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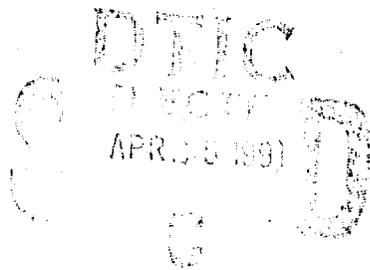
ULTRA: ITS OPERATIONAL USE IN THE EUROPEAN THEATER OF OPERATIONS, 1943 - 1945

BY

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United States Army

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ULTRA: ITS OPERATIONAL USE
IN THE EUROPEAN THEATER OF OPERATIONS, 1943 -1945
AN INDIVIDUAL STUDY PROJECT

by

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Much has been written concerning ULTRA intelligence and its niche in World War II history. What has been lacking is an examination of its use on combat operations at the operational level of war. Timeliness and integration with all intelligence sources available to the field command are key in ULTRA's successful use. Intelligence must be timely, arriving early enough to influence the operational planning process or leaving enough time for reaction if it is to be used for targeting or maneuver. ULTRA's timelines were sufficient for Army Group/Air Army utilization. The system for its dissemination to Army/Tactical Air Command level was, however, not structured to support its rapid use. This study examines the dissemination of ULTRA to the operational level in the European Theater of Operations and its integration into the command decision process. The study also establishes that ULTRA was more effective when fused with other sources to present an all-source picture than when it was used as a single source, albeit one with potentially great insight into the mind of an opposing German commander.

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INTRODUCTION

The impact of ULTRA Intelligence, derived from the exploitation of high-level German communications in World War II, has been often been examined from a strategic perspective - its use in the Battle of Britain, North Africa and Overlord (especially in support of BODYGUARD operations) are all good examples. Over reliance on it as a sole source may have, in its absence, led to the complacency of Allied commanders in December 1944 and the surprise achieved by the Germans in their Ardennes Offensive. And Churchill's avid readership of ULTRA and his supposed lack of warning to Coventry is stuff of which legends are made. The purpose of this paper is neither to refute, nor to underscore ULTRA's effect on theater level operations, but to examine its impact on the operational level of war - its use at US Army Group and Army levels, and their counterpart Air Army and Tactical Air Commands, in the western European Theater of War.¹

When emphasis on the specific operations of a single formation is appropriate, the focus will be on the Third Army and its operations from activation in July 1943 to just prior to the Battle of the Bulge. This period provides an opportunity to look at ULTRA support during the hectic, pell-mell days following the breakout from the Normandy

beachhead to the static, limited offensive of the Lorraine campaign. Otherwise comments and conclusions will be based on all American operational level commands in the European Theater of Operations (ETO).

ULTRA's production, its dissemination and its use in the field can be categorized as the "execution", and the "command and signal" of its support operations. Before we examine these functions, however, it is useful to look at the "mission statement" upon which ULTRA support was based. This was specified in a letter from US Army Chief of Staff, George C. Marshall, to General Eisenhower in his role as senior US officer in the theater as well as Commander, SHAEF. The letter covers the specifics by which the British agreed to provide "ULTRA" intelligence to American field commands. The conduit by which this support was provided terminated with the US Special Intelligence Officer or Representative attached to a field command; his mission, as specified in the Marshall letter, was to:

... to evaluate ULTRA intelligence, present it in usable form to the Commanding General and such senior staff officers as are authorized recipients; assist in fusing ULTRA intelligence with intelligence derived from other sources; and give advice in connection with making operational use in such fashion that the security of the source is not endangered.²

The underlinings are not in the original letter, but were added by LtCol James D. Fellers, the ULTRA representative to the IX Tactical Air Command (providing

direct air support to the First Army), as key to his perspective of his mission.³ The dramatic application of a single ULTRA message, by a insightful commander, to execute a decisive operational maneuver did occur, but it was most often the hard work of fusion with other intelligence, and the translation of the obscure into the relevant and usable that made ULTRA support effective - and of constant operational benefit to their commands. Conversely, some ULTRA representatives saw no "value added" responsibility in their mission; for them, their role was more postman than intelligence officer. For that their commands did not receive the high level intelligence support to which they were entitled. This, therefore, is a study in contrasts, not consistency.

ULTRA: ITS PRODUCTION AND DISSEMINATION

It is not the purpose of this paper to restate how ULTRA intelligence was produced; numerous excellent sources do this extremely well.⁴ It is necessary, however, to provide some background on the operations of Government Code & Cypher School (GC & CS) operations at Bletchley Park and to clarify terminology. Additionally, it is necessary to explain in detail the structure and format of ULTRA reports, as transmitted to consumers in the ETO. Study of the report's external elements, especially those that facilitate

its dissemination, are key to determining the report's timeliness and who its actual recipients were. This detail is found at Appendix One.

Within Bletchley Park, the actual "codebreaking" of the German ENIGMA machine cyphers as well as other high level (high security) cryptographic systems was done within an organization that took its name from its building number - Hut 6. The process was extremely complex. The ENIGMA encoding machine was employed on a myriad of communications nets supporting multiple German headquarters and agencies, each with its own machine settings and often separate machine characteristics. Variables were altered for individual messages and settings changed frequently. Thus, attacking this problem remained a constant challenge with a final solution never possible. The effort stopped only when the war ended.

Naval material (the actual decrypted material, still in its original language) was forwarded to the Admiralty's intelligence organization in London for translation and analysis. For less parochial reasons, all other material, including that derived from the decryption of air and ground force associated cyphers, was processed at Bletchley Park.

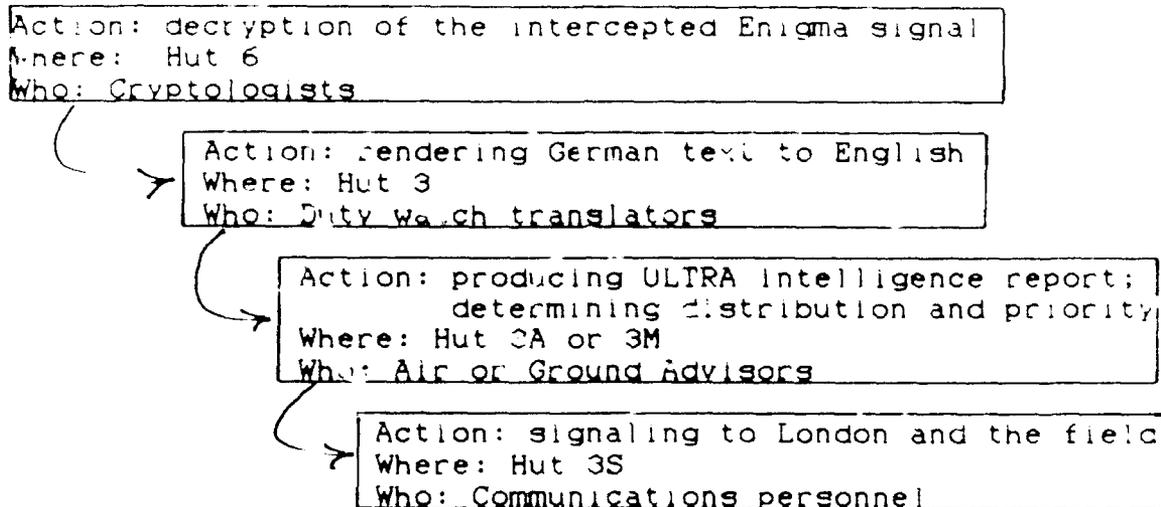
For Army/Air Force material (generally termed "CX/MSS"), this was done within Hut 3. The decrypted material provided would not be, in most instances, a word-for-word match with the original German message text.

The reasons for this varied. Errors may have been made by the German drafter or his supporting cryptographic personnel in preparing the message for transmission. The British intercept operator may have missed portions of the text due to atmospheric conditions or other technical reasons. Only portions of the ENIGMA protected message may have succumbed to Hut 6's decryption efforts. Thus, Hut 3's German-to-English translators were faced with a problem very different from an academic word-for-word rendering. Suppositions had to be made and gaps filled.

The resulting translation was screened by the Head of the on-duty Watch for completeness and intelligence value, then passed to either the Air (3A) or Military (3M) Advisors for further analysis and drafting a supporting intelligence report. Both 3A and 3M consisted of the section's head, his deputy and their secretary; the Air and Ground Advisors assigned, in pairs, to each watch; and, to aid them in the process of intelligence production, the section's extensive index or data base. After the intelligence report was written, dissemination was determined. In addition to providing a copy to London, would it be signaled to commands in the field?; which commands?; and how fast? These decisions had to be made rapidly by the Advisors in that, at the height the cryptologic war, they were handling one signal every four to five minutes.⁵ After a final check was

made by the Head of the duty Watch, the message was sent to the communications center (3S) for signaling.

Simplistically, for air and ground associated intelligence, this process can be described as:



Copies of the resulting ULTRA intelligence reports have been partially released into the public record and are available for study. Fortunately, this public release covers much of the intelligence reporting on German military activity - naval, air and ground aspects. These are, however, the record copies from Bletchley Park and not copies of signals actually received in the field. Security regulations required ULTRA signals at the receiving end to be tightly controlled and destroyed expeditiously. In the field, these regulations were strictly enforced. Also, these releases contain complete series; other than London, no consumer would have received every report. It should be

assumed that commands did receive the report if they were on distribution, but times of actual receipt can not be ascertained. Additionally, it should not be assumed higher headquarters retransmitted pertinent reports to subordinate commands, even when authorized to receive them.

Message dissemination was determined by the 3M or 3A advisor based on his knowledge or assumptions of future plans and intentions. Command ULTRA representatives were requested to provide daily SITREPS to Bletchley Park, including, where possible, advanced notice of pending supported unit operations. This feedback had the dual purpose of enhancing Hut 3's analytical effort, and ensuring proper and timely distribution. Especially key would be advanced notification of friendly force deception planning, in order to aid Hut 3 analysts in remaining focused on the true operational picture, but more importantly, to determine German reaction to (or discounting of) the Allied deception operations. While this feedback requirement, and the underlining desire to tie intelligence reporting to consumer needs, would seem in the best interest of the supported command, many regarded it as an after thought, and some G-2s did not even understand the reasoning behind the request at all.⁶ In short, the requested feedback was neither consistently nor universally provided. Its absence created problem areas that affected processing and reporting.

These general message distribution rules seemed to have been applied.

- * All information deemed appropriate for a headquarters was also sent to its higher (but not necessarily to its subordinate) headquarters.⁷ Several field ULTRA representatives criticized this policy of relying on higher command dissemination to subordinates. When made aware to this situation, Hut 3 advisors apparently responded by providing direct service, to include pertinent reports and daily summaries.⁸
- * Parallel dissemination (dissemination to adjacent headquarters) was made to ease coordination requirements.
- * Likewise, distribution was simultaneous to both ground and supporting air components, often even when collocated. This may also have ensured receipt during the period of rapid movement across France where it could not have been easy to determine from Bletchley Park which headquarters was stationary and which was mobile, and for how long. Army Groups/Tactical Air Forces and Armies/Tactical Air Commands were serviced by a single communications unit and thus did not have separate delivery groups for forward, main and rear headquarters use, as did higher command levels. Therefore, traffic might be sent to a command, but received at a location well away from the decision making command element.
- * 1st Allied Airborne Army requested extensive distribution, covering all sectors of the Western Front, due to its broad area of possible deployment.⁹

Adherence to these "rules" would ensure appropriate distribution of ULTRA even in the absence of feedback from field commands. Additionally, geography and logical terrain divisions could be used to separate message traffic. It is interesting to note that during the initial phases of the Normandy Campaign, all three Army Groups and their supporting air commands seemed to receive the same

distribution. During the final stages of the war, as Army Group operations became more divergent and distinctly unique, more selective distribution was applied. Additionally, there was distinction made between air and ground unique reporting, and distribution was not automatic to both headquarters.

Dissemination was, and still is, governed by the principles of "need-to-know" and echelon, below which certain classified material would not be normally transmitted. When the Americans entered the war, they became intelligence partners with a nation that had been successfully exploiting the Axis nations for strategic and operational intelligence purposes for a number of years. In addition to the high level cryptologic efforts occurring at Bletchley Park, exploitation was being performed by deployed radio intercept units (termed "Y" units¹⁰), whose analysts were often able to break and decrypt medium and lower grade systems in the field, and pass the resulting information directly to the supported unit's G-2. The British and Germans, and to a lesser extent the other warring militaries, were expert in providing tactical/ operational SIGINT support; the US military was new in this arena, but was quick to copy experience. Since the Allied SIGINT effort was to be based on mutual sharing between the British and Americans, resulting classification guidelines and rules for dissemination were structured on those formulated by the

British, and adopted by both partners, with some minor modification, for world-wide use.

Appendix Two details SIGINT Classification guidelines, associated terminology and dissemination levels. US War Department security regulations governing dissemination of SIGINT, issued in October 1943, aligned US procedures with those of the British. Two security categories were established, each with their own handling procedures: ULTRA-DEXTER (Special Intelligence), with its Special Security Officer(SSO)/ Special Liaison Unit (SLU) field support arrangement and dissemination only down to theater level; and DEXTER (Radio Intelligence or "Y" Service produced material) provided directly to supported field commands via G-2/A-2 channels. In March 1944, regulations expanded classification categories to three: ULTRA (Special Intelligence or high level cryptanalysis), PEARL (low-level cryptanalysis), and THUMB (traffic analysis and other signal intelligence short of cryptanalysis). PEARL and THUMB material was classified SECRET (US)/ MOST SECRET (UK), with restricted access; ULTRA retained its more restricted controls. In 1945, the regulations governing PEARL and THUMB were revised, in conjunction with the US Navy, and a single codeword, PINUP, was used for all low level Signals Intelligence, to include plain text translations.¹¹

Regulations, rewritten and issued on 11 March 1944, allowed dissemination of ULTRA material, previously

restricted to theater level command, down to Army level (or equivalent Air Force formation) and to Corps level, when operating independently. The same regulations also specified positions, whose incumbents would normally be given access to SIGINT. (Regulations also allowed dissemination of PEARL/THUMB material to Division level, in the case of independent operations.)¹² Generally however, ULTRA material was not disseminated below Army/Tactical Air Command level, and the results from field cryptanalysis and traffic analysis no lower than Corps/TAC level. Dissemination to subordinate formations could be in the form of operational orders; regulations specified the following:

When ULTRA furnishes the basis of action to be taken by a command which is not authorized to receive ULTRA, the information when passed to the subordinate command must be translated into terms of an operational order, so worded that, if captured or intercepted by the enemy, the origin of the order could not be traced back to ULTRA. Such orders must never contain the precise time, date or place of an enemy operation, or the name of any ship or tactical unit revealed only by ULTRA. Such operational orders, if transmitted by radio, must be in high grade cryptographic systems.¹³

The lack of ULTRA dissemination down to Corps level, except in situations where the Corps was operating independently, remained a highly controversial issue throughout the war. The issue became acute whenever a former ULTRA recipient (especially when also an advocate), serving on the staff at an authorized level was "moved up" to command at the Corps and below level.

Three issues were involved. The first, that of security, was focused around the potential for compromise. The fear was that a Corps command group, primarily focused at the tactical level of war, might, "...in the heat of an operation " (and with the need to react quickly) "... be tempted to act without proper cover." As was argued, however, the focus of corps operations changed from the tactical to the operational level of war based on the theater in which the corps was employed. For instance, in the Pacific theater there were no Army Groups; "armies operated as European army groups, and corps as armies."¹⁴

Secondly, if ULTRA material was to be disseminated to the Corps level, it would require the presence of an SSO and his communications structure at that level also. With the SSO system operating under constrained manpower conditions, would this have been warranted to all corps, if only an occasional ULTRA report was applicable to that command level, and that same information could be disseminated in the form of an operational order?¹⁵

The most telling argument was that ULTRA's value to a operational level commander came prior to an operation where an overview and possible intentions of the enemy were key, rather than during the operation, where actions were time sensitive and the commander's focus was on his sector and mission. This was true for Army level, as well as Corps. Here timeliness was key. Processing at Bletchley Park and

subsequent dissemination procedures required time. Ralph Bennett's experience in Hut 3 caused him to state:

Even under exceptionally favorable conditions, it proved impossible to complete all these processes in less than two or two and a quarter hours.¹⁶

Bennett's statement applies to processing and dissemination times in 1941, while Bletchley Park was supporting the North African campaign down to the theater level only. The next three years of ULTRA service would have provided the experience necessary to shorten these times slightly, if the supported command structure had remained constant. By 1944, however, the complexity of multi-theater warfare and ULTRA service being provided down to Army level is likely to have dramatically increased these times. Therefore, intelligence that bordered on the tactical, or fell completely into that category, often became confirmatory to other open source material already on hand, to include that provided by attached "Y" Service units.¹⁷ During on-going operations, Army level timelines could be met with a degree of certainty and regularity; corps' could not. It was therefore maintained that dissemination rules concerning Corps level were sound, providing exceptions could be made.

ULTRA report context itself shifted from tactical emphasis to strategic/operational during the same 1941 to 1944 period. More German ENIGMA keys were broken, some of which protected traffic on radio links servicing high

which protected traffic on radio links servicing high command elements. Decrypts surfaced that contained material of higher level interest. Intelligence officers in Hut 3 and their counterparts in the field became more attuned to each others needs. Theater planners began focusing on long-term operations, not the ones in progress. ULTRA reporting correspondingly focused on German High Command orders, "statistics on POL and ammunition stocks and consumption rates, aircraft strength returns, tank losses and new deliveries ..."18 It was found that "... better strategic guidance could be derived from analysis of ULTRA's logistical evidence than anything reported about the movement of troops on or toward the battlefield."19

The maturing of the ULTRA process is apparent in a comparison between the ULTRA CX/MSS OL series, covering the period 14 March to 19 November 1941, to the XL series covering a portion of the events of the summer and fall of 1944 (specifically 29 June to 13 September 1944). The increase in volume of traffic alone is staggering (from 1500 to 10,000 messages); however, the more subtle maturation is in the drafting of the reports themselves. Bennett best critiques the early reports drafted by himself and his contemporaries.

Three defects mar many of them, however, limiting their intelligence value ... Few state the time at which the underlying German message originated, although this was nearly always approximately clear from external signals data (which, of

course, included by routine the time at which an operator began transmitting), if not from any direct statement. Similarly, few named the originating German authority and the arm of service to which he belonged or gave any indication of his status in the hierarchy of command; yet the source of a piece of information and its approximate age at the time of receipt are vital ingredients in assessing its value. Thirdly, too little care was taken to distinguish factual statements made in the German original from comments upon them. This occasionally makes the precise meaning of the resultant text hard to measure even today, and must sometimes have baffled recipients as they strove under battle pressure to use our signals to guide them toward appropriate action"20

One criticism that did persist was the practice of inserting grid references in the message text without explanation of its source. Was it a translation from the original German or an informed guess by a Hut 3 Advisor? Without such a clarification the recipient in the field was at a loss whether to accept it without question or apply local terrain knowledge in clarification.²¹

However, by 1944, most of these deficiencies had been corrected, and material of strategic/operational value was flowing to commanders who needed it - and to their intelligence staffs who processed it for them. With its entry into the war, the American military inherited access into this mature system.

ULTRA & THE AMERICANS

Beginning in April 1943, negotiations began between GC & CS and the US Army with respect to what involvement Americans, specifically representatives of G-2, War Department and the Signal Intelligence Service, would have in the exploitation of high grade German military decrypts and dissemination of derived intelligence. Since 1941, cryptologic exchanges had been on the technical exchange level only.²² With American involvement in the European theater of war growing, this arrangement had to change if American commanders were to receive the same type of intelligence support being provided to their British counterparts.

Previously, the Signal Intelligence Service's expertise had been directed against the Japanese, and their codes and cipher systems (the MAGIC effort). The SIS, or, as it was soon to be renamed, the Signal Security Agency, was anxious to establish a duplicative effort in Washington to exploit high grade German air and military material (CS/MSS reporting) in support of the War Department and American field commands. Creating a separate center, it was argued, would have the additional benefit of providing a back-up, if Bletchley Park was damaged or destroyed. The British, on grounds of security, inventive jealousy and economy of effort, proposed a division along expertise lines with them

retaining a monopoly of the German and Italian military and air target, and the U.S. concentrating its efforts against the Japanese.²³

The resulting 17 May agreement generally followed the British proposal, provided for complete exchange, and specified:

1) US liaison officers will be appointed at GC & CS 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 US liaison officers at (the British) War Office and Air Ministry, respectively. (emphasis added)

2) Decodes or summaries to be passed to Washington through existing British channels.

3) 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 will 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.²⁴

Limitations established for the passing of material to Washington, as well as agreement on the handling of material of interest to the US Navy (a requirement not covered in the basic agreement) would demand further discussion and agreement - just as would clarification of "Order of Battle material" being passed through London. The agreement firmly established a requirement for three subsets of the US liaison team - collectively known as 3-US, following from

the Hut 3 section descriptors. All personnel were carried on G-2, War Department strength documents and assigned to the Military Intelligence Service (MIS), War Department London.

3-US, London The London element was, from the US perspective, the War Department's conduit for "raw intelligence material upon which the evaluations and conclusions of the British Service Ministries and the Joint Chiefs of Staff are based, the purpose of the arrangement being to give the War Department a basis for confirming or disagreeing with British evaluations and conclusions, and arriving at independent evaluations and conclusions."²⁵ Additionally, they were to work the Order of Battle issue to ensure such reporting was disseminated both to Washington and to appropriate US commanders.

Order of Battle (OB) reporting was contained in a series of Special Intelligence summaries issued by the London Ministries under the overall covername of "SUNSET". These items were condensed notes on important decrypts and were issued (1) daily, summarizing significant OB information, and (2) weekly, on German Air Force changes. Reporting records covering the SUNSET series have not been declassified, thus precluding public scrutiny. The Washington based MIS apparently attempted to expand this condensed and summarized material back into detailed strategic level reports, not surprisingly with little

success.²⁶ However, at least one field command, the IX Tactical Air Command (in support of First Army), was appreciative of SUNSET material for its overview and meaningful structure.²⁷ This command also seemed to have a problem with its higher headquarters (Ninth Air Force) retransmitting material; presumably, SUNSET provided a less timely backstop.

The 3-US, London element also passed to field commands reports based on decrypts of German military intelligence traffic (the MEL & VAR series) for dissemination to supporting Counter Intelligence Corps (CIC) personnel.²⁸ These series have apparently never been released into the public record.

3-US, GC & CS As earlier discussed, key to the process of dissemination of ULTRA reporting to field commands were the Air and Military Advisors in Hut 3. Americans was to supplement the 3A & 3M teams, to "participate in the selection of intelligence to be disseminated to British and American Commands in the European Theater; to assist in the preparation of such intelligence for dissemination; and to insure that all intelligence available at the point of dissemination, which may be of interest to American Commanders, shall be disseminated to them."²⁹

Additionally, this contingent was tasked with selecting CX/MSS decrypts for courier (later transmission) to Washington. G-2, War Department had, by September 1943,

gained agreement with the British to allow the forwarding of "all desired intelligence". Operating with "little or no guidance", 3-US personnel relied on judgement, supplemented by the advice of their British contemporaries and the occasional message from Washington. The principles for selection strangely were never formalized and remained unstructured throughout the war. While Washington's intelligence requirements would have been strategic, the material forwarded to MIS was a mixture of the strategic (major order of battle items, plans for future operations, manpower reports, and policy material) and the operational - Elivo (German air/ground liaison) reports, front line material and material of a so-called "tactical" nature.³⁰

With regard to providing support to field commands, the Americans, both at Hut 3 and, as will be discussed later, with the field commands themselves, were the beneficiaries of a well established British system that had been supporting the operational level of command since 1941. The problem was one of conformity rather than invention. It can be argued that the infusion of Americans into the system at this time provided a "new set of eyes" that, in fact, may have improved the system even further.

There were many times when 3-M or 3-A was annoyed by 3-US concerning the content or priority or routing of a given signal. On some of these occasions 3-M or 3-A refused to budge; but not infrequently, particularly when the Western Front was young, the criticisms of 3-US were accepted and action taken. The somewhat different approach

of the (3-US) section provided a useful check on the principal mission of Hut 3.³¹

Supplementing the CX/MSS material provided to both Washington and American field commands were other such non-Hut 3 items of military significance to include German police (GPD decrypts) and military intelligence material (in addition to the MEL and VAR series provided by 3-US, London), diplomatic traffic (the BAY series), and low-grade decrypts of air and ground material. Also provided were the summary reports from Hut 3 covering German air force (AIX or CX/MSS/A1) and ground (MIX or CX/MSS/M1) materials.³² This body of reporting escapes analysis for operational level impact in that the decrypts themselves and the resulting SIGINT reports and signals remain classified. However, enough information is available on the BAY series (diplomatic/ attache reporting) and the STARK series (political/economic) to warrant further discussion.

Initially field commands were receiving intelligence of military value noted in diplomatic and attache traffic via extracts from War Office or Air Ministry reporting and included in the MIX or AIX summary traffic noted above. This Hut 3 service lacked timeliness and resulted in much valuable traffic going unreported to appropriate field commanders. Effective 30 March 1944, an agreement was reached which allowed the Special Branch Liaison Officer access to unspecified logs belonging to a (identity still classified) diplomatic party and to the British Ministry of

Economic Warfare.³³ Items of interest were tipped by secure telephone to 3-US personnel for inclusion into the appropriate series. Political and economic information was disseminated down to Army Group level via the STARK series.³⁴

The BAY series was drawn from unspecified diplomatic traffic (BJ) decrypts, and from Japanese Naval (SJA) and Military (JMA) Attache traffic. The competence of the Naval Attaches in Berlin and Venice, and other Japanese officials using that intercepted link, resulted in "comprehensive and reasonably accurate descriptions of technical equipment, and into German strategy and defences". The result was four to five BAY signals a week from this source, and an equal number from the Military Attaches, usually of air intelligence value.³⁵

F.H. Hinsley cites both series as material not yet released into the public record.³⁶ However, at least one was issued as part of the CX/MSS series and was sent to both the 12th Army Group and the 9th Air Force at 131425Z September 1944. The text is as follows:

REF: BJ 135993

BAY/HP 2

((BAY/HP 2 & 2 SB 30 & 30 PK 11 & 11 TG 26
& 26 WM 21 & 21 NX 7 & 7 EEF 82 & 82 SHA 94 & 94
SH 61 & 61 %

ACCORDING PORTUGUESE MINISTER BERLIN & BERLIN ON NINTH,))
ALTHOUGH OFFICIAL CIRCLES CONTINUE TO SHOW ABSOLUTE

CONFIDENCE IN THE RESULT OF THE WAR, NO & NO ONE NOW HAS ANY ILLUSIONS CONCERNING THE APPROACHING CATASTROPHE. SACRIFICES AND SUFFERING DUE TO THE RECENT TOTAL MOBILIZATION INDESCRIBABLE. WEARINESS SO GREAT THAT MOST PEOPLE VIEW COMING DEFEAT WITH SATISFACTION, HOWEVER UNFAVOURABLE IT MAY BE.

APJ/WTC
EVB

131425Z/9/44

This report is not alluded to by the 12th Army Group in either Weekly INTSUM #6 (covering 10-16 September) or #7 (17-23 September). Mobilization and its effects on the German population was discussed in INTSUM #5, issued on 10 September, prior to the BAY report. We should, however, not be displeased in its lack of mention; security regulations would have precluded its inclusion in a SECRET-level intelligence summary.

During most of its existence, the Bletchley-based 3-US (other than those personnel working on the Hut 3 watches) worked a day shift only - from 0900 to 1800. Excluding the support to the watch 3M/3As, military manning included a duty officer, two officers producing the Bay series, two officers processing military traffic and two working air material, primarily in support of G-2, War Department.³⁷ Immediately after the Normandy invasion, an evening shift was established in anticipation of the need to handle the potentially large volume of traffic and to ensure timeliness to Washington,. However, the extra traffic volume was offset by the time delay between London and Washington. A single day shift could process most urgent traffic fast

enough to reach Washington before the D.C. duty day began. The extra shift was soon canceled. This had no impact on field support since this was handled by the Hut 3 watch.³⁸

The final link in field support was the ULTRA representative at each command level down to Army/Tactical Air Command. As in integrating 3-US personnel into the Hut 3 watch, no new ground had to be plowed here. Again, the Americans duplicated the well established, and proven, British system.

ULTRA: ITS CONTROL AND HANDLING IN THE FIELD

General The largest, and most visible, group of 3-US personnel were the ULTRA representatives attached to the field commands.³⁹ With British field commands ULTRA material was controlled by the officer commanding the servicing communications unit and provided directly to the regular intelligence staff of the command.⁴⁰ Assignment of US officers as intermediaries was required for the same reasons that dictated an American presence at Bletchley Park - to best serve American interests, specifically by insuring "at each purely American command an officer (was available) who was thoroughly familiar with Hut 3, with British military phraseology, and with the necessity for secure handling of the material". Their training included learning

first hand the procedures and capabilities of Hut 3, then travel to operational commands in the Mediterranean for exposure to field operations.⁴¹

Within US Commands in the European Theater, these American officers were chartered to be full participants in the process of integrating single source ULTRA reports into intelligence reports and operational plans of the commands to which they were attached. War Department correspondence signed personally by General Marshall specified that they were "to work under the control of the G-2 or A-2 of the Command as part of his staff".⁴² When they were allowed to fulfill their charter of being full participants, ULTRA became a key factor in the operational planning of the supported headquarters. When the ULTRA representative was segregated from the command and staff functions of the organization, ULTRA was relegated to the role of a gossip side show; when burdened with non-ULTRA duties, ULTRA became extra-curricular.⁴³ The ideal representative was best described as:

The Special Security Officer is more than a high-priced messenger who can keep his mouth shut. He must be able to recognize important items as he sees them. He must know what the gaps in the open picture are and try to fill them in by Communications Intelligence. He must try, with the aid of proper cover, to build the open picture up to the Communications Intelligence picture. He must know enough about the open picture to spot Communications Intelligence reports which are at variance with it. In short, the Special Security Officer is an intelligence officer, and the intel-

ligence officer is not created in a day or week or month. A basic knowledge of military strategy and tactics, and a knowledge of enemy characteristics and potentialities are indispensable.⁴⁴

Communications Support The terminating end of the link from Bletchley Park to the field was at the Special Liaison Unit/Special Communications Unit (SLU/SCU) servicing a command or group of commands. These detachments were composed largely of British officers and enlisted communicators; however, in a few cases, Americans officers served with or commanded the SLU.⁴⁵

The Marshall letter specified their attached status; centralized deployment and operational control remained under the Director General, GC & CS, in order to allow the capability to shift equipment and personnel as the strategic situation and changing traffic volume might warrant. Also ensured by this arrangement was adherence to security requirements and exclusion from extra, non-ULTRA duties. A constant concern expressed throughout applicable after action reporting was the impact this attached status had on the service being provided.⁴⁶ What seemed lacking were standard instructions defining command relationships and operating procedures. Thus, a command's ULTRA service was based on personalities and acceptance of British soldiers into a strictly American headquarters, a problem compounded by the fact that most assigned to the HQs were not privy to the reason requiring their presence.⁴⁷ A majority of representatives on the American side favored a command

relationship between them and the supporting SLU. An additional advantage to this command relationship would have been the ability of the ULTRA representative to draw on the SLU for manpower support - the representative often found himself one deep in manning, which was often cited as having a negative impact on the service provided.⁴⁸ Ideal manning recommended by the 12th Army Group representatives (two were assigned) was 2 per army and 3 per army group.⁴⁹

One of the legacies of the ULTRA experience in North Africa that did have a negative impact on operational level support in European was the decision to retain manual, off-line, one time pad SLU service to army-level commands.⁵⁰ Echelons above army received on line encryption, teletype support from their SLUs. This service, while less secure than the pad system, was less susceptible to text corruptions imposed by atmosphere interference, and significantly more timely - a machine supported station could handle three times the traffic volume as a pad station. In North Africa, there was potential for an army level headquarters to be overrun, so in the context of that campaign caution in the favor of security was, perhaps warranted. But, on the European continent in 1944 where the tactical situation was less fluid, sacrificing timeliness for security needed to be reexamined. Situations occurred where Army group headquarters were located in front of, or in proximity to, subordinate army headquarters (the Sixth

and Twelfth Army Groups were cited as specific examples).⁵¹ The impact of timeliness on the operational use of ULTRA is obvious, but best stated by an SLU officer that had employed both methods:

The necessity for speed and accuracy is more apparent in organizations such as armies and tactical air commands than at larger headquarters. Nevertheless, the forward stations were equipped with a much slower system and many times it was necessary to hold up important items for corrections that would not have been necessary with a machine cypher system ... In my opinion, speed and accuracy were more important at the forward stations and therefore they should have been given a faster system of higher security value.⁵²

An SLU per Headquarters Another legacy left over from the North Africa experience that created problems for field dissemination on the continent was the policy of using a single SLU to service both the air and ground headquarters at the Army-Tactical Air Command level. Traffic volumes had, by 1944, more than tripled and alone would have justified separate servicing. Even if the two headquarters were deployed in proximity, routing problems and segregation of intelligence material by distinct differences in operational focus would have improved the service to both.⁵³

Satisfactory service to both headquarters was possible in the static days of pre-Normandy and post-invasion prior to the break-out. However, real problems occurred during periods of rapid advance when the Army headquarters would move forward to keep up with its Corps, taking its SLU with

it. The TAC headquarters, whose command and control requirements dictated deployment closer to its units' airfields, would often find itself separated from its sister army HQs by many miles. Such was the situation for First Army/IX TAC during Operation COBRA.⁵⁴

At Ninth Army, for example, normal SLU deliveries were made four times daily, at approximately 0730, 1030, 1630, and 2230. At all other times, high priority (4Z and 5Z precedence, as discussed in Appendix One) signals were delivered as soon as ready. Additionally, the representative could instruct the SLU to deliver immediately signals relating to a specific operation or area regardless of priority. The XXIX TAC shared this SLU until February 1945 when it began to receive separate SLU service.⁵⁵ Whenever headquarters separation was required, the TAC seemed to be the loser, with the single servicing SLU deployed forward with the Army Main HQs. The AF ULTRA representative often would be forced to make once a day trips forward to the SLU to receipt for, and return materials, or to have traffic re-routed to a closer SLU. The situation was more acute when there was but a single representative servicing the TAC, who after his courier duties were complete for the day, would turn to the responsibilities of integrating ULTRA into the intelligence and operations picture. The potential for a security breach also increased with the increased courier time on the road.

The XIX TAC representative cites being separated from Third Army and his servicing SLU from the St. Lo' breakout in July to October 1944, using three other SLUs to maintain service, and traveling 96 miles and 8 hours per round trip.⁵⁶ In post-war, after action comments, every TAC representative cited this inadequate support arrangement as having a negative impact on dissemination to his headquarters, with delayed ULTRA material often completely losing its operational impact.

Handling of ULTRA by the representative No SOPs for ULTRA representatives seemed to have been published, or are, at least not available in open source archives. Those of us in the business of providing intelligence support to operational and tactical commands today are privy to well established doctrine and recommended procedures that, while often having basis in the after action comments of our WWII predecessors, were not fully appreciated then. Today, in spite of extensive experience with G-2 logs and journals, and basic computer support, our best archival friend is the field safe, or its garrison cousin, the four drawer model - always filled to overload with message traffic that must be saved for future reference. ULTRA representatives were rarely trained intelligence officers, with no experience in standardized records keeping. Additionally, Special Intelligence regulations stated:

"No original ULTRA message, and only such records as cannot give any clue to the nature of the source, may be kept at any Operational Headquarters below that of Army Group. ... The number of hours during which the Commanders may retain ULTRA messages depends on their proximity to the enemy, but destruction should take place as soon as necessary action has taken place."⁵⁷

As a result, maintenance of records by each representative was a necessary, but very individualized, function. Most kept extensive records, usually in index card format. The 12th Army group representatives, who regularly retained ULTRA messages only up to 48 hours, maintained records on all units in the command's own area of responsibility, and on all units from division level and above on the entire Western Front.⁵⁸ A similar system was adopted by the 6th Army Group that included a topical index maintained for items of general interest, notes on German knowledge of Allied forces, and information obtained from other intelligence sources.⁵⁹ At the Ninth Air Force and at two of its TACs (IX and XIX), prodigious systems of indexes and notebooks were used to cross reference air order of battle data with information on specific airfields, which emphasized targeting data.⁶⁰

It is apparent from afteraction report review that representatives, whose role was not limited by the G-2/A-2, or who viewed their responsibilities as more expansive than simply providing unevaluated ULTRA traffic to the supported command group, saw a need for extensive records in order to fully integrate ULTRA into the intelligence/operational

process. This was a labor-of-dedication since "... not more than 5-10% of the entries were ever used." This was an unavoidable waste of effort since queries to Bletchley Park for historical amplification were never responsive enough to satisfy fast-breaking operational requirements.⁶¹

In the area of map support, all ground ULTRA representatives used two - one detailed for the command area, and one for more strategic view of the entire Western Front. Both Army Groups maintained separate maps depicting Allied force dispositions and predicted intentions as reported in German traffic. Aside from G-3 operational security and deception planning, this information was used in determining which Allied unit locations could be released to the press. Apparently, this type material was not disseminated in sufficient quantity to Army level for them to maintain such a friendly force depiction. Air command representatives used a wide array of situation and airfield maps, order of battle charts, target folders, and maps depicting air field activity by aircraft type.⁶²

Internal Headquarters Dissemination The Marshall letter seems to have provided the "basic mission statement" for each representative. Some saw their role as focused solely on the command group as the single point of dissemination. Most, however, saw their role similar to that described by the Ninth Army representative as:

1) to give the commanding general and all indoctrinated members of the staff a clear understanding of how each item could be used without loss of security. 2) And to give unindoctrinated members of the staff and 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 to be in error through the ULTRA source.⁶³

The focus of this process was the conduct of at least one daily briefing to recipients, followed by visits by recipients to the representatives office to personally review pertinent traffic. Time sensitive messages were brought to the immediate attention of the G-2/A-2 (and, in some instances, to the commanding general) as required. Additionally, various representatives developed summaries, specialized reports and estimates based on ULTRA as a sole source, or integrated as a fused, all-source product.⁶⁴

Representatives, whose emphasis was on ULTRA fusion vice briefings, studied the outputs of all sources of intelligence. This provided them with a overview of the complete intelligence picture, as well as allowing them to identify gaps and inaccuracies, and alternative intelligence reports that could be used to confirm ULTRA material or provide "cover" for its open-source release. The security requirement to camouflage high level codebreaking as the source of information on which any operation or open source intelligence report was based necessitated a current knowledge of all sources and methods for intelligence

production. Use of ULTRA for targeting specifically required appropriate reconnaissance as cover; conversely, use of PEARL or THUMB material stated that reconnaissance would be performed whenever practicable. "Momentary tactical advantage is not sufficient ground for taking any risk of compromising the source."⁶⁵ All-source awareness was best stated by one representative who wrote:

It is most easy for the ULTRA representative to allow himself to become isolated from the main stream of the intelligence section, so that he loses awareness of what other sources are producing. Another facile error, induced by inertia, is to permit ULTRA to become a substitute for analysis and evaluation of other intelligence. ... ULTRA must be looked on as one of a number of sources; it must not be taken as a neatly packaged replacement for tedious work with other evidence.⁶⁶

Within each headquarters, regulations specified the positions whose incumbents were authorized to receive ULTRA access. Commanders who believed, for operational reasons, that additional officers in their headquarters required access, could request, with justification, their indoctrination to Washington or London. The basic requirement for access, however, was as follows:

The distribution of intelligence 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.⁶⁷

A common criticism by ULTRA representatives was that positions designated for ULTRA access did not match actual

duty requirements in the headquarters. The deputy G-2, while specifically designated to receive ULTRA, served as the chief administrator for the G-2, and had little need for such access. Conversely, three of the Army-level officer positions best suited for fusing ULTRA into open source intelligence material or integrating it directly into operations, were not designated for automatic access - the Chief Target Officer, the head of the Order of Battle section, and the Chief of the SIGINT section. The most consistent recommendation was to automatically indoctrinate only the commanding general and his G-2, providing the command with an additional set number of billets which would then be matched against job requirements by the G-2 and the representative.⁶⁸

Dissemination to non-recipients The responsibility of providing ULTRA material to non-recipients at the representative's own or subordinate headquarters was perhaps the most difficult of his tasks. However, to abrogate this responsibility to others was to also jeopardize his security function. Within the command, and particularly within the G-2/A-2 section, the representative had to establish his credibility as an intelligence expert who simply had special training. Then, through frequent personal contact and review of open source reporting, he could be available to extract erroneous data from material yet to be analyzed, or

"build up" reporting by focusing analysis on correct data or conclusions.⁶⁹

In afteraction comment, the Ninth Army representative, based on experience with the 21st Army Group, thought that the British were more successful in disseminating ULTRA to non recipients than were the Americans. The basis for this comment was in the informal nature of British intelligence reporting when compared to more formatted, structured appreciations (estimates) and periodic reports prescribed by US manuals. American reports tended to be restricted to capabilities, while British reports permitted speculations on intentions. Within these unstructured speculative sectors was woven the thread of truth provided by ULTRA. Based on this experience, the representative produced annexes to standard G-2 reports, providing a review of the enemy situation using information from all sources, but confirmed by ULTRA, and using speculation or reasoning to inject information known only through ULTRA. This technique was felt to be particularly effective in disseminating material to the corps level.⁷⁰

Corps support was particularly difficult, requiring innovation, imagination and hard work. In contrast to the efforts of the Ninth Army representative, his First Army counterpart felt it "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-2's are insistent on

(knowing) the source of the information."⁷¹ Both Third and Seventh Armies were apparently willing to provide such "hints" to their corps, using the guise of open source material or speculation when appropriate, and when the immediate tactical situation and potential danger to US forces warranted it.⁷²

Dissemination to subordinate headquarters Regulations governing the security of Special Intelligence specified that ULTRA traffic identified as pertinent to subordinate headquarters, which were authorized to receive that material, be passed only through SLU communications channels. This restriction was established only for security reasons, and not imposed to restrict dissemination.⁷³ In fact, expectations of the Hut 3 Advisors were that a higher headquarters had a responsibility to keep subordinates appraised of ULTRA material, not originally copied to them, but pertinent to their operations (termed here "secondary dissemination"). Likewise, this service was expected by Army/TAC representatives from their parent Army Group/Air Army headquarters. Yet, inadequate support was a complaint by at least one Army and one TAC representative.

Prior to the Rhineland campaign, 1st Army felt that 12th Army Group was delinquent in providing secondary dissemination of material supporting their intelligence/operational needs. The problem surfaced during a visit by

the 1st Army representative to his higher HQs when ULTRA material fitting his commands requirements were discovered in 12th Army Group ULTRA files. However, once the problem was identified, secondary dissemination became more than adequate and, in fact, was key in providing the total ULTRA picture for the remainder of the war.⁷⁴ The 12th Army representative clearly recognized secondary dissemination as one of his responsibilities.⁷⁵ The question arises as to the initial inadequate service perhaps being based, not on 12th Army Group oversight, but on inadequate statement of intelligence requirements by 1st Army.

A more complex controversy seemed to have occurred with regard to secondary dissemination of ULTRA between Ninth Air Force and its Tactical Air Commands. While the Ninth recognized its responsibility to ensure pertinent intelligence was provided, it believe Bletchley Park was providing adequate direct service. The Ninth representative cited few incidences where he saw it necessary to provided supplementary ULTRA support - citing traffic volume and resulting delays, as well as a lack of other source material at the TAC level with which to fuse ULTRA as reason enough not to provide additional material. Additionally, he saw the Air Staff, SHAEF as a responsive provider of background material but conversely, too remote to be responsive at the "operational" level.⁷⁶

A TAC's apparent area of ULTRA intelligence interest was limited geographically to a 150 mile radius from supported Army's front line. With aircraft ranges and a fluid front line trace, this was viewed as too restrictive.⁷⁷ The IX TAC representative's position was that his Ninth Air Force counterpart did not understand the mission of a TAC and consciously limited their access to a more "strategic" picture. This was in spite of the TAC's well defined "order of battle questions opinions on future dispositions and employments of certain types of units and on current subordinations, etc." Ground order of battle requests were referred to 12th Army Group for answer, and requested air material was not retransmitted. In frustration, the IX TAC representation turned to Hut 3 for direct service.⁷⁸

Further to IX TAC's dissatisfaction with Ninth Air Force's service was its refusal to deconflict areas of responsibility between its three subordinate TACs and cross level information between them. The three were left to sort any such problems out by direct liaison.⁷⁹

Security Active involvement in the integration of ULTRA into estimates, summaries and operational orders also provided the representative with his best opportunity to monitor the security of his source. Physical security, aside from averting the curiosity within the headquarters as to the presence of the normally British SLU and the

representative's actual duties, was generally no problem - SLU communications were very secure and the actual handling of ULTRA material was well defined and relatively simple. The representative's most difficult task was to ascertain that no ULTRA material was directly translated into operational action. He was physically not capable of, nor requested to, censor all operational orders and discussions. But proactive involvement in the fusion of ULTRA, with proper cover, into the intelligence process best accomplished both his intelligence and security functions.⁸⁰

ULTRA: ITS OPERATIONAL IMPACT

ULTRA's impact in the dramatic is best illustrated by Patton's first exposure to Special Intelligence as recounted by then Major Melvin C. Helfers, in his personal recollections on his experiences as the Third Army representative. Prior to August 1944, Helfers' contact with the Third Army staff had only been with the G-2, Colonel Oscar W. Koch; he prepared a daily one page synopsis of ULTRA items of possible interest for the G-2, posted his map and waited for the occasional visit from Koch for clarification. On the watershed night of 8 August, Helfers received a lengthy ULTRA message describing Hitler's proposed attack on Mortain; Helfers alerted Koch and

demanded to see Patton. Patton, after being briefed by Helfers and Koch, immediately diverted forces to thwart the German counterattack. Patton, now impressed with this new source of intelligence, required a daily ULTRA update and immediate notification of any future messages of singular importance. ULTRA's reputation was dramatically established and supported Third Army operations for the rest of the war.⁸¹

However, the dramatic seems, from examination of all afteraction reports by ULTRA field command representatives in the ETO, to be the exception rather than the rule. In spite of a specific request by MIS, War Department, for examples of direct ULTRA application to operations be included in after action reports, the response varied - some provided no examples, most provided one or two, the Sixth Army Group representative cited 7 examples where ULTRA was the single source, or the major contributing one, influencing an operational decision. Most recognized that it was next to impossible to gain specific insight into all inputs to a command decision, but believed continuous intelligence on enemy priorities, both strategic and operational, status of supply and disposition of forces provided field commanders a consistent level of knowledge on the opposing enemy. From this body of assurance came confident decisions, where boldness or caution could be played with minimized risk.⁸²

Most representatives also recognized that ULTRA should be regarded as but a single source of intelligence that was best employed with all others available to the command.

It appears to be commonly accepted among field representatives that the reliable guiding influence of ULTRA in working with other intelligence outweighs its value as a (single) source of operational information. ... it does have direct operational value, but its normal function is to enable one to select the correct information from the huge mass of PW, agent, recce and photography reports.⁸³

Some caution was added: "ULTRA did not always give the true picture of the actual situation , since in many cases it showed what the enemy would like to do rather than what he actually did."⁸⁴ This realization would have been key in the fall of 1944 when German strengths and force dispositions between its two fronts would often not have allowed commanders to successfully execute the grandiose plans of Hitler and his General Staff.

Sources of High Grade SIGINT The German ENIGMA cipher was used on manual morse links, predominately servicing German Army or below command levels. Another cipher, GEHEIMSCHREIBER (dubbed FISH by GC & CS) was used on encyphered non-morse links, servicing larger volumes of traffic and supporting higher levels (Army and above). Both were classified ULTRA. While potentially more valuable as a source of strategic information, FISH was more difficult to

exploit than ENIGMA and thus contributed far less to the ULTRA flow to field commands.⁸⁵

Beginning in the summer of 1944, the Germans were to initiate a program to increase the security of the ENIGMA and FISH high level systems, as well as their medium grade ciphers. Their security efforts made their medium level systems unreadable by Bletchley Park from August 1944 to February 1945, and had some impact on the higher level systems. FISH exploitation declined and became unreadable until October 1944. Fortunately, OVERLORD disrupted the extensive fielding of these upgrades to ENIGMA protected nets. For Allied intelligence, GAF traffic was the most productive target, since it dealt with air reinforcements and operations, but provided only indirect information on ground operations. Here the requirement to support "joint operations" proved advantageous for the Allies - the new air/ground liaison (FLIVO) communications system (dubbed the OCELOT key) was almost immediately broken by the British, yielding specific intelligence on Army order of battle, movements and intentions. This exploitation began on 8 June and was read on a near real time basis until the end of August, and on a less timely basis for the rest of 1944.⁸⁶

German Field Army key exploitation started slowly in June with the German Y Service key broken sporadically from 8 June, the C in C West key only read on 9 June and those of Seventh Army on 10 and 11 June only. But from 17 June, keys

from C in C level down to division were being read "frequently" to "regularly". And by August, all were being read daily. ULTRA volume in that month was not to be surpassed again until March 1945. September's advent of static warfare saw a return to wire/cable systems, less use of radio for higher level command and control, and a corresponding decrease in ULTRA volume. A reduction in German air operations saw a similar decrease in GAF traffic.⁸⁷ In contrast, the field representatives, who could only judge the outputs of Bletchley Park and not the internal difficulties occurring in Hut 6, saw timeliness of information as a limiting factor during mobile operations, and the static periods as more conducive to ULTRA integration. The Seventh Army representative stated:

Generally, ULTRA information is of primary value in a static or defensive situation; this is indeed true of all information and intelligence derived therefrom. In the attack and pursuit, intelligence has done its job during the planning phase of the operation, and subsequent information is usually outdated by the time it reaches the command.⁸⁸

In September, improved German security measures began also to take hold to slow GAF traffic exploitation. Difficulties in the Allied decryption effort were offset, however, by improvements in Allied technical means (to include rudimentary mechanical computer support), and by the reduction in the number of separate operational keys being used by the Germans. Simply stated: while the new GAF keys

were more difficult to break, there were fewer being used, permitting a greater concentration of Allied cryptologic efforts, and thereby enhancing the possibility of success. This, plus the retention of the old reliable FLIVO keys, allowed, in the last three months of 1944, "a more complete picture of GAF's activities on all fronts than any previous time in the war." Likewise, German Army keys became more difficult to exploit, but were again fewer in number - the result was increasing exploitation on into 1945.⁸⁹

Effect on Field Army Operations The Army's operational level focus was on ULTRA's perceptions of German capabilities and intentions. Within commands where its use was more expansive than just providing input to the commander's decision making process, ULTRA's support to Order of Battle development, including identification and location of reserve elements, would be its forte. Successful integration of ULTRA into the open source OB picture would spin off support to targeting, reconnaissance, the tasking of other collections means (particularly the directing of tactical SIGINT or "Y" operations), and dissemination of properly covered ULTRA to subordinate commands. Analysis of an ULTRA supported, all-source OB picture would have, in turn, provided insight into possible German capabilities and intentions. This was particularly true when overall operations became more static and timeliness of reporting became less crucial. Unfortunately,

not all commands recognized the need to have an indoctrinated chief of the G-2's OB section; and, in commands where this deficiency occurred, not all representatives had the training or desire to tackle the tough task of integrating ULTRA into the OB picture.

Interestingly, the IX TAC representative stated that air force commands had a real need for ground OB, and were often only able to acquire ULTRA to support its development through coordination with their ground counterparts. He argues that army commands, however, did not need corresponding GAF OB information, and that they should be satisfied with finished intelligence support from the air force.⁹⁰ This may have been that there was no G-2 Air function being performed within Army-level G-2 staffs or that GAF strength levels were such that close air support was minimal. If there had been an air threat of significant size, German ground/air coordination and supporting air OB would have been more important in determining intentions and capabilities. As it was, the German FLIVO net exploitation was extremely productive to both ground and air HQs. It would have been more time consuming for Bletchley Park to produce air and ground versions off the same traffic; and to be more discriminating between air and ground service than they already were.

Appendix Three provides a composite picture of ULTRA operations in each US command on the Western Front -

supporting US air force commands are matched against the army counterparts. It is apparent that, when the two commands had a joint focus from CG down to the ULTRA representative level, ULTRA had its greatest impact on operations. This requirement was underscored by the lack of a true air threat and, therefore, the minimal need of the supporting air force to emphasize counterair in its priorities - targeting became the primary air mission, especially at the TAC level. ULTRA operations at the Twelfth Army Group/ Ninth Air Force levels were well coordinated; the Ninth Army/XXIX TAC joint operations were excellent. Interestingly, Third Army ULTRA support seemed to be directed toward satisfying Patton and command group requirements, and not toward ULTRA integration. First Army support seemed well intended and efficient, but its representative was insulated from the command group and focused on integration; his excellent efforts were often frustrated due to the relative weak position of intelligence in First Army operations.

Effect on Air Force Operations At the operational level, US Air Force emphasis was directed toward targeting, vice Order of Battle use, but that presented problems in itself.

Unlike ULTRA OB information which gave a complete and correct picture, ULTRA targeting information was fragmentary and debatable. Consequently in this field, it was one of the sources rather than the source.⁹¹

The Ninth Air Force, in particular, felt that strategic level intelligence support equated to continued emphasis on ULTRA's OB aspect, to the detriment of targeting. The basis for this accusation was founded in the necessary OB use of ULTRA during the Battle of Britain by the Air Ministry and the tailoring of Hut 3 reporting accordingly.⁹² In previous campaigns where air superiority was the operational key, and air intelligence was focused on aircraft strengths, order of battle and plans, ULTRA's successful use was in satisfying these requirements. Strategic bombing operations continued to require ULTRA that emphasized plans, intentions and OB. But in 1944-45, the American use of air power at the operational level required a different orientation; "...it (Bletchley Park) failed to recognize after D-day that targets had replaced the GAF (German Air Force) as the main interest of air intelligence." GAF OB reporting continued to be carefully processed, while targeting information was reported without much analysis and with little amplifying comment. Message precedence was often not high enough to ensure timely field use, and dissemination not down to the appropriate command level - often stopping at the Air Army/Army Group level.⁹³

Dissemination of targeting information became a doctrinal issue, due largely to a lack of agreement on what level targeting operations should be managed. SHAEF, functioning at the strategic level (and also, in today's terms, as a unified command) was accused of not fully supporting the Air Army's targeting needs. Further accusation was made that Army Groups and Armies were not capable of maximizing the targeting aspect of air power, and thus were inappropriate headquarters for air target planning.⁹⁴ One can easily recognize the beginning of the argument for centralized air interdiction (AI) planning by the air component - especially as the Allies, and particularly the US, was employing air on a broad front and in pursuit operations for the first time.

To enhance operational targeting support to the Ninth Air Force, the A-2 established direct liaison with the Air Ministry in London, bypassing the A-2 staff at SHAEF. From 20 September 1944 to 21 March 1945 a Major Lucious A. Buck, who had previously served as the Targeting Officer at HQs, Advanced Allied Expeditionary Air Force, was attached to the Ninth Air Force to act as Special Target Advisor. From his duty station in the Air Ministry, London, Major Buck used ULTRA, blended with photo reconnaissance, PW and agent reports, to recommend to A-2, Ninth AF, targets for attack on the following day. In addition to maintaining tactical target schedules focusing primarily on POL, ammunition,

ordnance and motor transport, Major Buck's ULTRA level support evolved to include weekly summaries, special estimates (appreciations) and replies to specific requests for information. The explicit objectives for this service was to:

- * To give historical ULTRA background to potential targets mentioned in current ULTRA reporting.
- * To provide target location and descriptive amplification (from other ULTRA or open source material), wherever possible, for targets referred to in current ULTRA reporting.
- * To request Hut 3 amplify reporting on specific targets by reexamining the original intercept text.
- * To provide a strategic level of targeting perspective from Air Ministry and War Department interpretations of ULTRA reporting.
- * To provide cover (that may not be known or available at lower echelons) to facilitate greater dissemination of ULTRA to non-recipients.
- * To provide ULTRA dissemination to air commands, which was not tied to ground force areas of interest. The implication here is that AF targeting needs extended much deeper than Army Group and Army intelligence requirements.⁹⁵

It is interesting to note that, in his capacity as Target Advisor, Major Buck recommended that his targeting reports be further disseminated to Tactical Air Commands. This recommendation was denied until late December 1944 when the new Ninth Air Force A-2 reversed his predecessor's decision. Also included on distribution was 12th Army Group, ostensibly due to the Army Group not receiving adequate targeting support from G-2 SHAEF.⁹⁶

CONCLUSIONS

At the operational level, ULTRA as a single source of intelligence could be both dramatically useful and easily deceived. However, as part of an integrated, all-source picture ULTRA's positive impact was never degraded but its vulnerability to deception was significantly lessened. Unfortunately, all-source integration was a function of personality and the supported command climate, and not established in doctrine. Stateside training of intelligence personnel did not include mention of or techniques for the integration highly compartmented information such as ULTRA into the intelligence process at either the operational or tactical levels. Since senior intelligence personnel, to include the G-2/A-2, were often not intelligence professionals, but ex-operators, expertise was often acquired in the field, and by trial and error. Too much error lead to a lack of confidence in the command's intelligence staff or to the appointment of a new G-2.

ULTRA representatives were neither trained intelligence officers, nor adequately supported by doctrine and standard operating procedures. If the representative understood the command's intelligence requirements and operational plans, and was both innovative and persistent, the service he provided was focused and supportive of the mission. If such service was matched by an equally successful air or ground

counterpart, their joint effort had an extremely positive impact.

That impact can never be fully judged. All source intelligence has a cumulative effect that is greater than the sum of its parts. When ULTRA was used effectively, it "built up" the intelligence picture developed from other sources, eliminated the erroneous, and found adequate disguise to cover itself. To separate it back out to judge its value would have been as impossible as determining its impact on a long deceased commander's mind.

APPENDIX ONE

ULTRA: ITS STRUCTURE AS A REPORT

Following is an example of an ULTRA report and an analysis of its pertinent elements.

REF: CX/MSS/T288/124
I II III

XL 8069
IV

ZZZ
V

((XL 8069 & 8069 PK 14 & 14 LF 84 & 84 WV FZ SH 38
VI VII VIII IX
& 38 SHA 84 & 84 TG 74 & 74 TGA WM 65 & 65 NX 87 &
87 ON CR YK ZE GU 42 & 42 EF 12 & 12 ST 87 & 87
DL 44 & 44 MI 10 & 10 %

ASSEMBLY AREAS ACCORDING ARMY VI GROUP BAKER ON
TWENTYSIXTH COLON FOR THREE SIX GRENADIER DIVISION,
CHALONS SUR MARNE & CHALONS SUR MARNE. FOR FIVE FIVE
THREE DITTO, DIJON & DIJON. FOR FIVE SIX THREE DITTO,
RHEIMS & RHEIMS AREA. BRINGING UP INTO THESE AREAS
REQUESTED. COMMENT THESE DIVISIONS TOTALING MAXIMUM
TWO FIVE TRAINS EACH, TO BE RBROUGHT UP FROM FIRST
SEPTEMBER, XRAY LOVE SEVEN EIGHT NOUGHT TWO NOT & NOT
TO GU & GU, ON & ON, CR & CR, YK & YK, ZE & ZE, FZ &
FZ

OCB/HYD/IFF
XI

2622392/8/44
XII

I. The entire alpha-numeric (CX/MSS/T288/124) constitutes a descriptor of a high-grade, German ENIGMA cypher-protected message decrypted at Bletchley Park, which forms the basic reference for the rest of the ULTRA report. "CX/MSS" specifies a certain type of reporting category; in this case (and for the majority of Ultra traffic associated with the European Theater of Operations (ETO)): Hut 3, Government Code & Cypher School (GC & CS), series of army and air force high-grade machine decrypts, preceded by series CX/JQ.⁹⁷ One reference implies that "MSS" reflects the classification: Most Secret Source.⁹⁸

REF: CX/MSS/T288/124
 I II III

XL 8069
 IV

222
 5

II. 24 hr. one-up series number; changed daily at 0800Z. Can be used to determine approximate date/time and sequence of material decryption. For example, /T288/ covers Army/Air Force ULTRA (CX/MSS/) reporting from 260800Z-270759Z August 44.

III. One-up number; recycled to zero daily at 0800Z. Thus, this is the 124th CX/MSS decrypt for the 26-27 Aug 44 period. Analysis of this number provides a sense of cryptologic activity/ reporting volume on any given day or over a particular period. The message serial number is a one-up alpha-numeric, assigned when the intercepted material is decrypted. When matched against message priority (V) and time of transmission (XI), it provides an indication of internal Hut 3 processing times. It can also be used to determine when reports are developed from more than one decrypt (as in XL 8772 "...CX/MS/T293/76,82...") or transmitted significantly out of sequence, at a later date (apparently due to low priority of content, or gaps in analysis, decryption or translation). An example would be as shown below, where T293 equates to 31 August 1944.

<u>MSG SERIAL #</u>	<u>SERIES/RPT #</u>	<u>TIME OF TRANSMISSION</u>
XL 8751	T293/71	312008Z/8/44
XL 8752	T281/60	312017Z/8/44
XL 8753	T293/62	312019Z/8/44

Thus, XL 8752 was initiated 12 days earlier on 19 August.

Other references for the report can reflect:

- * Uncategorized material ("REF.159" HP 1651)
- * Material used in previous reports ("FURTHER REF: CX/MSS/T293/126" XL 8809)
- * Previously unreported material whose value is latter recognized (HP 1700)
- * Material from Axis naval traffic reported on by Hut 8 through Admiralty channels, but with an air or ground intelligence application. This is most seen in summary reporting and is referenced by a Hut 8 reporting alpha-numeric (ZTPGM, ZTPI, ZIP/ZI).

IV. The message serial number - for army and air force associated Hut 3 reporting, it consists of a digraph (with two exceptions) prefix and a numeric - 0001 to series end, usually 9999. The XL series ran from 29 June to 13 September 1944; the subsequent HP series from 13 September to 21 December 1944.⁹⁹ Naval traffic from Hut 8 used serial prefixes beginning with the letter "Z" (for example ZTPI, ZTPGM, ZIP/ZI) and continuous one-up numbering.

V. The message priority or urgency was indicated by the "Z" marking, ranging from Z (also referred to as 1Z) to ZZZZZ (5Z). Its major importance is that it provided a guide to the signal element for message processing and signalling. As it was assigned by either the Air (3A) or Military (3M) Advisor, working in consonance with the Hut 3 Watch Duty Officer,¹⁰⁰ it provides a reflection of how these intelligence analysts regarded the message content's operational importance and time sensitivity. Generally, the Air Advisors (3As) seemed to stress timeliness, while the 3Ms emphasized the importance of message context. Hence, air traffic, especially that which had possible targeting value, was more sent at ZZZZ precedence, while ground force traffic received a more frequent ZZZ. A ranking of priorities and their apparent meanings provides the following¹⁰¹:

- Z No urgency; similar to routine; long term value only.
- ZZ Non-time sensitive tactical information; potential for importance as the situation develops or under the scrutiny of more analysis. Like the current "immediate" precedence, was the most often used.

- 222 Important in message content, but not time sensitive. Required the attention of command intelligence staffs, but did not require immediate operational action.
- 2222 Time sensitive; required immediate operational action; reflected information such as enemy intentions.
- 22222 Time sensitive and very important.

VI. Double brackets (()) begin each signal distribution listing and end somewhere, at random locations, in the message text. Inserted only for transmission purposes, the technique was used to mask the length of the message heading, thereby increasing security. Single brackets () were used to define areas of analytical uncertainty.¹⁰²

VII. The British pound symbol (£), replaced in this paper by the symbol "&", was used in the message text to indicate a repeated key word, name or value in order to ensure clarity. Likewise, in the message text, numbers are spelled out and single letters are expanded phonically.

((XL 8069 & 8069 PK 14 & 14 LF 84 & 84 WV FZ SH 38
 VI VII VIII IX
 & 38 SHA 84 & 84 TG 74 & 74 TGA WM 65 & 65 NX 87 &
 87 ON CR YK ZE GU 42 & 42 EF 12 & 12 ST 87 & 87
 DL 44 & 44 MI 10 & 10 %

ASSEMBLY AREAS ACCORDING ARMY)) GROUP BAKER ON
 VI VII

VIII. Distribution for each message is indicated by the di- or trigraph delivery groups, designating the servicing Signal Liaison Units (SLUs) attached to a headquarters for ULTRA distribution. ULTRA dissemination was to a headquarters no lower than Army/ TAC level. For this particular message, distribution included:¹⁰³

PK	AFHQ Rear	CR	1st Canadian Army; 84 Gp
LF	6th Army Group	YK	1st US Army; IX TAC
WV	Unknown	ZE	3rd US Army

FZ	7th US Army	GU	1st Allied Airborne Army
SH	SHAEF	EF	Allied Expeditionary AF
SHA	SHEAF (Advanced)	ST	USSAFE (Main)
TG	21st ArmyGp/2nd TAF	DL	US 8th Air Force
TGA	21 AG/2 TAF (Adv)	MI	Bomber Command
NX	9th US Air Force	ON	2nd British Army; 83rd Gp

IX. The number immediately following the delivery group(s) reflects one-up sequencing of reports disseminated to that headquarters. Numbering is reset to 1 after report 99.

X. The text of the message may be incomplete or imprecise for numerous reasons, beginning back with errors committed in the original German, transmission and intercept problems, incomplete decryption, translation mistakes or incomplete analytical references. In an attempt not to pass on these mistakes to the customer, questionable areas were highlighted by single brackets and categorized by the use of the words 'strong', 'fair' and 'slight indications', indicating descending degrees of reliability.¹⁰⁴ The word "comment" preceded analysis by the 3A or 3m Advisor or the Watch Chief himself to add amplification or clarification to the German original.

OCB/HYD/IFF
XI

262239Z/8/44
XII

XI. The three sets of initials indicate, in order, the drafting Air or Military Advisor, the approving Hut 3 Watch Officer, and the typist who prepared this particular signal for transmission.¹⁰⁵

XII. Time of origin inserted by the signal typists indicating:

day/hour/minute (in Greenwich mean time) /month/year.

APPENDIX TWO

SIGNALS INTELLIGENCE TERMINOLOGY, ASSOCIATED CODEWORDS AND LEVELS OF DISSEMINATION

TERM	CODEWORD	LOWEST LEVEL OF DISSEMINATION	DEFINITION
Special Intelligence A (US)	ULTRA-DEXTER (1943)	Theater (1943)	Intelligence resulting from solutions of high grade codes and cyphers, or other material placed in this category for security reasons. Required special security officer handling.
Special Intelligence (UK)	ULTRA (1944)	Army/TAC (1944)	
Communications Intelligence concerning weather	HYPER (1944) MANX (1945)	Note a below	Weather intelligence resulting from crypt-analysis included (1) clear weather texts from which the source is apparent, and (2) coded analysis and "dummy" reports, in which the source is to some extent disguised
Special Intelligence B (US)	DEXTER (1943)		Intelligence resulting from the combination of both cryptanalysis and traffic analysis. Also detailed technical analysis of previous intercept.
Special Intelligence (UK)	(terms used until 15 March 1944)		
Cryptanalysis and Traffic Analysis combined	RABID (1943) CIRAO-PEARL (1944)	Corps/Wing(US)/ Group(UK)	Intelligence resulting from the solution of low and medium grade codes and cyphers, unless placed in the special category above.
Cryptanalytic Intelligence	CORRAL (1943) PEARL (1944) PINUP (1945)	Corps/Wing(US)/ Group(UK)	
Traffic Analysis	THUMB (1944) PINUP (1945)	Corps/Wing(US)/ Group(UK)	Information obtained by, or inferences drawn from, a study of the volume, direction, patterns and characteristics of the enemy's communication systems and traffic, but without reading the texts of that traffic.
Plain Language	PINUP (6 August 1945)	Corps/Wing(US)/ Group(UK)	Information resulting from translations of enemy plain language traffic and abbreviated plain language intercepted on enemy military circuits. Commercial plain language traffic was excluded. This category of information was not specifically defined in regulations until 6 August 1945.

Notes a) In theater, weather reports derived from high grade cryptanalysis were limited to CGs, US Forces in the ETO, Strategic Air Forces in Europe, and US Forces in the North African Theater of Operations, and Air Force and Task Force commanders when it is essential. Sanitized and "dummy" reports were authorized to those cleared for the more restricted clear text, and subordinate commanders whose operations made receipt essential.

b) Source: SARH-044, War Department Regulations governing the Dissemination and Security of Communications

APPENDIX THREE

ULTRA HANDLING IN US OPERATIONAL LEVEL COMMANDS, EUROPEAN THEATER OF OPERATIONS

The following is a brief description and subjective evaluation of ULTRA handling within specific US operational level commands. The primary source will be SRH-023, Reports by US Army Representatives with US Army Field Commands in the European Theater of Operations. A word of caution is necessary; use of this source provides insight on how these ULTRA representatives saw their role, and their own impact on their supported commands; in only a few instances do they comment on support provided by higher commands and their own support to subordinate commands.

Twelfth Army Group: effective system for briefing command group and staff and extracting intelligence for operation use ... separate cell formed with two ULTRA representatives and one senior member of G-2 ... operated 24 hrs a day ... purpose to collate all-source intelligence and produce estimates of enemy situation and capabilities ... two daily briefings, first for general officers only, second for indoctrinated staff ... covered last 24 hrs ... GO briefing at 0945, structured as intel/operations update and decision brief ... Ninth Air Force CG, Deputy for Ops, and Director of Intel also attended ... priorities for tac air support,

and targeting established ... staff briefed more informally at mid day, and visited ULTRA cell throughout the day to discuss specifics and to review actual traffic ... messages retained in cell for 48 hrs, then destroyed,; maintained detailed index ... key was involvement of Chief, Order of Battle section, his knowledge of both ULTRA and open source information facilitated release of ULTRA when sufficient cover was present ... used special map of Allied dispositions and intentions revealed by ULTRA, used by G-3, Special Plans, for OPSEC and deception planning, and for potential press releases ... provided secondary dissemination service to subordinate armies of ULTRA material not originally copied to them; regarded this as a principle function ... produced weekly ULTRA summaries to subordinate armies ... recommended representative manning to be two per army and three per army group. SRH-023, Part 1, pp. 6-10.

Ninth Air Force: two person manning; senior representative doubled as staff "Y" officer; second was chief advisor to A-2, processor and integrator of ULTRA into open source picture; also had indoctrinated enlisted admin support ... extensive use of maps, charts and indexes; screened all incoming open source material ... A-2s (there were several) received summaries and selected signals; briefed command group personally ... CG, A-2 & A-3 all attended 12th Army

Group daily ULTRA briefing ... weekly ULTRA estimate of enemy capabilities and intentions prepared ... emphasis seemed to be on air OB, except for the requirement to develop targets for the Ninth Bomber division, which received its direct operational tasking (and ULTRA "covered" support) from 9th Air Force; bridges, viaducts, supply trains, depots and unusually large concentrations of aircraft were of immediate interest ... target officer was not indoctrinated until March 1945; relied on Air Ministry for general targeting recommendations ... chief FLAK (ADA suppression) officer integrated ULTRA into daily FLAK situation summaries; however, representative is generally critical of usefulness of ULTRA in determining the specifics of FLAK defenses; was useful in determining general FLAK OB and deployments, and for directing more detailed reconnaissance effects ... chief of reconnaissance not indoctrinated but representative worked closely with him to deconflict requests for support from subordinate TACs ... support to subordinate IX Air Defense Command limited to open source information on German air capabilities and threats; no indoctrinated personnel, to include the CG, were assigned ... senior representative, acting as chief SIGINT officer, provided activity summaries with, where possible, supporting technical data to direct "Y" operations at Air Force, TAC and Bomb Division levels; screened "Y" reporting, using ULTRA as a guide and censor to enhance open reporting;

conversely used tactical SIGINT reporting to provide cover for ULTRA, and thereby enhanced its dissemination ... 12th Army Group & 9th AF serviced by separate SLUs effective August 1944 ... excellent liaison between Ninth AF and 12th Army Group ... subordinate TACs' targeting mission and responsibility for providing secondary dissemination of ULTRA in support of targeting was an area of significant contention; representative felt that material being provided was sufficient; felt more traffic, especially that of higher priority, would clog up the already stressed cue. SRH-023, Part 2, pp. 34-56.

First Army: representative was a strong advocate in all-source intelligence, and ULTRA integration into the overall picture ... emphasized that ULTRA should be regarded as a primary source, but never a sole source ... CG, First Army regarded as indifferent to overall intelligence support ... no formal briefings by the representative to the command group; G-2 briefed daily; initially presented actual signals, "unsorted, unedited and without comments", to the CG & CofS twice daily ... gradually during the late fall of 1944 the representative began to sort, edit, and write a covering summary for the twice daily briefings by the G-2 to the command group ... representative involved the G-2 estimate process, writing ULTRA "appreciations" and working to build proper cover to ensure dissemination ... OB section

chief not indoctrinated ... representative initially found fault with secondary dissemination from Army Group level; however, when requirements were established, service was excellent ... security at First Army cited as "poor".

SRH-023, Part 1, pp. 11-21.

IX Tactical Air Command: representative displayed the most comprehensive understanding of the operational level of war, TAC's role in fighting at that level and ULTRA's use to support it ... maintained extensive records, charts and maps; recognized professionalism in presentation and operations enhanced his personal credibility, acceptance of his product, and reception, as an attached officer, into the HQs; by description seemed to personally run his own all source intelligence operation ... heavily involved in target development; staff SIGINT officer was not indoctrinated; therefore, representative was also involved in total SIGINT fusion ... assisted IPW, document exploitation and technical intelligence efforts via open source briefings and advice as needed ... wrote "TOP SECRET", but not ULTRA level, estimate to support every planned TAC operation ... strongly believed that TAC intelligence must be just as cognizant of ground OB as it is of the GAF ... largely one deep in manning, and initially shared an SLU with First Army; created problems during rapid forward movement when a joint forward tactical command post was being serviced by the Army representative

with the SLU deployed forward; bulk of the A-2 staff and the TAC representative were with the main; required to participate in the daily ops/intel update at the TAC CP ... received periodic, but temporary, augmentation until February 1945; received a second permanent representative at that time ... received separate SLU support in September 1944 ... nightly briefed CG on air and ground material, fused with open material and tied to the IX TAC's operational mission; significant messages brief as soon as their importance was recognized; impression is given that this was done without the A-2 being present, and that the representative was acting as a close confidant and well beyond his job description ... CG, A-2, A-3, and representative attended the joint TAC/Army daily update with its closed ULTRA session ... representative felt that his relationship with the A-3 staff allowed him to "sell" open source intelligence, as well as ULTRA to a staff that was otherwise indifferent toward intelligence ... representative was strongly dissatisfied with support received from his higher HQs; felt that secondary dissemination was insufficient and that ULTRA material provided to TAC level was too restricted; on the other hand, "narcissism" and "ego" were descriptors applied to the representative by his Ninth Air Force counterparts ... felt that the Ninth Air Force representative was also delinquent in deconflicting and coordinating missions between the subordinate TACs;

problems were only resolved by TAC level coordination ... it is interesting to note that the command's junior recipient felt secondary dissemination from higher HQs was more than adequate and that the TAC received than type and amount for ULTRA that was commensurate with its mission. SRH-023, Part 2, pp. 57-103.

Third Army: use of ULTRA more briefing, than fusion/integration, oriented with neither representative (Helfers, 6 June 1944 - 12 March 1945; Church, 18 March - 15 May 1945) mentioning any effort to develop ULTRA into open source picture ... involvement with G-2 section seems to support the reverse process, i.e. open source used to make the daily ULTRA briefing more comprehensive ... briefing map and notes were main aids ... no index maintained; messages destroyed after 24 hrs; no capability for historical reference to support ongoing or future operations ... XIX TAC CG & CofS regularly attended briefing, and XIX TAC representative briefed on GAF picture when two HQs collocated ... ULTRA used to confirm first echelon OB and provide insight into German intentions/ proposed operations ... G-2 personally cautious about ULTRA's use; would not support indoctrination of the OB section chief; consequently OB information was derived primarily from open source material, with corrections noted only in briefings for indoctrinated personnel ... no mention was made of support from higher

HQs; Army support to subordinate corps viewed in the context of security violations, vice timely sanitization and dissemination. Helpers' personal memorandum, and SRH-023, Part 1, pp. 19-26.

XIX Tactical Air Command: conducted daily ULTRA briefings for indoctrinated staff; CG & CofS briefed periodically, but often attended Third Army briefing; command group briefed ASAP on any ULTRA of immediate operational significance ... representative also briefed at Third Army daily ULTRA update when the two HQs were proximate ... no particular focus (targeting vice OB) to briefing content ... summary sheet of significant ULTRA also prepared daily ... open source integration was the function of the A-2 himself ... serviced by Third Army SLU; difficulties and delays occurred when the two HQs were not collocated; XIX TAC did not receive its own until March 1945. SRH-023, Part 2, pp. 104-109.

Ninth Army: one deep manning... established ULTRA's value early by correctly demonstrating that open source strength figures for Brest garrison were understated by 50% ... daily briefed G-2, attended open source morning update, then provided ULTRA update to CG and indoctrinated staff; XXIX TAC representative then briefed air picture ... daily liaison between TAC & Army representatives ... screened all open source G-2 material; excellent access to all G-2

elements ... participated in G-2 estimate writing, particularly the "Reserves" portion (probably covering second echelon or uncommitted forces as well) ... daily liaison with IPW & "Y" personnel (none of whom cleared for ULTRA) ... perceived problems with personnel assigned to positions permitting ULTRA access, yet performing no intel function; favored indoctrination by actual duties, not duty title ... cited problems in the state of training within the G-2 section; G-2 relieved in February 1945 ... representative worked hard to provide open source cover for ULTRA, and to disseminate appropriate information to corps level ... based on experiences while subordinate to 21st Army Group and exposed to the British utilization of ULTRA in more speculative/ predictive manner, wrote open source annexes to periodic intelligence reports, covering ULTRA via speculation. SRH-023, Part 1, pp. 27-42.

XXIX Tactical Air Command: Worked within A-2 section with duties consisting of GAF OB, airfield targeting priorities, supervising targeting effort, and tasking authority for photo and visual tactical reconnaissance; screened all incoming open source material for use in targeting and ULTRA cover ... SIGINT chief indoctrinated and worked closely with representative to provide cover for ULTRA and to use it as a source for directing "Y" operations ... jointly briefed with Ninth Army representative to both Army & TAC command

groups ... had indoctrinated enlisted admin support;
maintained extensive cross referenced records ... serviced
by Ninth Army SLU until February 1945. SRH-023, Part 2,
pp. 110-114.

Fifteenth Army: ULTRA service began in early February 1945
... access limited to CG, CofS, G-2 & G-3 ... daily
briefings given, but, due to Army's mission, were more
informational than operational ... representative worked
with nonrecipients in the G-2 section to build and correct
the open source picture from ULTRA; wrote the "reserves"
portion of the daily INTSUM. SRH-023, Part 1, pp. 66-67.

Sixth Army Group: during HQs' movements, ULTRA detachment
always moved forward with the command group and the tactical
CP; strong indications of ULTRA's importance to the CG ...
initial use sporadic and unstructured, but by November 1944
well established ... acceptance and use by the command group
felt to enhance overall perception of intelligence in the
HQs ... joint air/ground picture briefed daily; "show"
aspect of the briefing, vice content and accuracy often
stressed in representative report ... two representatives
assigned, in addition to the collocated Air Force
representative ... extensive notes and indexes maintained
... no regular ULTRA unique estimates prepared; informal
summaries provided to Seventh Army, as well as messages

retransmittals, to facilitate secondary dissemination; since First French Army did not have ULTRA access, emphasis was on open source integration and dissemination ... importance of providing operational information to Bletchley Park to support sorting and dissemination not recognized; done sporadically and without great attention to accuracy and detail ... internal HQs integration not done exceptionally well ... OB chief did not avidly read the traffic; relied instead on daily briefing for his update (this seems to be a strong weakness, since OB, in particular, requires detailed study and cross reference) ... Chief of SIGINT section only read traffic superficially; consequentially total SIGINT picture rarely achieved and use of PEARL and THUMB as cover for ULTRA overlooked ... neither examination of logistic intelligence nor target development done well ... use in deception planning was hindered by personality problems between the representative and the G-3's chief deception planner ... fusion and open integration done solely by the representative, but only as a secondary job function; emphasis was on the daily briefing and operational use by the CG and CofS. SRH-023, Part 1, pp. 42-58.

First Tactical Air Force (Provisional): Joint effort with Sixth Army Group representative at the Army Group HQs ... TAC AF staff was small and combined; US and French rather than with French liaison as with the Sixth Army Group; A-2

had only a small staff ... security concerns dictated that representative not be located in AF HQs, but with Army Group; only command group indoctrinated ... command group attended daily ULTRA briefing at Army Group HQs; only means for ULTRA integration ... maintained complete GAF records; acted as SIGINT and targeting officer for TACAF; functioned as G-2 Air for Army Group ... maintained extensive records in notebook format ... felt that targeting information was much more important than use of ULTRA for OB; probably true with the status of the GAF in late 1944; representative criticized Bletchley Park for remaining focused on GAF OB, in spite of growing need for targeting data. SRH-023, Part 2, pp. 12-19.

Seventh Army: no formal command group briefing regularly scheduled; G-2 briefed informally early in the day on messages received overnight; important information then repeated for CG & CofS ... close working relationship with G-2 ... pertinent messages received during the day immediately integrated into intelligence/operational action with proper cover ... ULTRA representative only briefed ULTRA, but expected to be fully aware of open source "picture"; OB Chief responsible for integrating ULTRA ... representative reviewed and provided input, but did not prepare estimates and appreciations; ULTRA included by indoctrinated G-2 personnel ... ULTRA targeting information

coordinated and fused by XII TAC A-2 ... idea of "cover" was, however, perceived, by the representative, to be poorly understood and loosely applied; cited several instances, as security violations, where ULTRA of immediate operational value was passed to corps level with shallow or no cover ... at VI Corps, the G-2, and the initial CG, were indoctrinated when that Corps operated independently at Anzio; VI Corps was very demanding of insights and estimates that could only come from ULTRA ... representative seemed to operate under a policy where he reported to London, but did not attempt to correct via coordination with the G-2, all security violations noted ... representative seemed to operate as a security watchdog, rather than an intelligence officer; however, ULTRA was fully integrated into Army operations by a well orchestrated G-2 section. SRH-023, Part 1, pp. 59-65.

XII Tactical Air Command: one SLU serviced both XII TAC & Seventh Army ... single representative served as targeting officer, developing airfield target priority lists for the TAC's entire operational area; submitted all target photo reconnaissance requests; served as collection manager for TAC's two "Y" units ... prepared daily "open" briefing for the entire staff covering air activity over the last 24 hrs; conducted a daily ULTRA briefing, followed by targeting update with the A-2 & A-3 ... had access to all incoming open source material, to include ground OB for targeting use

... must have been exhausted at the end of the war.

SRH-023, Part 2, pp. 115-117.

First Allied Airborne Army: command based in the UK; opportunity for close liaison with GC & CS and air section of British Air Ministry... focused on German ground/GAF activity and possible reaction to proposed airborne operations; emphasis on counterforce OB, strengths of potential enemy air elements, type of aircraft ... each operation required completely new estimates and appraisals ... two estimates written; one based entirely on ULTRA; one with open source cover for dissemination to corps and division G-2s ... daily ULTRA briefing, prior to "open" ops update; because of potential areas of airborne employment, area of intelligence covered the entire Western Front.

SRH-023, Part 2, p. 7.

ENDNOTES

1. I will not argue whether or not WW II corps were, in fact, engaged in the operational level of war. Simply, US Corps were not normal recipients of ULTRA intelligence, receiving pertinent information through operations orders or intelligence reports where the source was "covered", or buried in the text. As such, the operational nature of the corps is only addressed as it pertains to being an Army subordinate command, and the responsibility of the Army to service its intelligence needs.

2. SRH-026, Marshall Letter to Eisenhower on the Use of ULTRA Intelligence, p. 2.

3. SRH-023, Reports by US Army ULTRA Representatives with Army Field Commands in the European Theater of Operations, Part 2, p. 58.

4. Much of the detail on WWII GC & CS operations remains classified. But the best open source accounts come from individuals that served at Bletchley Park during its operations. Peter Calvocoressi (Top Secret ULTRA) and Ralph Bennett (ULTRA in the West & ULTRA and Mediterranean Strategy) served in Hut 3. Gordon Welchman provides a first hand account of the cryptologic process in his The Hut Six Story.

5. Peter Calvocoressi, Top Secret ULTRA, p. 65.

6. SRH-023, Part I, p. 47.

7. Calvocoressi, pp. 65-66.

8. SRH-023, Part 2, p. 77.

9. Ibid., p. 7.

10. The British were still using this term as late as 1981, when the author was assigned as an exchange officer to 14 Royal Signal Regiment (EW), the only remaining tactical SIGINT unit in the British Army. It and its Royal Air Force counterpart, 54 Signal Unit, were described in both classified and unclassified publications as "Y" units. The old phonetic term, YORKER, was no longer used.

11. SRH-033, History of the Operations of Special Security Officers Attached to Field Commands, pp. 10-11.

12. The 11 March 1944 regulations (SRH-044, War Department Regulations Governing the Dissemination and Security of Communications Intelligence, 1943 - 1945, p. 37) also provided the following definitions:

Signal Intelligence (Sig. Int) - Comprises (a) the interception of all enemy and neutral communications and radio transmissions, and their solution; (b) the Intelligence resulting therefrom, and the preparation of such Intelligence in a useful form.

Y Service/ Radio Intelligence Service ((Y (Br.)/R.I. (Amer.) - The organization responsible for the interception of all enemy and neutral radio transmissions including its operation of D/F services.

13. SRH-044, p. 59.

14. SRH-107, Problems of the SSO System in World War II, pp. 30-31.

15. Ibid., p. 31.

16. Ralph Bennett, ULTRA and Mediterranean Strategy, p. 23-24.

17. Ibid., p. 24.

18. Ibid., p. 24.

19. Ibid., p. 46.

20. Ibid., p. 67.

21. SRH-006, Synthesis of Experiences in the Use of ULTRA Intelligence by US Army Field Commands in the European Theater of Operations, p. 21.

22. Thomas Parrish, The ULTRA Americans: The U.S. Role in Breaking the Nazi Codes, p. 96.

23. SRH-110, Operations of the Military Intelligence Service, War Department, London (MIS WD, London), pp. 10-11.

24. Ibid., p. 11.

25. SRH-061, Allocation of Special Security Officers to Special Branch, Military Intelligence Service War Department, 1943 - 1945, p. 12.

26. SRH-035, History of the Special Branch, MIS, War Department 1942 - 1944, p. 55.

27. SRH-023, Part 2, pp. 80-81.

28. Ibid., Part 1, p. 19.

29. SRH-061, pp. 13-14.

30. SRH-110, p. 22.

31. Ibid., p. 38.

32. Ibid., pp. 21-22, 26.

33. Ibid., p. 26.

34. SRH-153, pp. 11-13.

35. SRH-110, pp. 27-28.

36. F.H. Hinsley, with E.E. Thomas, C.A.G. Simkins, C.F.G. Ransom, British Intelligence in the Second World War: Its Influence on Strategy and Operations, Volume Three, Part II, p. 964.

37. At its peak, 3-US totaled 68; 19 serving as ULTRA representatives to field commands, 24 in various command "specialist" positions, 3 in London, and 12 as Advisors in Hut 3. The remaining 10 comprised the actual 3-US section at Bletchley Park. Reference: SRH-110, p. 33.

38. SRH-110, p. 18.

39. "The title 'representative' has been used to designate the Military Intelligence Division/ War Department (MID/WD) intelligence officer attached to a command and specializing in the handling of ULTRA material; 'recipients' is used to designate all other indoctrinated personnel at the commands; 'non-recipients' covers all persons at field commands who were not indoctrinated." SRH-023, Part I, p. 3.

40. SRH-006, p. 13.

41. SRH-110, p. 17.

42. SRH-026, p. 4.

43. SRH-107, p. 11-12, 16-17.

44. Ibid., p. 7.

45. SRH-006, p. 6.

46. The US Army retained this separation by attachment of the SSOs to supported command until the 1980s. In the 1983 time period, SSOs supporting Corps and below headquarters became an assigned element of the supporting Combat Electronic Warfare Intelligence (CEWI) structure. Echelon-above-corps SSO support is still an attached arrangement. In the British Army, SSO-type support to Corps and below units is still centralized.

47. Melvin Helfers, supporting Third Army, describes passing on his liquor and cigarette rations to his British section sergeant with little appreciation received in return. His description of the British captain in command is strongly uncomplimentary, emphasizing his technical competence and his vulgarity. (See Helfers' My Personal Experiences with High Level Intelligence.)

48. SRH-006, pp. 7-8.

49. SRH-023, Part 1, p. 10.

50. One-time-pad encryption systems are recognized as perhaps the most secure, but least timely, means of protecting communications. Both the sender and receiver use duplicative encrypt/decrypt pages (usually in pad format) "one time" to prepare the message for transmission or to read it on the receiving end. The page is used once and destroyed after message receipt is acknowledged. The method is secure but slow and prone to human error, especially if transmitted by hand-keyed manual morse. The volume of traffic that can be sent by this method is significantly less than can be processed by on-line, machine systems.

51. SRH-006, p. 9.

52. Ibid., pp. 9-10.

53. Ibid., p. 8.

54. SRH-023, Part 2, p. 64.

55. Ibid., Part 1, p. 28 & Part 2, pp. 113.

56. Ibid., Part 2, p. 107.

57. SRH-044, p. 45.

58. SRH-023, Part 1, pp. 8-9.

59. Ibid., pp. 46-47.

60. Ibid., Part 2, pp. 41, 62-63, 105.
61. Ibid., Part 1, p. 47 & Part 2, p. 63.
62. SRH-006, p.15.
63. SRH-023, Part 1, p. 28.
64. SRH-006, p. 17.
65. SRH-044, pp. 27C, 44.
66. SRH-006, p. 16.
67. SRH-110, p. 40
68. SRH-023, p. 18-19.
69. Ibid., pp. 19-20.
70. SRH-023, Part 1, p. 31.
71. Ibid., p. 17.
72. Ibid., pp. 25, 64-65.
73. SRH-044, p. 44.
74. SRH-023, Part 1, p. 20.
75. Ibid., p. 8.
76. Ibid., Part 2, pp. 47-48.
77. Ibid., p. 111.
78. Ibid., pp. 77-79.
79. Ibid., p. 78.
80. SRH-006, pp. 23-24.
81. Melvin C. Helfers, "My Personal Experience with High Level Intelligence". memorandum, November 1974, pp. 7-8.
82. SRH-023, Part 1, pp. 48-49.
83. Ibid., Part 2, p. 18.
84. Ibid., Part 1, p 14.

85. Hinsley, et al., British Intelligence, Vol. II, pp. 28-30.
86. Ibid., Vol. III, Part 2, pp. 845-846.
87. Ibid., pp. 846-847.
88. SRH-023, Part 1, p. 60.
89. Hinsley, et al., Vol. III, Part 2, pp. 847-848.
90. SRH-023, Part 2, pp. 77-79, 96.
91. Ibid., p. 16.
92. Ibid., p. 11.
93. Ibid., p. 18.
94. Ibid., p. 11.
95. Ibid., pp. 8-11.
96. Ibid., pp. 9-10.
97. Hinsley, et al., Volume III, Part 2, p. 964.
98. University Publications of American, Reel Guide, "ULTRA: Secret German Messages from World War II", p. 1.
99. Ibid., p. 975.
100. Ralph Bennett, ULTRA in the West: The Normandy Campaign 1944-45, pp. 12-13, p. 16.
101. Statement is made based on examination of all CX/MSS traffic in XL and HP series from 16 August to 16 October 1944, and selected HP messages through 24 December 1944.
102. Bennett, ULTRA in the West, p. 13.
103. A more complete listing of command delivery groups is at Hinsley, Vol. 3, Part II, pp. 975-78.
104. Bennett, ULTRA in the West, p. 13.
105. Ibid., p. x.

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