of command were more nationalistic than that of those near the top. When Captain Edward G. Hastings, RN, discussed the American request with Colonel Carter Clarke and Colonel Corderman, for example, his remarks could be treated as more or less an ultimatum – the Americans should withdraw their proposal or Anglo-American collaboration in SIGINT might cease. Cooler heads, in particular Lieutenant Colonel Telford Taylor of G-2, recognized that collaboration would not be allowed to founder if the issue were to be taken high enough. He also believed that the current British position would eventually soften so that American capabilities could later be expanded gradually under arrangements that would then be agreeable.

Consultations in London, in which the British Chiefs of Staff Committee was asked to consider a British reply to the U.S. Army proposal, and in which the U.S. military attaché and the principal U.S. SIGINT officer in London, Colonel George A. Bicher, participated, produced an "unshakable answer" from the British. American participation in the United Kingdom would be welcome; no exploitation of Enigma traffic performed in the United States would be accepted. The British were able to find support for their position in the words of General Marshall's letter at the time of the "Turing affair."

During the negotiations, the U.S. SIGINT officer at Allied Force Headquarters in Algiers, Lieutenant Colonel Harold G. Hayes, was asked to report whether SI went from GCCS to AFHQ in Algiers and, if so, whether it came to him. He replied that the "Y" Service in which he was engaged was quite separate, that SI went directly to General Eisenhower's chief of intelligence at AFHQ via a special radio link and that Hayes himself could not prudently even inquire about SI until he knew the substance of any agreement about it between GCCS and the SIS, Washington.

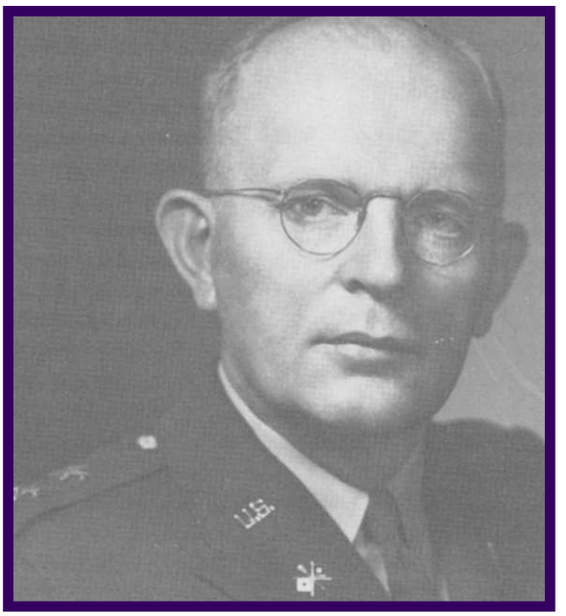
Brigadier General Harold G. Hayes, 1955 (Photograph from the NSA History Collection)

The Americans wished to avoid an ultimatum from either ally to the other, but they insisted that the U.S. Army must become capable of producing SIGINT from German Army and German Air Force Enigma communications. Again the issue was resolved by negotiations in Washington in which Sir Edward Travis, head of GCCS, came to an understanding with Colonel W. P. Corderman, Sig C., in terms that were supplemented by arrangements satisfactory to the Special Branch, G-2, War Department. The agreement was signed by Travis and Corderman on 17 May 1943. It conformed closely to a draft approved by the British Chiefs of Staff Committee and offered to General Marshall by Sir John Dill. General Marshall thus overruled General Strong's insistence on terms enabling the U.S. Army, forthwith, to start developing at home

(with the assistance of GCCS) its own ability to produce SI. He acceded instead to the British agreement to receive a U.S. Army unit in the UK for training and production there that would be supervised by GCCS and for delivery of SI to the War Department by secure Britsh communications channels.

The new agreement distinguished between the American and the British names for the same things as follows:

U. S.	British
Special Intelligence A	Special Intelligence
Special Intelligence B	"Y" Intelligence
TA Intelligence	"Y" Intelligence



Brigadier General W. Preston Corderman, 1954
(Photograph from the NSA History Collection)

The two organizations, GCCS and SIS, agreed to exchange completely all information concerning the detection, identification, and interception of signals from, and the solution of codes and ciphers used by, the military and air forces of the Axis powers, including the German Abwehr. The U.S. Army assumed as its main responsibility the reading of Japanese Army and Air Force codes and ciphers. The British assumed as their main responsibility the reading of the codes and ciphers of German and Italian Army and Air Forces. Both countries agreed that special security regulations should apply to intelligence derived from enemy high-grade codes and ciphers. In that connection, both agreed to use their most secure cryptographic systems for the transmission of decodes and technical cryptanalytic data.

British or U.S. military or air commanders in chief would receive all the special intelligence necessary for the conduct of operations – obtaining it from either British or U.S. centers as mutually agreed. To insure dissemination of that sort, liaison officers were to be appointed and authorized to see all decodes. Distribution of SI would be held to a minimum and would be confined to those who needed the intelligence for the proper discharge of their duties. The same security regulations would govern all recipients of Special Intelligence A. Until modified by mutual agreement, the regulations in force in theaters of war where British forces were already operating would govern. Special Intelligence A was not to be intermingled with general intelligence from other sources unless that became imperative, and then all must be handled as if it were special intelligence A. Under no circumstances could special intelligence be transmitted in a cryptographic system that could be read by anyone except an authorized recipient. Special intelligence B was to become the basis for action, documents, or telegrams only when a different source could be presumed, and transmissions were to be in "absolutely secure" cryptosystems.

In Washington and London intelligence liaison officers of the two allies were to have access to all special intelligence and were to be free to select and forward whatever they deemed necessary.

Cooperation and coordination in "Y" between the U.S. Signal Intelligence Service and the British "Y" Service, at all levels, were also to prevail. Each was obligated to inform the other of the employment and scope of its "Y" effort in Allied theaters.

It was agreed that research into new technical methods of attack on German Enigma communications would continue to be conducted in Washington.

U.S. liaison officers at GCCS would select messages and summaries that they believed should be sent over existing British secure channels, either to G-2, Washington or to theater commanders.[13] U.S. liaison officers in the War Office and Air Ministry would continue, as in the past, to handle SIGINT relevant to order of battle.

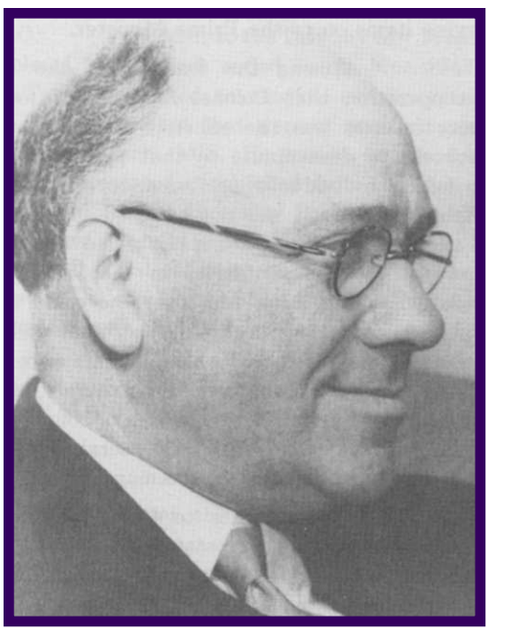
A U.S. party in Great Britain would work at independently solving Enigma keys but would avoid duplication of effort. They would be furnished with British machines and be given instruction in all processing and would conduct complete processing to the extent they desired. Their decodes would be passed to Bletchley Park for emendation, translation, and distribution. Members of that American party would not be transferred elsewhere except for urgent reasons. Distribution of Allied special intelligence would be through specially trained British units at the headquarters of commanders-in-chief. If the commander-in-chief was an American, an American liaison officer would be attached to the unit "to overcome difficulties that may arise in regard to a difference in language." Ultimate control over matters of security and all dissemination of special intelligence was to be retained by the Director, GCCS.[14]

The 17 May 1943 agreement was forwarded to the chief of staff, U.S. Army, by General Strong on 10 June 1943 with a recommendation that it be approved. On 15 June 1943 it was approved by the secretary of war.

On 23 July 1943 Colonel Bicher, the chief, SIS, ETOUSA, received from Washington the program for executing that part of the 17 May agreement that provided for a U.S. Army SIS contingent to learn how to produce SI in the UK.

After resolving matters with the Army, Commanders Travis and Wenger, along with other officers of OP-20-G, discussed the progress made on the two types of bombe for the four-wheeled Enigma that GCCS had under development and testing, and the situation in the United States, where the Naval Computing Machine Laboratory at Dayton, Ohio, already had a production model soon to be manufactured. On 18 May 1943 the British faced an uncertain performance by their new bombes in either version, while the Americans were confident that their machines worked well and would be in full production before the end of June.

In those circumstances it was agreed that the British would allocate tasks and provide materials to OP-20-G in the form previously shown, and that the Americans would keep GCCS informed of the number of operative bombes available and would, of course, return to the British all results as soon as possible.[15]



Sir Edward Travis
(Photograph courtesy of William F. Friedman Collection, George C. Marshall Library)

The Friedman, McCormack, and Taylor Mission – April to June 1943

Even before the agreement had been concluded, Mr. William F. Friedman of SIS, now recovered in health but no longer in uniform, made a long visit to GCCS and to London. Lieutenant Colonel Alfred McCormack and Major Telford Taylor, from the Special Branch, G-2, accompanied him to England, arriving on 25 April 1943. In London they began by consulting Lieutenant Colonel George Bicher at Headquarters, ETOUSA, before he left for consultations in Washington. The dual nature of their positions in Army organization was reflected in courtesy calls on the assistant chief of staff, G-2, and the chief signal officer, ETOUSA. Their professional interest led them quickly to sessions with the deputy director, GCCS (Travis), and his superior officer (Sir Stewart Menzies), the chief, Secret Intelligence Service at the latter's office. There they learned that the British authorities expected them to proceed with their mission of observation without regard to the current controversy.

The three men often stayed together during their seven-week visit, but occasionally separated and compared notes afterward. Their movements took them not only to SIGINT stations in London and GCCS at Bletchley Park (BP) but to several outstations. Almost at once they went to Tidworth to see a U.S. Army SIGINT company in training. They sampled the SIGINT establishments at "Berkeley Street" and "BP," then devoted several weeks to thorough examinations of the systematic operations at each. It was soon apparent to them that U.S. intelligence officials in Washington had an inadequate understanding of the complexities of the British effort. Reports by earlier American visitors had not been studied widely enough. The British liaison officer may have been supposed to provide a full and intelligible picture to the responsible U.S. intelligence officials but had not. Whatever the reasons, Colonel McCormack set out to rectify deficiencies by industrious recording of observations on his own visits. All three tried to convey to their superiors (Colonel Carter Clarke of the Special Branch and Colonel W. Preston Corderman, CO, Arlington Hall) by carefully drafted messages, facts that they were convinced those officials at home should be taking into account in the negotiations over an GCCS agreement.

The main problems to be met in accordance with the terms of agreement would be

(1) how could the the U.S. Army improve its ability to produce special intelligence;

(2) how could Anglo-American technical collaboration in producing SIGINT be enhanced;

(3) how could intelligence liaison officers stationed in the United Kingdom satisfy the intelli-gence requirements of the army; and

(4) how should American participation in disseminating special intelligence to field commands be established?

All Americans who were "in the Ultra picture" agreed that the U.S. Army must ultimately learn how to produce special intelligence for its own needs but in doing so ought not to hamper current production.

The three visitors were amazed by what the British had accomplished in the way of organization and expansion. Comparing their views of British production one evening, McCormack said: "It's not good. It's superb But it isn't military." The others agreed that at BP considerations of rank and grade were ignored in favor of "the best man for the job," of candor in technical cooperation, and of acceptance of personal eccentricities.

To Colonel Carter Clarke, Colonel McCormack cabled (in the spirit of BP):[16]

If Corderman wants his people to learn what makes this operation tick he had better send them over to learn it, because they never on God's green earth will learn it from anything that Arlington will be able to do in any foreseeable future.

The visitors discovered from the questions and instructions that came back to them while in London that their painstaking cabled reports were not convincing in Washington. Their superiors might not have been impressed by figures such as the many receiving sets within the United Kingdom alone by which Enigma intercept material was obtained, or the sixty-seven bombes already in operation of which forty-six were running twenty-four-hours per day on German Army and Air Force (three-wheeled Enigma) traffic. They might not have found noteworthy the estimate in May 1943 that 1,650 to 1,700 persons were at work on cryptanalysis and intelligence analysis of Enigma traffic, in addition to many more concerned with interception, special communications, and delivery. But if they ever understood the steps involved in processing Enigma, producing cribs, setting up machines for operations to verify the correspondence of letters, testing the arrangements, studying possibilities indicated by the machines, and deriving an understandable text from possible combinations, translating the text into intelligence, feeding the intelligence back into the general pot in order to relate it to logs and other data from traffic analysis in a search for more cribs, and other actions – then they might have been more agreeable with the conclusion of Colonel McCormack's message cited above. They might also have accepted his opinion that there was no likelihood that Arlington Hall soon could provide any significant amount of timely intelligence by working on the problems of Enigma keys that GCCS would define each day.

As McCormack noted, GCCS was both a producer of SIGINT information and an organization directly involved in supplying combat intelligence to field commanders. Although watch officers of each armed service selected items to go to their ministries (Admiralty, War Office, and Air Ministry) for treatment in the output of finished intelligence, GCCS itself sent any Ultra item relevant to a field commander's current operations to that commander by a direct communications system which GCCS controlled for that purpose. It sent appropriate items directly to Brigadier Sir Stewart Menzies, who quickly passed deserving items on to the prime minister.

Among the features of the British SIGINT operation that Colonel McCormack found of primary interest was the effort, within the security framework, to disseminate to that person all SIGINT affecting an individual's duty performance. Availability of SIGINT was not confined to the service with the greatest interest but extended to all three whenever their representatives in the Watch Room wished to have an item. Moreover, he could find no reason to believe that any items just went to British commanders when U.S./UK commanders were jointly involved. General Eisenhower, for example, was receiving anything pertinent to his area of command, and that information went also to General Sir Harold Alexander, his principal field commander.

Next in size to GCCS at Bletchley Park was CDR Denniston's station in London known as "Berkeley Street," where almost 250 persons were engaged in producing diplomatic intelligence. Everything released from Berkeley Street went to the Foreign Office and to the service ministries, while liaison officials from other government agencies selected what their chiefs might want. Items for Washington, New Delhi, Melbourne, and Cairo were distributed through GCCS; diplomatic intelligence based on SIGINT went to British diplomatic recipients through a system controlled by the Chief, SIS, rather than over standard diplomatic communications channels.

McCormack's visits included the MI6's establishment at St. Albans devoted to training men and managing counterintelligence operations. There he

found a small party (largely recruited from American academic faculties) from the U.S. Office of Strategic Services. They were apparently at an early stage, of their preparations for the eventual invasion of the continent across the Channel.

Mr. Friedman, Colonel McCormack, and Major Taylor saw at Berkeley Street the PURPLE machine that had crossed the Atlantic in 1941 and another one – bigger and not so dependable – that British engineers had since fabricated. From the point of view of U.S. intelligence, Berkeley Street might in the long run prove to be a source of greater value than Bletchley Park's.

While Mr. Friedman was at Bletchley Park, news came by radio of the Allied captures of Bizerte and Tunis on 8 May 1943, and on 18 May came word of the Corderman-Travis agreement reached in Washington. On 20 May he was for the first time shown Bletchley Park's bombe operations.

The visit to the U.K. by Mr. Friedman and Colonel McCormack ended on 12 June 1943 but Major Taylor remained to execute certain terms of the 17 May agreement that were of great concern to the Special Branch, MIS. He was to be the first of the intelligence (as distinguished from SIGINT technical) liaison officers at Bletchley Park. He was also to be officer-in-charge of others to come from the U.S. for similar G-2 duties, or to be inducted into one of the Special Liaison Units (SLU) for distribution of SI to commanders in the field.

Collaboration under the Army's 17 May Agreement

Under the terms of the new agreement, one or more U.S. representatives would review the daily output of Ultra material at Berkeley Street, another station at Ryder Street, and Bletchley Park in order to select items of value for American intelligence.

The "Yellow Project," as Arlington Hall's early work on Enigma had been called, was transformed by the new agreement. Captain (later Major) Roy D. Johnson, who prepared from November to April at GCCS[17] to meet the responsibilities of operations officer of an Enigma analytic unit under Lieutenant Colonel Frank W. Rowlett, instead went back to England in October as officer in charge of an overseas Signal Security Detachment. The new "Operation BEECHNUT," as authorized in July, sent officers and enlisted men from Arlington Hall and Vint Hill Farms Stations for duty in three such detachments plus one headquarters unit that together became the Special Project Branch of the Signal Intelligence Division, ETOUSA. They included intercept operators, machine processors, and cryptanalysts. Major William P. Bundy became the operations officer of the Branch. The three Signal Security Detachments were numbered 6811, 6812, and 6813 and were separated of necessity.[18] The intercept unit went to a site on the heath near Bexley in Kent and set up a station known as "Santa Fe." By dint of hard work they responded to training that enabled them before June 1944 to count about 100 reliable operators in the unit. In the latter part of 1944 they were the subject of a commendatory letter from a British consumer. The second detachment had working quarters at Eastcote but were housed at Harrow-on-the Hill, seven miles away, until they could get a camp built, in part by their own labor. The analytical group began arriving in September and were taken in at Bletchley Park, where an individual's progress determined his transfer from training to operational work. The branch was slow in grasping the opportunity opened for it in July, largely because of the necessity of obtaining G-2 clearances before shipment from the U.S. and also because of the unexpected amount of transportation and housekeeping duties that their separate sites required. It was in March 1944 or later that the Special Project Branch could begin to look confidently toward its objective. At its peak strength, it numbered about 36 officers and 400 enlisted men, of whom some had been found in the theater.

The intercept operators of the 6811th Signal Security Detachment were at first inattentive to the wisdom of fully recording German communicators'

chatter. An example of what could result from alertness was reported later by Albert Small,[19] the SSA liaison officer at Bletchley Park. A traffic analyst noted in a log that one German operator, at a time of callsign changes, had asked another if a certain callsign was that of an individual with a well-known long and distinctive name. The man had been a sergeant, and could have been promoted to lieutenant. Trying his name as a crib in a signature, Bletchley Park soon broke the key for that day's transmissions.

U.S. cryptanalysts who went to GCCS to learn the ways in which work was organized and the methods by which results were attained found themselves engulfed in British nicknames and slang by which cryptosystems, analytic operations, processes, and units were identified. It illustrated the epigram about the British and the Americans as peoples who were separated by the same language. Foreign cryptographic systems, for example, were classified for identification in categories named by fish, flowers, animals, birds and insects, rather than by letter-and-number symbols, as they were at home. Colors were also used, as they had been in Washington.

Rapid analytical machines and auxiliary processing devices acquired distinctive names on which much ingenuity was expanded. The "bombe" – for which the Poles are credited with providing the name that the British and Americans retained – was made more efficient by using a "Duenna" in the latter part of the war. Resort to electronics rather than electromechanical operations produced for GCCS both a "Giant" and ultimately a "Colossus."

American visitors had to recognize the meanings of "blist," "cillies," and "Uncle Dudley," as well as "Duddery," and scores of other terms that served as oral shorthand. Such inventiveness was inherent, apparently, in the mental equipment needed in producing SIGINT. Machines devised by the Americans at home accumulated a roster of esoteric designators.

One comprehends the extent to which the use of special terms at GCCS amounted in effect to a code upon reading the following sample:

> ***The only Air key still defying us is GNAT (Fliegerkorps X). LILY, which has no Uncle, is difficult enough without one; for FIREFLY we are largely dependent upon cillies, and for GLOWWORM on re-encodements from FIREFLY. FIREFLY does not seem to be using his large store of Uncles but we do not know yet about GLOWWORM. There is fairly good evidence since the fifth that WASP, who started without his, has now put it on his best crib frequencies, and we may be in for trouble. JAGUAR, a heavy user of D and of Uhr, has got stuck for the last day or two At the end of the month most of the [Army] keys in use were compromised, with the result that PEEWIT, the Supply key, decoded a lot of operational traffic as well, and also PULLET, the Y key....***

At "Berkeley Street," Taylor served until relieved late in July 1943 by a civilian, Mr. Roger Randolph. Captain Bancroft Littlefield followed Mr. Randolph in December, and about one year later, Captain Lewis T. Stone, Jr., took over from Captain Littlefield. At "Ryder Street," Major W. L. Calfee acted as U.S. SIGINT Liaison Officer.

The American Ultra officers who came to Bletchley Park for similar duties were the nucleus of a unit in Hut 3 that came to be designated at Bletchley Park as "3-US." Major Samuel McKee joined Taylor in selecting the first of a stream of "CX/MSS items" (Ultra) for transmission to Washington, always via British secure communications channels. The first messages were sent on 27 August 1943.

Principles of selection rested more on trial and error than on doctrine. Guidance from Washington was minimal. Almost at once, Taylor and McKee recognized that Ultra messages provided far better data on German Army and Air Force order of battle than the materials two U.S. liaison officers, assigned to duty at the War Office and the Air Ministry, had been obtaining from other types of SIGINT material. Their selections in Hut 3 soon overloaded the available British secure communication circuits and had to be restricted.

In Washington, where the MAGIC Daily Summary became so important to the conduct of the war, a narrowly distributed Military and Naval Supplement was used as the vehicle for SI. On 1 July 1944 it was replaced by a daily MAGIC European Summary prepared by the German Military Reports Branch of MIS. About ninety percent was based on special intelligence.

The five or more U.S. officers in Hut 3 were led by Major F. W. Hilles, while Taylor (promoted to lieutenant colonel) and McKee worked on arrangements for training American Special Security Officers in disseminating Ultra to U.S. commanders. The recruitment was done in Washington where the training there was preliminary; training at GCCS was the main, final stage, and chiefly accomplished in "3-US." All personnel were accounted for as the strength of "MIS, War Department, London Branch."[20]

Several of the future Special Security Representatives completed their training by visits to the Mediterranean area commands where Special Liaison Units (SLUs) were functioning. The first visitor, Captain John F. B. Runnals, went to Algiers, La Marsa, Bari, and Caserta in November-December 1943 not long after the liberation of Naples. At AFHQ in Algiers he found the principal British Special Security Officer (SSO) in the theater, Lieutenant Colonel Robert Gore-Brown, from whom he obtained an explanation of the functions of nine SLUs in NATOUSA, six others in Egypt and the Near East, and a special communications network extending from "Windy Ridge" in the United Kingdom to Gibraltar, Algiers, La Marsa, Taranto, Bari, Foggia, Caserta, and Bastia. Further forward he ascertained the organization of SLU activities.

In April, when Major Lewis F. Powell, Jr., began his trip to the Mediterranean area, he carried instructions (from the chief of staff, Army) for certain U.S. air and army officers governing the protection and use of special intelligence. He was also to observe the SLU system as employed by the Mediterranean Allied Air Force and constituent commands.

The personnel of MIS, War Department, London Branch were of three categories: Advisors, Special Security Representatives (SSRs), and Special Security Officers (SSOs). The first type worked in Hut 3, Bletchley Park, or in a London British SIGINT station. The second and third types were to be assigned to the headquarters of U.S. commanders, as members of Special Liaison Units controlled by the British. They would work in offices, vans, or possibly briefly in tents, near a Special Communications Unit (SCU) of British RAF noncommissioned and enlisted communicators. The SCU in its own vehicle would be using a "Type X" machine – a cryptographic system that was reserved for the protection of special intelligence, in radio (or undersea cable) channels.

The SSRs were expected to be closely associated with the chief of intelligence, chief of staff, and commanding officer of a headquarters. The SSOs, depending on the preference of the SSR, would work for him, or with him. The SCUs kept in touch with the central station in the UK and delivered deciphered messages to an SSO. If the message was urgent, it would be taken at once to the SSR for action; otherwise, it would be handled as the others delivered at stated times, or used in daily briefings and summaries. The SSO office or van could be used as an Ultra library where officers "on the list" could consult files and maps showing information from SI. The maps not only presented enemy order

of battle but the enemy's beliefs concerning the disposition of Allied forces.

During the planning to invade Normandy, the planners benefited from available special intelligence. The Eighth and Ninth Air Forces, then engaged in preinvasion bombing, also found Ultra useful in choosing targets and escorting the bombers. The tactical air commands that would support the armies prepared to make use of SI. Later forty-three American officers were assigned to Special Liaison Units. U.S. Army officers who served as special security representatives in the European Theater are listed below opposite the command headquarters to which they were accredited.

Future SSRs visiting in Algiers saw the segregated operational areas of the SLV and the SCV on the top floor of a hotel used as Allied Headquarters. They observed the receipt of Ultra messages from GCCS, their conversion into plain text, and the making of copies for delivery to persons on the Ultra list. They learned that record copies were filed and retained for certain periods, while others were recovered and destroyed after being read. SSRs read the messages and observed how they were used as sources of strategic or tactical intelligence. The pattern of briefings, mapping, summaries, and spot alerting was noted. They were told of the variety of security problems, including those arising from the association of officers

Special Security Representatives, USA, European Theater

ETOUSA	Captain Edmund H. Kellogg
SHAEF	Lieutenant Colonel Edward K. Thompson (A-2)
U.S. 13th Army Group	Lieutenant Colonel Charles R. Murname, Lieutenant Colonel Samuel I. Orr, Jr.
U.S. First Army	Lieutenant Colonel Adolph G. Rosengarten Major William D. Hobenthal
U.S. Third Army	Lieutenant Colonel Melvin Helfers Captain George C. Church
U.S. Seventh Army	Major Donald S. Bussey
U.S. Ninth Army	Major Loftus E. Becker
U.S. Fifteenth Army	Captain W. T. Carnahan
6th Army Group and 1st TACAF (Prov.)	Major Warner W. Gardener
U.S. Strategic Air Force	Major Lewis F. Powell, Jr.
Eighth Air Force	Major Anselm E. M. Talbert
Ninth Air Force	Lieutenant Colonel John W. Griggs, Major Edward C. Hitchkock 1st Lieutenant Robert S. Whitlow 1st Lieutenant Frank B. Coffman Major Lucius A. Buck
IX Tactical Air Command	Lieutenant Colonel James D. Fellers 1st Lieutenant Robert S. Morris, Jr.
XII Tactical Air Command	Major Leo J. Nelson
XIX Tactical Air Command	Major Harry M. Grove
XXIX Tactical Air Command	Lieutenant Colonel John W. Griggs Captain Langdon van Norden
1st Technical Air Force	Lieutenant Colonel Leslie E. Rood Major Warrack Wallace

uninformed about "Y," or unaware of SI, with those on the Ultra list, and the necessity of persuading commanders not to take military action traceable only to special intelligence. Those who visited in early 1944, or after the liberation of Rome, were able to note the circumstances and methods of SI service at 15th Army Group (Allied Armies in Italy), Mediterranean Allied Air Force, and U.S. Fifth Army.

Before the invasion of Normandy and while still in the UK, many SSRs had learned their way around the headquarters with which they would be associated in France. At the headquarters of U.S. Army or Air Force commands to which SLUs were provided, the presence of officers and enlisted men in British uniforms naturally aroused some attention, for they were conspicuously different from others. Their places of work were usually less prominent. Curiosity about them was deflected in some cases by imaginative titles for their units or, in the case of individuals, by the nature of their supposed specializations. On an intelligence staff a man would have had to be dull indeed not to recognize that a colleague with seemingly superlative powers of deduction might possibly have a special source of information. Awareness irritated some of the intelligence staff who were not on the SI list, and aroused envy in others, but most shelved their concern.

The term "special intelligence" was inclusive. Codewords like MAGIC and Ultra were preceded and followed by others. The War Department issued several successive Secret security directives for the protection of SIGINT with the titles: "Security of Radio Intercept Intelligence," then "Security of RABID Intelligence," then "Security of ULTRA DEXTER Intelligence within the European, North African, and Middle East Theaters of Operations."[21]

On 24 August 1944 SHAEF issued revised instructions for protecting SIGINT of all grades. Besides specifying that American and British security practices were to be uniform and to follow certain methods, those instructions distinguished between crypt intelligence and traffic intelligence and assigned codewords as follows:

CIRO-PEARL – for medium-grade codes and ciphers.

PEARL – for low-grade codes and ciphers.

THUMB 1 – for traffic analysis, excluding direction finding.

THUMB 2 – for DF and other technical aids.

The regulation covered handling, and defined the recipients of different types of SIGINT.[22]

To quote from a study prepared after the war, "Synthesis of Experiences in the Use of Ultra Intelligence by U.S. Army Field Commands in the European Theater of Operations,"[23] concerning security measures:

> ***Most of the representatives found that substantial security was rather easily attained and that perfect security was an impossibility. The representative's most difficult job was to make certain that recipients did not make direct operational use of Ultra without appropriate cover. Charged with responsibility for success or failure in battle, any commander would find that the temptation to employ Ultra improperly was well-nigh irresistible at times. Even daily security reminders by the representative and periodic directives from higher authority were tried and found somewhat inadequate...***
>
> ***There was no method by which the representative could censor all tactical orders and discussions, but, by monitoring summaries, appreciations, and publications based on***

other intelligence sources, he could largely safeguard against a written break of Ultra security. Physical security and the protection of Ultra signals presented no serious problems...

The reliable guiding influence of Ultra in working with other intelligence outweighed its value as a separate and distinct source of operational information. Its normal function was to enable the representative and his recipients to select the correct information from the huge mass of prisoner of war, agent, (ground) reconnaissance "Y," and photographic (reconnaissance) reports. Ultra was the guide and censor to conclusions arrived at by other intelligence: at the same time the latter was a secure vehicle by which U1tra could be disseminated under cover.[24]

The representatives, who worked and lived with Ultra in the field, were aware that it often had a direct operational value; one stated:

It was important to protect Source, but it was also important to get the last bit of exploitation, the ultimate, from Ultra consistent with Security.

U.S. officers in Hut 3 selected the items to be passed directly to any of the U.S. commanders or to be used by the Intelligence Division of his staff in preparing briefings and summaries. At the commands, the way in which the items were used depended on the commander's attitude and the personalities of those directly involved. An intelligence briefing early each day could be considered normal. Ultra, if its role as the source could be masked, might furnish some of the information. If not, or perhaps in any case, a separate briefing to officers "on the list" could precede or follow the regular intelligence briefing. At some headquarters, such as that of General Jacob Devers, CG, 6th Army Group, it was given in the SSO's own small office with maps that showed Ultra data. At General Bradley's 12th Army Group the Ultra unit, disguised by the title "Estimates and Appreciation Group," gave its own separate briefing in a trailer adjacent to that of the G-2.

Some SSRs served also as the "Y" officer in a staff SIGINT unit. Their knowledge of current Ultra enabled them to guide the work on "Y" material and in reports or oral briefings to avoid whatever had to be treated separately.

Not all commanders held Ultra in the same regard, at least when first apprised. General Mark Clark's disdain in 1942, during the planning for Operation TORCH, has been described in books by Winterbotham and Lewin.[25] General Patton's dislike of the restraints for security reasons on his movement into advanced areas, such as his flight as a passenger (with his dog, Willie) on a bombing raid over Germany, cooled his interest.

Later Collaboration between OP-20-G and GCCS

The basic agreement covering the respective responsibilities of OP-20-G and GCCS mentioned above had been signed in October 1942. It was a preface to assumption by OP-20-G of a positive role in producing SI. During December 1942 GCCS recovered the ability to read submarine Enigma traffic, now enciphered by the four-wheeled version of the machine. While having SI again applicable to U-boat activities was a great advantage, the German Navy's counterpart to GCCS, known as the B-Dienst, was able in the spring of 1943 to read enough of the Allied communications pertaining to the convoys so that German sinkings were disastrous. The Allies executed a communications change, the submarines then lost that advantage, and in May 1943 so many more of the U-boats were sunk as to induce a transfer of submarine offensive efforts to a different area of the Atlantic.

The German Navy renewed the submarine offensive in August 1943. The new U-boats with fresh crews were expected to score heavily with their recently developed, acoustically guided torpe- does. SI had alerted the Allies to the plans and to the new weapon. Allied ships nullified the torpedo by towing a device that drew a torpedo away from the target ship. On occasion, when more than one U-boat was engaged in an attack, one was probably struck by an acoustic torpedo fired by the other. The Allies at that time were enabled by SI to direct allied aircraft to rendezvous points assigned to German submarines refueling at sea from surface or underwater tankers. Destruction of such supply ships greatly restricted the range of a submarine's voyage or obliged it to deplete the fuel of a sister ship. Aircraft from small escort carriers which protected a convoy often were able to drive attacking submarines underwater, or to damage them with depth charges.

By 1944 OP-20-G was feeding SIGINT to F-21 (Atlantic Section, Combat Intelligence Division, U.S. Fleet) the Operational Intelligence Center, Admiralty, and to Ottawa. Eventually the British would agree that the Americans were bearing the major share of the SI load in the Atlantic and carrying it satisfactorily.

Special Intelligence in the Invasion of Normandy, June 1944

Special intelligence relating to the probable opposition to the Allied invasion of Normandy enabled the planners to know that the enemy had a fair idea of the general region but not of the exact places where the attacks would be made. The Germans had diverse calculations of time as well as place, so that the Allies could expect them to remain deployed to meet a wide range of possibilities. The enemy was generous enough to provide data two weeks before the invasion in messages showing the disposition of German forces in the Cotentin peninsula, including recent strengthening there, and the chain of command under Field Marshal Erwin Rommel as commander-in-chief, Army Group B. Special intelligence afforded the Allied command a good understanding of what the enemy expected. As early as 10 January 1944, German Army Intelligence was aware of the First U.S. Army Group (FUSAG) and connected it with the expectation of a cross-Channel attack in the vicinity of Calais.

The Allies, partly from special intelligence and partly from other sources, knew that at the time of the invasion OB West controlled Army Group B and Army Group H; that is, four Armies and a Panzer Group West, comprising sixteen operational corps in all.

The Allies knew that Rommel's intention was to defeat the invasion at the beachheads and that his panzer divisions were to be held in readiness to move to the actual beachheads as soon as each was disclosed. Only one panzer division's location was not established; the 2d Panzer Division in Brittany might be near enough to reach the battlefield in Normandy during the critical early days. Allied air plans to "isolate the battlefield" by bombing were intended to keep out of the battle any German armored unit from Rommel's mobile reserve.

The strategic plans of the enemy were supplemented by what was learned on the eve of the invasion, for on 30 May 1944 the main cryptosystem in use by Rommel's Army Group B in an area extending from the Netherlands to southwestern France became readable at GCCS.[26]

During the week of the invasion, the volume of traffic encrypted on relatively few keys enabled the analysts at GCCS to recover three of the four main army keys for 9 June 1944. On that day, intercepts at British stations alone were about 17,000 in numbers, but the successes gave no promise of reading current German Army traffic; German Air Force traffic was more available. An early illustration of the operational use of special intelligence by the Ninth Tactical Air Command, supporting U.S. First Army (FUSA) in Normandy, can be mentioned here.

A German FW-190 pilot was captured and interrogated at a wing headquarters of the Ninth TAC. He stated that his unit was based near a town which he called Essay. The Wing A-2, who knew of an enemy airfield at Lessay but not of a place called Essay, recommended the bombing of Lessay.

At Headquarters, Ninth TAC, where special intelligence was received, the SSO recalled a German message that had mentioned fighter-group landing grounds at Essay and Lonrai, information not yet included in general intelligence. He also knew from other special intelligence that the field at Lessay had been trenched, ploughed, and abandoned. So he advised that the wing not bomb Lessay and that the area described by the PW be reconnoitered. That mission yielded photographs of three landing strips – Essay, Lonrai, and a previously unknown one at Barville. The next day all three fields were successfully struck. **27**

As Major Taylor had foreseen during the negotiations early in 1943, U.S. acceptance then of British restrictive conditions governing the production of Ultra was followed by gradual British accommodation to U.S. needs. Before the Nazi surrender ended hostilities in Europe, the Signal Security Agency had sent enough persons for prolonged training in production of SI at GCCS to operate independently elsewhere. When the war shifted to the Pacific and to Japanese communications, where the U.S. had the primary responsibility for SIGINT, U.S. production of relevant special intelligence reflected the prowess of Arlington Hall and OP-20-G and their forward centers. Aware of the situations of Japanese forces on various islands and atolls, Admiral Nimitz and General MacArthur advanced upon the home islands leaving thousands of Japanese soldiers and airmen stranded and far from the battle zone.

In this general chapter concerning British-American collaboration in special intelligence, we have anticipated the conclusion in Europe of a conflict that we now again consider in somewhat greater detail. We have been describing Ultra matters and now return to PEARL and THUMB; that is, we leave special intelligence to resume attention to tactical SIGINT.

Notes

1. Memo for Sec/War from Actg Sec/State, 19 July 1940, covering Lord Lothian's Aide Memoire to the President as an enclosure.

2. Memo from CSA (General George C. Marshall) to Brigadier General George V. Strong, Asst CIS, War Plans, 19 July 1940, Subj: General Interchange of Secret Technical Information between the U.S. and British Governments.

3. A joint letter from the Sec/War and Sect Navy to the National Defense Research Committee, quoted in Memo for Chiefs of Arms and Services from AG, WD, 4 Nov 1940, Subj: Interchange of Technical Information with British Representatives. Ibid.

4. "Report of Technical Mission to England by Captain Sinkov and Lieutenant Rosen," 11 April 1941.

5. At that time he arranged for assignment of a GCCS Technical Liaison Officer to duty with SIS as observer of work done on Japanese cryptosystems. Mins. of a Conference held on 16 Aug 1941 with leading cryptanalysts of SIS.

6. Memo from OP-20-G-A to OP-2O-G-I, 7 July 1944, Subj: American Cryptanalysis of German Naval Systems, signed by RB. Ely, LCDR, VSNR. Interview with Mr. Frank Raven, 24 Jan 1980.

7. Had the U. S. Navy unit been called the Operational Intelligence Center, he might have qualified as OIC, OIC, for the abbreviated title "OIC2."

8. See Ronald Lewin, *ULTRA Goes to War*, (N. Y. , 1978), 4off.

9. *History of the Signal Security Agency*, Vol. II, 257 If. A copy of Dr. Turing's report, "Visit to National Cash Register Corporation of Dayton, Ohio," is in NSA Hist. Coll.

10. Memo for Sir John Dill from General George C. Marshall, 6 Jan 1943. Copy in NSA Hist. Coll.

11. Memo for Colonel Corderman, 8 Feb 1943 (SPSIS-7/SPSIS 311.5-General). General Strong later called the U.S. machine "analogus [*sic*] but not identical."

12. Memo for Colonel Corderman from Major H. McD. Brown, 17 Mar 1943, Subj: Traffic Exchange with B.S.C. Copy in NSA Hist. Coli.

13. The Liaison Officers from the Signal Intelligence Service who were assigned to duty at GCCS were Captain John N. Seaman, August 1943 to Mar 1944; Captain Walter Fried, April to October 1944; and Mr. Albert Small, from October 1944 to May 1945. Their reports primarily concerned technical cryptologic operations rather than the products of concern to the Special Branch, G-2.

14. Photocopy of signed document in NSA Hist. Coll.

15. On 4 June 1943, OP-20-G broke the Atlantic U-boat key for 28 May – their first success with the new bombe using traffic from GCCS on test models in Dayton.

16. Cable V 4772, 13 May 1943. Copy in "Colonel McCormack's trip to London." Books No.9 and 35. In NSA Hist. Coll. Colonel Corderman later visited GCCS in October 1943 and arranged for Captain Seaman to stay on as a technical liaison officer.

17. Captain Johnson's report to CO, Arlington Hall Station, 16 May 1943, summarized his work on German military cryptosystems, including Double Playfair and three cipher machines. One cryptosystem was a teletypewriter with tone transmissions, he said.

18. HQ, ETOUSA Order of 28 Jan 1944, cited in *History of Signal Intelligence Division, ETOUSA*, Vol. I. They were attached to the Base Section for supply and administration.

19. Small Report G-8, 17 Dec 1944. NSA Hist. Coli.

20. Memo for Colonel Clarke from Lieutenant Colonel McCormack, 8 Feb 1944, Subj: SLU Personnel. General Bissell, G-2, approved. (Copy in ACSI Book No. 21.) Although duty in Europe was paramount in 1944, their qualifications for subsequent service in the Far East were kept in mind.

21. See AG Ltr to Supreme Commander, AEF..., 15 Mar 1944 (AG 312.1, 11 Mar 44); OB-S-B-M, Copy No. 105 is in History of S.S. Opns Overseas, Vol. I, NSA Hist. Coll.

22. Memo AG 380.01-1 GBI-AGM, Subj: Security of Special Intelligence, 24 August 1944. Seen in archives at Arlington Hall Station, in the History of the Intelligence Branch, Signal Security Detachment "D," SID, ETOUSA, Box 6/33.

23. USA SSG, History Files (Book No. 53), 24-25.

24. The italics are my own and emphasize the role of SI at Army and Army Group headquarters.

25. F.W. Winterbotham, *The ULTRA Secret* (NY, 1974), 90-91: Lewin, *Ultra Goes to War*.

26. Report by Captain Walter Fried, No. 45, 4 June 1944. NSA Hist. Coll.

27. *Synthesis of Experiences in the use of Ultra Intelligence by U.S. Army Field Commanders in the European Theater of Operations*. USA SSG, History Files (Book No. 53) 27.

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Chapter 12

From Normandy to the Seine

General Considerations

The SIGINT material presented in the following pages illustrates the way in which SIS, ETOUSA, contributed to the victory over Germany in Western Europe. The samples are illustrative; they are far from being comprehensive. To indicate the degree of reliability of terms of intelligence, those from SIGINT included in the daily intelligence summary (ISUM) by G-2, 12th Army Group, were tagged as CIRO-PEARL, PEARL, or THUMB. Most messages were not disseminated intact except as technical material; their significance for operations was ex-tracted and reported. Signal Security Detachment "D" (SSD "D") received an average of almost 900 intercepted messages per month in medium-grade crytographic systems, from which it derived timely intelligence information. Many more messages in lower-grade systems swelled the voluminous total. When a verbatim translated message was supplied to G-2, its form might overcome an American com- mander's skepticism, but most "Y" SIGINT came from combinations of several enemy messages which required interpretation of their meanings in light of information from other sources. Though the value of SIGINT is not now demonstrable by quantitative analysis alone, certain important types of SIGINT information may be recognized.

SIGINT in medium-grade cryptographic systems (CIRO-PEARL) provided information that, within a few hours after interception, yielded order of battle intelligence. Enemy reports showed the locations of command posts, main lines of resistance, outerguard lines of resistance during retreats, boundaries of unit areas, identifications of neighboring units and of the points of contact between them. From rear areas came data on the locations of dumps of fuel, rations and supplies, medical dressing stations, repair shops, replacement and training units, billeting areas, and unit lines of communications. Large-scale movements of troops for substantial distances could be followed in SIGINT. From enemy divisions in combat zones came standard periodic situation reports and field orders from operations officers, standard situation reports by German intelligence officers, and reconnaissance reports by air, ground, or artillery units – the latter concerned both Allied expenditures of artillery ammunition and targets for German guns. The bulk of reconnaissance reporting was done in low-grade PEARL systems rather than in CIRO-PEARL, but sometimes a report was encrypted in the latter.

On 9 August 1944 Signal Security Detachment "D" arrived for duty at Headquarters, 12th Army Group, in Normandy, which it assumed on the 11th, working directly with the 114th and 116th SRI Companies. Until much later, communications with SIS units had to be by radio. A radio broadcast of technical matters was established. Conferences with SIGINT representatives of 21st Army Group and Ninth Army coordinated intercept and communications arrangements.

Beginning on 1 September 1944, the Intelligence Branch, SSD "D," began publishing what were labeled SIGINT Summaries (SIGISUMs) and SIGINT Technical Summaries (SIGITSUMs) – the latter separately disseminating cryptologic technical intelligence. On 1 November 1944 the technical summaries were redesignated as "WHAMs" and 245 "WHAMs" were published. (The meaning of the acronym "WHAM" is unknown to the author.) The SIGISUMs contained medium-grade items (CIRO-PEARL) and appeared only as often as the material warranted – 157 of them were published.[1]

The two series from SSD "D" at Army Group level were based on the material intercepted near the front by the RI companies of the Corps, farther back by SIGINT units near Army and 12th Army Group Headquarters. The RI companies each produced a Daily Activity Report (DAR) containing an intelligence summary, decodes and translations, technical summary of nets heard, a message count and allocation of positions, DF bearings, code "idents," and cipher values.

The 12th Army Group G-2's daily intelligence summary was distributed by teletype with operational priority to the following headquarters:

SHAEF Main
6th Army Group
21 Army Group (Main)
Eighth Air Force
FUSA (Command)
TUSA (Main)
U.S. Ninth Army (Main)
U.S. Fifteenth Army (Forward)
12th Army Group (Main)
12th Army Group TAC
First Allied Airborne Army
Com[munications] Z[one]
ASCZ
Ninth Air Force (Advance)

Static combat operations along defensive lines with patrols, skirmishes, artillery harassment, and air bombings were reflected in SIGINT production and enemy signal security. Wire traffic became proportionately much higher than radio traffic. COMSEC practices were observed more carefully by the communicators. Tactical radio intercepts, however, yielded "Y" of solid merit in establishing order of battle and in warning of incoming artillery fire or air bombing. Radio intelligence on both sides reflected static combat conditions; what was sauce for the goose was sauce for the gander.

In fast-changing situations, radio was necessarily used in greater proportion. Radiotelephone was used more and more frequently in all situations as the war continued. The need to use codes and ciphers increased, and certainly applied to "voice" communications. The greater volume of traffic assisted the analysts. Lapses in COMSEC practices by one side benefited the other. Voice codes required a special vocabulary around which messages could be framed. Unfamiliarity with the vocabulary caused much spelling out and resorting to plain text in messages of otherwise unnecessary length. Sinners in that type of communications were mainly controllers of road traffic, the MPs, and high-ranking officers who used radio as a direct, personal means of communication, disregarding the adverse possibilities. Messages that should have been classified Top Secret were thus transmitted not only to the intended recipient but also to an enemy who could understand them. At the end of the war, captured documents showed that the enemy gained his most valuable tactical intelligence from the violation of regulations by Allied communicators and commanders.

Tactical SIGINT was welcomed by commanders especially when it disclosed in time that the enemy was preparing an artillery mission or an attack on any given area. It was highly valued if it revealed that an enemy unit within reach lacked either fuel for its vehicles or important types of ammunition, so that it could be attacked in the most effective manner. Such SIGINT information was produced often enough to justify great effort. But by far the bulk of SIGINT that mattered to ground forces consisted of identifications and DF fixes. Data from interrogating prisoners of war or from captured documents about enemy order of battle and the fighting status of enemy units were checked against tactical SIGINT.

Air and ground reconnaissance spotted assembly or movement by enemy forces; SIGINT often identified them and sometimes learned the effects of artillery fire or air attacks upon them. Although SIGINT remained limited by the enemy's resort to wire communications or radio silence and was subject to radio deception practices, the range of radio collection extended to rear areas and thus to sources

out of reach by ground, and often by air, reconnaissance.

On a static front, American "Y" units were subject to certain disadvantages in serving the corps commands. Unless they could use wire communications between a forward intercept unit and a processing center, all medium-grade enemy traffic had to be carried back by courier and then analyzed; the resulting intelligence reached forward fighting units after a delay which often deprived that intelligence of any usefulness. Protecting retransmission via radio by hand-operated cryptosystems among numerous communicators was not a practical method.

The prohibition against cryptanalysis on medium-grade intercepts at a corps RI unit (even though the unit held in its files pertinent, captured medium-grade cipher documents) meant that such intercepted material had to go back to an army or army group headquarters for analysis. When intercepted material contained intelligence information pertinent to the situation of units of the very corps whose RI company did the intercepting, and the products came back after a lapse of twenty-four to forty-eight hours, the opportunity within that corps and its neighbors to know and to act in time had usually vanished.

The exploitation of captured cipher keys that were used in medium-grade systems by the 9th Panzer Division, was so beneficial to Third Army that the 3254th Signal Service Company (RI) could not be reconciled to the wisdom of the prevailing arrangements. That unit was able, from intercepted medium-grade traffic, to trace the 9th Panzer Division during the pursuit across central France. The SIGINT identified adjacent German units, located command posts, supply dumps, roads being used, and revealed which units were suffering shortages of fuel and ammunition.

The 3250th Signal Service Company (RI) supporting V Corps in Normandy was asked on 2 July 1944 by corps staff to request the Germans to accept a brief cease-fire in order to return to the German lines six captured German nurses. It took only about fifteen minutes calling on 2743 kilocycles to get an answer. A conversation first in German and then in English ensued. After overcoming much suspicion and obstinacy, Captain Brownfield and Captain Jetter of the intercept unit induced the Germans to meet and escort the nurses across No-Man's Land.

That unit was able in Normandy to give to the corps G-2 data on the enemy's planned main line of resistance (MLR), approximate sites of headquarters, movements of enemy units, probable sites of observation posts, and enemy reports on the combat efficiency of various German units facing V Corps.

Like others bivouacked in woods and villages in Normandy, the 3250th came under air bombing and artillery bombardment that encouraged the digging of slit trenches, the camouflaging of worn paths visible from the air, and attention to other measures of security. The men collected abandoned weapons from the beaches or other places to be able to defend themselves if necessary, for they then had no organic security guards or regular stock of weapons and ammunition.

In those first weeks, the SIGINT units had to improvise and adapt ways to keep their radios and other equipment working because of the lack of replacement parts and in order to raise their level of comfort a few millimeters. When a few men were caught by an air raid while bathing, they were described as unbelievably incongruous, peering out of slit trenches while wearing helmets and nothing else.

The Breakout

The U.S. VIII Corps headquarters became operational in Normandy under command of First U.S. Army on 15 June 1944. It first cleared German troops out of an area extending to the western coast. It then faced the German main line

of defense across Normandy in its westernmost segment while VIII Corps was capturing Cherbourg. An Allied attack along that line from 4 to 19 July 1944 quickly demonstrated the skill and strength of the enemy in the hedgerow country. Later operations further educated the VIII Corps divisions (79th, 82d, and 90th).

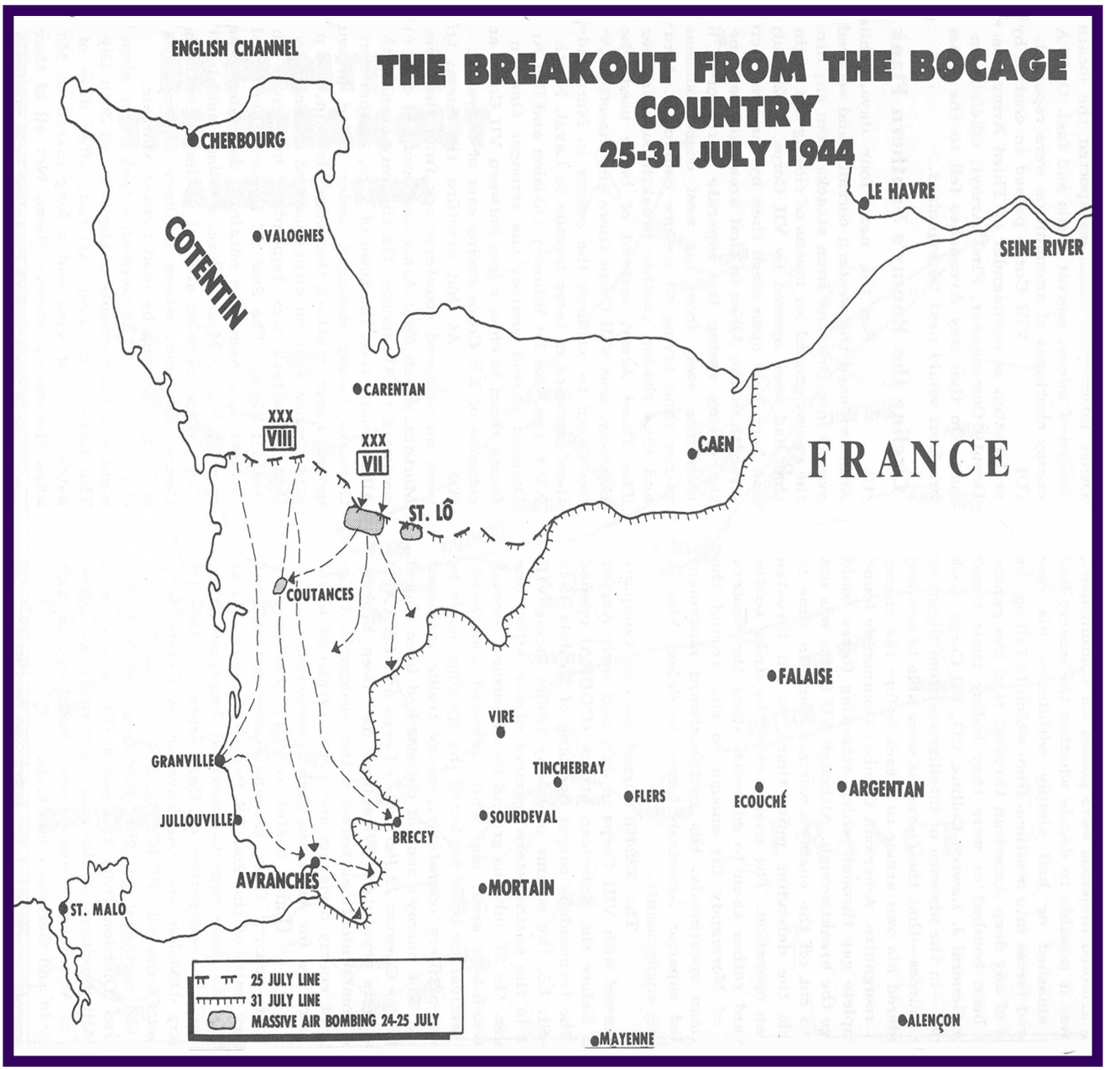
After the XIX Corps occupied St. Lo on 18 July, and after the British attack of 18-21 July got possession of Caen and absorbed the reserves of Panzer Group West, the initiative passed to U.S. First Army. In an attempt (Operation COBRA) to break through the enemy line near the center and to open the way down the west coast of Normandy, First Army committed the V, XIX, VII, and VIII Corps. The first stage was a colossal carpet bombing south of St. Lo. Next an infantry push by part of VII Corps, followed by armored and motorized forces also under VII Corps, smashed the scattered parts of German formations before they could be reorganized. Additional offensive efforts prevented the German Seventh Army from ever reestablishing a solid defense line to stop a deep penetration. The enemy reinforcements brought from elsewhere had to be committed piecemeal. They were chewed up.

At the same time, the attempt to cut off withdrawal by Germans being pushed southward by VIII Corps did not succeed. On 28 July, however, when retreating Germans turned eastward rather than southward, the U.S. 2d Armored Division awaited them in blocking positions. In the battles that night, the Americans killed perhaps 1,000 and captured about 4,000. Some German troops slipped through, others veered off to the south and escaped. The latter included General Choltitz and his headquarters, LXXXIV Corps. He was thus saved to be in command in Paris a few weeks later, and possibly to have been instrumental in its being undestroyed when liberated.

How did the 2d Armored Division command know that they could expect the enemy to turn east?

Even earlier, on the afternoon of Operation COBRA's first day, when the VII Corps infantry had moved well into the bombed area and had begun to meet serious resistance, and when the VIII Corps armored divisions were poised for commitment, how was it possible to decide whether the enemy had been smashed or had simply withdrawn his own armored forces into positions from which to fall on the flanks of any deep American thrusts? Had the panzer units been bombed or were they biding their time? Major General J. Lawton Collins, CG, VIII Corps, took the risk – in the absence of intelligence from SIGINT or other sources – that the Germans were able to pounce; he ordered his own armor to attack before the enemy might reorganize. American combat commands found a complete gap through which attacking forces could enlarge the breakthrough. Although VIII Corps was not able to cut off the enemy's western flank in time to encircle the defending units there, it did threaten such an operation. The enemy chose to strike southeastward rather than to go south along the western coast of Normandy far enough to slip around the American spearheads. His southeastward movement enabled superior U.S. forces to defeat him in meeting engagements.

The 3254th Signal Service Company (RI) served with VIII Corps in July and early August 1944. Before the American attack (COBRA) opened with the tremendous carpet bombing of 25 July 1944 near St. Lo, the volume of enemy traffic facing VIII Corps in the northwestern segment of the Allied line was low. On 27 July, as ground forces pushed through the bomb-torn area, and while armored spearheads with tactical air cover exploited the openings made by infantry-artillery operations, enemy traffic increased greatly. The enemy's zone of defense had been ripped apart. The German II Parachute Corps and LXXXIV Corps were separated. Wire lines had been broken. Radio communications between the disorganized elements of enemy divisions and corps furnished abundant material for U.S. SIGINT operations.



Highly useful to VIII Corps were intercepted reports from reconnaissance patrols and artillery units of the 2d SS Panzer Division ("Das Reich"). As those reports described American gains, such as the occupation of Cambernon by the 1st Infantry Division and the advance on Cerences by Combat Command "B" (CCB), 2d Armored Division from the northeast on 28 July, and by CCB, 4th Armored Division from the north (Coutances) the next day, Allied seizure of the route southward along the coast to Avranches began to seem imminent to both American and German commands.

By 31 July remnants of the 2d SS Panzer Division were heard and located, while that division's headquarters was placed at Montbray. The enemy was apparently drifting away from VIII Corps. Other intercepted messages spotted the locations of dumps of mines, mortar shells, and fuel. On 1

August enemy shortages of ammunition were reported.

VIII Corps passed to control by General Patton as commander of Third Army (instead of deputy commander, First Army), officially on 1 August. On that day Avranches fell to the Allies. The breakout would next be exploited.

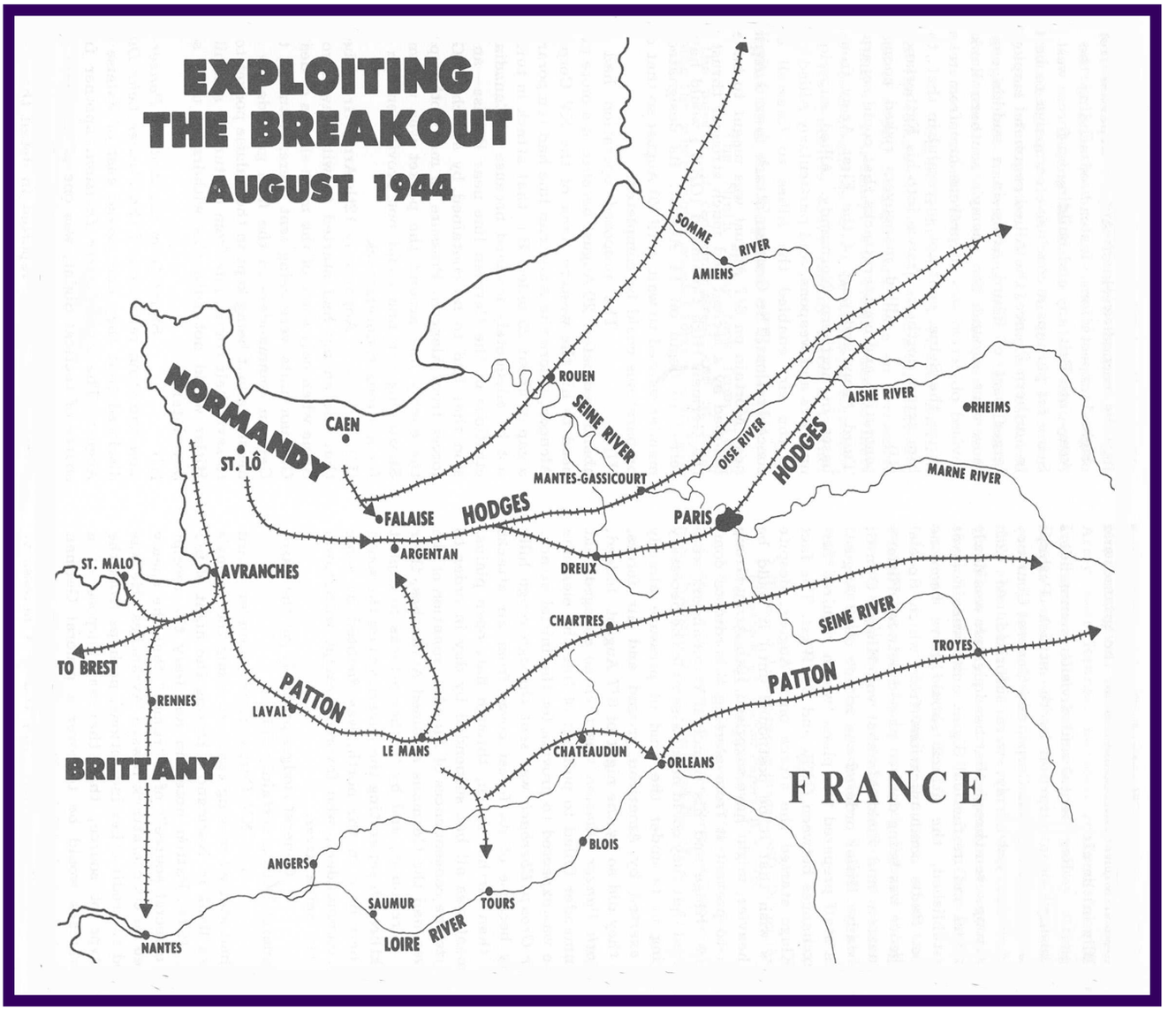
Circling the Enemy's Southern Flank

For the next four days, while the Allies widened the western corridor and secured their avenue into Brittany from attacks from any direction, the enemy groped for means of closing the original gap that had been opened by VII Corps on 26 July, and had been held open since then by the ever-increasing strength of the Allies in that area. At the same time, the enemy swung the separate parts of a line of resistance away from the west coast southeastward rather than trying to restore control at Avranches, and thus risking another breakthrough farther east. The Third Army, instead of being used wholly in Brittany, sent VII Corps there and directed XV Corps southward to outflank the enemy in Normandy, and then eastward in large bounds to Laval. Northwest of XV Corps, the 1st Infantry Division and 3d Armored Division moved against the stronger German forces facing them to close a gap between VII Corps and the columns of XV Corps racing east of Mayenne.

At that juncture the enemy tried to push an armored counterattack from the vicinity of Mortain, which First Army had occupied on 3 August, westward to Avranches. On the very evening that the Allies finally took the town of Vire, farther north, the Germans barely managed under Allied pressure to mount a counterattack that took Mortain and pressed a few miles west on either side of it. Some evidence that an attack was impending had come through tactical SIGINT. The 2d SS Panzer Division showed interest on 5 August in obtaining data about the area surrounding Le Mesnil Tove, a village held by the VIII Corps. That division also set up liaison with the 2d Panzer Division, whose artillery regiment was described as moving by road toward Mortain.

The German attack began about midnight and hit elements of the 9th and 30th Divisions. The latter had barely arrived, after days of hard battle north of Vire and a long march to Mortain, when the enemy overran them. Not all of them, for the 120th Infantry's 2d Battalion held out for several days atop a critical hill, remaining there until the enemy withdrew. And others also fought back stub-bornly. The attack ran out of steam as VIII Corps contained it with reinforcements on the ground and especially in the air.

Regimental and division commanders seem to have been surprised by the attack. Perhaps General Collins, CG, VIII Corps, and General Courtney Hodges, CG, First Army, were surprised. At 12th Army Group, even though that headquarters was newly operational and its tactical SIGINT units were not yet well established, the attack should have been no surprise. Radio communications from which special intelligence was being derived passed daily between Hitler's headquarters and Field Marshal von Kluge, C-in-C, West. Hitler ordered the attack on 2 August. Kluge's staff prepared the plans, which required further exchanges between OKW and OB West. The fact that Kluge started the attack on 6 August, despite Hitler's wish that it be postponed until it could be much heavier, might have surprised 12th Army Group enough to prevent it from alerting subordinate commanders. Kluge and his principal commanders were convinced that they could never assemble the necessary attacking units under the kind of pressure already being exerted by American ground and air forces, unless they did so by the night of 6/7 August. Indeed, the 116th Panzer Division was then so engaged that its commander failed to pull out of line the elements that he was expected to provide for the initial attack. Panzer Group Eberbach was sent through rough hilly country because of its forest cover from air attacks rather than farther south through flat, open plains. Movement was all but suspended by day in order to minimize



the consequences of Allied domination of the air. Even had the Germans regained Avranches, their ability to retain it, and by further attacks to exploit a breakthrough separating the Americans on the south from their base in the north, was doubted by some enemy commanders, who favored prompt withdrawal across the Seine River.

General Hodges probably got the warning; General Patton certainly did.

The XV Corps (Haislip) under Third Army had started moving eastward along the enemy's southern flank in Normandy. During the night of 6/7 August 1944, Patton noted in his diary the receipt from "a secret source"[2] of a "rumor" that the enemy intended to counterattack toward Avranches. He was inclined to credit other indications, perhaps from the same type of source, that the real purpose of a counterattack would be to cover a general German retreat beyond the Seine River. But he held two divisions in positions where they could, if necessary, contribute to containing a German counterattack.

The actual fighting in Normandy during the second week of August departed from the original expectations. Instead of sending the Third Army

into Brittany and building up forces west of the Seine for perhaps a conclusive campaign to be fought in northern France, the Allied command employed the larger part of Third Army in a sudden encircling movement around the enemy's southern flank. The revised objective was to prevent him from retreating across the Seine, or if not successful in that, to drive him across northern France into his Fatherland.

Allied maneuvers risked enemy concentration and counterattacks that could separate the Third Army and part of the First Army from their bases in northern Normandy. Allied superiority in numbers and weapons, and particularly Allied mastery of the air, enabled the Allies to forestall such a concentration. The German attack toward Avranches near Mortain on 6/7 August was meant to have been followed by a second and much stronger thrust which the German High Command (OKW) would have preferred to begin on 11 August. Its designated commander wanted to wait until 20 August so that certain preparations could be completed.

The proposed operation had to be abandoned before 20 August because of a more pressing need to hit the western flank of the XV Corps, near Alencon, where the American line had temporarily left a gap of about twenty-five miles. But that attack in turn could not be adequately manned because of Canadian penetrations of the German line near Falaise – an intrusion that had to be contained by switching German forces from Alencon. Pressure on many other parts of the enemy line around the pocket was unremitting. Shortening the line could not provide enough troops for a strong counterattack.

Apparently 12th Army Group believed that the enemy had started to withdraw across the Seine when only some of the mere shards of destroyed German units were being sent there. Actually, though German commanders in the field grew deeply apprehensive about being kept in the Falaise pocket too long to save their commands from capture or annihilation, Hitler would not authorize withdrawal until several days later.

SIGINT from the 2d SS Panzer Division and from remnants of the Panzer Lehr Division disclosed that they had moved east of Falaise on 11 August. The 21st Panzer Division, another fruitful source of tactical SIGINT, was one of the main enemy units covering retreat to the Seine. Its reconnaissance patrols on 16 August reported in detail the situation observed at the southern edge of the all-important opening. The division set up a defensive line among wooden hills east of the Argentan-Falaise road through which marching German columns could move at night.

During the battles to hold the pocket open at its eastern end, the 9th Panzer Division was overrun west of Argentan. By 27 August, captured cryptographic material was being used by the Allies to read the communications of that headquarters as it escaped across northern France.**3**

SIGINT from the 9th Panzer Division disclosed the composition of that command, successive locations of supply headquarters, data on successive main lines of resistance, and times when artillery support was unavailable to one of its major elements, so that the pursuers could readily force a further retreat.

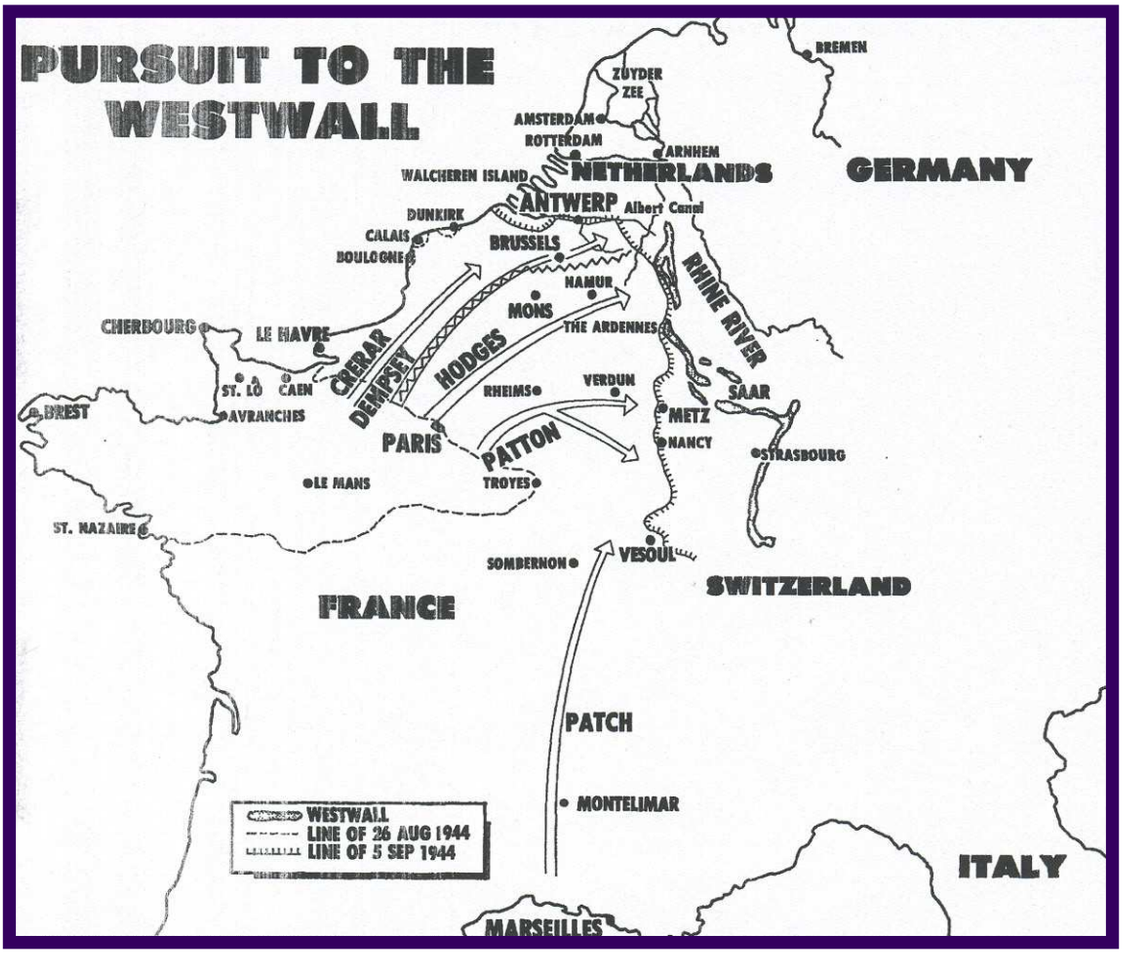
SIGINT and the Capture of Brest

The Ninth Army took from Third Army the mission of reducing Brest and at least containing the other French coastal fortresses in Brittany held by the Germans. When a Special Security Representative (SSR) joined Headquarters, Ninth Army near Rennes, he soon realized from special intelligence that estimates of enemy strength in Brest, based on other sources of intelligence, were seriously lower (perhaps as much as 50 percent) than they should be. Within a week, having captured Brest, the Ninth Army's count of prisoners of war confirmed those SIGINT calculations. Thereafter, General Simpson was most receptive to Ultra.**4**

At another juncture, when the "Colmar pocket" was to be reduced, special intelligence (as we shall see) corrected exaggerated estimates of the strength of the defenders. SIGINT worked both ways.

Notes

1. History of the Intelligence Branch, SSD "D," 15-16.
2. Blumenson, ed., *Patton Papers, II*, 503.
3. Tech Hist. 3254th SigServCo (RI).
4. *Synthesis of Experiences in the Use of Ultra Intelligence by U.S. Army Field Commands in the European Theater of Operations*. USA SSG, History Files (Book No. 53), 28.


PURSUIT TO THE WESTWALL
BREMEN
ZUYDER ZEE
AMSTERDAM
ROTTERDAM
ARNHEM
NETHERLANDS
GERMANY
WALCHEREN ISLAND
ANTWERP
Albert Canal
DUNKIRK
CALAIS
BOULOGNE
BRUSSELS
NAMUR
MONS
THE ARDENNES
RHINE RIVER
CHERBOURG
LE HAVRE
CRERAR
DEMPSEY
HODGES
ST. LO
CAEN
RHEIMS
VERDUN
SAAR
BREST
AVRANCHES
PARIS
PATTON
METZ
NANCY
STRASBOURG
LE MANS
TROYES
ST. NAZAIRE
SOMBERNON
VESOUL
SWITZERLAND
FRANCE
PATCH
MONTELIMAR
WESTWALL
LINE OF 26 AUG 1944
LINE OF 5 SEP 1944
ITALY
MARSEILLES

Chapter 13

To the Westwall

Pursuit in the North

The complete defeat of the enemy in Normandy produced a situation in which the questions became: how much could he extricate from the so-called "pocket" west of the gap between Argentan and Falaise; and having saved what he could, where would he cross the Seine River; and where would he be able to establish a new line of defense? Haislip's XV Corps went to the Seine and wrested a bridgehead on the far side at Mantes-Gassicourt. Corlett's XIX Corps joined in an attempt to establish a second encirclement along the Seine, but most of the enemy was able to shift northward toward the Seine estuary and to cross there to the eastern bank. Once across, they moved along the coast. Other shattered German forces crossed the upper Seine and for a time may have thought that they could defend along such a river line as the Aisne-Marne or the Somme in conjunction with the German units that had crossed the lower Seine.

On 15 August 1944 the Seventh Army's invasion of southern France began, and during the remainder of the month, German occupation troops as well as combat forces withdrew from most of France. They continued to defend German possession of ports in Brittany and along the Channel. Unable to withstand Allied pursuit, the enemy appeared to be fleeing into the shelter of his fortified Westwall – that zone of pillboxes, obstacles, and barriers near the German border.

U.S. First Army moved along the Seine on the right of 21 Army Group and sped through northern France into Belgium and Luxembourg. XIX Corps on the left was next to the British. VII Corps was on the right, passing through places with names familiar to veterans of World War I. V Corps was involved in the liberation of Paris and then moved through the city and toward that part of the Westwall south of Aachen. The columns moved rapidly in long daily jumps, with skirmishes and small encounters but few substantial battles. As they reached Belgium, the VII Corps and V Corps then shifted so that the latter came up beside the XIX Corps, while the VII Corps crossed the Meuse and passed eastward in country that, in late December 1944, became the northern edge of the German Ardennes salient. The enemy's hasty retreat across France led to overconfidence among the Allies. They believed that the Germans were so demoralized and so weakened that they would not fight until within the Westwall, and that even there they would be readily overcome.

The pursuit in the north enabled American troops to head off and to capture or destroy thousands of the enemy and their vehicles in the renowned "Mons pocket," where bitter fighting in World War I had also taken place. Yet along the Scheldt, the Albert Canal, and the Meuse River, forces sent from Germany manned a line through which the retreating enemy passed to reorganize in its shelter, or along which they were able to take up positions because of the carelessness of Allied com-manders. Weary but exultant over the rapid advance that brought about the seizure of Brussels and Antwerp, those commanders neglected to control the bridges over the Albert Canal. All crossings were then blown up by the Germans. That costly mistake could have been attributed to inadvertence but another, of greater proportion, was the failure to interrupt the escape of enemy troops across the watery area between Antwerp and the coast. In a ferrying operation that took several days, thousands of the enemy slipped across the Scheldt and kept on behind the German line to join its defenders. At the same time, the enemy in effect extended his defense line onto Walcheren Island, and denied

the use of the captured port of Antwerp to the Allies until they could gain control of the banks along the lengthy channel so that Allied ships could pass. It took until 8 November 1944 to clear the enemy from the sites menacing the Scheldt.

The enemy was able to thwart an Allied airborne and ground operation to gain the Rhine bridge at Arnhem. While the plan was risky almost to the point of being foolhardy, it was apparently bad luck that brought German panzer forces into the area where Allied gliders and parachute troops later descended, and inflexibility that caused the operation to proceed in spite of SIGINT warnings of the German forces there. German forces were able to oppose Allied movements and thus to overcome the men who had succeeded in seizing the Arnhem bridge and to regain control of it before Allied reinforcements could arrive to consolidate a defense and retain possession. German Air Force units also struck Allied troops concentrated at the nearby Driel railroad station to whom, for lack of any communications, no warning could be conveyed by a SIGINT detachment that had learned of the impending operation about three hours before it began.

In the end, the enemy's new main line of defense could be neither outflanked nor swiftly pierced. It took months more to reach the Rhine.

Although the main effort by the Allies remained that of breaching or circumventing the Westwall for a crossing of the lower Rhine, followed by the capture of the Ruhr's industrial complex, and then by a drive eastward across Germany's northern plains and northward to seize her ports, no such attempts could be made until Antwerp was operating as an Allied supply base. That could not begin until the port was rehabilitated and made accessible from the sea, conditions achieved during November 1944. Though Field Marshal Montgomery (as he became by promotion on 1 September 1944) believed that under his command the Allied ground forces could accomplish the early defeat of Germany by a relatively narrow invasion that carried to Berlin (and others supported that view), General Eisenhower believed that the enemy must be kept under strong pressure at many points without waiting for the mounting of such a spearhead attack as Montgomery advocated.

In October and November 1944, therefore, the U.S. Ninth Army moved its headquarters to Maastricht, Holland, and, as part of Bradley's 12th Army Group, launched attacks to push through the Westwall toward Cologne. With U.S. First Army (FUSA), it shared some the the hardest combat of World War II in reaching the Roor River valley trying to control the dams that could flood the area, and to break through to the east. Those efforts were not successful. The city of Aachen was captured. The Westwall zone was thus entered without being pierced. The battles inflicted heavy losses on both sides.

The detachment of the 3d RSM with the Ninth TAC became so alert to the sounds of radio telephones in German aircraft that they were able to recognize the noise of carrier waves when a pilot turned on his set even though he refrained from speaking. Their direction finders could pinpoint the aircraft and fighter-controllers were thus enabled to vector aircraft to vantage points for attacks. Claims to twelve victories were based on radio intelligence of this sort.

The enemy was known to have an uncommitted reserve from which a counterattack could be expected unless these divisions were used instead to stop the Allies in a resumed offensive. Preliminaries to a renewed U.S. effort to get control of the Roer dams, and thus to be able to retain bridging over the Roor once it had been crossed, began during the first week in December. U.S. First Army was about to strike again when on 16 December 1944 the enemy launched what Allied reporters called the "Battle of the Bulge."

During the pursuit, the Corps RI companies had found their arrangements for mobility put to a test that showed them to be generally effective.

They moved by echelon so that intercept coverage could be continuous even during a move, and they were able to spot some of the enemy units, the temporary locations of CPs and supply or ammunition dumps, and the state of potential opponents. To achieve good direction finding usually required stops longer than proved practicable. The arrangements for consulting maps within a truckborne hut left something to be desired.

When a gasoline shortage required interruption of the Allied pursuit, FUSA was aware that enemy opposition was not far away. Their delaying road blocks and mines, blown bridges, and other harassing actions were about to be superseded by a firmer defense. The enemy was not going to rely on the shelter of the Westwall's semifortified positions as the site of his first shift from retreat to static defense operations. He was going to oppose the Allies in all approaches to the Westwall.

By 16 September 1944 the 3251st Signal Service Company (RI) with VII Corps was able to occupy a site across the German border at Kornelimuenster, where it worked for the next month. The 3252d company with XIX Corps, which moved eight times in September, settled at the end of the month at St. Pieter and remained there until 13 October. It then moved to Heerlen, east of Maastricht, where it remained for more than two months.

Haislip's XV Corps, which had gained and held the bridgehead over the Seine at Mantes- Gassicourt through which part of FUSA crossed in pursuit, was transferred temporarily from Third to First Army. When it reverted to Third Army and moved toward the Moselle, its RI company, the 3253d, moved on 9 September to Lusigny, southeast of Troyes, and shortly afterward, in a series of shorter moves, went another 150 miles to the upper Moselle valley. On 29 September 1944, when XV Corps left Patton's Third Army for General Alexander Patch's Seventh Army, the 3253d entered the Seventh Army's SIS together with the 117th SRI Company and its Detachment "A," which later became the basis of the 3260th Signal Service Company (RI) while operating with VI Corps.

The 3254th, attached to VIII Corps, Third Army, left that command temporarily in Brittany and worked directly under Signal Security Detachment "D" (SSD "D") at Mangiennes near Verdun. Early in October VIII Corps turned its responsibility in Brittany over to others and moved to plug a gap in the Allied line in the Ardennes area. The 3254th left Verdun and found a site at Houffalize from which to serve VIII Corps under FUSA until, on 20 December, it moved with VIII Corps to Third Army control during the Ardennes campaign.

The 113th Signal Radio Intelligence Company with FUSA moved successively to Huy on the Meuse, to Jalhay, Limbourg, and Battice, Belgium, while Headquarters, FUSA set up at Spa. The 118th SRI Company with Third Army stayed near Verdun as long as the campaign toward the Saar was restrained by supply problems and by the departure of XV Corps to join Seventh Army farther south. The 117th SRI Company, already with Seventh Army, reached a site near Vesoul on 20 September and moved to the Epinal area on 2 October. In September 1944 the 137th SRI Company, which had been assigned to HQ, Ninth Army, moved to the vicinity of Verdun and operated there and at Hollenfells, Luxembourg, under direction of SSD "D" until the Ninth Army was in a position to use its capabilities. When HQ, Ninth Army, opened at Maastricht on 15 October 1944, the 137th SRI Company set up at Valkenberg, Holland.

The Ninth Army was originally scheduled to control the XIII, XVI, and XII Corps. On 25 November 1944 the 3258th, attached to XIII Corps, began its move to Kerkrade, Holland, and a week later, the 3257th took a similar route to join XVI Corps at Heerlen the III Corps, however, went to Third Army without a SIGINT company of its own. The XIX Corps then came under Ninth Army, taking the 3252d with it. XII Corps had to borrow the 3256th from XX Corps during the Ardennes cam-

paign, and only late in February 1945 got the 3259th to keep.

The 114th and 116th SRI Companies, assigned to 12th Army Group, were among the units using the Verdun area early in September. On 10 October 1944 the 116th shifted from Verdun to Bettembourg, Luxembourg, where it stayed until 20 February 1945. It did not pull back during the enemy's thrust through the Ardennes. On 8 November the 114th – after a month at Walferdange, Luxembourg – moved to Verviers, Belgium.

The 121st and 124th SRI Companies, trained for higher grade interception and analysis in the direct service of SID, ETOUSA, and SHAEF, came from England later. As we have seen above, the 121st operated at St. Quentin, France, from December to March, and the 124th at a site near Congy, France, through the winter. It was sent to Pont-a-Mousson, under HQ, 6th Army Group, on 4 March 1945 for the remainder of the war.

Pursuit to the Moselle River

The speed of the Allied pursuit to the edge of Holland was surpassed by that of the Allied drive farther south across the Meuse to the Moselle River en route to the Saar basin. The opposition there was weak. But neither Allied advance could maintain the pace as distances from the supply ports lengthened. By 4 September a condition that, at various times in World War II, would affect armies and air forces on both sides brought the advance toward the Moselle to a temporary stop. Shortage of motor fuel obliged the Supreme Command to resort to allocations. To give enough to 21 Army Group, supported by FUSA on its flank, none at all was given to Third Army (TUSA) for a few days and after that only reduced amounts which restricted TUSA's operations. The enforced pause in September allowed the enemy to bring forward important strength, so that crossing the Moselle became much more difficult than it might have been a few days earlier. The enemy even tried to launch a strong counterattack that would forestall the linking up of Seventh Army with Third Army. He was frustrated by conditions that had induced him to make successive commitments piecemeal rather than to deploy overwhelming strength. His intentions were observed in SIGINT, as well as in other sources of intelligence, enabling the Allies to take effective countermeasures.

Two major developments changed the situation. Allied strategy for the future made the campaign toward the Saar a secondary effort. The main drive was to be that bound for the Ruhr, conducted by Montgomery's 21 Army Group, to which the U.S. First Army would provide flank protection. The Ninth Army was to come in between First and Third Armies. Since supplies were still brought to both Montgomery's 21 and Bradley's 12th Army Groups from ports far to the rear, the resources for delivery were insufficient to keep all offensives going. The pause from 1 to 5 September was repeated at the Moselle bridgehead from about 9 October to 8 November, though it was more a slowdown than a complete stoppage. The enemy was subjected to limited attacks instead of being given the usual indications that an opponent had gone over to defense, such as barbed wire, mines, and entrenchments, lest he release a portion of his forces from that part of the front to strengthen another. Patton instructed his corps commanders to continue making limited attacks, to keep a good line of departure for a renewal of the offensive, and to set up outposts and mobile reserves. Artillery batteries were to be ready to strike all roads likely to be used by the enemy.

As XX Corps headed toward Metz, running out of gasoline before its first objectives at the Moselle were attained, the 3256th Signal Service Company (RI), during the night of 3/4 September 1944, picked up an order from an enemy commander to a Reconnaissance Patrol Schellwitz to keep Highway 18 under observation. Later, by DF operations, the section of the road being patrolled was ascertained to be northeast of Longuyon and north of Longwy. XX Corps sent its own armored reconnais-

sance unit there and captured several prisoners from Patrol Schellwitz.

By September 1944 the 3256th Signal Service Company (RI), working with XII Corps, was at Nancy after completing a drive across France from Orleans. There Third Army traded blows with strengthened German forces until, after hard fighting east of Nancy, it could resume its advance in November.

While XII and XX Corps had been moving from the Meuse to the Moselle, XV Corps returned to Third Army command, after a period under U.S. First Army. The French and American divisions that were to be under XV Corps control moved to the southern flank of Third Army and fought their way to the Moselle at Epinal and south of it. General Patton noted in his papers on 16 September:

> ***I sent XV Corps against Epinal yesterday. On a corpse we found an order to attack Eddy [XII Corps] in the flank today. They won't do it now...***

XV Corps crossed near Epinal and prepared to continue generally northeastward as Third Army's southern wing.

He noted in his diary on 18 September:

> ***We got a message that two columns of infantry and tanks were attacking Luneville. . . . I told XV Corps to move out on its objective.***

Luneville was on the northeastern edge of a great bend in the upper Moselle. XV Corps contributed to quelling the German counterattack that was intended to move on Nancy from Luneville as a base. Twice XV Corps had been in position to frustrate the enemy's main expectation of stopping the Third Army. But he persisted.

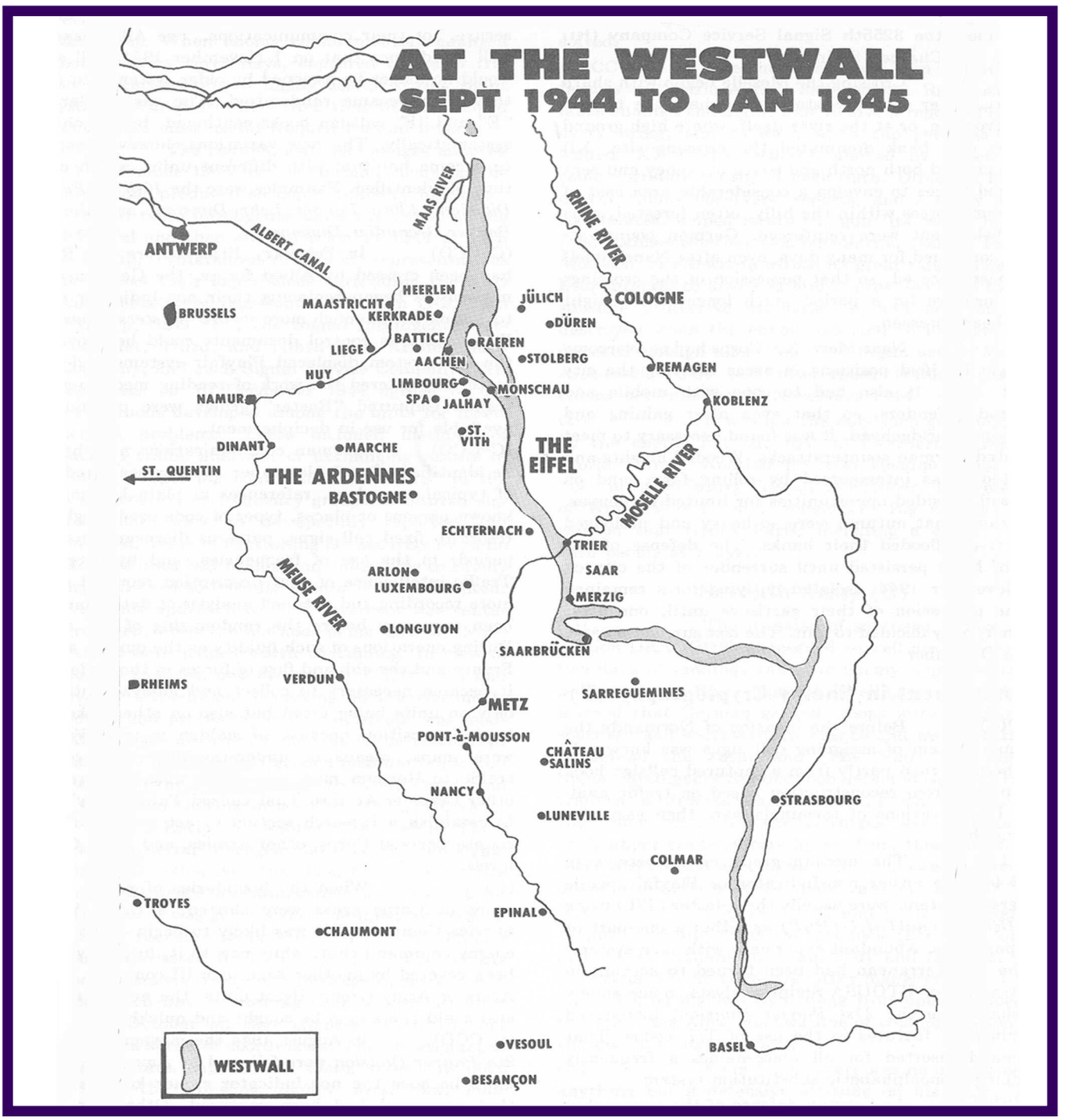
On 21 September Patton wrote:

> ***For the last three days we have had as bitter and protracted fighting as I have ever encountered. . . . The Huns are desperate and are attacking at half a dozen places....***

The enemy was trying by counterattacks to reestablish firm connection between the German First and Fifth Panzer Armies in the Nancy area. He pressed hardest at one stage against the twelve-mile front of the 35th Division in XII Corps, which on 30 September was overextended after four days of seesaw combat. Perhaps through German SIGINT, enemy artillery was led that afternoon to drop a shell just outside the command post of the 320th Infantry at Bioncourt, where the XII Corps commander, the Third Army Chief of Staff, two division commanders, and three regimental commanders had begun a conference on the situation. Should the line be shortened or should the armored reserve be used? Several men were killed or wounded by the shell, including aides who had begun serving with General Eddy during the campaign in North Africa. After doing what they could to bring relief to the wounded, the XII Corps conferees agreed to pull the 35th Division back to shorter lines.

General Patton flew up from his headquarters at Verdun to Nancy in forty-five minutes and reversed the decision; instead, he committed elements of the 6th Armored Division available to XII Corps and arranged for release of another infantry regiment from XX Corps if necessary. The attack next morning found the enemy even worse off than the Americans; the German counterattack against the 35th Division was thrown back from ground previously taken. By noon the 6th Armored Division held Chateau Salins; the 35th Division held the Foret de Gemecy. On 15 November the 3255th Signal Service Company (RI) moved into Chateau Salins.

Crossing the Moselle began with sharp battles, either on the western side where the terrain was favorable or at the river itself, where high ground on



the east bank dominated the crossing site. XII Corps crossed both north and south of Nancy and sent armored forces to envelop a considerable area east of it. Enemy forces within the hilly, often forested, area of envelopment were reinforced. German counterattacks continued for many days, even after Nancy itself had been vacated, so that possession of the crossings was insecure for a period much longer than might have been foreseen.

Near Metz, XX Corps had to overcome strongly fortified positions in areas outlying the city on all sides. It also had to cope with mobile and armored defenders, so that even after gaining and enlarging

a bridgehead, it was found necessary to meet repeated German counterattacks. Wooded heights and forested areas interspersed by rolling farm land on clay soil provided opportunities for limited maneuver. The rains that autumn were so heavy and prolonged that rivers flooded their banks. The defense of the city of Metz persisted until surrender of the city on 22 November 1944. Isolated outlying forts remained in the possession of their garrisons until, one after another, they decided to quit. The last surrender came on 13 December.

Improvement in Enemy Cryptography

Before the invasion of Normandy, the German system of assigning callsigns was known. It had been learned partly from a captured callsign book and partly from reconstruction based on traffic analysis. Identifications of terminals were then easy and dependable.

The medium-grade cryptosystems in 1943-44 were either non-Indicator or Playfair, while low-grade systems were usually three-letter (T/L) using the *HeeresSignalTafel (HST)* as either a one-part or two-part code. Abundant experience with such systems in the Mediterranean had been turned to account in the training of ETOUSA SIGINT analysts. Some enemy divisions, like the 21st Panzer Division, introduced complicating features in the use of T/L codes. That command inserted for all place-names a frequently changing monoalphabetic substitution system.

As German defense of the approaches to the Rhineland stiffened in September, the reorganization and rehabilitation of German Army units brought with it the resort to new methods of insuring security of their communications. The Allies learned well in advance that on 1 November 1944, callsigns would no longer be assigned by older systems. In fact, they then became randomized. The use of German "E" and "F" callsign books continued, but much less systematically. The new variations, however, tended to become habitual with different units, which could thus be identified. Examples were the 10th SS Panzer Division, 130th Panzer Lehr Division, and the 3d Panzer Grenadier Division.

In February 1945, before the Rhine had been crossed by Allied forces, the German communicators began replacing their non-Indicator cryptosystems with a much more secure "*Rasterschluessel*." Presumably as control documents could be provided, the new system displaced Playfair systems and thus materially altered the work of reading medium-grade traffic. Captured "Raster" grilles were occasionally available for use in decipherment.

German communications nets had to be identified after 1 November 1944 by scattered bits of typical procedure, references in plain language to known persons or places, types of code used, negligent resort to fixed callsigns, patterns discovered (over a period) in the use of frequencies, and by decrypts. Traffic intelligence of that description required much more recording and detailed analysis of data than had been necessary before the randomizing of callsigns. During operations of such fluidity as the pursuit across France and the ebb and flow of forces in the Ardennes, it became necessary to collect and analyze data not only on units being faced but also on others likely to be in opposition because of sudden moves. Wanted were maps, means of understanding references in traffic to German map grids, and data gathered by other corps or armies. That caused Third Army's SIS to establish a research section to act in liaison with counterparts at corps, other armies, and army group levels.

When the boundaries of Allied army zones or corps areas were shifted, a corps signal service company (RI) was likely to begin covering an enemy command that, while new to it, had previously been covered by another U.S. RI company. From army or army group SIGINT units, the needed collateral could thereupon be sought and quickly applied.

In August 1944 the movements of the 9th Panzer Division were followed by U.S. SIGINT units because the non-Indicator cipher keys used by that command had been captured. Other captured documents expedited the processing of intercepted traffic, especially when code names for persons, units, and even some types of war material were copied for the first time. When enemy communicators changed frequencies every three days, captured tables of frequency allocations proved highly useful to the SIGINT analysts. Captured prisoners from time to time helped to identify the most useful frequencies and links.

The communications changes adopted after 1 November 1944 by the German Army on the Western Front produced so much difficulty for U.S. tactical radio intelligence units that, first at the SHAEF level and then on 10 December 1944 at 12th Army Group, conferences of SIGINT representatives sought to pool their experiences. Attending the SSD "D" conference were representatives from G-2, 12th Army Group; SSD "D"; the Signal Intelligence Services of First, Third, and Ninth U.S. Armies; each SRI company, and each signal service company (RI). The conferees on 10 December 1944 agreed to use various methods developed among the units for meeting certain problems. These included methods of approach in traffic analysis, of exchanging results of T/A, and of reporting continuities discovered in the enemy's allocation of frequency groups. Captured signal documents were to be speedily reported and disseminated. Ways of controlling DF securely by radio – since wire lines had been found vulnerable to enemy artillery and even to friendly agents – were adopted. An acceptable approach to VHF intercept was tentatively reached, while the methods being used on three-letter codes were judged worth continuing. In view of the enemy's changes, and because SID, ETOUSA, had an advance detachment operating on the continent, the routing and processing of raw intercept was modified. Only non-Indicator traffic was to be considered medium-grade henceforth. Decoded medium-grade material would in the future be sent to First, Third, and Ninth Army SIS officers instead of G-2, ETOUSA.

Early in October 1944, while Third Army was gathering strength and awaiting the signal to resume the offensive, the 3256th Signal Service Company (RI) heard an unidentified artillery net for the first time. It was given a serial number and passed a series of "routine" reports from 15 to 23 October that were associated with that number. The reports mentioned personalities, gave mileages covered, fuel consumed each day – nothing that seemed striking. But on 24 October all that changed. First the net transmitted a series of coordinates. Then it exchanged visibility reports. About two hours later, at 0040 hours, came the following: *Ready. First shot. Time and percussion fuze. . . .* Then a long dash. About thirty seconds later the first round of a monster 280-mm shell could be heard passing overhead. It landed near the XX Corps CP in Conflans-Jarny. The mystery was solved.[2]

The huge railroad gun became as famous as "Anzio Annie" had become. Radio surveillance enabled the SIGINT unit to give a report of almost every firing and to warn when the gun was being loaded. XX Corps artillery, alerted by direct wire, could correlate its sound-flash data. Direction finding on the enemy observers' reports, and a study of the coordinates, helped locate the gun. Its target became predictable – whether Conflans-Jarny, Nancy, Pont-a-Mousson, or elsewhere within its great range. The two-hour interval to load and aim provided time to take suitable protective measures. It had not yet been destroyed when the enemy resorted to his new, randomized callsign allocations and began using "*Rasterschluessel*." The last intercepted traffic from the enemy net came on 20 November 1944.

It was not the only such gun employed by the enemy but the first in Northern Europe in World War II. Another hit near Headquarters, SSD "D," in Luxembourg City on 28 October. The veterans of World War I could remember "Big Bertha," the

weapon that struck Paris, including a church filled with people at prayer.

Seventh Army

The invasion of southern France, Operation DRAGOON, succeeded so well during the first two days of landings that the enemy appeared to be pulling back. From special intelligence, the Allies learned that German ground troops were abandoning southern and southwestern France and were returning to defend the Fatherland. The Ninth Air Force's Signal Intelligence Service soon detected so much radio traffic at airdromes near Bordeaux, Dijon, and Bourges that they concluded the Germans were evacuating their upper-grade officers by air from those places. In three days' time, successive Allied air sweeps found it possible to destroy thirty German transport aircraft.**3**

General Patch had to decide whether to push steadily after the enemy's rear units or to attempt to outflank his main body and try to cut off the retreat. If he tried the latter maneuver, he risked an attack on his own right flank from enemy forces in the Maritime Alps. His own line of communications to the beaches might thus be cut.

From SIGINT there was no indication of anything but a defensive attitude on his flank. The Seventh Army's unloading plans were modified to rush vehicles and fuel ashore in order to reinforce the pursuing "Task Force Butler" by sending the 36th Division deep in the enemy's rear.

Knowing from SIGINT that the enemy was unaware of the character of the U.S. forces there, and that he believed that only guerrilla forces were gnawing at German lines of communication, Seventh Army withheld from the war correspondents any information about "Task Force Butler" – its existence or its operation.**4**

At Montelimar Seventh Army established a strong road block across the German XIX Army's route of escape. Only by abandoning their heavy equipment could the Germans extricate personnel from the trap after a hard and costly battle.

The U.S. Seventh Army moved into the front south of Third Army, sealing off the area east of Besancon as far as the Franco-Swiss border. Under 6th Army Group (Devers), both U. S. Seventh Army and French First Army prepared to push into Alsace and southern Germany. Effective 29 September 1944, XV Corps was transferred from Third to Seventh Army, from 12th to 6th Army Group. In part, that action was based on the fact that Seventh Army was being well supplied through Marseilles instead of being short of men and ammunition like Third Army, which was supplied from Normandy. The transfer of XV Corps seemed to make a renewed offensive by Third Army less likely to succeed in seizing Sarreguemines.

Third Army Reaches the Westwall

On 2 November 1944 Third Army was authorized to resume its offensive of about sixty miles across Lorraine to the Westwall, starting a week later, at a time when the U.S. First and Ninth Armies would be attacking, too. When the ten-division attack opened on 8 November, with fire from more than 400 guns, the data gleaned by special intelligence and other sources enabled the shelling and supporting air (later in the day) to strike at all known enemy command posts. Enemy radio soon confirmed that the enemy's loss of control before the ground attack began had been drastic. The weather cleared enough in mid-morning to let the supporting planes see the targets and work ahead of the advancing ground troops. For the next few weeks it rained almost every day, and often all day and night. There were many streams between the Moselle valley and the Saar basin-the Meurthe, the Seille, the Nied, and the Saar Rivers – so that any repetition of the far-ranging armored columns of the previous August were rendered wholly impossible. The Saar River, normally about fifty feet wide, was swollen to 300. Tributaries backed up and overflowed their banks. As at Anzio a year earlier, even tracked vehicles struggled with the

mud, and heavy ones, like the tanks, were held to the roads.

XX Corps and XII Corps slugged their way nonetheless to the edge of the Westwall and by 14 December had begun to penetrate it. Discouragement then became widespread. All things considered, Third Army was probably not strong enough for the mission. Although its commander was able to drive about in Saarlautern on the 14th, that city was not behind the fortified zone but within it. A few days later, on 20 December, Third Army was being drawn away to the Ardennes sector, about 100 miles to the north.

To reinforce the Germans facing the Third and Seventh Armies, the veteran 3d Panzer Grenadier Division, in almost full strength, was shifted from the Italian front. It became for Third Army the principal source of low-grade traffic conveying tactical intelligence. Three other divisions shared that function: the 116th Panzer Division, the 2d SS Panzer Division, and the 15th Panzer Grenadier Division. The 1st Panzer Artillery Corps supplemented the intercepted material from these four divisions. When Third Army was attacking near Nancy and Metz, reconnaissance units of the 3rd Panzer Grenadier Division not only reported their observations of American movements but also gave away the identities and locations of opposing German units.

Some SIGINT indicated that in November three German divisions were pulling out of the line facing Third Army. They were the 130th Panzer Lehr, 11th Panzer, and 21st Panzer Divisions. When the Third Army turned north in December to take command of operations along the south limits of the German salient in the Ardennes, they soon picked up reports there by the 130th Panzer Lehr Division's reconnaissance units. The 116th Panzer Division, another familiar enemy unit, also turned out to be west of Bastogne. A great battle lay ahead.

Notes

1 Harry R. Turkel, Lieutenant Colonel (Res), *The Signal Intelligence Service of the Ninth Air Force in World War II*, written by the former Chief, SIS, Ninth Air Force from memory in 1951. NSA Hist. Coll.

2 SGCO-3256.0.1, 3256th SS Co (RI) Opnl and Intell Hist for Period 5 May 1944 to 31 May 1945. Box 23223, WNRC.

3 Turkel, *The Signal Intelligence Service*.

4 *Synthesis of Experiences in the Use of Ultra Intelligence by U.S. Army Field Commanders in the European Theater of Operations*. USA SSG, History Files (Book No. 53), 26.

Chapter 14

The Ardennes Offensive, 16 December 1944 – 20 January 1945

Situation at the Outset

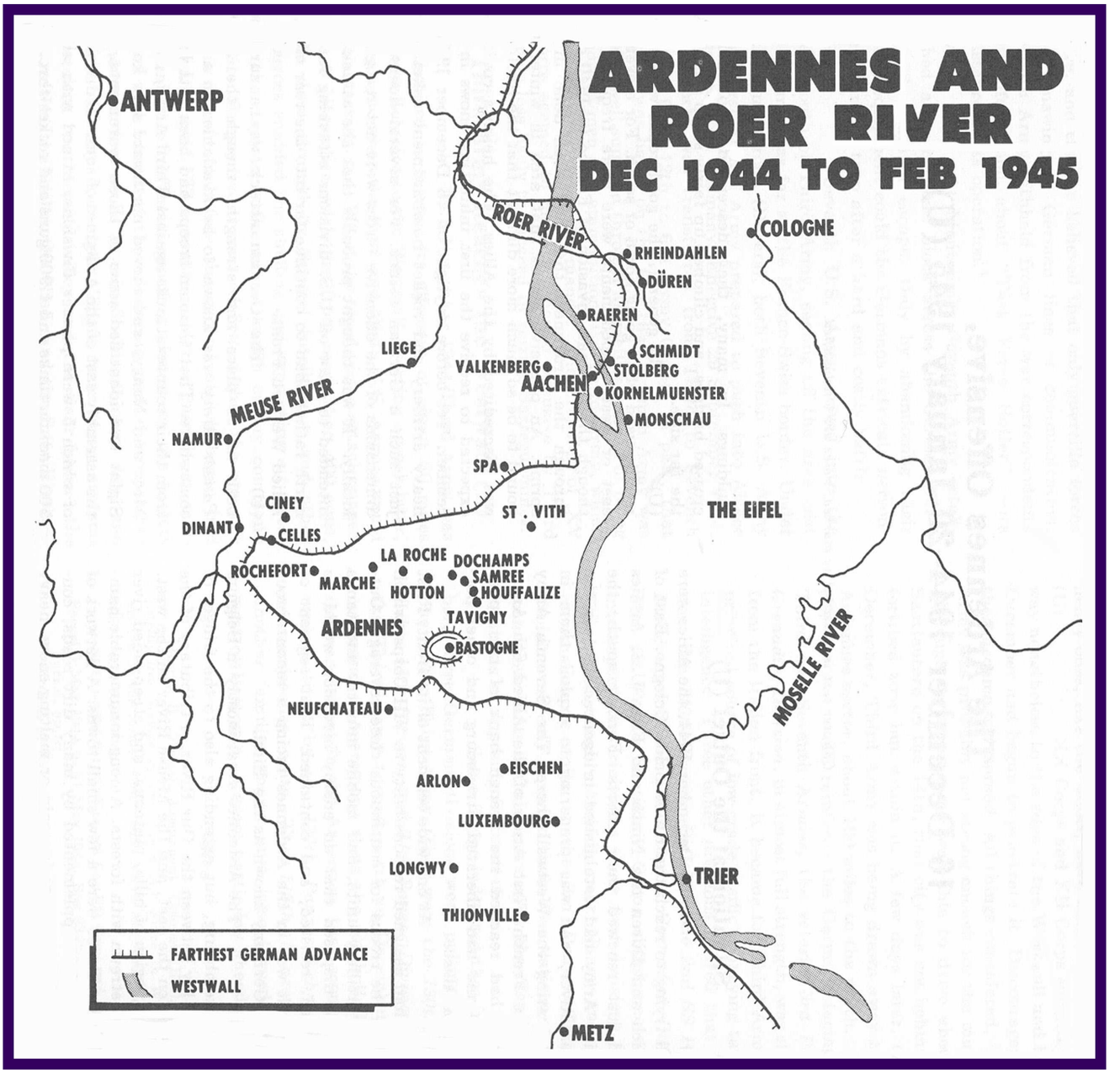
On 15 December 1944 the Allies were still trying to reach the Rhine below Cologne. East of Jilich and Duren the U.S. Ninth and First Armies had just renewed their efforts. Farther south, the Third Army had established bridgeheads across the Saar River and was preparing to exploit them in penetrating the Westwall there. The Seventh Army and the French First Army of the Allied 6th Army Group had reached the French bank of the upper Rhine, and had liberated Strasbourg and other portions of Alsace.

At one wide segment of its front, First Army had assigned responsibility to VIII Corps, which lacked the troops for continuous close coverage. Outposts, artillery units, and mobile infantry and tanks were so disposed that an enemy incursion would be observed, resisted, and contained. That segment of the front was in the Ardennes facing a mountainous area of Germany known as the Eifel.

The Ardennes area, mostly in Belgium and Luxembourg, but extending also to the fringes of France, lay between the Our River, a tributary of the Moselle on the east, and the Meuse River on the west. It was a region of hills, plateaus, and steep-sided river valleys, strewn with forests. Among innumerable hamlets and villages were a few small towns. A network of paved roads, supplemented by many dirt roads, connected the towns. During rain or melting snow, heavy vehicles – even if tracked – had to use the roads, which had to be endlessly repaired. In some villages, the roads narrowed to a single lane between rows of buildings. In many, they descended into ravines, crossed bridges, and climbed up fairly steep grades on the far side.

In general the good roads were more readily used when going north or south. For movement east or west, impediments were more frequent. Although the German invasion of France in 1940 came through the Ardennes, that had been done in the spring. An offensive across that area in winter was bound to be so much more difficult that the likelihood was discredited by the Allies. The heights could be expected to receive the first inhibiting snows in December. Yet before daylight on 16 December 1944, a heavy artillery and rocket bombardment ushered in just such a German attack. For several hours the dimensions of the offensive forces were not recognized locally.[1] It was thought probable that the attack was intended to draw off U. S. divisions attacking farther north rather than to continue far into the rear of the Allied Western Front.

The German attack was a surprise as to both place and strength, though the Sixth Panzer Army was known to be available for a blow somewhere. That German troops had been withdrawn from their counterattacks against Third Army, east of Metz and Nancy, and moved northward was known. SIGINT had identified some of those movements. But the assembly east of the Ardennes of some 20 divisions, of which 5 were panzer divisions, armed with about 500 medium tanks and 1,900 guns and rocket-throwers, was unsuspected. Drastic security measures and perhaps radio deception had brought about the surprise. It enabled the attack to begin against an unreinforced VIII Corps and part of the VI Corps, although at the cost of inadequate reconnaissance and preparation by German battalion commanders, who began with probing tactics.



The surprise was, by definition, an "intelligence failure," so that besides subjecting Allied strategy to assessment, it prompted investigation of evidence that the attack had been coming, and a review of the way that that evidence had been interpreted. The surprise in the Ardennes was believed to resemble – though on a far greater scale – the failure to foresee the German offensive that in February 1943 had carried Rommel's command through Kasserine Pass. On 13 December 1944 SHAEF had warned that unless the concentration of German Army divisions opposite U.S. First Army soon dispersed, a relieving attack should be expected. Special intelligence from the German Air Force indicated that an operation was in preparation but not where it would be delivered, and it gave no indication that German air units would be used except, in accordance with known Luftwaffe policy, to defend Germany from Allied invasion by counterattack rather than to furnish close support in a ground offensive.

In August, September, and November, the Japanese ambassador in Berlin had reported to Tokyo that Hitler intended to return to the offensive before the end of November – and SIGINT had so informed SHAEF. The Allies watched for indications that the necessary forces were being organized and made ready. Such evidence was inconclusive, in part because the use of new covernames for major German commands prevented firm interpretation. Reviews of special intelligence that were made when hindsight enabled an analyst to discard irrelevant material exonerated the interpreters while revealing certain limitations to which special intelligence itself was subject.[2]

The German offensive consisted of three armies, the Sixth Panzer Army on the north, the Fifth Panzer Army in the middle, and the Seventh Army on the south. The last was to widen the area brought under German control but not to go beyond the Meuse River. The other two armies were expected to strike out for the Meuse, which so angled northeastward across their paths as to make the distance to be covered by the Sixth Panzer Army to reach Liege considerably shorter than that to be traversed by the Fifth Panzer Army in reaching Dinant and Namur. Huy was at the boundary between the two army zones. In 1940 German screening task forces had reached the bridges at the Meuse in about twenty-four hours. In 1944 a spearhead armored force got only part way there before it ran out of fuel, then was cut off from its resupply, and had to be rescued. The whole pace of the attack fell so far behind plans that the Allies were able to quickly bring in enough reinforcements to confine the enemy within a narrowing salient that never quite got to the Meuse.

The northern part of the seventy-mile front at the start overlapped from VIII Corps' area into part of V Corps' area – both in FUSA's zone. Around Monschau and Elsenborn, in the Schnee Eifel, V Corps stalled the attack. That caused the Sixth Panzer Army, which was expected to make the main effort on the shorter axis of attack, to lose access to some needed west routes and thus to clutter the roads farther south. One characteristic of the Ardennes campaign was the monumental traffic jams. While the bad weather precluded Allied air support, the stalled columns simply lost time, but in good weather Allied air attacks cost the enemy men and vehicles as well. The offensive had been timed to start under several successive days of bad weather, but sunny skies intervened at critical stages, and Allied planes risked low ceilings on other days. The rain provided morning fogs and wet ground. Then snow covered the ground and froze briefly before thawing into seas of mire.

The stalwart protection of the northern shoulder of the salient had its counterpart at the south, where Seventh Army had only limited success. In the Fifth Panzer Army's zone, St. Vith and especially Bastogne, were important road centers. The U.S. 7th Armored Division was sent southward from Ninth Army in time to stiffen the defense around St. Vith, which parried enemy efforts for a week. Though St. Vith eventually fell to the Germans, Bastogne was reinforced by armor and the 101st Airborne Infantry Division. Although the town was gradually encircled, its screen of defenders held until a corridor was opened on 26 December 1944 to connect it with Patton's approaching Third Army on the south. The roads radiating from Bastogne could be connected by detours around the perimeter defenses, but only with severe disadvantage to the Germans. Though Fifth Panzer Army did make better progress than its northern associate, the Sixth, it could not cross the Meuse.

The Enemy Is Contained and Pushed Back

While the reinforced U.S. First Army built up a firm barrier against northward penetration and expansion of the German-held salient, the Third Army was making a spectacular ninety-degree shift of its axis of attack in Lorraine. Two corps (XII and III) left the Saar River front to others and moved north in fierce combat into the flank of the German Seventh Army and, beyond that, of the Fifth Panzer Army. As noted above, one armored column opened

a corridor into Bastogne's defensive perimeter, a corridor that was never closed thereafter in spite of assiduous and costly German attempts.

At the outset the enemy committed about 200,000 men, including paratroops dropped on 17 December, and as the attack broke through and moved westward, he used three more armored and eight more infantry divisions. The Americans facing the initial attack numbered about 83,000 and had 240 tanks, 180 tank destroyers, and 390 guns. The Allied forces used to contain the enemy and to drive him out of the salient rose, however, to 26 divisions (of which 8 were armored) and to more than 4,000 guns. Later it was calculated that 1,255,000 Allied artillery rounds had been fired in the campaign. The air support provided by Allied and German air forces was substantial. Occasionally, the Luftwaffe harrassed Bastogne and other battlefields. The Allies provided vital air transport not only to the beleaguered defenders there but also at other points, and achieved even greater success in eliminating their Luftwaffe opponents. The enemy did make an air raid on airfields in Belgium on 1 January 1945 that destroyed many Allied aircraft on the ground.

Before the German attack (Operation Jeremy), special intelligence indicated that airfields used by the Ninth TAC would be subjected to heavy attack. When other sources also provided such indications, the commanding general, Ninth TAC, maintained his purely offensive policy, protecting his units by launching Allied neutralizing attacks on enemy airfields. In this instance, the warnings from SI persuaded him to send up alert flights at dawn, and to assign combat pilots to antiaircraft units around his airfields in order to aid in enemy aircraft recognition in case the Germans attacked.

At two of the Ninth TAC airfields, early on New Year's Day when the German aircraft did come over, they found Allied planes already in the air ready to engage them while other planes took off to join the fray. American casualties there were small; German losses were sizeable.

SIGINT Coverage during the Ardennes Campaign

The SIGINT units of SIS, ETOUSA, that contributed military intelligence during the battles in the Ardennes were numerous and well placed. The 121st Signal RI Company, one of the units serving HQ, 12th Army Group, had more than twenty-five positions at St. Quentin, France, trained on links between the battle area and various points in Germany. The 113th SRI Company with First Army, the 118th with Third Army, and the Signal Service Companies with the various corps found ample traffic from which they derived extremely valuable data on order of battle and on the locations of the mobile enemy formations.

VIII Corps and First Army (at Spa) had been served by the 3254th Signal Service Company (RI) from a site near Houffalize. The static nature of the front there had allowed the enemy before his attack to rely on wire communications rather than radio, but enough radio had been heard to identify various German divisions and artillery commands in the Westwall and in rear areas east of the Eifel. On 18 December, with other means of communications unavailable, Captain Robert L. Hord, the unit's commander, went to the Corps' CP for orders and found that he had about two hours to pack up and get out. As the unit started for Neufchateau, the sound of small arms firing could be heard close behind. From Neufchateau the unit was sent farther southwest and settled at Villiers from 21 December to 7 January.

It then moved to Les Fosses, near Namur, and on 22 January began a shift eastward that brought it to Hachiville in northern Luxembourg for several weeks.

The 3251st with VII Corps had moved in a series of bounds across France and Belgium, reaching Kornelimunster, Germany, on 16 September. The site there was vulnerable to enemy air attack and artillery bombardment, which drove the unit back to Raeren, Belgium, on 17 October after losing

several vehicles, some equipment, and personal possessions. On 2 December, however, the 3251st occupied a hill at Stolberg, Germany, east of Aachen. When VII Corps prepared to counterattack from the northern side of the Ardennes salient, the 3251st moved via Havelenge, Belgium, and Villers le Bouillet, west of Liége, to Lee Avins. As VII Corps progressed, the unit moved with it and by 5 February was again at Stolberg.

Captain Lee Brownsfield's 3250th Signal Service Company (RI), with V Corps in the Monschau area, kept its twelve positions and three direction finders covering the communications of Sixth SS Panzer Army units facing V Corps but sent a detachment (one officer, six enlisted intercept operators, and one traffic analyst) to cooperate in covering the spearheads penetrating westward toward the First Army's rear area. A second special team tested the desirability of placing a VHF intercept unit where it could cover German voice traffic, but concluded that the volume would not justify that action.

When the Third Army, with its XII Corps on the east and III Corps on the west, started its dramatic northward thrust into the southern flank of the Ardennes salient to relieve the eastern elements of VIII Corps, the Third Army SIS with the 118th SRI Company and two corps SIGINT companies formed part of the forces so deployed. On 23 December 1944 Captain Walter Drozdiak's 3255th Signal Service Company (RI) moved north on a long, cold night for 140 miles from Saaralbe to Luxemborg City in support of XII Corps. There the unit found such pressure upon the signal units that its own men put in the wire connections between the operating vans and the Corps and Army G-2 Sections.

On 30-31 December 1944, the 3256th Company (Captain Robert L. Braden), normally supporting XX Corps, moved to the aid of III Corps, whose SIGINT company had not yet been sufficiently trained to be sent over from the UK. The 3256th occupied a site at Eischen, Luxembourg, and got its first satisfactory intelligence data on 5 January 1945. It identified and located various enemy divisions.

The volume of enemy radio traffic swelled rapidly during the first incursion and during the ensuing battles. German reconnaissance units reported what they were observing, naming hamlets and villages among which they were moving. Battle groups identified their positions and named adjacent units. The locations of command posts, dumps of supplies and ammunition, and even lines of attack were spelled out or were indicated by DF. During periods in which air reconnaissance was restricted by weather conditions, tactical SIGINT was often the only reliable instrument for determining what forces faced an U.S. command. Reports of their condition enabled U.S. commanders to know how those forces stood with respect to strength, mobility, and ammunition. As the westward movement slowed down and innumerable engagements occurred behind the leading divisions, and during the turmoil surrounding the slow withdrawal, the usual sources of intelligence became more plentiful: contact, prisoners, deserters, captured documents, and photographic reconnaissance. Yet SIGINT traced the retreating enemy divisions and clarified the enemy's intentions.[3]

Three detachments of the 3d Radio Squadron, Mobile (RSM), were caught up by the ebb and flow of combat in the Ardennes campaign. Detachment "B" under Major H. T. Silverstein was supplying SIGINT service to the Ninth Tactical Air Force from a site near Verviers and west of Monschau, in the direct path of the German Sixth Panzer Army. When Detachment "B" withdrew a few miles southward to Jalhay on 17 December, it entered a scene of great confusion as some troops pulled back and reinforcements came up, while German planes dropped flares and bombs. The next day it was sent to join Detachment "D" at Fouron-St. Pierre near the Belgium-Netherlands border. For a few days the two units jointly supported the IX and XIX Tactical Air Commands and U.S. Eighth Air Force. While the operational echelon of Detachment "B" stayed with Detachment "D," the rest of

Detachment "B" moved over the icy roads via Charleroi to Thuin near the Belgium-France border.

During the Ardennes attack, SIGINT provided important intelligence in both quantity and quality. Messages for thirteen enemy commands of divisional strength and armored and mobile units were read by U.S. SIGINT units. They provided G-2 with reliable information at a time when other sources of intelligence were either lacking or relatively slight.

On 16 December 1944 CIRO-PEARL messages originating at the headquarters of Wehrkreis VI, in Muenster, provided information concerning the replacements and supply services to Sixth Panzer Army. They gave the positions of the Abteilung II (MOT), Headquarters, VI A.K., one regiment and three battalions of Panzer Grenadier replacements, a field battalion, and a reconnaissance unit.

A few items may be noted here. In ISUM No. 136 for the period ending at 1800 hours, 17 December 1944, the German 116th Reconnaissance Battalion mentioned three small communities – hamlets or villages – west of Dasburg, where the 116th Panzer Division went after crossing the Our River via a usable bridge. The report indicated that the enemy would be trying to cross the high, north-south ridge that separated the Our and Clerf Rivers, slipping between two defensive positions manned by the U.S. 28th Division. By the next afternoon, as shown in ISUM No. 137, that same German reconnaissance unit was reporting on an area nearer Houffalize, at Sassel and Tavigny, rather than heading toward Bastogne.

The enemy got heavy bridging across the Our River very late on 16 December and could then send Mark V Panther tanks, stronger than the American Shermans, to reinforce the spearheads. The SIGINT pertaining to the 17th Panzer Grenadier Division and the 10th SS Panzer Division showed that both were out of the operation at first, although perhaps available for later commitment to exploit hoped-for early successes. The latter unit was held near Bonn in OKW reserve.

The 10th SS Panzer Division had eluded encirclement west of the Seine in August and was largely responsible for defeating the Allied airborne operation near Arnhem in September. Its infantry units had participated in the defense against Ninth Army's November attacks north of Aachen while the rest of the division went back to Ruurlo, Holland, for refitting. A succession of messages beginning on 13 December 1944 disclosed that part of the division would be moved by railroad from Elten to Rheindahlen, would then be reunited with the rest, and would be committed to battle farther south than Aachen. From 17 December on, the loadings and dispatches from Elten were heard, concluding with:

> ***Everything with the exception of Flak (IV/SS PZ AR 10) rear echelon has entrained. To depart during the evening:***
>
> ***SS PZ Regt 10 (Less 8 Co)***
> ***SS PZ AA 10***
> ***1 Kp/SS BZ Pi Btl 10***
> ***1,2 Batt/IV/SS PZ AR 10***
> ***13 Kp/SS PGR 21***
> ***13, 14 Kpn/SS PGR 22***
> ***III/SS PGR 22***
>
> ***Three trains have already left. The remainder loading tonight and leaving early 19 Dec.***

But lack of fuel then made impossible the employment of the 100th Panzer Division in a way that had been envisaged earlier.

At the outset of the Ardennes attack, the inexperienced U.S. 106th Division, with the 14th Cavalry Group attached, held a key section of the American front in the Schnee Eifel northeast of St. Vith. Among the small villages, enemy reconnaissance had discovered not only that the defenses were lightly manned by green troops but also

that a certain gap could be used to penetrate to a crossroads in the rear. On the morning of 16 December two regiments of the 18th Volksgrenadier Division, reinforced by a tank destroyer battalion and 40 mobile assault guns, pushed into an area held by a very much smaller force. At the village of Weckerath, fewer than two troops of the U.S. 14th Cavalry Group stood in the path. While they held their positions against attack, enemy units also bypassed them. Shortly before noon it was obvious that they must pull back or be overrun. Colonel Mark Devine, CO, 14th Cavalry Group, authorized immediate withdrawal, and they came back in various vehicles, with guns blazing, through a gauntlet of enemy riflemen on both sides of the road. Behind them violent artillery shelling suddenly dropped on Weckerath. They had moved not a minute too soon to avoid it. Records of the 106th Division and the 14th Cavalry Group for that period did not survive to explain the timing of their move.

At the southern end of the attacking front, the U.S. 28th Division was overpowered more slowly, while the 4th Infantry and 9th Armored Divisions fell back but still contained the attacking German Seventh Army.

Examples of SIGINT during the Enemy's Advance

Upon recognizing that the attack was a major offensive, the Allied Supreme Command and the U.S. First Army Command reinforced the defenders. At the northern shoulder, V Corps was able quickly to strengthen the 9th Infantry Division by elements of the 1st Infantry Division. First Army later sent the whole 1st and 2d Infantry Divisions to hold the shoulder west of the 9th Division. Ninth Army on 17 December released from its reserve the 7th Armored Division, which headed for St. Vith, and the 30th Infantry Division, which moved to an area farther west. There the latter joined the 82d Airborne and 3d Armored Divisions under Headquarters XVIII (Airborne) Corps – released from SHAEF Reserve. Major General Matthew Ridgway took command of an XVIII Corps sector on the north rim on 19 December.

From the south, the 4th Armored Division, the 6th Armored Division, and the 35th Infantry Division in Third Army's III Corps began pressing from Arlon toward Bastogne, while the XIII Corps came up via Luxemborg City between the XII Corps and the Our River. More reserves were put at Third Army's disposal. Into the Bastogne perimeter, the 101st Airborne Division moved during the night of 18 December.

While the enemy was trying to get to the Meuse by making the main effort along the northern zone of attack, his advance units were contending with road blocks, blown bridges, and traffic congestion as well as with U.S. forces that made movement costly and slow. Occasionally Allied aircraft slipped below the clouds and verified the location and nature of enemy columns on the roads or strafed and bombed in close tactical support of ground troops.

The attacking and the containing forces both operated in a large area and were subject to considerable uncertainty about their military situations. By 21 December small armored task forces from the U.S. 3d Armored Division were moving in the area along the northern bank of the Ourthe River, northwest of Houffalize. One of them was "Task Force Hogan," which on that day was cut off from the 3d Armored Division by enemy forces at Samree, Beffe, and along the roads between Dochamps and Hotton. Isolated for several days, the men disarmed their vehicles and escaped on foot during the night of 24/25 December.

Reconnaissance elements of the German 116th Panzer Division were heard reporting during 23 December 1944 as follows:

> ***1200: Apparently 20 tanks at Marcouray (P4482), possibly out of gas... Bridge at Marcourt (P4285) blown. Locality free of the enemy. The Regt is to block the road Beffe (P4385)***

Marcourt in the area of 560 (Inf Div); blocking had already been begun by 8/GR 1130/560 Inf. Diu.

1245: Strong enemy infantry attack with tanks from NY (P3990) repulsed. Enemy is attacking Melines.

1310: Enemy attack on Melines re-pulsed. Further strong enemy pressure.

1340: Relief of PGR 60 will be taken care of by I/GR (560 Inf Div). CO to report personally at PGR 60.

1400: Marcourt free of the enemy. Bridge blown at Marcourt. Ostensibly 20 to 30 enemy tanks are there. Roads have been blocked, tanks have been ordered to surrender.[4]

Among the corps SIGINT units newly arrived within effective range of interceptions from the battle area was the 3258th Signal Service Company (RI) attached to XIII Corps, Ninth Army. From a site in Holland (Kerkrade on 29 December 1944), it tied in with the Ninth Army's 137th SRI Company and with the XIX Corps' 325d Signal Service Company (RI) in covering the Ardennes area as well as that area north of Aachen within the Ninth Army's zone. The 3258th produced SIGINT from the communications of the 103d Reconnaissance Battalion of the 3d Panzer Grenadier Division, the 146th Panzer Artillery Regiment of the 116th Panzer Division, and the 130th Panzer Lehr Division.

The 103d Panzer Lehr Division, whose low and medium-grade traffic was readable, had been ordered on 22 December (ISUM No. 142) by von Manteuffel, Fifth Panzer Army commander, to hurry its advance elements on beyond Bastogne to St. Hubert. The Third Army's attack against the southern flank of the salient was beginning that day, and St. Hubert must be held. ISUM No. 144 shows that it was in German hands by 1400 hours on 23 December.

On 23 December, with General von Manteuffel himself in the van, the 130th Panzer Lehr Division moved upon Rochefort via St. Hubert, south of it. As a major road center, control of Rochefort was essential to the successful support of the forces carrying the German offensive farther west to Dinant and Namur. It had been occupied by the U. S. 84th Division about one day earlier, and the enemy's approach was expected in view of the SIGINT given below:

1308: Div Ia to CG, 130 PZ Lehr Diu:

The Oberbefehlshaber AOK 5 [CG, Fifth Panzer Army] has again ordered a quick thrust to St. Hubert (GSGS 4042/P 3161).

OFENROHR is to proceed to Gerimont (P4258).

1725: Div la to CG, 130 PZ Lehr Div:

Fourth U.S. Armored Division is advancing along line: Remagne (P3956) — St. Hubert (P3161). Schluesselblime [codename for IV/pz AR 130] to take up the line: Remagne (P3936)-Moircy (P3858)-Vesqueville (P3259)-St. Hubert (P3161), leaving protection on the flank. From there advance toward Rochefort (P2<Y76) with advance Bn.

On 23 December 1944, farther north, another generous German source of SIGINT, the 116th Panzer Division, provided its intentions and dispositions for an approach march to attack Hotton:

The Division is to launch an attack on Hotton (GSGS 4042/P3687) and will pull out during the night of 23/24 December leaving protecting forces.

As protecting forces the following will remain in the present MLR:
a Bn of PGR 156
a Bn of GR 1130 (560 Inf Div)
2 Assault Gun companies
1 Heavy Howitzer Battery with sufficient ammo all to be under command of CO Bn/PGR 156.

The following will pull out at last light:
PZ Regt 16
PGR 60
PGR 156
3/PZ PI Bn 675
I/PZ AR 146 (less Heavy How Battery)

Distribution of these units in the convoy to be:
A. Gruppe Bayer (Oberst.)
PZ Regt 16
PGR 60
PZ AR 146
3/PZ PI Bn 675
B. Gruppe Gro/lman (Maj. PGR 156)
PGR 156 (less 1/PGR 156)
III/PZ AR 146 (Less 1 Heavy How Battery)
Route of March:

Beffe (P4385)-Dochamps (P4984)-Samree (P5082)-Laroche (P4580). Further orders to be issued there.

Order of March:
Gruppe BAYER
Gruppe GROLLMAN
CO is at fwd Div CPo

On 21 December 1944, the 116th Panzer Division with infantry from the 560th Volks-grenadier Division had been unable to take Hotton against a stubborn American defense of the bridge there. The piece of SIGINT given above cannot be reconciled with other records showing what actually occurred there.

The route of march given in this intercepted order leads away from Hotton, to a river crossing at Laroche. The 116th Panzer Division was already across the Ourthe River the day indicated in the SIGINT for its movement across. The division did not turn up the southwestern bank of the Ourthe at Laroche to attack Hotton for a second time. Perhaps the discrepancy is one of dating the order; perhaps it is a case also of reversing the order of villages on the route of march.

On 24 December 1944, reconnoitering elements of the 130th Panzer Lehr Division sent in the following reports:

0925: Attack toward Rochefort (P2177) gaining slowly on the ground.

1000: Send vehicles only north of Bastogne (P5558). Roads south of Bastogne may be impassable.

1045: Bridge at Rochefort blown.

1(x)5: Main dressing station in St. Hubert at cathedral.

1110: Fighting against strong enemy resistance. Rochefort is taken; the existing bridges have been blown. Send bridging column forward.

1147: Set up advanced PW cage at Rochefort.

13(X): Our own bombing attack on Bastogne was observed today at 0930 hours.

1550: About 1530 hours our own bombing attack and low flying attack took place at Bastogne.

1635: Large formation of Air Force observed over Bastogne.

178 enemy [Allied] transport planes are dropping supplies of all kinds.

On 24 December, the 116th Panzer Division had orders to pierce the American line east of Marche, to press through that gap, to take Marche, and then to make contact with the 2d Panzer Division in the vicinity of Ciney. Ciney was near the western edge of the Allied forces containing the German salient on the north. Elements of the U.S. 2d Armored Division were drawn there on 24 December by reports that enemy tanks had been seen in the area. The 116th Panzer Division did break through the American line by stealth and threatened to cut the highway between Botton and Marche, but could not join the 2d Panzer Division in operations to extend the apex of the German salient.

Tactical SIGINT production developed with experience. During December 1944 and January 1945, DF benefited from various modifications of means and methods. A better apparatus became available. Mobile DF units could be operated in truck-borne huts. DF operations could be controlled by radio instead of wire lines subject to endless breakage or outage for other reasons. But the use of one-time pads impeded the speed needed if many DF operations were to succeed. Aside from that, which was not an insuperable difficulty, units found that their radios had to be set at a different frequency for DF links than for other communications, and that the changeover took as much as half an hour.

The lonely DF outstations were sometimes shelled or bombed and could not be secured against an enemy infiltrating patrol. Some of the main sites needed guards. One of the units welcomed the assignment of several Belgian soliders to that duty. Police guard dogs gave some DF units a greater sense of security. Keeping the DF teams supplied became a drain when vehicles were scarce.

Several SIGINT units contributed personnel to teams testing the productivity of VHF monitoring. For ground forces, the tests usually disclosed that the results were not worth the effort. For SIGINT production among air units, intercepted VHF ("voice") traffic was prevalent and useful in ETOUSA as in Italy.

Air-ground cooperation was highly valued in both First and Third Armies. The latter had been obliged at first to share its own needs with those of the forces investing Brest, but eventually it received ample attention by the Nineteenth TAC. FUSA learned to appreciate the Ninth TAC under General Quesada long before December 1944 and owed its escape from having the army's headquarters at Spa overrun, to the willingness of Ninth TAC fighter-bombers to follow an American artillery spotter plane down through the cloud ceiling where they then knocked out an armored column only two miles from Spa. Other supporting aircraft flew improvised support when the skies were closed above all airfields except those at the outer limits of fuel ranges.

In air-ground support, U.S. voice traffic enabled tankers on the ground and crews of supporting aircraft to cope jointly with enemy targets by calling on or alerting each other.

Special Intelligence

On the fifth day of the offensive, SI provided a message (from a German Air Force headquarters) reporting that the Ardennes drive would continue with the Sixth Panzer Army heading for the Meuse sector while the Fifth Panzer Army pushed on toward Marche. One element of the Sixth Panzer Army would advance northwestward via Elsenborn and another would continue its operation to capture St. Vith. The German Seventh Army, at first moving in a southwesterly direction, would continue its attack toward Arlon.**5**

By then the radio silence and the cover and deception plans by which the preparations for the

attack had been so well masked had been replaced by the standard system of unit periodic reports and daily air liaison officer reports. Since radio had replaced wire communications and since Allied intercept units were well placed for audibility, they collected large volumes of messages. Special intelligence provided much more detailed and accurate deductions about order of battle, aided by identifications from prisoners taken in combat.

Allied bombers kept striking at choke points in the road and railroad systems by which the Germans were resupplied with fuel, ammunition, and other required items. Stores, accumulated in the area from which the operation was launched, had to be drawn down because of the delays in transportation from points farther within Germany. Bomb damage to communications systems interfered with arranging detours or other adjustments after a destructive raid. Special intelligence not only helped determine the best targets but also made known the effects of Allied attacks upon the stocks held by tactical units facing battle with Allied forces.[6]

Some of the special intelligence took a long time to decrypt, especially when it was transmitted not by Enigma but by nonmorse radio teletypewriter links. The enemy had quickly recognized that his offensive had achieved surprise and that its dimensions had been successfully concealed from the Allies until they analyzed the events of the second day. The enemy had concluded correctly that, as local Allied reserves were being used up, the Allies would have to weaken their forces adjacent to the zone of attack in order to find other reserves of any strength. Some SI showed the Allies what the Germans believed to be Allied intentions as well as what the Germans themselves planned to do to oppose Allied maneuvers. Thus the 12th Army Group was not surprised by the German Air Force attempts on 17/18 December to strike columns of Allied reinforcements moving from the Aachen and Maastricht areas toward the northern flank of the German Sixth Panzer Army. Similarly, the Allies early became aware that the Germans knew that a U.S. force (the U.S. Third Army) was concentrating with a view towards approaching Bastogne from the south, and that the German Fifth Panzer or Seventh Army intended to get there first. Also in January after the German advance had stalled, the Allied command learned from SI that the Germans interpreted Allied measures as showing no intention of creating another Falaise, or Mons Pocket, in which the bulk of the German forces might be caught. When the offensive was abandoned, the panzer divisions were indeed pulled out successfully with only some rear-guard fighting; they were being preserved for subsequent availability elsewhere.

The Allied commanders knew in advance, through SI that on 22 January 1945 the Sixth Panzer Army would be withdrawn and that the Fifth Panzer Army would remain in command of the whole sector. Sixth Panzer Army took under command certain additional armored corps and divisions.[7]

The Allied command was naturally interested in knowing as soon as possible where the withdrawn troops were again to be committed. Would they join the counteroffensive then being attempted in the Saar area; would they reinforce the Aachen sector; or would they perhaps be transferred to the Eastern Front? The latter proved to be the case.

Examples of "Y" SIGINT as the Attackers Withdrew

As the attack from the south by Third Army advanced toward the southern perimeter around Bastogne, despite fierce resistance from 23 to 26 December 1944, SIGINT noted the collapse of elements of the 5 Parachute Division which were in its path. That force reported on 25 December that lacking reserves, bazooka and antitank ammunition, and contact with neighboring German units on the left, it was going to withdraw. It requested support from German artillery and from a bicycle platoon. (ISUM No. 144)

After the relief of Bastogne on 26 December 1944, the 1st SS Panzer Division attempted to close the corridor into the perimeter by attacking westward. On 6 January 1945 its intelligence officer submitted a situation report as the day began:

> ***Enemy picture in front of our sector: Last night there was no prevailing security. Firm enemy strongpoints established as far as 500 meters south of church at Lutrebois (GSGS 4042/ P564529) and from sector near Latannerie Mill (P572508) around Villers La Bonne Eau (P574503).***
>
> ***Presumably enemy has no intentions of attacking for the present in front of our sector. Our reconnaissance unit was able to advance through a break in the line west of PT 475 (unl) to the south on road "T" at PT 406 (unl) and from there to the west via Schloss Losange (P556526) without making direct contact with the enemy. To the east and west of the road there were several unguarded vehicles with heavy machine guns and large calibre machine guns.***
>
> ***At the present there is enemy rifle and arty fire as heretofore. The western edge of Villers La Bonne Eau was found to be mined. Query: How is situation at Ischpelt (P65)-Donkholz (P6453)?***

During the first week of January, radio intelligence on enemy reconnaissance near Flamierge and Flamizoulle alerted the defenders of Bastogne to the German intention to attack the city soon from the west. One enemy attack there was struck on the flank at the very outset by an armored force from Third Army – more by luck than intention according to General Patton – so that it failed.

By 7 January 1945 indications, even though slight, that the enemy was about to retreat were recognized (ISUM No. 157). Soon more evidence appeared, though all German divisions were ordered to maintain radio silence beginning 8 January (ISUM No. 160). On 19 January Panzer Lehr Division was heard ordering all its mobile supply columns to return to Germany, and on 20 January it became evident that the division would try to establish itself along the skyline ridge west of the Our River that it had crossed in the first stage of the attack (ISUMs No. 170-174).

These selections from CIRO-PEARL SIGINT produced at Army and more particularly at 12th Army Group (by SSD "D") were greatly outnumbered by the voluminous PEARL and THUMB messages read at the lower echelons.[8]

One of the tank regiments of the 1st SS Panzer Division filed a typical report on fuel and ammunition on 12 January 1945, as the Ardennes offensive was slowly going into reverse. It included the following:

Otto fuel allocation:

Received from Army	10 cubic meters
Consumption	10 cbm.
Supply on hand	1 cbm.
Supply of diesel fuel	0.5 cbm.
Motor oil	3.8 cbm.
Utility oil	0.4 cbm.
Grease	400 kgms.

Ammo expenditure, 8-12 January:

Pistol cartridges (SMK)	4,500 rounds
Pistol cartridges (7.65 rom)	200 rds.
Flare cartridges (type 41)	20 rds.
Signal cartridges (red)	10 rds.
Signal cartridges (green)	10 rds.
Smoke cartridges (orange)	

Urgent need for repaired tank and for salvage missions:

Otto (required):

1 Abt	cbm.
501 (Heavy Tiger) bn	8 cbm.

Diesel (required):

1 SS PGR	3 cbm.
Per order: GRUHLE (Hstuf)	

As the enemy began to withdraw farther east, the 3255th Signal Service Company (RI) adopted a practice that it maintained almost to the end of the war, that of installing a forward intercept team at a site where it could be protected by a division CP, and might use a divisional communications line for wire traffic. Lieutenant Blaine Heinzelman, the unit's intercept officer, with twelve intercept operators and one teletype operator, on 13 January 1945 moved to the vicinity of Merzig near the CP of the 80th Infantry Division; there he found audibility much improved. A direct teletype link connected the forward van with the T/A Section. Two daily courier runs made it possible for the intercept material to appear in the Daily Activity Report. On 25 January 1945 the forward unit shifted from Merzig to Wiltz.

The "Battle of the Bulge" was over.

Notes

1. That situation in the Ardennes was in some respects to be paralleled in North Korea as described by S.L.A. Marshall, *The River and the Gauntlet* (New York: William Morrow, 1953), 385.

2. That seems to be the import of an unofficial appreciation prepared by GCCS and called "Indications of German Offensive," 13 Jan 1945, which was sent to G-2, and A-2, War Department. Copy in NSA Hist. Coll.

3. Two series of SIGINT reports produced by SSD "D" illustrate the form of SIGINT items originating during the Ardennes campaign. Some overlapping appears, as one shows what items HQ, 12th AG used in its Intelligence Summaries after receipt from SSD "D," and the other indicates what SSD "D" sent as SIGINT technical data to the SRI Companies with the First, Third, and Ninth U.S. Armies. (The record copy is an archive of the USASA, seen by the author at Arlington Hall Station in 1974.)

4. That message was believed to report the tactical envelopment of "Task Force Hogan," part of the 33d Armored Regiment, U.S. 3d Armored Division. The tanks had to be wrecked and abandoned, but the personnel got back to American lines.

5. CX/MSS (Series 2) 405/T86.

6. CX/MSS (Series 2) 416/T58 and T34; CX/MSS (Series 2) 419/T89 and 420/T16; CX/MSS (Series 2) 429/T100 and T113.

7. CX/MSS (Series 2) 436/T60; 437/T100.

8. SSD "D" described radio intelligence operations during the Ardennes campaign as reaching an all-time high volume of intercept and fruitful output.

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Chapter 15

Winter and Spring Battles, 1944-1945

Through the Westwall to the Rhine

The U.S. Ninth Army remained under control of 21 Army Group from the end of the operations in the Ardennes until the encirclement of the Ruhr the following April. Until the main Allied crossing of the Rhine in March 1945, the Ninth Army's 137th SRI Company stayed at Valkenberg, Holland. The XII Corps moved to the Ninth Army zone and was joined by the 3258th Signal Service Company (RI) which came from Forges les Eaux near Rouen. It was stationed at Kerkrade on 29 December 1944. On 24 December the XVI Corps' 3257th Signal Service Company put its main station where the 3252d had been at Heerlen, northwest of Aachen. The 137th SRI Company with Headquarters, Ninth Army, and the experienced 3252d Signal Service Company (RI) at Muensterbusch serving the XIX Corps (now commanded by Major General R. S. McLain) were able to help the newly arrived 3258th and 3257th get into production quickly despite the enemy's new cryptic callsign system and the previously unfamiliar enemy units facing the Ninth Army. On 27 January 1945, the 3257th sent a VHF detachment to work with British SIGINT personnel (104 WI Section) at Beek, closer to the front.

In Third Army, the 3256th Signal Service Company (RI) had served temporarily with Millikin's III Corps during the Ardennes battles. When III Corps was transferred to First U.S. Army, the 3259th Signal Service Company (RI) came to III Corps, and took up work at Muhlartshuette; the 3256th went back to Major General Walton Walker's XX Corps in Third Army, in accordance with preinvasion plans.

First Army's 113th SRI Company had been in Limbourg when the Ardennes attack began, and on 18 December 1944 had moved westward ahead of the German offensive. By 18 January 1945 it was back at the old stand in Limbourg. The 3262d Signal Service Company (RI), destined for support of the XIII Corps in U.S. Fifteenth Army, went to the 113th SRI Company for field training in the area west of the Rhine where Fifteenth Army would eventually take over from First Army. The 3262d therefore was available when FUSA crossed the Rhine and built its bridgehead to keep the bridgehead's northern flank under radio surveillance.

Even before the enemy had been forced to abandon his offensive in the Ardennes, he commenced on 1 January 1945 a smaller drive in northern Alsace. When that thrust between the U.S Seventh Army and French First Army had been contained, the Allied Supreme Command insisted that the enemy's large new bridgehead on the western bank of the Rhine – the so-called "Colmar pocket" – had to be eliminated. To accomplish that, General Eisenhower was prepared to strengthen the 6th Army Group by various divisions from a new SHAEF Reserve, and to have both the U.S. Seventh Army and the French First Army committed to the operation.

Persistent reports by agents persuaded 6th Army Group that the enemy kept large German forces either there or across the Rhine available for reinforcement. SHAEF, on the other hand, received contradictory reports from SI. In the end, that SIGINT induced 6th Army Group to commit only one Corps, the XXI (Milburn), from U.S. Seventh Army along with the French. The salient was eliminated expeditiously. The Seventh Army was thus free in January to make better preparations for and to expedite its next operation in the Saar area. That offensive went well.

Initially overcautious, 6th Army Group then became overconfident. Justifiably exulting over its victories in March, it concluded that the German First and Seventh Armies had been decimated and practically eliminated from the war. SI offset the intelligence sources on which such overoptimism was founded. SIGINT indicated that the two German armies would live to fight again. In fact, new German lines of resistance were organized rather quickly in the path of 6th Army Group's advance, which was deterred but not stopped.

After the enemy had been checked and pushed back in the Ardennes and after the smaller attempt in Alsace had also failed, the Allies faced the rigors of a winter more severe than most. The Seventh Army, as the northern command under 6th Army Group, had taken over part of the front previously held by Third Army when that command switched to the Ardennes. In February Third Army did not return to its former zone but remained east of Luxembourg. While it cleared a triangle between the Saar River and the Moselle, captured Trier, and drove the enemy from the Prum River valley and Bitburg, it found the going hard and slow until March.

The German units that faced U.S. Third Army in the Moselle-Saar triangle in March 1945 seemed to be deficient in secure radio communications, for lack of either radio equipment or trained communicators. Frequent intercepts consisted of reports in plain language by units that felt obliged to retreat in order to escape encirclement. The reports often specified the route to be taken in withdrawal. The tactical situation became fluid enough for radio intelligence companies with one of the American armies to collect traffic from German units opposing one of the other U.S. armies along the west bank of the Rhine.

Farther north, the U.S. First Army resumed its advance toward the Cologne plain, while 21 Army Group, with U.S. Ninth Army protecting its right flank, prepared an elaborate operation to cross the Rhine, as the main Allied offensive effort. There the Allies planned to acquire a bridgehead large enough to become the base for a subsequent drive across Germany.

Rather suddenly, the Allied operation farther south gained complete control over the Rhineland and the Palatinate and reached the western bank of the Rhine River. The First Army near Bonn, the Third Army near Coblenz, and the Seventh Army near Worms pierced German defenses and enveloped great numbers of the enemy before they could retire across Rhine bridges that were being preserved for such use. Once the Westwall had been penetrated, the enemy might have withdrawn to the far bank of the Rhine and there deployed for a stalwart defense behind that helpful barrier. Instead, large numbers were caught before they could cross, thus making the defense of the Ruhr and the main areas of Germany that much weaker.

The Bridge at Remagen

SIGINT kept FUSA aware that the enemy expected to use some bridges for withdrawal and then to demolish them. On the morning of 7 March 1945, elements of Millikin's III Corps were able to cross a tributary of the Rhine, the Ahr River, and to move down its valley to the great, historic stream. Early in the afternoon they found that the Remagen railroad bridge, which had been boarded over for motor vehicles and marching troops, was intact. American troops seized the bridge in a sharp skirmish before it could be blown. By nightfall American tanks and armored infantry had rushed across. During the night, tank destroyers, more infantry, artillery, and antiaircraft units hurried over to take positions in the bridgehead. Thereafter, despite successive counterattacks, observed artillery fire, and repeated air attacks, they held the whole bridgehead, and the bridge itself survived for a week. Supplementary ferries and pontoon bridges were available when the railroad bridge collapsed, and the enemy was eventually pushed back until out of artillery range.

Before the main Allied crossing by 21 Army Group had begun, the First Army's Remagen bridgehead had been extended along the Rhine about forty miles opposite an area also controlled by FUSA. The bridgehead enclosed a section of the autobahn between Frankfurt and Cologne and provided an ample base area for a major attack against the Ruhr.

During the defense and expansion of the Remagen bridgehead, SIGINT identified approaching German units and alerted the Americans to their impending counterattacks. At one point, on 12 March, SIGINT intercepted a communication to the U.S. commander from the German commander near Honnef, where U.S. artillery fire was falling on a monastery. The Germans obtained a suspension of two hours in order to evacuate some 300 children who had been sheltered there.[1]

Samples of Special Intelligence in March 1945

As Allied columns pressed northward along the Lohn River toward Marburg, retreating enemy forces gathered to form centers of opposition farther north.

It was still dark one night when word came to one of the forward airfields from Headquarters, Ninth TAC, to send an observer at daylight to check the area near Marburg. The pilot returned from that flight with a report that in the woods there was a huge concentration of German motor vehicles. A squadron of Allied fighter-bombers in the vicinity was redirected to the target; before darkness returned, perhaps as many as 400 tanks, armored cars, and trucks had been demolished.

What had triggered the action? SIGINT! A German message reported the fact that the vehicles were there awaiting fuel for their next move. Decrypted quickly, the word was passed to the chief of staff and A-2, Ninth TAC. An air reconnaissance flight had, as usual, masked the actual source of the intelligence.[2]

Special intelligence disclosed that the German OB West one day in March 1945 had refused a request from Army Group H to allocate to him all the ammunition being produced by two specified factories in the northern sector of the German defensive front. In declining, he explained that all the medium caliber field howitzer ammunition for the Western Front came from those two producers. Although their existence had been known to Allied intelligence, their importance had gone unrecognized. They had never been struck.

When the SSO, Headquarters, Ninth Air Force called the message to the attention of the director of operations, he decided at once that the factories should be bombed without delay. Within a few hours, they had been destroyed in a bombing attack that also hit two or more similar targets near them.[3]

German Collapse

The Third and Seventh Armies crossed the Rhine much farther south than the First Army. By 24 March 1945, with the river behind them, Allied forces broke through all defenders and encircled the Ruhr. The Allied high command adjusted to the circumstances by switching the main effort from 21 Army Group to 12th Army Group. The Ninth Army on the north and First Army on the south pressed enemy forces back into the Ruhr and extended their efforts to the east until, at Lippstadt, they were in contact. At that stage, Ninth Army reverted from 21 Army Group's to 12th Army Group's control and completed the reduction of the Ruhr's defenses until a dispirited German force, estimated at about 300,000 – unable either to break out or to be relieved from outside – surrendered.

Meanwhile the several corps of First Army and Third Army under General Bradley's command and of U.S. Seventh and French First Army under General Devers' 6th Army Group command, suppressed uncoordinated German resistance as they overran much of Germany.

Once they had crossed the Rhine, U.S SIGINT companies began hearing transmissions from German units that were facing the Russians on the Eastern Front. Since such mobile units might shift to face the Allies – in the end some of them did so shift – it seemed important to keep tabs on their whereabouts.

In southern Germany a "Bavarian Freedom Movement" arose as an organized resistance to the Nazi structure which had dominated that region. They got control of a radio broadcasting transmitter by which they could inform the U.S. Third Army, as it approached, of both political and military conditions. They seized control of some towns, which they reported were ready for Allied occupation, and they informed listeners that the citizens and some of the armed forces at Linz were ready to surrender. They alerted the invaders to the fact that military control of the area had been assumed by the German Air Force. They described the removal of roadblocks on Bavarian highways. They even broadcast instructions to the distant German garrisons that had been holding French Atlantic coastal ports to surrender them to the Allies.

To some SIGINT units, conditions in Germany seemed to resemble those encountered in France during the previous summer, except that there were no cheering civilian throngs. Moreover, there were many sharp contrasts between wrecked German towns or disheartening prison camps, on the one hand, and other seemingly untouched areas of Germany that reflected the promise of spring in radiant April weather.

Some U.S. SIGINT units with the armies and corps moved across Germany to Austria or Czechoslovakia. In southwestern Germany, north of Switzerland, the French began to express their nationalism in relations with the Anglo-American Allies. From Italy, radio traffic brought word of the earlier surrenders there and of contacts between Fifth Army and Third Army patrols in Alpine passes.

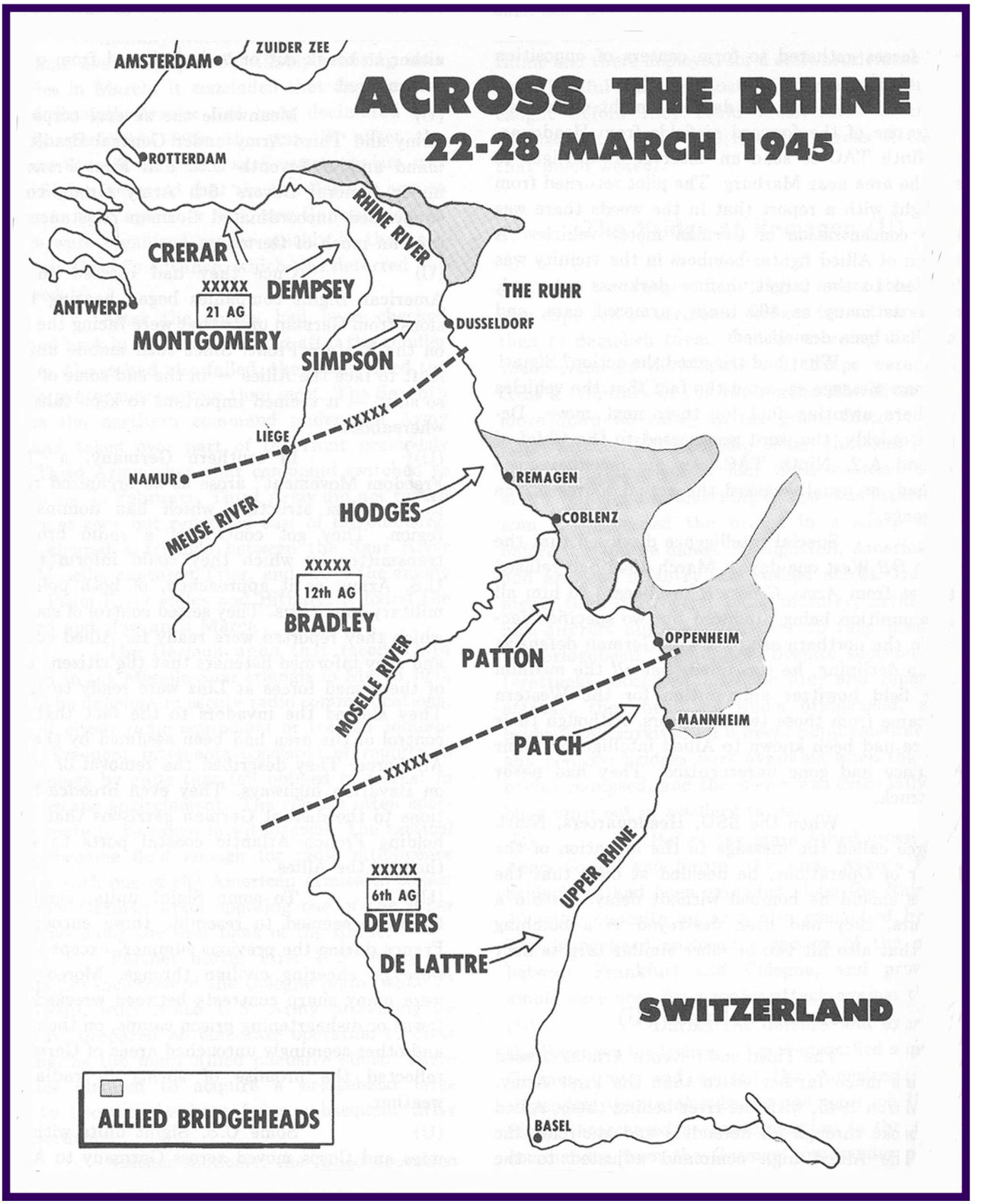
After the German surrender, SIGINT units were used to monitor communications for evidence of resistance to Allied occupation. Such evidence was lacking. Other army SIGINT units started preparing to participate in the campaigns to effect surrender by Japan. Before that could occur, the Japanese joined the Germans in accepting defeat.

Notes

1. HQ, FUSA, Sitreps No. 550 (071200A to (072400A March 1945) to No. 560; G-2 Jnl and File, SENECA DAR's; III Corps G-2 Periodic Reports, especially Annex 1 to No. 92, 12 March 1945.

2. *Synthesis of Experiences in the Use of Ultra Intelligence by U.S. Army Field Commanders in the European Theater of Operations*. USA SSG, History Files (Book No. 53), 25

3. Ibid., 27.


ACROSS THE RHINE
22-28 MARCH 1945
AMSTERDAM
ZUIDER ZEE
ROTTERDAM
RHINE RIVER
CRERAR
DEMPSEY
XXXXX
21 AG
MONTGOMERY
ANTWERP
THE RUHR
DUSSELDORF
SIMPSON
XXXXX
LIEGE
NAMUR
REMAGEN
COBLENZ
HODGES
MEUSE RIVER
XXXXX
12th AG
BRADLEY
OPPENHEIM
PATTON
MOSELLE RIVER
MANNHEIM
PATCH
XXXXX
XXXXX
6th AG
DEVERS
UPPER RHINE
DE LATTRE
SWITZERLAND
ALLIED BRIDGEHEADS
BASEL

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Chapter 16

Some General Considerations

The end of hostilities in Europe and the Far East brought on a period of speedy demobilization. Overseas theaters of operations engaged in the transitional activities of shrinkage in numbers and planning for a future dominated by considerations of relief and rehabilitation, on the one hand, and political reorganization, on the other. The Signal Intelligence Service, ETOUSA, ceased to exist. On 15 September 1945, the Signal Security Agency passed administratively from the Signal Corps to become part of the Military Intelligence Service, War Department. It became the Army Security Agency. The resources for producing radio intelligence for the army in Europe were soon placed under command of a regional authority, Army Security Agency, Europe (ASAE).

Colonel George Bicher returned to the United States and Colonel Earl F. Cooke became the first chief, ASAE. His headquarters were not in London or Paris, but in the American Zone of occupied Germany, at Frankfurt. The numerous SIGINT units that had served in the Army in the North African, Mediterranean, or European Theaters of Operations, U.S. Army, were either disbanded or reduced as part of the general demobilization. Personnel that had started from Europe through the United States en route to service against Japan were soon out of uniform.

Through all the months before some degree of stability could prevail, one of the principal efforts was to ascertain from the experience in the West whatever lessons it provided for the future.

After hostilities in Europe had ceased, and while the lessons learned were under study, G-2, 12th Army Group, tried by questionnaire to discover the relative value to commanders of different kinds of intelligence. Divisions and corps staffs were not asked about signal intelligence as such, though if they had been asked they might well have answered as they did. Their most fruitful source, they all agreed, was interrogation of prisoners of war. Corps officers gave the "Phantom" (or SIAM) teams high credit for swift transmission of important, current information which could be used in preparing G-2 operational reports. At the army level, the most constant, profitable sources of information about the enemy were declared to be prisoners, tactical reconnaissance, and photographic reconnaissance. Next in value came SIGINT, supplemented by agents' reports and captured enemy documents.

This judgment corresponded with that of British forces in the Mediterranean, where field commanders had remained for a long time skeptical of SIGINT's validity, let alone its relative value. Disdain for special intelligence may have been great among other commanders; for example, Admiral Kelly Turner, testifying in the postwar investigation of the Pearl Harbor attack, referred to "droppings from these despatches" marked Magic or Ultra.[1] In part the failure of SIGINT to attain prestige arose from the masking (for security reasons) of its actual yield, i.e., the requirement that some other explanation be available to the enemy for any action taken by an Allied commander. That policy insured another explanation also for all Allied commanders who were not sufficiently "in the know."

But until ground operations at night became preponderant, air reconnaissance and photographic interpretation (assuming adequate air strength) were bound to be the preferred sources of intelligence for activities behind the enemy lines. Tactical reconnaissance and prisoners taken by patrols (if sufficient in numbers and sufficiently

dispersed) could well exceed the information about the enemy's front that emerged from radio interception in advance combat areas.

None of the published judgments applied to strategic SIGINT – to SI – whose dissemination was so carefully restricted and whose existence was so well concealed that any questionnaire was not practicable.

Commanders in the field (as we have seen in chapter 12) received special intelligence through the Special Security Representative (or Officer) system. The Special Liaison Units (SLU) consisted of intelligence officers and enlisted communicators who followed strict security rules in using a special SIGINT communications cryptosystem that connected them with London. To quote from a study[2] prepared after the war concerning security measures:

> ***Most of the representatives found that substantial security was rather easily attained and that perfect security was an impossibility. The representative's most difficult job was to make certain that recipients did not make direct operational use of Ultra without appropriate cover. Charged with responsibility for success or failure in battle, any commander would find the temptation to employ Ultra improperly was wellnigh irresistable [sic] at times. Even daily security reminders by the representative and periodic directives from higher authority were tried and found somewhat inadequate...***
>
> ***There was no method by which the representative could censor all tactical orders and discussions, but, by monitoring summaries, appreciations, and publications based on other intelligence sources, he could largely safeguard against a written break of Ultra security. Pbysical security and the protection of Ultra signals presented no serious problems***
>
> ***The reliable guiding influence of Ultra in working with other intelligence outweighed its value as a separate and distinct source of operational information. Its normal function was to enable the representative and his recipients to select the correct information from the huge mass of P/W, agent, [ground] reconnaissance, "Y," and photographic [reconnaissance] reports. Ultra was the guide and censor to conclusions arrived at by other intelligence; at the same time the latter was a secure vehicle by wbich Ultra could be disseminated under cover.***
>
> ***The representatives, who worked and lived with Ultra in the field, were aware tbat it often had a direct operational value; one stated: 'It was important to protect Source, but it was also important to get the last bit of exploitation, the ultimate, from Ultra consistent with security.'***[3]

The 12th Army Group's official, final, after-action report (Vol. III, 119, 157) said of signal intelligence that it had been

> ***. . . of material value to the Armies and at times has provided them with very vital information. The existing arrangements for providing signal intelligence have been adequate and satisfactory.... While not directly a part of the G-2 Section, the signal intelligence service largely functioned as such. This agency was of invaluable service in not only producing a steady flow of combat intelligence***

but also in its effective dissemination of such information. Through its radio intelligence activities the unit repeatedly produced enemy information at critical periods that was not obtainable from other sources, and often of decisive moment tactically.

In Italy captured German intelligence officers responded to interrogations with an approximation of the relative value to them of different sources of intelligence. They distinguished between two periods – first, the more or less static situations in the North Apennines before the final Allied spring offensive in 1945, and, second, the maneuvering after that attack began. During the first situation, they attributed their indebtedness to Allied prisoners of war at fifty to sixty percent, to radio intelligence at twenty-five to thirty percent, to air reconnaissance, ten percent, and to agents at five to ten percent. Once the attack began, the reliance on SIGINT rose to a level between sixty-five and ninety percent, on prisoners to twenty percent or less, and on air reconnaissance, much less. Information from agents dried up as defeat impended.

In Western Europe, where Allied command of the air persisted, the enemy fell back into the Fatherland. While he was being driven from occupied countries, the Allies could gain important tactical information from friendly civilians either directly or through their assistance to Allied agents and escapees. The enemy, on the contrary, had to depend as he did in Italy on his signal intelligence operations to a greater and greater degree. Once he was in Germany, the relations with the populace were reversed, but the enemy's failure to reestablish a line of defense and stabilize operations there deprived him of much benefit. He remained in great need of SIGINT, as did the Allied forces.

The SIGINT that came to the Pentagon from GCCS or SID, ETOUSA, was valued according to its relevance to matters of Allied strategy. The Magic European Summary seems not to have been analyzed for its bearing on impending problems of manpower and supply. Shortages of artillery ammunition of certain types occurred. Preparations for the winter campaigning in 1944-1945 were not begun until too late to escape serious consequences. The Army reserves available to SHAEF during that winter were barely adequate for the wide front strategy. To reinforce some understrength units both Americans and British "cannibalized" other units.

The British forces in Western Europe and the Mediterranean area were more closely supervised from London by the British War Cabinet and ministries than were U.S. forces from Washington. There the prevailing doctrine was the primary discretionary authority and responsibility of General Eisenhower and his main American subordinates. That policy was reflected in the use made of SIGINT. Advisory information from Washington was relevant to strategic rather than tactical matters. Setbacks brought about reviews of events and searches for explanations, but in general, operations were designed by those responsible for execution.

The German attack beginning 16 December 1944 in the Ardennes caught the Allies by surprise. As soon as the size of the operation was understood and the material intercepted in recent weeks was reexamined, many indications in SIGINT could be recognized. But they were not conclusive. With them was related material that could be construed, like SIGINT prefiguring the threat that was indeed executed, as a threat to attack elsewhere. The evidence as to time was more compelling than that concerning place. One conclusion to be drawn from the situation was the inadvisability of deducing anything from the mere absence of SIGINT, for the enemy's elaborate methods of cloaking his concentration of forces as an extensive rest and refitting operation, and his imposition of radio silence, had deprived the Allies of a basis for accurate appraisal.

The preparations observed during the previous three months suggested that the enemy could

counterattack, but the recent depletion of both FUSA and TUSA made an enemy operation of that sort obviously unnecessary to stop either of them. The logic of the situation had seemed to favor the erroneous conclusion that the Germans were getting ready to apply maximum power against a renewed Allied drive toward the Rhine.

Allied air reconnaissance over the area in which the Germans concentrated forces and supplies preparatory to the attack yielded numerous indicators of a prospective attack. It is possible that the reports were retained by air intelligence, and not included in what 12th Army Group or First Army intelligence was digesting, but at SHAEF their purport was not unavailable, nor was it ignored. The interpretation of such material by G-2, First Army, was clear the enemy had the ability to counterattack but need not be expected to hit the weakly held line in the Ardennes in December because that would be so illogical.

The enemy's SIGINT gave him – in view of the insecurity of U.S. communications – a far better appreciation of the status of Allied forces and plans than the Allies had obtained about the Germans. But once the offensive toward the Meuse had begun, special intelligence kept the Allied command informed of what the Germans knew about Allied deployment, movements, and intentions, and of what the Germans were planning to do.

On 29 December 1944 special intelligence from an estimate by German Military Intelligence, Foreign Armies West, of 21 December went to top Allied commanders. It stated that

> ***There is no discernible systematic formation of major groups of Allied offensive forces against the flank of the German salient. On the contrary the Allies are endeavoring along the whole front to contain the German attacks and halt them east of the Meuse.***

By 12 January 1945 the Allies learned through SI that the same German intelligence organization had by 6 January concluded that in the Ardennes

> ***Eisenhower now considers the destruction of Army Group B to be his sole task. To this end he is bringing up every formation that can possibly be spared, while shelving completely all other plans.***

The enemy noted, as SI reported, that the Allies did not feel strong enough to try to cut across the base of the Ardennes salient to trap the Germans to the west of it, but instead attacked from the flanks much farther east, toward Houffalize. The Germans had evidently expected that effort to occur earlier than it did.

Special intelligence showed that German Air Force units were moving to airfields from which to oppose the main Allied Rhine crossing, north of the Ruhr, and to curtail Allied air operations farther east. SI revealed to the Allies the German efforts to retaliate against American capture of the Remagen bridge and the adjacent bridgehead that developed immediately after the seizure on 7 March. Each step by the German Air Force to bomb the bridge, the bridgehead, or the pontoon bridges in the area, was known in advance through special intelligence.

As these illustrations show, SI often had immediate value for tactical air operations, but it remained primarily significant for its bearing on strategy.

The number of Americans involved in producing and disseminating SIGINT in the West eventually could be counted in thousands. At the centers in the Washington area, in England, and on the European continent as well as in the mobile SIGINT companies and detachments in the field with combat commands, the total grew with each year of the war. It took considerable time for them to attain a satisfactory level of performance, a fact that exerted no little influence on officials

responsible for preparedness in the postwar years. It had been about two years after the Japanese attack on Pearl Harbor before the U.S. Army and Army Air Forces began to produce efficiently their own SIGINT of the types known as "Y."

The lessons of World War I had not been turned to account. It took prodigious efforts to catch up to the requirements for SIGINT. Without the shelter of the British and the benefit of their experience in World War II, American attempts to build a SIGINT service in the West could not have gone as far as they did during the two years that it took to get under way. The U.S. Navy had, at most, a kernel of its wartime SIGINT organization when Pearl Harbor occurred. Thus the subsequent innovations and performance of Op-20-G showed what it might do again if an enemy could be held off, perhaps for less than two years but nonetheless for a substantial period.

One lesson learned in World War II was the necessity of technical continuity in producing SIGINT – a necessity which grew even greater as the technology of communications continued to evolve new forms in profusion.

The ignorance and skepticism about SIGINT among commanders early in the war – a condition observed in British as well as U.S. commanders – diminished with respect to radio intelligence before hostilities ended. Except at very high levels of command, officers were unaware of the contributions made by special intelligence. Even among top commanders, occasional overreliance on SIGINT may have been responsible for adverse consequences. If SIGINT as a source has high value, it also has limitations, particularly when the absence of SIGINT about a subject could be interpreted as showing the nonexistence of the subject. Moreover, the need to protect SIGINT from disclosure kept it from receiving credit to which it was entitled. In fact, considerations of security were responsible not only for barriers to compromise but also for conditions unfavorable to efficient production.

A history of SIGINT in the European and Mediterranean Theaters in World War II needs to be considered in full awareness of what was happening at the same time in other theaters. Presumably the part played by SIGINT in the deliberations, positions, negotiations, and decisions of Anglo-American planners and the Combined Chiefs of Staff will clarify the existing accounts of Allied strategic agreements.

There is a temptation to believe that SIGINT provided the best intelligence, especially strategic intelligence, and that intelligence controlled the course of combat. Surprise helps the side which attains it to win battles, either as defenders, like the U.S. at Midway, or as the German attackers at the outset of the Ardennes campaign in December 1944. But that offensive failed to reach its objective; it squandered resources to no avail. SIGINT may permit surprise, but the ultimate outcome depends on relative strengths and tactics.

For subsequent wars, the experience gained during World War II may be less applicable with every year that passes, but one may assume that parallel problems in modified forms will arise. Success in meeting them will be more likely if those who must cope with them know what happened "the last time."

Notes

1. Vice Admiral George C. Dyer, *The Amphibians Came to Conquer*.... 2 vols, Washington, D.C.: Supt of Docs., 1969, I, 187.

2. *Synthesis of Experiences in the Use of ULTRA Intelligence by U.S. Army Field Commands in the European Theater of Operations*, USA SSG History Files (Book No. 53), 24-5.

3. The italics are my own and emphasize the role of SI at Army and Army Group headquarters.

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Appendix A
Agreement between the War Department and G.C.&C.S.

May 17, 1943

Agreement between British Government Code and Cipher School and U.S. War Department concerning cooperation in matters relating to:

U.S.	British
Special Intelligence A	Special Intelligence
Special Intelligence B	Y Intelligence
T A Intelligence	Y Inference

A distinction is made in nomenclature and procedure in handling intelligence derived from the solution of enemy high grade and that obtained from low grade codes and ciphers. The preservation of secrecy in regard to either category is a matter of great concern to both countries and if the highest degree of security is to be maintained, it is essential that the same methods should be pursued by both countries at every level and in every area concerned, since a leakage at any one point would jeopardize intelligence from these sources not in one area only but in all theaters of war and for all services.

This agreement is limited to the traffic specifically designated herein. It does not cover traffic emanating from non-service enemy or neutral sources. These subjects will be covered by future negotiations between Director, G.C.&C.S. and A. C. of S., G-2, War Department.

(1) Both the U.S. and British agree to exchange completely all information concerning the detection, identification and interception of signals from, and the solution of codes and ciphers used by, the Military and Air forces of the Axis powers, including secret services (Abwehr).

(2) The U.S. will assume as a main responsibility the reading of Japanese Military and Air codes and ciphers.

(3) The British will assume as a main responsibility the reading of German and Italian Military and Air codes and ciphers.

(4) Both countries agree that special security regulations shall apply to Intelligence obtained from decoding telegrams in enemy high grade codes and ciphers.

(5) Both countries agree to use their most secure codes and ciphers for transmission of the decodes of enemy signals and transmission of technical cryptanalytic data.

(6) British or U.S. Commanders-in-Chief, Military or Air, will receive all Special Intelligence necessary to them for the conduct of their operations from either British or U.S. centers as may be mutually

agreed. Liaison officers will be appointed as desired for facilitating this. They will be given full access to all decodes.

(7) The distribution of intelligence from the sources in question will be governed by the fundamental principle that distribution will be restricted to the minimum and will therefore be confined solely to those who require to receive the intelligence for the proper discharge of their duties.

(8) All recipients of Special Intelligence A, whether British or American officers, shall be bound by the same regulations, the regulations [Appendix (B)] now in force in the theaters of war where British forces are operating to be accepted at the present time. If at a later date either country wishes to modify them in the light of further experience then this may be done by mutual agreement.

(9) The extension to officers of a knowledge of the existence of such intelligence shall be confined to as limited a number as possible and restricted to the levels of command in conformity with the above mentioned regulations. Great stress is laid on the principle that Special Intelligence A should not be intermingled in reports with general intelligence from other sources. If, however, it becomes imperative to do so, the whole must be treated as Special Intelligence A and given the same strictly limited distribution. Under no circumstances is it permissible to pass Special Intelligence A in a code or cipher which can be read by other than the authorized recipients.

(10) Although Special Intelligence B is not subject to the same stringent regulations as Special Intelligence A, since the two are closely connected, it is essential to maintain a high degree of secrecy in the handling of Special Intelligence B also. In any action taken upon such intelligence and in any documents or telegrams based upon it, it is essential that its origin be disguised and that the codes or ciphers used for its dissemination be absolutely secure.

(11) All intelligence available from decodes shall be made available to Liaison Officers, and if they deem necessary it will be exchanged between London and Washington. These Liaison Officers will be specially appointed and given full facilities for this purpose.

(12) British and U.S. will notify one another without delay, giving full particulars, when either has information from any source indicating the compromise of any code or cipher used by the other. Action on such information will be most carefully considered in order not to compromise the source and if possible mutual agreement in such action will be sought.

(13) Cooperation between and coordination of U.S. Signal Intelligence Service and British “Y” Service must take place at all levels, technical information being exchanged mutually at the same level and each country to agree not to lower the classification of such information or the intelligence derived from it below that level without mutual agreement.

(14) Each country shall inform the other of the employment and scope in each joint theater of war of their Signal Intelligence (Y) units in the field.

(15) This agreement or the appendices thereto may be supplemented or modified from time to time governing any special feature for which either party wishes to make special provision.

(16) Definitions:

(a) ***Y Service or Signal Intelligence Service.*** The British, U.S. Army, and the U.S. Navy services concerned with intercepting, decoding, interpreting, classifying and dissemination of enemy (and neutral) communications, and the use of D/F and other specialized apparatus for establishing locations and identities of enemy transmitters.

(b) ***Special Intelligence A.*** Certain ciphers are placed in a special category, owing to their importance and difficulty of solution. The intelligence derived from these ciphers is known as Special Intelligence A. Such material is treated with most stringent security measures. Special Intelligence A is confined to a very strictly limited number of the most highly placed officers and is mainly of strategical importance.

(c) ***Special Intelligence B.*** Intelligence derived from the solution of lower grade ciphers. Such ciphers may under certain circumstances be upgraded to the "Special A" class. The dissemination of Special Intelligence B is wider though always treated as British Most Secret-U.S. Secret. Special Intelligence B may be used tactically.

Appendix (A)

Special Provisions Regarding Work on German Machine Ciphers

(U) Since it is believed unnecessary and impracticable to duplicate work on German machine ciphers and in view of the large number of personnel required and the unavoidable extra risk to the security of the source involved, agreement which follows has been arrived at. This agreement provides that:

(a) All desired intelligence from this source will be made available to the War Department in Washington.

(b) U.S. personnel will obtain experience by engaging in the solution of this type of cipher in Great Britain.

(c) Research into new methods of attack will be made in Washington.

(d) Transmission of Intelligence to Commanders-in-Chief in the field will be accomplished by special routes and staffs who will maintain a watch over the use of the intelligence to guard against compromise of the source.

(1) U.S. liaison officers will be appointed at G.C.&C.S. to examine messages and summaries and select those desired for transmittal to Washington for G-2 or the Theater Commanders. All decoded material will be made available to those officers. Decodes giving information regarding Order of Battle

will be handled as at present, i.e., through U.S. liaison officers in War Office and Air Ministry, respectively.

(2) Decodes or summaries to be passed to Washington through existing British channels.

(3) U. S. party to effect independent solution of keys will be established in Great Britain, but so coordinated by mutual agreement to avoid duplication. This party will cooperate with the British in regard to tasks and will be given every assistance for instruction of personnel. They will be furnished with British machines. Decodes from this section will be passed to Bletchley Park for emendation, translation and distribution, but U.S. party will conduct complete processing, including emendation and translation to such an extent as they desire.

(4) Formulas will be supplied by Great Britain for use on machines now at Arlington Hall.

(5) U.S. to undertake research for finding a new method for solution and to be rendered every assistance by the British for this purpose.

(6) In conformity with British policy, U.S. personnel engaged in solution work in Great Britain will not be transferred elsewhere except for very urgent reasons.

(7) Special Intelligence from this source will be passed to Commanders-in-Chief in the field through the Special British units provided for this purpose. The officer in command of these units will have direct access to the Commander-in-Chief and advise as necessary on the security aspect of handling and using this intelligence. Where an American officer is Commander-in-Chief, an American officer, properly trained and indoctrinated at Bletchley Park, will be attached to the unit to advise and act as liaison officer to overcome difficulties that may arise in regard to differences in language.

(8) The Director of the G.C.&C.S. will have the final decision when matters of security are involved in intelligence items (gossip) and as to what is passed to Commander-in-Chief in the field.

Appendix (B) British Security Regulations for Special Intelligence

Part I Coordination of Routing, Security and Use of Special Intelligence

1) SPECIAL INTELLIGENCE is the agreed name for the highly secret information obtained by cryptographic means from enemy high grade ciphers.

2) Lower grade cryptographic material classed in general as “Y” Intelligence, is not included in the definition of SPECIAL INTELLIGENCE.

Part I to be Destroyed by Fire when Read

Part II

1) ALL SPECIAL INTELLIGENCE emanating from the United Kingdom and transmitted to Commands abroad will receive the prefix “Ultra.”

ALL SPECIAL INTELLIGENCE emanating from centres other than the United Kingdom and transmitted either to United Kingdom or to another Command abroad, is to receive the prefix specially allotted to each producing centre as follows:

DELHI	Prefix	SIRDAR
WASHINGTON	Prefix	ZYMOTIC
MELBOURNE	Prefix	ZYMOTIC
KILINDINI	Prefix	ZYMOTIC
MIDDLE EAST	Prefix	SWELL

3) SPECIAL INTELLIGENCE produced by U.S.A. centres either in U.S.A. or elsewhere if transmitted over British routes either to the United Kingdom or to the British Commands overseas, is to receive the prefix of the Command or centre through which it is distributed.

4) Where it is necessary for SPECIAL INTELLIGENCE to be transmitted between Commands or centres other than the United Kingdom, special routes and ciphers are to be arranged and approved by London.

Part III

ULTRA (see Para. 1) above) information can be regarded as reliable and action can be taken on it, but experience has shown that the following security regulations are vital to the preservation of this source. The Commander-in-Chief is held personally responsible for ensuring that they are scrupulously adhered to:

(1) The utmost secrecy is to be used in dealing with ULTRA information. Attention is called to the fact that if from any document that might fall into the hands of the enemy or from any message that the enemy might intercept, from any word that might be revealed by a prisoner of war, or from any ill-considered notion based upon it, the enemy were to suspect the existence of the ULTRA source, that source would probably forever be lost to our cause.

(2) This loss would vitally affect operations on all fronts, not only the particular front on which the source had been compromised.

(3) Commanding Officers of those Commands authorized to receive ULTRA information, i.e., normally only General and Air Officers commanding Armies and Air Forces, are to be instructed that ULTRA messages are for them, their personal representative, and their Senior Intelligence and Operations Staff Officer only, and are not to be seen by, read to, or discussed with any other person. ULTRA messages are to be destroyed by fire immediately [once] action has been taken on them. No records of Intelligence based on ULTRA information may be kept except at the H.Q. of the Commander-in-Chief.

(4) When ULTRA information is to be used by the Commander of an Army or an Air Force as a basis for action to be taken by a subordinate command, the information must be translated, when passed to the subordinate command, into terms of an operational order, so worded that if captured or

intercepted by the enemy the origin of the information could not be traced back to the ULTRA source, e.g., orders must never contain the precise time, date or place of an enemy operation revealed by ULTRA. Such orders based on ULTRA information if transmitted by WIT must be encoded only in authorized ciphers. Under no circumstances whatever is it permissible to transmit ULTRA information as such to lower formations.

(5) In general, if any action is to be taken based upon ULTRA information, the local Commander is to ensure that such action cannot be traced back by the enemy to the reception of ULTRA intelligence alone. A momentary tactical advantage is not sufficient ground for taking any risk of compromising the source. No action may be taken against specific sea or land targets revealed by ULTRA unless appropriate air or land reconnaissance has also been undertaken. Names of enemy ships revealed by ULTRA sources may never be quoted.

(6) The utmost care is to be taken in briefing pilots for an operation based on ULTRA information that only such details are given them as might have been obtained by other means, such as air reconnaissance, and only such as are essential to the success of the operations.

(7) No reference to ULTRA information is to be made in any summary whatsoever, however limited the circulation. No discussion of it is permissible except between the senior officers who are immediately concerned with the action to be taken upon it.

(8) If it is necessary to ask questions, or make comments on ULTRA material, whether on matters of Intelligence, Operations, Routing or Security, such messages are to be transmitted only over the special channel and in the special ciphers provided for ULTRA traffic.

(9) Recipients of ULTRA may not under any circumstances carry on their persons outside their Headquarters, ULTRA messages which have been delivered to them.

1st March 1943

(Sgd.) GEO V. STRONG
Major General
A.C. of S., G-2

(Sgd.) E. W. TRAVIS
D.D.(S)
G.C.&C.S.

15 June 1943

Approved for the U.S. War Department.
By order of the Secretary of War.

(Sgd) JOSEPH T. McNARNEY,
Lieutenant General, U.S. Army,
Deputy Chief of Staff

Appendix B
War Department
The Adjutant General's Office
Washington

AG 311.23 (320-43)OB-S-B-M **CJM/reh-2B 939 Pentagon**
March 26, 1943

SUBJECT: I intercept Directive

TO: Commander-in-Chief,
Southwestern Pacific Area;
Commanding Generals,
North African Theater of Operations;
European Theater of Operations.

1. In order to coordinate within the War Department the intercept of certain foreign radio transmissions it is essential that the signal radio intelligence companies and detachments now under your Command, and those that may come under your Command in the future, receive through the Signal Intelligence Service of your headquarters such directives as may be issued by the War Department. The detailed assignment of specific missions to those units will be made by your Signal Intelligence Service and may be changed from time to time by them, as changing circumstances may dictate. In addition to the above, a reasonable number of monitoring missions for security purposes may be assigned at your discretion.

2. The Chief Signal Officer, acting for the War Department, is authorized to communicate directly with the Signal Intelligence Service at your headquarters on matters pertaining to the specific mission, circuits to be covered, known frequencies, form of recording material, copying of station logs, methods of forwarding traffic, etc. The Chief Signal Officer is also authorized to furnish directly to the Signal Intelligence Service such manuals and pertinent literature as will assist these units in accomplishing their missions.

3. To meet the requirements of actual or impending hostile action within your theater, you are authorized to modify this directive. However, in the interest of overall coordination of radio and signal intelligence operations, you will promptly advise the War Department of your general plan of operation involving the interception of foreign radio transmissions. The Chief Signal Officer is authorized to communicate directly with you and with the Signal Intelligence Service regarding these plans.

4. Copies of all material intercepted by these units will be forwarded as soon as practicable and by the most expeditious means direct to the Chief Signal Officer, SPSIS, War Department, Washington, D.C. An important mission of these units is to intercept material desired by the War Department and to forward it to the Chief Signal Officer by the most expeditious means available.

5. You will furnish the officer in charge of your Signal Intelligence Service with a copy of this directive.

By order of the Secretary of War:

(Sgd) L.M. Banknight
Adjutant General

Copy Furnished:
Chief Signal Officer

Appendix C
Headquarters
European Theater of Operations
United States Army

RFP/RFL/fls

AG 311.5 MSIG **27 July 1943**

SUBJECT: Operational Control of Signal Intelligence and Radio Intelligence Units.

TO: Commanding Generals
SOS, ETOUSA;
Eighth Air Force;
V Corps;
Iceland Base Command

1. In order to coordinate the interception of enemy radio transmissions within this theater, authoritative operational control of all Signal Intelligence and Radio Intelligence units and activities in this command is vested in the Chief Signal Officer, SOS, ETOUSA, who will detail the assignment of specific missions to such units in accordance with War Department letter AG 311.3 (3-20-43) OB-S-B-M, dated 26 March 1943, subject: "Intercept Directive."

2. Air Force and Ground Force Signal Intelligence and Radio Intelligence units normally will be assigned missions of paramount importance to their respective services. All missions will be coordinated by the Chief Signal Officer, SOS, ETOUSA, to avoid duplication, insofar as it is possible, by units of our own forces and those of our allies.

3. For security reasons, intelligence resulting from such intercept activities will be given special handling in accordance with directives subsequently issued by this headquarters.

4. Monitoring of friendly radio traffic to detect violations of signal security, and the initiation of corrective measures, is a function of the Signal Intelligence Service (par 6f, FM 11-35). The activities of the various signal intelligence services in this respect will be coordinated by directives issued by the Chief Signal Officer, SOS, ETOUSA. This does not preclude the use of any regularly authorized T/BA equipment, or personnel, by any unit to monitor its own networks as an additional supervisory measure.

5. Personnel assigned to Signal Intelligence or Radio Intelligence units or detachments have been specially trained for the duties to which they are assigned. This training includes the imparting of considerable secret information to assist in the accomplishment of their mission. Due to this specialized training, and for security reasons, such personnel will not be assigned without prior reference to the Chief, Signal Officer, SOS, ETOUSA, and without the specific approval of the Theater Commander. Unit commanders desiring reassignment of Signal Intelligence or Radio Intelligence per-

sonnel will submit requests, through channels, to this headquarters and will clearly indicate the reasons for requesting reassignment.

6. It is desired that the contents of this directive be published to such of your subordinate units as may be concerned.

By command of Lieutenant General Devers

RICHARD P. FISK,
Lt. Colonel, AGD,
Assistant Adjutant General

DISTRIBUTION:

Each Addressee	(2)
CIS, ETOUSA	(1)
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Signal	(2)

Appendix D
War Department
The Adjutant General's Office
Washington

AG320.2(9Jul 1948)PO-M-SPCAS **29 July 1943**

SUBJECT: Special Cryptanalytic Project in Signal Intelligence Service,
European Theater of Operations, United States Army
TO: Commanding General
European Theater of Operations.
United States Army,
c/o Postmaster, New York, NY

1. The authorized grades and strengths, Signal Intelligence Service, European Theater of Operations, United States Army are rescinded effective at once and the following allotment is substituted therefor:

a. Officers: SIS ETOUSA (Signal Corps)

Col.	Lt. Col.	Major	Capt.	1st Lt.	2nd Lt.	Total
1	4 10	19	25	26	85	

b. SIS ETOUSA
Signal Corps

Grades

Mstr	1st	Tech	Staff	Tech	Sgt	Tech	Cpl	Tech	PFC	Pvt	Total
12	--	22	2	43	13	90	5	114	75	78	454

c. The above allottment includes an increase for a Special Cryptanalytic Section as follows:

(1) Officers: Signal Corps

Lt. Col.	Maj.	Capt.	1st Lt	2nd Lt	Total
1	2	5	15	36	591

(2) Signal Corps

Grades

1		2	3		4		5		6	7	
Mstr	1st	Tech	Staff	Tech	Sgt	Tech	Cpl	Tech	PFC	Pvt	Total
3	--	8	2	18 2 31	4	76 60	45	247			

d. Personnel will be requisitioned and assigned as indicated in attached Table of Distribution, Tab B. Personnel selected need not hold the grades indicated but must be able to perform the duties indicated by the Specification Serial Number. Personnel selected will be shipped in their present grades and ratings. No attempt will be made to promote personnel merely to fill a vacancy.

e. A minimum of twenty-five percent of the officer personnel and ten percent of the enlisted personnel will be furnished from 2nd Signal Service Battalion, Arlington Hall Station and will be highly qualified technicians. The remaining percentages will be procured by the Chief Signal Officer and given initial training in the Signal Security Service at Vint Hill Station, Warrenton, Virginia.

f. A group of key personnel consisting of about ten officers and ten enlisted men will be shipped to arrive at ETOUSA not later than 1 August 1943. Fifty percent of the cryptanalytic group should arrive not later than 1 September 1943, and the remainder in suitable increments so that the full strength will be reached by 1 December 1943.

g. None of the personnel assigned to this unit will be reassigned to duties which will take them into the combat zone.

h. All personnel provided will be investigated and cleared by G-2 prior to assignment to such duties.

i. It will be the responsibility of the Chief Signal Officer to implement this authorization by requisitioning for the necessary personnel from the Adjutant General under the priorities assigned ETOUSA and providing necessary housing and training prior to shipment and to coordinate all activities in the preparation of this unit with Assignment Chief of Staff, G-2, War Department General Staff; Movement Branch, Mobilization Division, Army Service Forces, and Director, Stock Control Division, Army Service Forces.

j. Equipment and facilities for this Cryptanalytic Unit will be provided as indicated in the attached Special Table of Equipment, Tab C.

2. The following allotment of authorized grades and strengths is made to Headquarters, European Theater of Operations, United States Army, for a Special Intercept Detachment:

a. Officers: (Signal Corps)

Capt	1st Lt	2nd Lt	Total
1	2	3	6

b. Headquarters, ETOUSA Intercept Detachment
Signal Corps

		Grades						
1	2	3	4	5	6	7		
Mstr	1st Tech	Staff Tech	Sgt Tech		Cpl Tech	PFC	Pvt	Total
2	1 3	3 10 – 35	2 62	34	28	180		

c. Personnel will be requisitioned and assigned as indicated in the attached Table of Distribution, Tab D. Personnel selected need not hold the grades indicated but must be qualified to perform the duties indicated by the Specification Serial Number. Personnel selected will be shipped in their present grades and ratings. No attempt will be made to promote personnel merely to fill a vacancy.

d. An advance party of the special Radio Intercept Unit consisting of two officers and four enlisted men, will be shipped to arrive at ETOUSA not later than 1 August 1943, to assist in the details of obtaining and preparing a suitable location for the radio reception site.

e. None of the personnel assigned to this unit will be reassigned to duties which will take them into the combat zone.

f. Equipment for this Special Intercept Unit will be provided as indicated in the attached Special Table of Equipment, Tab E.

g. This Unit will operate directly under SIS ETOUSA in accordance with directives issued by the War Department.

h. See sub-paragraph h, paragraph 1 above.

i. See sub-paragraph i, paragraph 1 above.

By Order of the Secretary of War

(s) A. C. KELLY
Adjutant General

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Appendix E
Headquarters
European Theater of Operations
United States Army

APO887

AG 322.88 OPGC APo887 **8 Feb 1944**

Subject: Organization of Field Detachments for Signal Intelligence Division

To: Commanding General, CBS, SOS, ETOUSA, APO 887
Commanding Officer, EBS, SOS, ETOUSA, APO 517.

1. Letter this headquarters, AG 322/88 OPA, subject: "Formation of Field Detachments for Sig Intelligence Div," 28 Jan 1944, is rescinded.

2. The following units are provisionally organized, effective 1 Feb 1944, at stations indicated:

Unit	Location	APO
6811th Signal Security Detachment	Hall Place, Bexley, Kent.	887
6812th Signal Security Detachment	Eastcote, Middlesex.	517
6813th Signal Security Detachment	Bletchley, Bucks.	128

3. Personnel for units will be furnished by the Chief Signal Officer, this headquarters.

a. 6811th Sig Security Det will have an authorized strength of six (6) officers and one-hundred-eighty enlisted men.

b. 6812th Sig Security Det will have an authorized strength of five officers and one-hundred-twenty enlisted men.

c. 6813th Sig Security Det will have an authorized strength of twenty five (25) officers and one- hundred-twenty enlisted men.

d. No additional grades are authorized for overhead of units.

4. Units will be assigned to HQ ETOUSA, and will be attached to Base Section wherein they are stationed for supply and administration.

5. Necessary equipment will be requisitioned through normal channels.

6. Final and initial rosters and reports of change, as required by AR 345-800 and AR 345-900 will be submitted to the CG SOS, APO 871, for the 91st MRU.

By command of General Eisenhower:

RICHARD P. FISK,
Lt. Colonel, A.G.D.,
Assistant Adjutant General

DISTRIBUTION: D plus Progress, SOS, APO 871

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Appendix F
Headquarters
European Theater of Operations
United States Army

RBL/CRH/cwh
APO 887

AG 322 OpSC **7 February 1945**

SUBJECT: Operational Control and Technical Direction of Signal Intelligence and Signal Radio Intelligence Units.

TO: Commanding Generals:
US Strategic Air Forces in Europe
Each Army Group
Each Army

1. Letter, this headquarters, file AG 322 OpSIG, subject as above, dated 5 April 1944, is rescinded and will be destroyed in accordance with the provisions of AR 380-5, dated 15 March 1944. A certificate of destruction will be rendered thereon and submitted to this headquarters.

2. In order to coordinate the interception of enemy radio transmissions, authoritative operational control of all signal intelligence and signal radio intelligence units and activities in this theater, other than those specifically assigned to function with 6th Army Group, 12th Army Group or Air Staff, Supreme Headquarters, Allied Expeditionary Force, is vested in the Chief Signal Officer, this headquarters, who will detail the assignment of specific missions to such units in accordance with War Department letter, file AG 311.3 (3-30-43)OB-S-B-M, subject: "Intercept Directive," dated 26 March 1943.

3. Operational control of units within 6th Army Group, 12th Army Group or Air Staff, Supreme Headquarters, Allied Expeditionary Force, will be decentralized to the headquarters to which the various signal intelligence and signal radio intelligence units are assigned. The Chief Signal Officer, this headquarters, will exercise technical direction of these units through signal intelligence channels, i.e., determine general US policy with respect to methods of procedure, principles of operation and use of these units, and effect coordination including the exchange between these various units of technical information required to assist the accomplishment of their missions at their respective levels. For this purpose, the Chief Signal Officer, this headquarters, is authorized to communicate directly through signal intelligence channels with the various units concerned.

4. For security reasons, intelligence resulting from such intercept activities will be given special handling in accordance with current directives.

5. Monitoring of friendly radio traffic to detect violations of signal security, and the initiation of correct measures, is a function of the Signal Intelligence Service (par 6f, FM 11-35). The activities of the

various signal intelligence services in this respect will be coordinated by directives issued by the Chief Signal Officer, this headquarters. This does not preclude the use of any regularly authorized T/BA equipment, or personnel, by any unit to monitor its own networks as an additional supervisory measure.

6. Personnel assigned to signal intelligence or signal radio intelligence units or detachments have been specifically trained for the duties to which they are assigned. This training includes the imparting of considerable secret information to assist in the accomplishment of their mission. Due to this specialized training, and for security reasons, such personnel will not be reassigned without prior reference to the Chief Signal Officer, this headquarters, and without specific approval of the Theater Commander. Under no conditions will such personnel be reassigned to jobs in which there is any possibility of capture. Unit commanders desiring reassignment of signal intelligence or signal radio intelligence personnel will submit requests, through channels, to this headquarters and will clearly indicate the reasons for requesting reassignment.

7. It is desired that the contents of this directive be published to such of your subordinate units as may be concerned.

By command of General Eisenhower:

R. B. LOVETT
Brigadier General, USA
Adjutant General

DISTRIBUTION:

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Appendix G
U. S. Navy Department Agreement with the Admiralty

Op-20-G/jac **October 1, 1942**

MEMORANDUM FOR OP-20:

Subject: Collaboration of U.S. and British Radio Intelligence Organizations on Japanese and German Projects.

1. After thorough discussion of U.S. and British radio intelligence problems in the Pacific and in the Atlantic, Commander Travis, R.N., has made the following proposals which, I understand, have the approval of the Admiralty:

Japanese

(a) The British to abandon naval cryptanalysis at Kilindini and retain there only an exploitation unit which will read traffic from recoveries supplied by other units, and supply to these other units any code or other recoveries obtained in the course of this reading.

(b) The British to disband the British-Australian naval unit at Melbourne and turn over to the U.S. unit there such personnel as the U.S. may desire, except Commander Nave, who is to be recalled. Requests by the U.S. for any particular individuals from Kilindini or Melbourne will be entertained by the British. The future status of the diplomatic party at Melbourne will depend upon wishes of the Australian Government and the senior naval and military authorities in that area which the Admiralty will ascertain.

(c) Upon execution of the foregoing, OPNAV to assume responsibility for passing naval recoveries and pertinent naval information to the Admiralty (G.C.& C.S.) for transmittal to C.inC. Eastern Fleet and Kilindini.

(d) Pursuant to (c) above, OPNAV to pass to the Admiralty (G.C. & C.S.) (1) radio intelligence from Japanese naval communications, indicating major strategic moves in any area and any details bearing upon operations in the Indian Ocean Area; (2) all Japanese naval code and cipher key recoveries.

(e) In addition to the foregoing, OPNAV to pass to G.C. & C.S., by pouch, as much Japanese intercepted raw naval traffic as practicable.

German

(a) The British to provide technical assistance, if desired, in the development of analytical machinery required.

(b) The British agree in principle to full collaboration upon the German submarine and naval cryptanalysis problems, including exchange of intercepted traffic, keys, menus, cribs, and such other pertinent technical information as may be necessary.

Miscellaneous

(a) The U.S. to undertake certain work on Italian naval systems; traffic, and such pertinent information as may be available to be supplied by the British.

(b) The British to obtain certain items of special analytical equipment developed by the U.S.

(c) The British to send certain technical personnel to OP-20-G to obtain information concerning new U.S. high-speed analytical equipment and the technique employed in certain phases of U.S. work.

2. The result of the foregoing will be that the British will withdraw from active work in the Pacific Area and leave to the U.S. the general direction and control of the combined effort against Japanese. They plan to maintain a research unit at G.C. & C.S. so as not to lose touch with the Japanese problem. They have acceded to U.S. desires with regard to work on the German submarine and naval problem but, in effect, will be the coordinating head in the Atlantic theatre as the U.S. will be in the Pacific.

3. The foregoing appears to be a logical set-up for the reason that the U.S. has the primary facilities and experience in the Pacific, and the traffic is much more accessible to the U.S. there; whereas, the British occupy the corresponding position in the Atlantic. While providing for a logical division of labor on this basis, this plan will, at the same time, provide the necessary backup for the safety of each party concerned.

4. The primary concern of the British over U.S. entry into the German field is on the question of security. The British treat German material on a far higher plane than any other which they handle. The situation with regard to German communications is quite different from that which is found in the Japanese, in that the ramifications of the major system used are very great, and any disclosures which are made will affect the entire effort in every field. It must be realized that since the outbreak of war the British success has literally been their life blood. Before going into the work, the U.S. must be prepared to accept their standards of security and do everything within its power to insure compliance therewith. Not only will the safety of the British empire be at stake but, as U.S. efforts in the European theatre become more active, the future of the U.S. may also be at stake.

5. In concluding the discussions it was pointed out to Commander Travis that any agreement made by the U.S. must be subject to such change as circumstances and developments require in the interest of national safety.

Respectfully,
/s/J. N. Wenger

10/1/42
Seen by D. N. C.
CAPT. Zacharias
ADM Cooke
/s/J. N. W.
Approved and accepted
by D. N. C., CAPT. Holden 10/2/42

Appendix H
Part 1

American Embassy
Office of the Military Attaché
1, Grosvenor Square, W. 1,
London, England

23 May 1945

MEMORANDUM FOR COLONEL TAYLOR:

Subject: Report of Lt. Col. Murnane and Lt. Col. Orr on Use of Ultra at 12th Army Group

...3. At 12th Army Group, a special section was established for the handling of Ultra which was designated as the Estimates and Appreciations Group with a staff consisting of the attached officers and one senior member of the G-2 Section. The function of this group was to collate Ultra intelligence with intelligence from all other sources and to formulate, under the direction of the A.C. of S., G-2, estimates of the enemy situation and capabilities. The specific duties of the attached officers were to receive and register all Ultra messages from the SLU, post a current situation map, conduct two daily briefings for the Commanding General and other staff members, dispatch signals to subordinate armies, record all order of battle information, and maintain a topical reference index of more generalized Ultra information.

4. The functions of the Estimates and Appreciations Group were performed entirely within one room to which admittance was limited to indoctrinated personnel only. Such personnel had full access to all Ultra messages which were divided into folders according to content, such as Order of Battle, Supply, Operations and Intentions, Air, Enemy Estimates of Allied Intentions, etc. Removal of Ultra material from this room was strictly forbidden. A large scale map of the western front was maintained showing the complete Allied and enemy situation. The posting of this map was the responsibility of the attached officers. Because of its constant use by the A. C. of S., G-2, it was found desirable to locate this room adjoining his office. Under strict field conditions a special trailer was used for Ultra material and served in substantially the same manner as the above described room.

5. In the early phases of the campaign, one daily briefing on Ultra was conducted at which the Commanding General, his staff, and all other indoctrinated personnel were briefed in the Ultra room or trailer. However, it became apparent that the presence of a large group at this briefing tended to limit discussion by the Commanding General and his staff. To alleviate this problem, the system of conducting two daily briefings was adopted, the first for general officers only, and the second for all other indoctrinated personnel.

6. The General Officer's briefing was conducted at 0945 hours, immediately following the G-2, G-3 open briefing in the War Room, and was regularly attended by the following officers of 12th Army Group:

General Bradley, CG
Major General Allen, C of S
Brigadier General O'Hare, G-1
Brigadier General Sibert, G-2
Brigadier General Kibler, G-3
Brigadier General Moses, G-4
Colonel Standish, Chief Intelligence Branch
and of the 9th Air Force:
Lieutenant General Vandenberg, CG
Brigadier General Lee, Deputy to CG for Ops.
Colonel Hughes, Director of Intelligence

The presentation of Ultra material was made in the Ultra room by the attached officers and was based on information received during the previous twenty-four-hour period. Upon conclusion of the presentation the A.C. of S., G-2 or the Chief of Intelligence Branch highlighted enemy intentions or capabilities as revealed by Ultra or open sources, such as tactical reconnaissance, P/W interrogation, etc. Upon conclusion of the presentation a discussion customarily followed in which the CG expressed his views on the current situation and reviewed operational plans under consideration, and invited discussion from his staff. The briefing normally covered all pertinent information on the GAF, its operations and intentions, and in the discussion following, General Vandenberg and his staff consulted with General Bradley on plans for tactical air support, or target programs such as lines of interdiction or enemy supply installations. Thereupon the needs of the ground forces were announced and appropriate air support or tactical bombing agreed upon.

7. The second briefing conducted at 1130 hours for all other indoctrinated personnel was less formal and more in the nature of a discussion or forum. Present at this briefing were: G-2 air, G-3 air, Deputy G-2, Deputy G-3, Chief Order of Battle Branch, Chief Terrain and Defense Branch, Chief Supply and Transportation Branch, personnel from G-3 Special Plans (Cover plan), and the signal intelligence officer. Ultra information was again presented by the attached officers, and comments invited as to interpretation placed on particular messages. On this occasion the chief of the Intelligence Branch reviewed the current G-2 estimate of the enemy situation and capabilities and invited comments from the branch chiefs on matters pertaining to their special interests.

8. In addition to attending the 1130 briefing the branch chiefs frequently visited the room throughout the day to review the messages in detail and to discuss with the Ultra staff messages of special interest. For example, the Chief of the Order of Battle Branch daily reviewed all messages and discussed with the Ultra staff new open identifications, P/W interrogation, troop movements, strengths of units, etc. Thus the chief, OB was in a position to guide the interpretation of open sources, control of the tenor of periodic intelligence summaries, and safeguard against dissemination of reports contrary to Ultra information. His close association with both sources permitted prompt blending of Ultra

into open intelligence as soon as sufficient evidence from non-Ultra sources justified release of Ultra. Conversely, the Ultra staff was in constant touch with all relevant open sources.

9. Within the Ultra room a special map was posted portraying the disposition of Allied forces as known to the enemy and revealed by Ultra in enemy estimates of Allied dispositions and intentions. This map was posted by officers of G-3 Special Plans. In addition to aiding them in formulating cover plans it provided a ready means of determining which Allied units had been identified by the enemy and consequently which units could be released to the press.

10. All order of battle information as revealed by Ultra was recorded under appropriate unit headings such as Army Group, Army, Corps, Division or smaller units. This index was absolutely essential in correctly evaluating the Ultra material, in preparation of estimates, in servicing the army commands, and as a ready reference for the chief of the OB Branch. In addition to this, a topical index was maintained of such other messages as appeared to require subsequent reference.

11. Another principal function of the attached officers was to provide regular signals to the Armies of such information received at Army Group which had not been directly dispatched to Armies. Normally, routing from War Station provided armies with the essential information in their spheres of interest; but, it is highly desirable that Army Group send signals to Armies containing extracts from various messages of general interest not bearing directly on a given army front. The volume of traffic to Armies from Army Group must be tempered by the capacity of the signals unit at Army level, otherwise the Army channels might easily become overtaxed with this material to the impairment of the flow of current information from War Station.

12. Weekly Ultra summaries were dispatched to the Armies over the SLU link expressing the current opinion of G-2 based on Ultra and open sources. The summaries were prepared by the Chief of the Intelligence Branch with the assistance of the attached officers in formulating the views contained therein.

13. With the exception of one or two isolated instances of minor security violations which in no way impaired the source, the security record at 12th Army Group was excellent. This, in a large measure, can be attributed to the method employed for handling Ultra. As previously stated, all Ultra material was confined to a single room or trailer where all briefings, conferences involving Ultra, or preparation of Ultra documents were accomplished, an indoctrinated officer was present in this room 24 hours a day. As messages were received they were listed by date and number in a register and fastened in the appropriate folder according to subject matter, where it remained for forty-eight hours. After a message had remained in a folder for 48 hours it was removed, checked against the register, and burned. By this means an accurate check was made on the receipt and destruction of each individual message. The personnel of the 12th Army Group were keenly sensitive to the security necessary for safeguarding this source. The prevalence of this attitude is the best safeguard against security violations and undoubtedly accounts for the record achieved.

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Appendix H
Part 2

American Embassy
Office of the Military Attaché
1, Grosvenor Square, W.1,
London, England

21 May 1945

MEMORANDUM FOR COLONEL TAYLOR

Subject: Report on Ultra Intelligence at First U.S. Army

1. The undersigned reported to the C.G. of First U.S. Army at Bristol, England on 15 May 1944 and remained with the command as a member of the G-2 Section during the campaigns of Normandy, North France and Germany. D.S. terminated at Weimar on 11 May 1945, when the undersigned returned to his parent organization. This report is based upon his experiences during that period...

....4. Preinvasion. Most of the information which formed the intelligence for Operation "Neptune" was gathered and evaluated by the British. It involved terrain, hydrography and enemy defenses. In order of battle alone Ultra made possible correct evaluation of agents' reports. We knew what we would meet and that our cover plan was working.

The main job at Army level was, therefore, (1) organizing and training for the campaign, (2) dissemination of intelligence and advising the commander and the troops by estimates of the enemy's capabilities to react to our attack.

In connection with the latter, much work went into the preparation of charts showing just when and where and in what strength the known enemy armored divisions could, under the most favorable conditions, launch coordinated and piecemeal attacks against our beachheads. Fortunately, the predictions proved false but the charts had sufficient verisimilitude to make the writer believe his chances of surviving the invasion were about nil.

5. **The *Battle of Normandy*.** (6 June to 24 July 1944). Our operations were in two phases; first, to land and secure the beachhead and secondly to expand it to support the build-up of troops, supplies and air facilities for the break-out, which marked the beginning of the Battle of Northern France.

Intelligence for the landing was, in effect, done before D-Day. In an amphibious operation control must be decentralized so far that all the commander can do is to start it in motion and hope for the best. While it had originally been estimated that certainly piecemeal and possibly coordinated attacks to destroy the beachhead could be made late on D-Day by two enemy armored divisions, and by an infantry and four armored divisions on D plus 6, with corresponding variations between these dates, actually by D plus 9 (15 June 1944) only fourteen nominal divisions were in the "Neptune" area. No

piecemeal or coordinated counterattack had materialized but it was estimated that ten more divisions could arrive by 22 June 1944.

What had happened was that (a) air cooperation had restricted large scale enemy movement to darkness, (b) the airborne troops had ruptured his chain of command, and (c) the courage and dash of our assault troops prevented the enemy from "getting set" and compelled a piecemeal commitment of his reserves as they arrived on the battle field.

Therefore, the essentials of intelligence were (1) to watch for the movement of the expected divisions, (2) explain the untidy enemy O.B. map based on identifications resulting from piecemeal commitment, and (3) explain the evolution of the chain of command into an orderly pattern. These tasks remained the same throughout the battle but the details varied with each phase. They were directed to the sole question when and where would the enemy counterattack.

By 19 June 1944, the Cotentin Peninsula was cut. The immediate problem was, therefore, the defense plans for Cherbourg and the extent of its supplies. There were not many Allied divisions ashore then, and the balance between the troops needed for a quick reduction of the port and those to hold the lines against the expected German counterattack was as delicate as it was important.

By 29 June Cherbourg was ours and the peninsula was cleared. We had a major, though damaged, port and our beachhead was reasonably secure. The occasion was signalized by your reporter changing his socks, shirt and underclothes for the first time since 6 June. The first phase had ended.

The second phase is associated with "hedgerow" fighting. Opposing First Army was Seventh German Army with *LXXXIV Corps* of five divisions and *II Para Corps* of four divisions. In the rear areas were known to be four infantry and one armored division, while *Pz Gruppe West*, with *II SS Pz Corps* and *9* and *10 SS Pz Divs*, was known to be moving west and was expected momentarily against the British on our left. Still remaining in Brittany were three divisions. First German Army in SW France could spare the *11 Pz Div* and *Nineteenth Army* on the Mediterranean, the *9 Pz Div*, but neither was believed capable of sending up more infantry divisions. Only in the Pas de Calais, Holland and Germany itself were reserves available.

Here, then, was the issue. While we were slowly and gradually fighting our way out of the "Bocage" into terrain favorable for armor, would the enemy bring in enough forces either successfully to rope off the beachhead or even to mount a counterattack, thus setting us back indefinitely, if not destroying us?

Equally effective were two quite different factors. First was [the deception] Operation "Fortitude," and the second was the American divisions who got their battle training and the American soldiers who died in the hedgerows of Normandy. The G-2 estimate of 10 July 1944 said "No sooner do his reinforcements arrive than they are thrown into combat, not through choice but immediate necessity." The search for information was obviously directed to points throwing light on the issue.

6. The Battle of Northern France. (25 July to 14 September 1944). After an intense bombardment by heavy bombers, on 25 July, VII Corps, with three divisions abreast, attacked in a SW direction

between St. Lo and Perriers. The purpose initially was to pocket the German *LXXXIV Corps* which was defending on the western portion of the Cotentin Peninsula. The larger mission was to destroy the German Armies west of the Seine and secure the "lodgement area." The attack had been postponed several days on account of the weather and we had helplessly watched *II Para* and *LXXXIV Corps* get prepared for it by bringing in pz Lehr from the east, *5 Para Div* from Brittany and pull *353 Division* out of line into reserve.

By the 28th it was apparent that *LXXXIV Corps* was in pretty much of a rout. On that day, we spoke of the La See or the Selune Rivers as lines behind which the enemy would defend. On 1 August the general line, not connected with an obstacle, of Trouville-Falaise-Mortain-Rennes was suggested. Our armor had shaken loose.

It was obvious that the enemy needed two things: (1) an obstacle to get behind and (2) fresh forces. It was mobile warfare, and so our problem was to ascertain how the enemy would meet these two requirements and, of course, to watch above all things the flanks of our spearheads. For the first time, two other factors appeared: morale, for it was hoped that the July "putsch" would have repercussions among the troops, and secondly, supply, for fuel and ammunition are the critical items of mobile warfare.

Of obstacles, there were none short of a line through Dreux, Chartres and Orleans, with the flanks anchored on the Seine and the Loire. For troops there was, in whole or in part, the Fifteenth Army in the Pas de Calais. While "Fortitude" was still "selling," its appeal had dropped off and five divisions came down between 25 July and 8 August. Therefore, the Germans took the very long chance of attempting to push us back into the beachhead by attacking from Mortain westward toward Avranche. With all the forces he could muster under *XLVII Pz* (*2 Pz, 2 SS* and 17 SS, Lehr and 116) he made the attempt between the 8-11 August, while *LXXXIV Corps* tried to extend and stabilize the line southward. The effort failed and the east flank of our spearhead was secure. The stage was set for the debacle which followed.

No useful purpose will be served by elaborating on the Argentan-Falaise Pocket, the fall of Paris and the Mons Pocket. They were great victories but credit for them must go to the commanders and the troops. Of the enemy it may be said, to quote from the After-Action Report (which I wrote, so it's no plagiarism) that the weight and speed of our attacks were appreciated "too little and too late" and, therefore, the divisions the enemy sent to stop us only became engulfed in our offensive. It mattered not what we did, provided we did something. As was stated before, intelligence is unimportant when you are winning and even though we were reading the enemy's mind, it mattered not for he did not have the means to carry out his intentions. The Battle of North France ended on 14 September when, reaching the Siegfried Line, we ran out of gas.

7. The Battle of Germany. (15 September 1944 to 9 May 1945). In the current perspective, the highwater mark of the campaign is the Ardennes offensive, for had it not occurred we might be still fighting on the Rhine River. I shall, therefore, divide it into three phases: first, events leading up to the Ardennes; second, the Ardennes offensive; and finally, its aftermath.

By 15 September it was apparent that the enemy would attempt, at any rate, to defend the West Wall, using remnants of the battered divisions from France, L. of C. [line of communications] and administrative troops. For our part, the problem was to get up fuel, ammo, and supplies. It was not until early October that we were able to undertake even limited objective offensives to breach the West Wall, while the German had well used the time to set his own house in order. By the middle of October, we had expended our offensive powers and surrounded Aachen, but achieved no great breakthrough. After the fall of Aachen, the German remained on the passive defense on our front, but in later October he was capable of launching a medium scale diversionary attack on the exposed east flank of Second British Army NW of Venlo. The wave of optimism of September was gone; the seventy battalions that he combed out after the fall of France had made themselves felt. On 12 November, G-2 estimate said, in part, "It is now a race against time. Can the enemy complete his dispositions for his offensive prior to the launching of our attack? With the approach of winter in the east, it is believed the enemy will stake all on an offensive in the west."

I have recited the events historically as being the easiest means of showing in what direction our intelligence efforts were bent. We reached the West Wall, optimistic but logistically broke. We watched the enemy recuperate at a slightly faster rate than we could get up our supplies. We watched the master hand of von Rundstedt deftly deploy his forces and his reserves, bringing up battalions from the replacment army, giving some ground on the south, but always keeping in balance.

On 16 November, First Army launched a large scale attack which it was hoped would carry through to the Rhine. The fighting that followed was probably as bitter, as long drawn out, and on as large a scale as has occurred in this war. On 10 December 1944, the perhaps too famous and certainly much discussed Estimate No. 37 was published. The real intent of it was to warn that, despite the fighting that had taken place during the previous three weeks, Sixth PZ Army west of the Rhine was uncommitted and, therefore, available for a counteroffensive. This counteroffensive, it predicted, would most probably occur after our major forces had crossed the Roor River. It is beyond the scope of this report to examine the validity of the "ex post facto" constructions placed on it, that it intended to warn against the large scale offensive that actually occurred.

That the Ardennes Offensive, which was very costly, could have been foreseen is submitted for the following reasons: (a) the enemy was defending on an artificial line with a major obstacle, the Rhine, astride his supply lines, (b) the German doctrine is an active defense, (c) the German situation, in the big picture, was so desperate that he could afford to take the longest chances and, (d) finally, the effect of our overwhelming air superiority was minimized by choosing a time when daylight was shortest, and the weather most likely to be bad. While the enemy had no cover plan to mislead us, his counterintelligence was superb and merits very careful study. Some clues came from open sources but were not heeded as no clue came from Ultra. Once it was appreciated that a real offensive with strategic objectives like Antwerp and Liege was under way, the tide swung precipitously from general optimism based on the long-term hopelessness of Germany's strategic position to calamity and woe, involving the imminent arrival of divisions believed to be in the East (as well as invented ones), and new secret weapons. The problem was to keep the record accurate and straight.

The details of the offensive I need not go into. Suffice it to say that it was an unpleasant experience. I cannot pass without remarking on the superb courage and fortitude of the American soldier. Between 19 December 1944 and 11 January, we published twenty-three G-2 estimates of the situation, the last one stating that the enemy's offensive power on First Army's front was spent and, in fact, he had barely sufficient divisions for a counterattacking reserve.

By the beginning of February, it was becoming more and more apparent that the enemy had shot his bolt. With a major disaster in the East and Southeast requiring the transfer there of *6 SS Pz Army*, and with his reserves of manpower and his stocks of material gone, particularly his fuel, it was doubted if he could put up more, than a strained defense of the West Wall.

With what little there was the enemy did a magnificent job of regrouping and regaining his balance, and his intelligence was aided by his excellent "Y." However, while the plans were good, there was very little with which to execute them, and the enemy, in effect, wilted before the drives of all the Allied Armies in the West, and by the end of the first week of March his forces west of the Rhine were split into bridgeheads defending the critical crossings.

The Remagen Bridge (7 March 1945) was a piece of luck, to be sure, but it required a skillful and well-trained army to exploit it. That it was a matter of life and death to the enemy was self-evident and the intelligence effort was directed to the question of where, when and with what would he counterattack, and by what other means would he attempt to destroy it. For the remainder of the month our efforts were directed to expanding the bridgehead and to building up within it sufficient supplies to be able to exploit it.

The Ruhr Pocket was created 1 April and has been described by captured German generals as the greatest single defeat that the German Army has ever suffered. The burning question, of course, was to determine the when, where, and the with-what of the German plan to open it up. Had we actually known how many enemy troops (315,000 PW's were taken) were contained in the pocket, we might well have left more troops to reduce it at the expense of the corps which turned east (about the middle of April) and started to work-over the Hartz Mountains.

With the Ruhr pocket closed, the end was obvious. River lines there were to the east, such as the Weser-Werra line, the Saale and the Elbe. But the German was then beaten. He was totally lacking the means of executing any plan.

The end came as an anti-climax. We (First Army) had lost our three corps, and were in the process of turning over the army and service troops, preparatory to return to the U.S.A. for probable employment in the Orient. The Isum of 062400 B May 1945 read: "For the first time in eleven months there is no contact with the enemy. The victory which was won on Omaha and Utah Beaches reached its climax. Today belongs to the men of this Army who fought and conquered the enemy from Normandy to the Elbe. There is no enemy situation to report, for there is no longer an enemy to defeat."

8. In the three preceding sections I have sketched at strategic level the actions of First U.S. Army and the German reactions. It was required because intelligence is important only as it bears on the

success of our operations. Without this history, it would be impossible to explain or determine the use and effect of Ultra, for the test is: did the signals sent out at the time resolve or confuse the issues as we saw them?

The most important question in combat intelligence is where. In the main, Ultra furnished the answer. Certainly it was invaluable in separating the true from the false out of all the information that came in. Without it, we would have been pretty much in the dark and our actions might have been determined by the caution or aggressiveness of the commander. But to have relied on it alone would have been foolhardy, not only because by blending the intelligence from all agencies can the real picture be obtained, but also because at Army level the tactical is frequently more important than the strategic, which is the proper field of Ultra. Therefore, the answer to . . . [what] effect ... Ultra had on the operations of First U.S. Army is to be found in the history of Ultra, rather than in this report. In the main, Ultra did resolve the issues.

9. The first objective of my job, as I see it now, was to be able to present to the commander a clear and accurate picture of the enemy situation as it affected his command. It is therefore, a matter of record keeping and presentation. But both the G-2 and I "grew with the job" and the record of my trials may prove helpful to someone else at some other time.

Initially, the G-2 presented the signals, unsorted, unedited and without comment, to the C.G. and the CIS twice daily. Later I was permitted to see them after everyone else. By keeping records and by plotting a map, I was able to show the G-2 that a good deal of valuable intelligence had been overlooked. Gradually I was allowed first to sort and then to edit and by the beginning of the Ardennes offensive, the material was assembled and written up twice daily with a summary of whether the situation had changed and why. This write-up was then read to the C.G. by the G-2 and, of course, the maps in the general's office were kept posted. No briefing was ever done directly by the Ultra representative.

The equally important objective of informing the troops was accomplished by G-2 estimates of the situation. As the situation changed, I would write "appreciations" based on Ultra for the G-2 and, as time passed and the information was covered by other sources, the intelligence would be put out in the open estimate.

At tactical level a more difficult situation arises as the desire to take immediate action on a target disclosed by source can so easily result in a breach of security. This tendency increased toward the end, possibly due to the indifference of the commander to intelligence generally. It was also found to be very dangerous even to hint to the corps to expect enemy action, where the only knowledge of it came from Ultra, for the Corps' G-2s [were]... insistent on the source of the information.

A further difficulty is the tendency to highlight the dramatic, particularly as, when there is no real change in the situation, the G-2 feels he must say something at the daily conference. Another was the fact that other readers, for lack of something better to do, would frequently grab a seemingly important signal and rush it to the G-2 without giving it the thought and study it required. Ultra is something which must be "read, marked, learned and inwardly digested." If a signal is not understandable, it must

not be dismissed as unimportant. Ultra must be presented not for what it says but for what it means to the command which receives it.

10. Security. The security of Ultra at First U.S. Army was not good. Initially there was much curiosity as to the nature of SLUs work and my connection with it, particularly as two of the assigned members of the G-2 Section had the inevitable curiosity of all professional newspapermen. It is submitted that the situation created by having an SLU present in the section should be faced, and it be explained that its work is secret, rather than to pretend that it is not there...

11. Conclusion. Throughout the job I have felt great discomfort over the fact that I was serving two masters: one was the C.G. of First U.S. Army through his G-2 by reason of my detached service there, and the other was my parent organization. An example of this difficulty is clearly presented in the problem of security. Is Ultra given to the command subject to the rules and regulations;... or is it the responsibility of the command of which I am a part to see that the rules are obeyed; am I not part of the command and Special Branch's watchdog?

Again, is it my responsibility and duty to see that the best use is being made of Ultra and that the greatest advantage is being taken of the intelligence derived from it. When I raised this point, I was told I was criticizing the command.

If I have learnt anything in the Army it is that the first duty of a superior (whether it be a supreme commander or a squad leader) to a subordinate is to give clear orders. When all the major circumstances cannot be foreseen, then the duty of the superior is to find them out and make his will known, just as it is ultimately, by imposing his will on the enemy, that the commander defeats him.

ADOLPH G. ROSENGARTEN, JR.
Lieutentant Colonel, Info

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Appendix H
Part 3

American Embassy
Office of the Military Attaché
1, Grosvenor Square, W.1,
London, England

28 May 1945

MEMORANDUM FOR COLONEL TAYLOR

Subject: Ultra and the Third Army

1. Ultra Specialists

Major (later Lt. Col.) Melvin C. Helfers was Ultra specialist with 3rd Army from 6 June 1944 until he was hospitalized about 12 March 1945.

Major Warrack Wallace assisted Lt. Col. Helfers for a month in 1944, leaving the UK for France on 16 June and returning to the UK on 20 September.

Lt. Col. Samuel M. Orr, Jr., of the Ultra staff at 12th U.S. Army Group served as temporary replacement for Lt. Col. Helfers when the latter was hospitalized, and remained there for about a week until relieved by the undersigned.

The undersigned officer (Capt. George C. Church) reported to 3rd Army on 18 March and remained there until the SLU received orders to close on 15 May 1945.

2. Officers in Ultra Picture

General George S. Patton, Jr., Commanding General
Major General Hobart R. Gay, Chief of Staff
Colonel Paul D. Harkens, Deputy Chief of Staff
Brigadier General Halley G. Maddox, G-3
Colonel Oscar W. Koch, G-2
Colonel Harold M. Forde, G-2 Executive Officer
Colonel Robert S. Allen, Assistant G-2
Major Charles W. Flint, Signals Security Officer

3. Duties of Ultra Specialist

The interpretation of Ultra to the staff officers as listed above involved the keeping of a situation map combining Ultra and open sources, a regular morning briefing of these officers, and conferences with Colonel Koch and other staff officers at irregular times with the arrival of operationally important items of Ultra.

The Ultra briefing took place every morning (except when cancelled for lack of material) at approximately 0900 hours, immediately preceding the open briefing in the War Room. The special briefing was held either in General Gay's or Colonel Harkens' office, and was regularly attended by all officers in the Ultra picture, with the exception of Colonel Forde, who never attended during the term of duty of the undersigned, and Major Flint, whose interest was limited to items involving Signals Security.

Close contact was kept with the G-2 situation room, and situation reports from open sources were constantly checked for supporting and expanding information.

Since the Special Briefing was not held in the office of the Ultra specialist, the situation map was necessarily portable and was kept by the undersigned on a large folding map board.

Officer billets for 3rd Army HQ staff were often located at a considerable distance from the HQ. To facilitate the handling of high priority items arriving during the night and the preparation of the map with current items for the special briefing, the undersigned found it necessary to live in the office, rather than in the billet provided.

The special briefing was also always attended either by General Weyland and/or Colonel Brown of XIX TAC. It had been customary during the campaign for Major Grove (Ultra recipient at XIX TAC) to give occasional talks on the GAF at the special briefing, in addition to his work at his own command. During these last two months, however, the XIX TAC HQ was usually located at some distance from the 3rd Army, and it was possible only once for him to attend.

4. Role of Ultra in 3rd Army

(a) General: The undersigned arrived at the 3rd Army when the liquidation of the German forces west of the Rhine had already reached an advanced stage. The Rhine was crossed within a week, and at no time during these last two months of the war was the 3rd Army front stabilized for more than a few days. The German generals were conducting a war with means that were hopelessly inadequate, and many of their orders were only in effect "for the record." Orders for the preparation of defense lines were usually outdated by the time they reached us, with the line already pierced at many points or completely overrun. Orders for the commitment of new divisions were shorn of their normal significance because the divisions at best were ill provided with heavy weapons, and the piecemeal employment of units as they arrived at various points of the rapidly moving front led to a speedy frittering away of such new divisions as actually did arrive. German order of battle had become a tangle of miscellaneous replacement and training units, whose command relationships were no sooner established than they were destroyed by our farther advances. German resistance had degenerated into sporadic, if fanatic, defense of individual towns or strong points, and such counterattacks as were actually mounted never assumed serious proportions.

Under these conditions, the value of Ultra (as of intelligence generally) had undoubtedly suffered a decline from the time when the enemy had sufficient forces at his disposal to make his intentions of decisive importance.

During this period, however, Ultra continued to be of great value in foreshadowing or confirming the identifications made by actual contact and in providing an insight into the intentions and operations of the German commanders.

During the previous period (from D-Day until his own term of duty) the undersigned can give only general impressions based on conversations with Lt. Col. Helfers, which were necessarily very limited because they were held in the ward room of the hospital at Luxembourg, and discussions with members of SLU. It appears that initially no special briefing was held, and that Ultra information was passed only to the G-2, orally or by written report. The German attack towards Avranches seems to have been the time when the value of Ultra became apparent and the custom of holding a special briefing each morning was instituted. Relations with members of the G-2 section not in the Ultra picture were also a problem at the start, but these straightened themselves out once the positions of the SLU and the Ultra recipient were thoroughly established with the Commanding General and his staff.

By the time the undersigned arrived at 3rd Army, these problems had all been smoothed out. There were no administrative difficulties, our position was accepted without question if not without curiosity, and all G-2 agencies including the situation room, the photo interpretation section, the order of battle section, and the prisoner of war section, were extremely cooperative in providing information without receiving anything in direct return.

(b) Detailed: The fact that the special briefing from Ultra each morning was attended and carefully followed by the Commanding General and his staff ensured that Ultra intelligence was fully considered in the operational plans of the 3rd Army. It is beside the point that German capabilities at the end were not of sufficient seriousness to cause any change in these plans.

There was only one considerable German counterattack on 3rd Army front during the undersigned officer's term of duty. It occurred when the German 11th Army attempted to concentrate forces in the vicinity of Muehlhausen for a thrust to the southeast, at a time when the 3rd Army extended well to the east. Ultra provided valuable indications and identifications of this build-up, completing information from open sources. No change of 3rd Army plans was involved, since sufficient forces were available on the spot to cope with the threat. The Germans also planned a build-up for the Passau-Linz area, but this never fully developed owing to immobility of German formations and the complete collapse of German resistance.

One of the most valuable single contributions from Ultra during the two month period witnessed by the undersigned was provided during the closing days of the war, when we were notified by the 7th US Army that Army Group G had surrendered. The line specified in the surrender negotiations ran well up into Czechoslovakia, and therefore seemed to indicate that a considerable sector of the 3rd Army front was concerned in the surrender. From Ultra information, however, we were able to determine that Army Group G included only the German 19th and 1st Armies, that the right boundary of the German 1st Army lay in the area just east of Linz, and that the line specified in the surrender negotiations was apparently the boundary reported in Ultra between C-in-C West and Army Group South, rather than an Army Group G boundary. We therefore concluded that the surrender affected only a small sector of our front, which proved to be the case.

Operational aspects of Ultra were fully considered. The same cannot, however, be said for the order of battle information provided by Ultra. Most of the detailed work on German order of battle was done by a Captain Gerber who headed the order of battle team at 3rd U.S. Army. Ultra was not available to Captain Gerber. The issue of his indoctrination was raised with Colonel Koch by the undersigned, as it had been by Lt. Col. Helfers and Lt. Col. Orr, but Col. Koch felt that it was inadvisable and insecure to increase the list of those in the Ultra picture, and that our information should be reserved for use as a check on information produced and compiled exclusively from open sources. The situation in this respect must have varied at different headquarters, depending on the officers who produced the detailed analyses of German OlE, but it seems clear that if any considerable use is to be made of Ultra O/B at Army level (even though only as a guide and check), the officer producing the detailed analyses of O/B should be in the Ultra picture.

There was no real necessity for the indoctrination of Col. Forde, the G-2 Executive Officer, whose activities were almost exclusively administrative and who never attended the special briefings.

5. Security

Physical security at 3rd Army was satisfactory for the period during which the undersigned was on duty there. The SLU was invariably provided with two office rooms, one for the WT section and one for the decyphering and encyphering, and if there was no lock on the door of the latter, it was fitted with hasp and padlock. The Ultra specialist was assigned to a separate office near the G-2, was provided with a safe, and the map kept from Ultra sources was fitted with hasp and padlock. Ultra papers were handled very carefully by the entire staff and no reports based on Ultra were retained by anyone other than SLU or the Ultra recipient for more than a few hours.

Material received by the undersigned called in few cases for any direct action. During the German build-up in the Muehlhausen area already referred to, Colonel Allen occasionally talked in general terms to the G-2 of the US Corps concerned, and was able to base his interest in the area on information provided by open sources. In one instance, during the Battle of France, there had been some indiscretion. On that occasion, a warning of German air attack on the HQ area provided by Ultra was passed on to AA and other units without sufficient cover.

One serious instance involving Ultra security arose while the undersigned was with 3rd Army. Col. Allen was captured by the enemy on 7 April, while on a mission which involved the investigation of captured German installations. The circumstances were not entirely clear. In the opinion of the undersigned, the episode resulted from a succession of slight errors in judgment which added up to a tragedy involving loss of life and limb. The mission originally assigned to Colonel Allen, while fairly far forward, was in an area behind our lines and the mission was not in itself dangerous. Colonel Allen after completing this mission seems to have entrusted himself and his party to another officer who was presumably familiar with the situation, and this officer led the entire group further forward than was safe. It is, however, certain that the security of Ultra was preserved, since Col. Allen was safely installed in a hospital located immediately in the path of our advance and, with the cooperation of a helpful Austrian doctor, was held there until the arrival of our troops. He was never subjected to interrogation.

In general, all officers in the Ultra picture at 3rd Army were conscious of their responsibilities in connection with security. General Patton expressed his complete agreement with the reasons underlining the need for Ultra security, as set forth in the memorandum circulated by Group Captain Winterbotham.

6. Summary

The undersigned officer received complete cooperation and every consideration while on duty at the 3rd Army, both from those in the Ultra picture and others with whom daily contact was necessary. Material presented at the briefing was followed with interest and appreciation, and as indicated above, the only respect in which improvement could have been desired was in the greater use of order of battle information.

GEORGE C. CHURCH
Captain, CAC

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Appendix H
Part 4

American Embassy
Office of the Military Attaché
1, Grosvenor Square, W. 1,
London, England

27 May 1945

MEMORANDUM FOR COLONEL TAYLOR

Subject: Use of Ultra by Ninth U.S. Army

....2. Method of Using Ultra.

Within the G-2 Section, Ninth Army, the undersigned was known as SLU Liaison Officer. At all times he maintained a separate office, entrance to which was restricted to indoctrinated personnel. The method of operation was as follows:

a. SLU deliveries were made four times daily, at approximately 0730, 1030, 1630 and 2230. At all times during operations, ZZZZ and ZZZZZ signals were delivered as soon as ready. In addition, during certain phases, the undersigned would instruct the SLU on certain types of messages (e.g., relating to a particular area) to be delivered immediately regardless of priority.

b. Briefing notes were prepared early in the morning and about 0845, the G-2 was briefed. The undersigned attended the open briefing at 0015, and thereafter went to the Commanding General's office where he briefed the General and the indoctrinated members of his staff. A portable Ultra map was used for this purpose. Capt. Van Norden, Ultra recipient at XXIX Tactical Air Command, attended both briefings and briefed on the air situation at the latter.

c. During the remainder of the day, Ultra material was processed as received (i. e., read by the undersigned and appropriate notes made). In addition, the undersigned read all papers passing through the situation room (where a special box was maintained for him) and consulted with all members of the G-2 Section on the current situation.

d. The undersigned participated in the writing of all G-2 estimates and usually wrote or outlined the "Reserves" paragraph of the daily periodic.

e. Daily liaison was maintained with Capt. Van Norden of XXIX TAC, and more frequent meetings were held when the situation required. A number of visits were exchanged with the Ultra recipients at First U.S. Army and IX TAC, as well as with Twelfth and Twenty-First Army Groups, depending upon Ninth Army's subordination.

f. The undersigned also consulted daily with the "Y" group at Ninth Army (none of whom were indoctrinated) and the IPW personnel attached to the Army.

g. The objectives sought to be accomplished were as follows:

(1) To give the Commanding General and all indoctrinated members of the staff a clear picture of the open situation as it was affected by Ultra, together with a clear understanding of how each item could be used without loss of security.

(2) To give unindoctrinated members of the staff and the corps staffs as much of the situation in the light of Ultra as could be accomplished with appropriate cover, and to kill, so far as possible, open items of information known through the Ultra source to be in error. It was not always possible to "float" Ultra items, but it was possible to minimize errors from open sources.

3. Security.

The security consciousness of indoctrinated members of the command was in general good. This was due in part to the fact that following the first Ultra briefing, the Commanding General, of his own accord, made a brief talk emphasizing the need for such security in the strongest terms.

There were no breaches of security which the undersigned regarded as appropriate for reporting to Col. Taylor. On two or three occasions it was necessary to reprimand the G-2, (Col. Bixel) for indiscrete questions. It was also necessary on three occasions to speak in the strongest terms to Lt. Col. Abbott (head of Operational Intelligence for the greater part of the time) because of his attempts to include Ultra material in estimates without appropriate cover. In no case were these items seen by unauthorized persons, and the talks ultimately accomplished their purpose. Each incident was fully discussed with Capt. Vineyard, who commanded the SLU unit at Ninth Army.

4. Factors Found to be Helpful.

Ninth Army went into the field with a G-2 Section which had had no prior operational experience. In addition, there were personnel difficulties within the organization that led to inefficiency. These were solved in part, as late as 23 February 1945, by the relief and replacement of the G-2. In the various situations arising from these facts, the small degree of independence retained by the undersigned by reason of the fact that he was on DS and not assigned was invaluable. This status was also valuable in dealing with security problems. It is doubted whether an assigned officer could adequately handle such problems.

The unfailing accuracy and helpfulness of the staff at Bletchley Park was of immeasurable value in the field, since it enabled the Ultra recipient to speak with confidence and authority. This was supplemented in practice by signals and personal conferences with indoctrinated personnel at Twelfth and Twenty-First Army Group (depending upon Ninth Army's subordination) who were untiring in complying with requests and volunteering additional material. Thanks to this high degree of cooperation, the undersigned experienced no difficulty with the general principles of selection which denied certain

types of material to Armies. It is believed that in general, where such items were material to the mission of Ninth Army, they were passed on at the request of, or by, one of the Army Groups.

The training received at Bletchley Park and the experience gained from a visit to the Mediterranean Theater proved fully adequate.

5. Principal Difficulties and Recommendations.

The primary difficulty experienced in the field was in no way attributable to any deficiencies in the Ultra organization. In order to piece Ultra into the open picture, it is necessary to have a relatively accurate open picture. It was found that an inexperienced G-2 Section was unable to provide such a picture, and consequently it was necessary to build up the open picture from basic open sources, persuade the G-2 Section to recognize the validity of this open picture, and finally to float Ultra against this perspective.

It is relatively easy to keep indoctrinated personnel advised on the enemy situation as it appears from all sources, including Ultra. It is more difficult to accomplish the same end with respect to non-indoctrinated personnel at one's own headquarters and still more difficult to do so with respect to Corps staffs. In order to accomplish the last, the Ultra recipient must establish his position within the G-2 Section so that he can (a) veto or amend incorrect passages in publications sent to Corps prepared by unindoctrinated members of the staff, and (b) publish appreciations or estimates to advise the Corps of the true picture, with appropriate cover. Forms of appreciations and periodic reports prescribed by American manuals are not as well adapted to this task as the more informal type of discussion used by the British. The task is basically simple: to review the enemy situation using all bits of open information known to be correct (from Ultra, or otherwise) and filling in bits of Ultra information by way of speculation or reasoning. At Ninth Army, experience gained from work with Twenty First Army Group led to the publication of a series of so-called "Notes on the Enemy" prepared by the Ultra recipient. These were published as annexes to Periodic Reports or as Spot Intelligence Reports, and by means of them the Corps were kept currently advised of the enemy situation, including such Ultra items as would be "floated" by this means. There is attached to the ribbon copy as an example the series of these "Notes" published in this manner by Ninth U.S. Army during preparations for the Rhine crossing and the advance toward Berlin

6. Conclusion.

Ninth Army relied heavily upon Ultra intelligence, and, when the service was withdrawn, all indoctrinated personnel expressed complete confidence in the material and appreciation of its value to the Army's operations. Although there are details that can be improved, one may say that the Ultra organization as a whole was of material assistance to the Army throughout the period of its operation.

LOFTUS E. BECKER
Major, F.A.

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Appendix H
Part 5

American Embassy
Office of the Military Attaché
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30 May 1945

MEMORANDUM FOR COLONEL TAYLOR

Subject: Ultra and Its Use by XIX TAC

The following is a report of this officer's service as Ultra recipient with XIX TAC, from 16 June 1944 to 16 May 1945.

1. Historical.

Upon completion of training at the Park the undersigned was assigned to XIX TAC and reported on 16 June 1944 to Col. Joseph Cella, A-2, at Aldermaston...

On 1 Aug 44, XIX TAC commenced active air operations in cooperation with 3rd Army. Shortly after this, demands on General Weyland's time made it necessary to brief him periodically but not at a given hour daily. He continued to be kept up to date on Ultra, but gave added responsibility to his staff with regard to operational details. Col. Cella continued with his daily briefings and studies, and took whatever action was necessary as a result of Ultra information. Both continued to receive immediately any Ultra signal (and its interpretation by the writer) which had operational significance and where time was a factor.

At the time of the formation of the 1st Allied Airborne Army, Col. Cella left to become its director of intelligence, and was succeeded by Col. Charles Hallett as A-2 of XIX TAC. He was immediately indoctrinated and continued to receive Ultra in the same manner and made the same studies as Col. Cella. Shortly after that, his executive A-2, Lt. Col. Walter E. Bligh, was indoctrinated and was briefed with Col. Hallett. The last officer to be indoctrinated was Col. Roger E. Browne, Chief of Staff, at Etain in the latter part of October 1944. Indoctrination in the field was given either by Lt. Col. McKee, or the Senior SLU officer, and the writer.

The two A-2 officers continued to receive daily Ultra intelligence, and the General and his Chief of Staff, to receive periodic briefings, plus all Ultra intelligence of immediate operational significance. This service was continued until the writer left the Command on 16 May 1945.

2. Methods of Handling Ultra.

A. Service to Indoctrinated Officers.

At the beginning of service as Ultra recipient at XIX TAC the writer adopted a standard form of presentation in which the information was arranged under the following headings:

1. GAF Intentions
2. GAF Operations
3. Indications of GAF Capabilities
4. Damage Reports
5. Potential Targets
6. GAF Order of Battle and Changes
7. Special Information (Japanese Military Attaché reports when received, German appreciations of Allied activities, GAF reports and descriptions of new aircraft, compilations by higher commands, etc.)
8. Ground Force Information

This sequence was found satisfactory to all customers, and was continued, although the method of presentation varied with circumstances.

In the beginning, a written report, as above, was presented to General Weyland, preceded by a brief of one page, when possible, covering the significant information in any or all of the above categories.

This was accomplished by a portable map, and any questions developing from the information were answered. The same method was followed for Col. Cella.

After active air operations commenced and Gen. Weyland was briefed at irregular but frequent intervals, the briefing became more and more a verbal one, but the writer continued to make a written report, both because Col. Cella and Col. Hallett preferred it, and because the writer desired to be sure of including all items of significance in an overall briefing.

In addition to the daily reports, the writer offered, during the middle of the move across France, a resumé of Ultra information, showing the recent changes in the enemy picture, and concluding with an estimate of GAF capabilities.

This was well received, with a request that the same type of report be submitted periodically, at least as often as significant changes in the GAF situation occurred.

About the same time, a request from Gen. Patton's Chief of Staff came through Lt. Col. Melvin Helfers, Ultra recipient at 3rd Army, that a verbal presentation of Ultra information on the GAF be given to Gen. Patton and his staff at the regular Ultra briefing, along the same lines as the written resume. This request was complied with, and was continued periodically whenever the 3rd Army and XIX TAC Headquarters were together. It was the custom of Gen. Weyland and Col. Browne to attend the regular morning Ultra briefing of Gen. Patton and his staff, given by Lt. Col. Helfers and his successor, Capt. Church, during these times. It should be stated here that both generals and staffs were extremely attentive listeners, and gave the most serious consideration to Ultra information. This interest was indicated by the concentration of attention during the briefing, as it was the rule to ask no questions during the verbal presentation, but afterward many intelligent questions were asked and opinions

requested, based on the material at hand. It afforded the writer the greatest satisfaction to observe the influence of source information on the conduct of operations.

B. Field Conditions Affecting Handling of Ultra.

During the summer campaign and until October, when the Command moved into buildings in Etain, the Headquarters was in the field, in tents. The writer was assigned a command post tent for working, and later it was used also as living quarters, largely to maintain security and facilitate delivery of signals at odd hours. Working space and facilities were at a premium under these conditions, making it necessary to prepare portable maps and other presentation aids that would be at the same time effective and secure. During these times both generals and the A-2 were briefed in the privacy of their office vans. Supplies were not plentiful, and it was necessary to make use of expedients which fell short of being completely satisfactory to the writer.

When the command moved into buildings, this recipient was assigned an office which could be securely locked, and from then on much better presentations could be made. A permanent situation map, order of battle charts and maps, potential targets charts, and other displays were set up. These visual aids were effective in building up intelligence from Ultra signals. It then became the habit of the indoctrinated officers to come to these offices, and a much clearer picture could be given.

Under these conditions the daily written report was no longer necessary, and the signals were divided into the categories, and in the same sequence as before mentioned. Interpretive comments were written on the signals themselves.

It became the habit of Col. Hallett in particular to come in daily, and digest the information, with the maps and charts before him, prior to the staff conference, when operational plans were laid. At all times, signals having possible immediate operational significance were brought to all of the indoctrinated officers available as soon as they were received; most often to Col. Hallett, who was responsible for either tying in, or developing Ultra intelligence into open source intelligence.

As to important messages received at night, a working procedure with Gen. Weyland was agreed on at the beginning. Gen. Weyland stated that he wanted to be awakened at once for any information that he could DO something about, and it was left to the writer's judgment and experience.

It was the same for Col. Hallett, and the procedure was satisfactory and became standard.

C. SLU-Recipient Procedure.

The XIX TAC used the 3rd Army SLU as long as the two headquarters were together. Depending on varying conditions, receipts of signals averaged twice daily, with high priority messages being delivered as received. With the breakthrough from St. Lo, 3rd Army HQ, and its SLU moved ahead to maintain communications with its forward elements, and XIX T AC HQ was forced to separate from them for the same reason; fighter groups could not have advance fields prepared as fast as the army moved forward, and there was the same necessity for maintaining communications with them. Therefore it was necessary for the writer to go by road to the nearest SLU. During this period the writer was serviced by various other SLU's, those with IX TAC, IX Air Force, 12th Army Group. For one period,

when XIX TAC HQ was in the Foret de Marchenoir south of Chateaudun, the nearest SLU was at Versailles. The writer moved from the HQ to Versailles where he could prepare the information, and made a daily trip of 96 miles, and return, to present the Ultra picture.

This necessitated 8 hours on the road, in addition to a full-time period of preparing and interpreting Ultra receipts. Use of Ultra information under these conditions was limited.

When the Command rejoined the 3rd Army HQ at Etein in October, normal relations with its SLU were resumed.

Except for very brief and infrequent intervals, when 3rd Army moved forward a day or so in advance of XIX TAC, the necessary time element on delivery of signals was observed. XIX TAC received its own SLU in March 1945 at Luxembourg; the SLU and this recipient were given adjoining offices. This is the ideal situation, messages being delivered frequently during the day, and any corruptions could be straightened out at once by consultation with the recipient.

All SLUs were highly cooperative. Relations were cordial, and every effort was made to render special assistance to this recipient under the special circumstances related.

3. Security.

Maintenance of security at XIX TAC was not a problem. The writer secured permission to have his presence explained at the outset in the following manner: Col. Cella called the officers of the A-2 Section together and stated that the writer had had special training with British Intelligence; that they had developed through longer experience in the war many sources and methods of interpretation; that their results were excellent. They had agreed to share them with our Army and Air Forces by training American officers for assignment to various commands. But they maintained a higher security standard, and this officer therefore would work directly with the A.C. of A.S., A-2. His work would be Top Secret and would not be discussed.

This statement satisfied the natural curiosity, and the writer's direct contact with the A-2 as intelligence liaison with the British was accepted without further comment.

4. Operational Use of Ultra.

Use of Ultra signals at XIX TAC are indicated by the headings under which the writer presented the material. They are so obvious that detailed discussion is not believed necessary. A comparison of intentions with the enemy scope of operations proved very useful in establishment of actual capabilities.

Damage reports were scanned for confirmation of results and claims, and were more than once the deciding factor in determining whether a repeat operation was necessary. When Patton’s open flank was along the Loire River, and XIX T AC was assigned the job of protecting that extended open flank, Ultra knowledge of enemy locations and movements was of great value.

Order of battle information was of equal value in determining enemy capabilities.

At all times, Ultra proved an excellent means of confirming or completing intelligence from other sources, influencing the decision to take operational action. There were times when Ultra information was of such immediate value that the shortest possible steps were taken to translate it into open source intelligence so that operational action could be taken at once. A good example was the signal received early one morning (late March or early April) that the enemy had a strong concentration of M/T in a woods near Marburg. This was immediately passed to the Chief of Staff and the A-2, who ordered a visual reconnaissance to include this area. The recce pilot returned immediately with a report that a huge concentration was there; a squadron of fighter-bombers was in the vicinity and was redirected to the attack. They achieved excellent results, and throughout that day, as the enemy attempted to get out, successive waves were directed against them. At the close of the day, claims amounted to some 400 plus M/T, tanks and armored vehicles destroyed.

Another example of direct results obtained through Ultra information was at the time Gen. Patton was preparing to attack through the Siegfried Line. Air-Ground plans included an attack on enemy Battle HQ at the proper moment in advance, to disrupt communications and direction of defense.

A careful collection of Battle HQ locations was made, confirmation and pinpoint locations were confirmed by photo and P/W interrogation. The attacks were successfully made. Enemy signals citing damages were received, confirming the decisive influence of the information.

HARRY M. GROVE
Major, AC

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If all Army Group/Army Signal Radio Intelligence Companies and Corps Signal Service Companies (Radio Intelligence) submitted periodic administrative reports and technical histories, many have been destroyed or so misplaced as to be lost. The others are uneven in value as historical sources. The best is the "Third Army Radio Intelligence History in the Campaign of Western Europe."

Other Sources

Histories of Allied Force Headquarters and NATOUSA and of the Fifth Army have minor use for a cryptologic history. The archives of Allied Force Headquarters went to the British after microfilm copies had been made for the United States. The Mediterranean Allied Air Force records were similarly preserved. A guide of the microfilm and the reels themselves are at the NARC, Suitland, Maryland. In the MAAF records is a surprising amount of SIGINT matter.

The intelligence journals of various commands contain SIGINT items either attributed to a "reliable source" or identified as "Y" material.

Both the 6th Army Group (Devers) and the 12th Army Group (Bradley) produced after-action reports that paid attention to SIGINT.

The author has seen no CX/MSS messages: all references to them are from citations in the *G.C.&C.S. History*.