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STUDY PROJECT

ULTRA IN THE BATTLE OF BRITAIN: THE REAL KEY TO SUCCESS?

by

Lieutenant Colonel Tommy J. Smith

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and lower-grade radio intercepts also made a significant contribution; thus, until more Ultra files are declassified and released to the Public Record Office, final determination of findings must be held in abeyance. However, numerous lessons learned are applicable to the United States' current domestic and international situation. Actions to be taken include: continuation of study when appropriate Ultra files are released; development of SIGINT means should be given highest priority; reduce military use of radios and "secure" devices; improve collation of strategic and tactical intelligence--provide to division level; improve COMSEC; acquaint military and national leaders with lessons of the Battle of Britain; immediately improve CONUS air defense; most importantly, review and update contingency plans for defense of CONUS.

USAWC MILITARY STUDIES PROGRAM PAPER

ULTRA IN THE BATTLE OF BRITAIN: THE REAL KEY TO SUCCESS?

INDIVIDUAL STUDY PROJECT

by

Lieutenant Colonel Tommy J. Smith

US Army War College
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18 May 1980

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BACKGROUND

While it is assumed that most military professionals are familiar with the Battle of Britain or, upon reading this paper, they will conduct further research on their own, it is nevertheless necessary to highlight the significant aspects of the battle and the pre-war developments that led to Ultra in order to fully comprehend the analysis of data that will be discussed.

Battle of Britain

The Battle of Britain was an aerial battle, initiated by the German Luftwaffe, that was predominately fought over southern England from the tenth of July until the end of October 1940. The German objective was to win air superiority over the Royal Air Force (RAF) as a prerequisite to an invasion of the British Isles in September of that year.

Principal opposing commanders were Reich Marshall Herman Göring of the German Luftwaffe and Air Chief Marshall Sir (later Lord) Hugh Dowding, Commander of the RAF Fighter Command. Initial orders of battle consisted of three German Luftlotten (i.e., Air Fleets) that were positioned in France, Belgium, Holland, Germany, Denmark, and Norway; thus, the British were surrounded like fish in a barrel as the Germans launched their attacks.

On the other hand, the British defenses consisted of 48 fighter squadrons that were under four group headquarters which actually controlled the engagements; seven anti-aircraft divisions; a balloon command; an observation corps; and finally, a radar group consisting of 29 secret stations spread around the southern coast of England.[1] To meet the potential Luftwaffe threat of 1,580 bombers, 1,090 fighters and 210 reconnaissance aircraft, the RAF had a total of 900 fighters of which 675 were expected to be serviceable on a given day.[2] Thus, the strategies for the battle basically consisted of Göring attempting

to quickly destroy the RAF while Dowding fought a battle of attrition, thereby avoiding the overcommitment of his forces until the time was right and of his choosing.

The battle was fought in five phases, of which Phase III (24 August to 6 September) was the most critical for the RAF. During this phase the Luftwaffe began heavy day attacks on RAF facilities and simultaneously initiated their night attacks on London. This resulted in unacceptably large losses for the RAF which, if they had continued, would have resulted in a German victory. However, this was not to be the case due to the Luftwaffe's faulty intelligence of the British situation and the heavy losses which they incurred themselves. Hence, Göring failed to capitalize on his advantage and the RAF was given a chance to recover as the Liftwaffe discontinued their day attacks on military targets and intensified the heavy night attacks on London.

Other significant periods in the battle occurred on 15 August and 15 September. The fifteenth of August is regarded as the turning point in the battle when the RAF soundly defeated Göring's "Adler Tag" strategy to "wipe the British Air Force from the sky,"[3] which inspired Churchill to say, "Never in the field of human conflict was so much owed by so many to so few."[4] The fifteenth of September is now celebrated in England as "The Battle of Britain Day" because of Dowding's decisive commitment of his forces and the large Luftwaffe losses that resulted. In effect, this was the straw that broke the camel's back and on 17 September Hitler postponed his planned invasion attempt, Operation SeeLowe, of 250,000 men and 29 divisions.[5] By the end of October, Collier's official history states that 1,306 Luftwaffe aircraft were destroyed as compared with 732 RAF; 449 RAF pilots and aircrews were killed; and 112,932 civilian casualties resulted from the bombing.[6]

Wit' this overview of the battle in mind, a brief overview of Ultra will now be presented.

Ultra

The contribution of Ultra intelligence to the Battle of Britain was heavily dependent upon the timely decoding, translation, analysis, and distribution of intercepted German W/T transmissions that were encoded on the Enigma cypher machine. In view of the fact that the Battle of Britain occurred in the early phase of the war, it is necessary to briefly trace Enigma's pre-war development in order to adequately understand its impact on the battle.

The Enigma was invented by a Dutchman in 1919 and amply described as a Geheimschrift-machine--a secret writing machine. It was first marketed as a commercial device and its patent rights were transferred to a German firm in 1923.[7] Enigma was later adopted by the Wehrmacht as an ideal cypher machine to protect their most important secrets. The machine was evaluated and adapted to military use by Colonel Erich Fellgiebel, who later became chief signals officer of the Wehrmacht and OKW. He was purportedly one of the most active conspirators of the Schwarze Kapelle; therefore, one can only speculate about his contribution to the British success with Ultra. Anthony Cave Brown hints at it in his book, Bodyguard of Lies; however, it is another mystery that is yet to unfold.[8]

Of particular importance is the fact that the German Navy began using the Enigma in 1926, followed by the Wehrmacht in 1928, and the Luftwaffe in 1933. Furthermore, the Polish Cypher Bureau was the first to develop mathematical solutions to the initial three rotor machine; however, it was the French, under Gustave Bertrand, who first penetrated the military version, based upon covertly obtaining key lists. Thus, the British were far behind

in the early Enigma developments and they did not show any real interest until 1938 when, according to Anthony Cave Brown, a Polish Jew offered to sell them his knowledge on Enigma.[9]

Cave Brown states that the man was brought to London where he built a replica of the Enigma. On the other hand, Ronald Lewin states in his book, ULTRA Goes to War, that the British were not exposed to Enigma until 25 July 1939 when Colonel Langer of the Polish Bureau disclosed their Enigma secrets to Dennison and Knox of the British Government Code and Cypher School. Lewin further states that Langer provided an actual replica of the Enigma that was transported to England by Gustave Bertrand in a diplomatic pouch, "as our Polish contribution to the common cause of defense."[10] Included in the pouch were technical drawings of the Bomba, a high-speed calculating device, and other cryptanalysis devices that the Poles had developed. The significance of this comparison between Anthony Cave Brown and Ronald Lewin's accounts is to point out the fact that many conflicting accounts exist about the Ultra operation. Nevertheless, with the benefit of the Polish contribution, the British were at last able to begin an intensive effort to break the new Enigma device that had been brought into service on 15 September 1938, just prior to German troops entering the Sudetenland and Hitler's orders to destroy the "Rump of Czechoslovakia."[11]

The technical problems of decypherment were significantly increased by the addition of two spare rotors into the Enigma system that created a total of approximately 150 million million million different encypherment permutations.[12] Later development of five rotor Enigma systems with similar spare rotor concepts would bring new challenges; however, the problem at the moment was to break the current system.

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CHAPTER I

INTRODUCTION

The Battle of Britain is considered by many historians as the turning point of World War II. Following the British evacuation of Dunkirk on 4 June 1940 and the fall of France, the British stood alone to face the impending invasion of Hitler's armies. The United States had not yet entered the war and the consequences of a British defeat would have surely prolonged the war effort, and quite possibly have resulted in a different outcome.

Aside from its historical significance, the Battle of Britain also provides a fascinating case study in the development of modern air defense techniques and the application of secret intelligence sources that were available at that time, such as radar and cryptanalysis. The secret of radar was uncovered during the war; however, the cryptanalysis secret of Ultra was not disclosed until 1973 when Gustave Bertrand's Enigma ou la plus grande enigme de la guerre 1939-1945, and F. W. Winterbotham's more widely distributed book in 1974, The Ultra Secret, were published. Since these initial disclosures of the Ultra secret, portions of which are still protected by the British Official Secrets Act, numerous books and articles have been written to reassess the impact of Ultra on previously written histories of the Second World War.

In view of the historical significance of the Battle of Britain and the increasing availability of Ultra information, an individual study project was approved to determine the significance of Ultra intelligence to the eventual outcome of the battle. The research design for this project is described in the following section.

RESEARCH DESIGN

The procedures for data collection and analysis in this study are organized along a historical research scheme directed at a narrowly restricted topic. The key elements of this design will now be described in detail.

Review of Literature

The majority of available information is contained in official British histories of the Second World War; unofficial publications on Ultra; and declassified British records of World War II, to include certain Ultra files that are available at the Public Record Office in England. It should be noted that few records of the Battle of Britain exist in the United States, due to our non-entry into the war at that time; hence, any original research effort must necessarily focus on the official war files of the Public Record Office.

The official British histories of the Second World War by Basil Collier in 1957, The Defense of the United Kingdom, and F. H. Hinsley in 1979, British Intelligence in the Second World War, Volume One, provide a good overview of the battle and the initial development of Ultra intelligence through Operation Barbarossa in 1941. Unofficial publications by F. K. Mason, Arthur Bryant, Liddell Hart, Winston Churchill, H. A. Jacobsen and J. Rohwer provided greater insights and appreciations for the criticality of the battle itself while others by Bertrand, Winterbotham, Ronald Lewin, R. V. Jones, Anthony Cave Brown, David Kahn, William Stevenson, Patrick Beesly and Ralph Bennett provide similar accounts of Ultra.

As previously mentioned, the most significant portion of this literary review must necessarily focus itself on the official British records that

have been declassified and made available at the Public Record Office in Kew, Richmond. Therein are contained various intelligence appreciations, decision papers, operational logs, and so forth, from the governmental agencies that were involved in the war effort. These documents provide an authentic source of information; hence, the accuracy of any study on this subject largely depends upon the review of such material.

While many official documents have been declassified and are available at the Public Record Office, many official files, to include those of the War Office, the Air Ministry, and actual Ultra decrypts during the Battle of Britain are still classified, even though 40 years have elapsed since the battle took place.

Statement of the Problem

The role of Ultra in the Battle of Britain is important to both the military historian and the modern military professional. Many comparisons can be drawn between the world of 1939 and the world of 1980, not only in terms of global tensions, but also in terms of the free world's preparedness to defend itself against a potential adversary. The forces of yesteryear's Nazism are today reflected in the increasing power of the Soviet Union and the diminishing power of the United States. The recent Soviet invasion of Afghanistan can be equated to the Nazi occupation of Czechoslovakia in 1938; hence, one can only wonder what the modern day Poland will be--Iran perhaps? In any event, the study of Ultra's role in the Battle of Britain is of great importance because of its invaluable lessons of how a superiorly manned and equipped force was defeated through a combined national effort of ingenuity, wit, productivity, and a common resolve to survive.

This study will examine the Battle of Britain with specific emphasis on the role of special intelligence. The discussion will highlight critical phases of the battle and the contribution or failure of Ultra intelligence in determining the ultimate victor.

Statement of Hypothesis

In view of the vastly superior German forces and the British predicament following Dunkirk, the need for good intelligence on German intentions, strengths and weaknesses was vital to Britain's survival. With the fall of France, British agents on the continent practically disappeared; therefore, the British became more dependent upon other intelligence sources such as: captured enemy agents and plans; radio intercepts; invention of new surveillance devices, such as radar; use of reliable informants, such as the Schwarze Kapelle; use of radio direction-finding techniques; cryptanalysis of high-grade and low-grade enemy messages; and so forth.

The recent revelations on Ultra have provided a new basis for the review of previously written histories of World War II. Hence, the basic hypothesis of this study is that Ultra intelligence tended to be more important to the British victory in the Battle of Britain than were other sources of intelligence. In essence, it is hypothesized that Ultra was the key to success.

Variables that influence the basic hypothesis are the timeliness, accuracy, availability and utility of the information; the decisive results that were achieved from such information; and finally, the margin of victory that not only indicates the closeness of the battle, but also measures the ultimate value of various intelligence sources as well.

Theoretical Framework

Definitions applicable to the problem are contained in the Department of Defense Dictionary of Military and Associated Terms, dated 1 June 1979. Other concepts and considerations applicable to the problem are described in Basil Collier's official history, The Defense of the United Kingdom, and in F. H. Hinsley's official history, British Intelligence in the Second World War, Volume One. It is not anticipated that any new definitions, concepts, or theories are applicable to the problem; however, it is possible that some may develop as a result of this study.

Methodology

The stated hypothesis will be tested by a close examination of historical evidence guided by a significant number of questions on a well-defined topic. Answers to these questions will be provided by a thorough review of published and unpublished literature in the United States and England; also, interviews of members of the British Ministry of Defense at Whitehall, the Air Historical Branch of the Air Ministry at Lacon House, recent authors of publications on Ultra, such as Winterbotham, Lewin and Hinsley; and finally, an interview of Brigadier Tiltman, who currently resides in the United States.

Analysis of Data

All data will be objectively reviewed and discussed with appropriate experts on the problem. The data are expected to provide a more accurate analysis of Ultra's role in the Battle of Britain. Results will be carefully analyzed to develop logical conclusions and sound recommendations.

To accomplish this, the British had to determine the daily key settings for a dozen or so different Enigma codes that were then in existence. Using the Polish "Bomba" as a base, a group of mathematicians and technical experts were assembled at Bletchley Park to develop a data-processor that would be capable of imitating the internal wiring of Enigma's rotors, thereby unlocking the daily code settings. The British device was appropriately called the "Bombe," probably due to its Polish origin, and according to Winterbotham, "the oracle of Bletchley spoke" for the first time in April 1940.[13]

The timeliness of this breakthrough is of great significance because of the ensuing developments when Germany occupied Norway and Denmark in April 1940 followed by their Western offensive in May. This gave the British a tremendous opportunity to learn more about the Enigma in actual operations prior to the commencement of the Battle of Britain in July. Hence, while it has been fairly well documented that Ultra played an important intelligence role in later phases of the war, its value during the Battle of Britain will now be analyzed in detail.

CHAPTER II

THE ROLE OF ULTRA

Much has been written about the role of Ultra in the Battle of Britain; however, how much of this is fact or speculation, and how many pieces of the puzzle are still missing must now be determined. In order to present an objective overview of the facts bearing on the problem, the opinions of various authorities on Ultra will be presented followed by specific examples of Ultra's contribution to the battle. The examples will be focused on significant portions of the battle which will be correlated with specific items of Ultra intelligence that were available at the time.

AUTHORITATIVE OPINIONS

As this research effort discovered, there are many self-proclaimed experts on this subject who, due to their actual participation in the Ultra operation or through modern historical research, believe that they have an accurate account of what actually happened 40 years ago. This has resulted in a confusing situation of different opinions on Ultra's role, particularly when the experts are often arguing across a 40 year old "perception gap." Thus, as the opinions of Frederick Winterbotham, Ronald Lewin, Anthony Cave Brown and Francis Hinsley are discussed, one must remember the basis for these authoritative comments.

Frederick W. Winterbotham (The Ultra Secret)

Group Captain Winterbotham is one of the most authoritative sources of information on Ultra since he was intimately involved in the operation from the beginning and his direct contacts with Stewart Menzies, Chief of the

Special Intelligence Service; Charles Medhurst, Director of Air Intelligence at the Air Ministry; Air Chief Marshall Sir Hugh Dowding of Fighter Command; and Winston Churchill, the Prime Minister. While his personal involvement in the operation at the highest levels lends much credibility to his overall account of what happened, Winterbotham acknowledges the fact that he "had no access to official records, and the book is written from [his] own recollections of the events described, and of the hundreds of signals which [he] left locked in the vaults of Whitehall."[14] Hence, even from the outset of his account, Winterbotham acknowledges the fact that errors may exist in his account. Nevertheless, Winterbotham attributes the following items to Ultra.

The pattern of Ultra signalling began to emerge during the Battle of France and by June much of the Luftwaffe order of battle, stationing and readiness status was known. Around the middle of July, Göring revealed Hitler's plan to invade England. Based upon personal information from Erich Koch and other sources, the British felt that Hitler wanted to invade Russia in the Spring of 1941; therefore, any invasion of the British Isles must be concluded by mid-September before the weather on the English Channel became too rough. In addition to following the German preparations for the invasion, Ultra provided a great deal of information on Göring's intentions.

For example, on 1 August Ultra revealed that "the Luftwaffe was to overcome the British Air Force with all means at its disposal as soon as possible," and on 8 August Göring issued the order for "Adler Tag" to wit: "Within a short period you will wipe the British Air Force from the sky."[15] In this regard, Ultra provided not only the time of the attack but the tactics as well, which were clearly designed to commit Dowding's forces in the south and then sneak in two raids by Luftflotte 5 from Norway and Denmark over the northeast coast. Since the ensuing action for "Adler Tag" took place on

15 August and is considered the turning point of the battle, it is interesting to note that "Luftflotte 5 was, thanks to Ultra's early warning and good long-distance radar fixes, intercepted by 13 Group while well out at sea."[16]

Winterbotham further states that "Dowding, who was able to recognize Goering's strategy from his Ultra signals, was not to be drawn and continued to use the minimum of fighters to disrupt and confuse the bomber squadrons so as to make accurate bombing more difficult."[17] He also credits Ultra with providing information on Göring's intelligence reports to Hitler, which grossly underestimated the remaining RAF fighter strengths.

As the battle switched into Phase III, Ultra alerted Dowding of Göring's order that "the attacks were to go much further inland in order to bring the RAF up to battle."[18] Winterbotham states he "watched Dowding and Keith Park [Cdr, 11 Group] handle the Ultra with supreme care"[19] and they always had some fighters available to go up and meet every raid. Dowding was aware of the rapidly declining strength of Fighter Command's aircraft and pilots, but Ultra kept him informed that the Luftwaffe was hurting also. Hence, Dowding was able to persevere until Göring called off the day attacks and switched to the heavy night bombing of London.

Finally, in the big attack on 15 September, Winterbotham attributes Dowding's success to early warning from Ultra that two raids would take place; therefore, Dowding was able to quickly refuel and rearm his fighters between raids, thereby achieving a decisive victory at a time when he had a good chance for success.

It should also be noted that Winterbotham gives credit to other intelligence sources for the conduct of the battle, particularly radar which he stated, "was the first key to our survival [however] Ultra was to be the second."[20] One can only speculate over the sincerity of his statement about radar because

in another portion of his book he states: "It was our wits and brains which produced the Ultra intelligence that provided the key to Air Marshall Dowding's strategy of keeping the Luftwaffe at bay and saving the RAF from the knockout blows aimed at it by Goering during the Battle of Britain."[21] He continued that the war "was, in fact a very narrow shave, and the reader might like to ponder . . . whether or not we might have won had we not had Ultra."[22]

Some interesting comments from Winterbotham in a personal letter, dated 24 March 1980, regarding this research project are as follows:

> There are so many people who were not there at the time publishing books on Ultra, most of which are inaccurate copies of each other. R. V. Jones was closely confined, as my scientific assistant, to such Ultra as concerned his scientific subjects. Ronald Lewin is better informed and had access to all my files. Hinsley's official histories, I and others find relatively unreadable; and such Ultra as been released to the Public Records Office is difficult to match up to the overall picture as seen by those who distributed and used the material during the war.
>
> Battle of Britain. Much more Luftwaffe Ultra was now available (June-Sept 1940) especially those signals giving Goering's strategy of massive instant destruction of the RAF. This warning . . . led to the British strategy of conserving our aircraft and stringing out the Luftwaffe. Thus, by meeting every massive German raid with a few fighters, we spoiled their bomb aiming and forced them to give up by Sept 1940.[23]

Hence, Group Captain Winterbotham provides a rather generalized description of Ultra's contribution based upon his actual experience. In contrast, the next authoritative opinion is by a contemporary researcher who was not involved in World War II intelligence; nevertheless, he has written a lengthy book on Allied cover and deception operations.

Anthony Cave Brown (Bodyguard of Lies)

The author devotes a total of nine pages of his book to the air war over England in which he allocates three pages to the Battle of Britain and

six to the bombing of Coventry on 14 November 1940. On the role of Ultra, Cave Brown states: "From the beginning of its campaign, Churchill and the Air Staff were informed, through Ultra, of most, and often all, the Luftwaffe's plans, targets and tactics."[24] Furthermore, that:

> Ultra came through with decisive intelligence . . . Goering proclaimed Eagle Day [Adler Tag] for September 15 . . . of this intention Ultra had told all. . . . Two days later, 'The Bomb' decrypted a signal from the German General Staff relaying Hitler's authorization to dismantle paratroop air-loading equipment at Dutch airfields. . . . Ultra had become, even at this early stage in the war, a major strategic advantage.[25]

From this point Cave Brown describes the bombing of Coventry and states that Churchill had 48, possibly 60, hours advance warning of the devastating raid and that he took no action to warn the civilian population in order to protect the Ultra secret.

There are obvious differences in the statements of Cave Brown and Winterbotham concerning the Luftwaffe target information provided by Ultra and the date of "Adler Tag." On the latter point, it is obvious from numerous historical accounts that "Adler Tag" was 15 August. In addition, it should be noted that Winterbotham clearly states in his earlier published book that "actual targets did not appear on Ultra signals. . . . Nevertheless, it helped Dowding to know the extent of the German effort for the day."[26] Also, on the matter of the Coventry bombing, Winterbotham indicates that the actual target was not disclosed by Ultra until about 3 p.m. on 14 November. Winterbotham is not clear if Churchill was notified of the news at that time and, if so, what specific decisions were made by the Prime Minister concerning the raid.[27]

Thus, while Anthony Cave Brown states in his notes that "no effort has been spared to ensure that the facts on these pages are accurate,"[28] there

are many historians who would challenge his facts. More authoritative opinions will be discussed in the following accounts of the battle.

William Stevenson
(A Man Called Intrepid)

Stevenson is a distinguished journalist who met Sir William Stephenson, Churchill's secret communication link with Roosevelt, during the war. Code named "Intrepid," Stephenson was responsible for maintaining the closest and most guarded covert communications between these important leaders, due to a suspected security leak in the US Embassy in London.[29] Of necessity, Stephenson was made aware of the Ultra secret and the impact of its use. The authenticity of Stevenson's account (i.e., the author), is based upon his personal association with Sir William Stephenson during the war and the fact that Sir William permitted him to use his personal files upon which to write his book. Although this is another general account of the entire war, it does contain some unique points for consideration.

In addition to crediting the Ultra breakthrough for improved morale among the British leaders at the outset of the Battle of Britain, Stevenson also attributes the success of "Operation DYNAMO" during the evacuation of Dunkirk to Ultra.[30] He acknowledges that Ultra was still stabbing in the dark at that phase; however, enough parts of the puzzle were available to successfully anticipate the Germans' intentions. A later example of this occurred on 16 July when Ultra revealed Hitler's decision "to prepare a landing operation against England . . . to eliminate England as a base for the prosecution of the war against Germany."[31] He also attributes the disclosure of "Adler Tag" and "Operation SeeLowe" to Ultra.

On the other hand, he states that while "Ultra was beginning to develop confidence in its ability to read and interpret orders to the German Air

Force . . . this information was not vital to the RAF victory, but together with radar, it demonstrated that mechanized barbarism could be outwitted."[32] Nonetheless, Stevenson attributes Ultra with providing Hitler's strategy that the Luftwaffe was to overpower the RAF before the invasion. Probably of more significance was the author's statement: "Stephenson believes FDR made the decision to run [for his third term] because Churchill was resolved to fight on. . . . The evidence of British resourcefulness was to be seen in the mounting success of Ultra and Bletchley's service to the White House."[33]

Stevenson notes that Roosevelt followed each stage of the Battle of Britain and that his confidence was badly shaken in the RAF's ability to survive, particularly during the heavy day raids that occurred on "Adler Tag." He further notes that Churchill regarded a British victory as being crucial in his campaign to win American support.[34] It is interesting to note that the British, just as the Poles had done earlier, transferred their scientific secrets to the United States in order to prevent their possible capture by the Germans. Among these were the theory for the atomic bomb, radar, jet engines, chemical weapons, the "Bombe" (i.e., Enigma decypheriug machine), and the cavity magnetron that was later used in modern radar systems.[35]

Concerning the Battle of Britain, he states that Ultra revealed the Germans were reaching the end of their resources around 7 September and that "enemy squadrons were bedeviled with servicing problems."[36] Furthermore, Ultra told them that German intelligence had grossly underestimated the RAF's strength and that the invasion was expected on 15 September. This information told Dowding that he should now commit all of his resources in an attempt to win a decisive battle over the Luftwaffe, which he did.

Thus, according to Stevenson, the apparent contribution of Ultra to the Battle of Britain was rather significant; however, his comments on the bombing

of Coventry differ from those of other historians; thus, one can only wonder about the accuracy of his other statements.

R. V. Jones
(The Wizard War)

R. V. Jones was the Head of Scientific Intelligence on the British Air Staff and Scientific Advisor to M16, Winterbotham's liaison group with Special Intelligence Services. Jones was only 28 years old at the time and he was primarily concerned with evaluating Germany's scientific capabilities so that the British could successfully counter new weapons when they were deployed. Accordingly, he was responsible for discovering the new German navigational beam system that could direct Luftwaffe bombers to targets with great accuracy during the Battle of Britain. His first-hand account of Ultra's contribution to the success of his endeavors and the battle's outcome is as follows.

Secret German navigational systems consisted of radio beams that were directed over specified target areas through Knickebein, X-Gerät and Y-Gerät. The Knickebein system consisted of a main beam, which the aircraft followed to the target through the use of a Lorenz receiver, and an intersecting beam which designated the bomb release point. Initial discovery of Knickebein occurred in March 1940 when notes on it were found in a downed Luftwaffe bomber.

About the same time a German POW provided information on another navigational system called X-Gerät, which was similar in concept, yet much more sophisticated and accurate than Knickebein. X-Gerät consisted of four intersecting beams which guided the aircraft to the target, determined the bomber's approach speed, and then automatically released the bombs over the

target. This permitted blind bombing from above the clouds to an accuracy of ±50 meters from 12,000 foot altitudes.

In June 1940, information was disclosed through Ultra about "Wotan" that was later associated with the Y-Gerät system. Y-Gerät used a single beam concept and visual navigational indicators in the aircraft to fly to the target. Aircraft range and bomb release point was determined by a crude form of doppler signal measurements. Since this system was not in large scale use in the Battle of Britain, only Knickebein and X-Gerät will be further discussed.

With the initial information on Knickebein and X-Gerät in March 1940, Jones began to unravel the mysteries of these heretofore secret systems. His initial reports that the systems were navigational bombing aids were largely discounted until Ultra provided information on 12 June 1940 which enabled him to locate the Knickebein transmitter at Kleve.[37] With this key piece of information, Jones was then able to prove his theories about radio beam bombing systems.

It should be noted that a great amount of additional information on these systems was disclosed through captured notes in downed aircraft, POW interrogations, radio direction-finding techniques, and so forth. However, it is important to recognize that Ultra provided the initial key and, during the Battle of Britain, it provided advance warning of Knickebein and X-Gerät targets that Fighter Command and Jones were able to take countermeasures against.

Since fighter interceptions were relatively ineffective during the night raids, Jones devised methods for jamming and distorting the enemies' beams to the point where Luftwaffe pilots were confused and their bombing accuracy was affected. Jones states that Ultra usually provided two to three hours advanced

warning of the Luftwaffe's targets; therefore, the British were able to sufficiently counter this new scientific development. Substantial progress was not made in the development of integrated fighter intercept and electronic countermeasure techniques until late October; however, sufficient progress had been made during the course of the battle to create a general mistrust among the Luftwaffe aircrews as to the reliability of these systems.

It is interesting to note that Telford Taylor credits Jones' success as follows: "The early detection and frustration of Knickebein was an early and major victory in the Battle of Britain."[38] Another interesting sidenote concerns Jones' comments on the bombing of Coventry:

> Certainly I have no recollection of Coventry being mentioned in an Enigma message in the way that some accounts have stated . . . no message concerning Coventry was brought to me, as it certainly should have if it had existed. . . . As for any argument as to whether or not Coventry might have been forewarned, I knew nothing of it. . . . To those of us who knew him, [Churchill] thought that the attack was to be on London.[39]

In summary, Jones provides a rather clear account of how the various intelligence sources were collectively used to support his scientific intelligence projects. He does not portray one as being more advantageous than another, but instead, how the collective application of these sources enabled him to quickly learn and defeat the secrets of the German navigational bombing systems.

Ronald Lewin
(ULTRA Goes to War)

As previously noted in Winterbotham's letter, Ronald Lewin is one of the better informed modern historians on the subject of Ultra. The cover of his book states that he used over 70,000 actual Ultra intercepts and interviewed numerous people who produced and used Ultra in the war. In view of the greater

detail that both Lewin and Hinsley provide, as compared with the previously discussed authors, only their general comments about Ultra will be discussed in this part of the paper. Specific examples of Ultra's contribution will be discussed in a subsequent portion of the paper.

Since Lewin collaborated with Winterbotham and had access to his personal files, most of his account on Ultra parallels Winterbotham, albeit with considerably more documented evidence and far greater detail. However, in several instances he disagrees with Winterbotham and other historians based upon the Ultra files that have been released. For example, whereas Winterbotham and others claim that Ultra intelligence precluded the British Expeditionary Force from being encircled in France and captured, Lewin states that "the facts resist such an interpretation";[40] hence, Lewin attributes the British withdrawal to Dunkirk to Lord Gort's professional judgement and prior planning instead of Ultra intercepts.

During the ensuing preparations for the Battle of Britain, in the absence of an effective intelligence network of agents on the continent, he states: "It is clear that the most promising means of penetrating the barrier of silence about German intentions would be Ultra--if it worked."[41] We now know that it did work and rapidly improved to become a useful source of intelligence. In this regard, Lewin substantiates R. V. Jones' account of how Knickebein and X-Gerät were discovered and defeated through the use of Ultra.

Regarding the Battle of Britain and Hitler's plans for invasion, Lewin attributes much of the strategic intelligence that was obtained to Ultra. He states:

> The margin [of victory] was indeed narrow. . . . It was fought on a razor's edge . . . it was Dowding that drew the fine decisive line between victory and defeat. . . . What has not been so far appreciated is the extent to which Dowding's calculations were assisted by

> Ultra. . . . It enabled him to understand the enemy's main strategy; it kept him informed of the strength, location and readiness for action of individual Luftwaffe units; above all, it could supply him with invaluable advance warning about incoming raids . . . when Ultra spoke to Dowding the voice had a special authority and its source was impeccable: the words of his opponents communicating in secret to themselves.[42]

However, in spite of this rather significant contribution by Ultra, Lewin acknowledges the importance of other intelligence sources and states: "The Battle of Britain was not won by Ultra . . . it was here, at the decisive point that Ultra provided reinforcement . . . and authentic information that came down from Bletchley about forthcoming raids was a strong buttress for Dowding in his conduct of the battle."[43]

Lewin also acknowledges the problem of making an accurate judgement on the precise role that Ultra played because of the absence of Ultra signals that have not been released to the Public Record Office. However, other files from the War Office and the Air Ministry have been released and their contents will be discussed later in the paper.

Thus, without going into great detail, Lewin gives a lot of credit to Ultra for the outcome of the battle, but he gives the most credit to Dowding and his pilots for the real success. This is a rather interesting point that I will come back to later on; however, before going into a discussion of Hinsley's opinions, the following comments from Lewin in a personal letter, dated 24 March 1980, relative to this research project are noteworthy: "I am not sure that I would have been able to help you much factually--indeed, I am inclined to think that in my book I pushed the influence of Ultra on the Battle of Britain a little too far."[44]

Francis H. Hinsley
(British Intelligence in the Second World War)

Professor Hinsley, President of Saint Johns College in Cambridge, spent the war at the Government Code and Cypher School at Bletchley Park. In conjunction with E. E. Thomas, C. F. G. Ransom and R. C. Knight, this official history of British intelligence was written and published in 1979. As such, it should represent the most up-to-date and authentic account of Ultra on the Battle of Britain because the authors had free access to official documents, including those that have not yet been released to the Public Record Office.

Prior to discussing the significant points of Hinsley's book, it is interesting to note his comments in a personal letter dated 26 February 1980 concerning this research project:

> I doubt very much whether I can add anything to what I said about the Battle of Britain in [my book].
>
> You will have gathered from this that ULTRA in the strict sense of the word, namely high grade cypher intelligence, contributed little, but that the product of low grade tactical codes and cyphers was somewhat more useful.
>
> The main way of looking into the evidence more closely than my volume did would be to look at the individual ULTRA signals when they get in the Public Record Office and compare them with the day to day development of operations.[45]

In addition, it is also interesting to note the comments that Hinsley made during a telephone conversation that I had with him on 19 March 1980, during my research trip to England. I should caution readers that while I attempted to copy Professor Hinsley's comments verbatim, some of the comments indicated below may not be restated exactly as he said them. If there are any errors, I apologize to Professor Hinsley.

> The real trouble with Ultra during this stage is that it was so new and not much was available at that time.

> While Ultra did provide almost the entire German order of battle, little information was provided about current and future operations.
>
> My book attempted to cover all intelligence operations in the war; therefore, it is fairly sketchy on your subject and does not provide much depth.[46]

With these comments in mind, applicable portions of his book can now be reviewed with a clearer understanding. Accordingly, he states:

> By the time the French campaign was drawing to a close, Whitehall's strategic decisions were at last profiting from the accurate assessment of general developments which the Enigma material made possible. . . . The decrypts threw most light on the organization and the methods of the GAF. . . . [They were] almost as revealing on the German Army.[47]

He further states: "That Germany's loss of the battle owed much to the difficulty of the German undertaking and the tenacity of British resistance. . . . It owed less to the fact that British intelligence was at last beginning to improve."[48]

In regards to actual operations, such as "Adler Tag," Hinsley states:

> For all his major decisions, [Dowding] accordingly depended on his own strategic judgement, with no direct assistance from the Enigma . . . there is no evidence in the surving records that Fighter Command got advance warning of the GAF's intention either from Enigma or from the GAF's low-grade transmissions; brief forewarning of the two [Adler Tag] attacks was received, it seems, only from radar.[49]

Hinsley contends that Enigma's tactical intelligence could have been put to much greater use during the battle; however, the air intelligence branch at Cheadle was not properly organized or manned to effectively correlate tactical intelligence produced from low-grade transmissions with those provided by Enigma. Thus, from Hinsley's account, it may be assumed that Ultra, in the strictest sense, did not significantly influence the outcome of the battle. However, this tends to contradict the opinions of

other authors, even Lewin; hence, the problem of determining the actual facts is not going to be easy.

In this regard, it is interesting to note that in a related interview with Air Commodore Probert, Chief of the Air Historical Branch, at Lacon House on 17 March 1980, Commodore Probert stated that "Hinsley's book is far more accurate than the previous ones of private authors because Hinsley had access to far more material."[50] He also commented that Ultra was still in the infancy stage in 1940 and it did not become really significant until around 1942; hence, he agrees with Hinsley's conclusion that Ultra contributed little to the Battle of Britain.

In summary, the authoritative opinions of Winterbotham, Cave Brown, Stevenson, Jones, Lewin, Hinsley, and Probert are quite diverse, often conflicting, and range from rather hazy accounts to more specific ones based upon recent evaluation of actual Ultra message files. In an attempt to resolve these differences and develop a more accurate appraisal of Ultra's contribution, the next portion of this study will examine specific bits of available Ultra information as it pertains to key segments of the battle.

SPECIFIC EXAMPLES

In order to appreciate the scarcity of actual documentary evidence on Ultra that the above authors had to cope with, it would be useful at this point to briefly outline the limited amount of Ultra information that has been released to date.

In the preface of his book, Professor Hinsley notes that on 12 January 1978, the British Secretary of State for Foreign Affairs ruled that war-time records of the Service intelligence departments would be placed with other departmental archives in the Public Record Office; however, other information,

including details of the methods by which this material was obtained, would remain subject to the Official Secrets Act and may not be disclosed.[51] Nonetheless, Hinsley states that "this restriction has at no point impeded our analysis of the state of intelligence and its impact, and it has in no way affected our conclusions."[52] However, he also notes that "while the archives are generally adequate for reconstructing the influence of intelligence at Whitehall, there is practically no record of how and to what extent intelligence influenced the decisions of the operational commands."[53] Finally, in regards to the information actually published in Hinsley's book, it should be noted that his original manuscript was carefully screened by a security department of the British government and I was advised, during my research visit, that a lot of information was deleted from the final publication.

Research Trip Findings

Another interesting aspect of my research trip to England was the lack of cooperation by British intelligence agencies. There was a general tendency to avoid any official references to Ultra as examplified by Commodore Probert's statement: "The Ultra material was never stored at the Air Historical Branch and it was released directly to PRO from wherever it was held."[54] A member of the US Embassy explained that the reason for this reluctance, especially by government officials, is due to the recent court conviction of three persons last summer (i.e., 1979) for violations of the Official Secrets Act.

Nonetheless, I do believe that Commodore Probert and others assisted me as much as they could under the current circumstances, and I am grateful for their cooperation. As an example of the assistance I received, the Public Record Office was alerted of my impending visit and asked to provide whatever Ultra information was available. This may appear to be a rather insignificant gesture; however, when one realizes that there is no Ultra file per se at the

Public Record Office, and that searching for this information is like looking for a needle in a haystack, this assistance was indeed very helpful.

For example, upon my arrival at the Public Record Office (PRO), I was permitted to review their informal file of notes that is kept on Ultra behind the reference desk which is not usually disclosed to the public. In this file the following note on Ultra was contained:

> In the fall of 1977, the British Government released for use by qualified researchers in the Public Record Office in London a small segment of the messages containing information obtained from the interception of the German "Most Secret" messages during World War II. These messages were designated Ultra, a classification higher than the British "Most Secret" and were distributed to a very limited number of people, usually to commanders of armies, air forces, and theaters, and to top political leaders.
>
> That portion that has been released (by no means the complete file) includes a naval and a military series, each broken into subseries. The naval series includes the ZTP and ZTPG series which are the actual intercepted messages running from March 13, 1941 to January 20, 1943. The military series, include the VL, KV and XL series, are the interpretations of intercepted messages which were apparently sent to the Supreme Allied Commander (Mediterranean) and to other headquarters, from November 18, 1943 to August 31, 1944. The Public Record Office does not provide identification of the actual recipients.
>
> The military series (VL, KV and XL) are described as being the main series of signals conveying intelligence to Allied commands. The series are a continuation of the JP series and are continued by the HP series, neither of which has yet been declassified.
>
> Each message had a reference number, for example, T152/54 and R148(B)43. These designations may refer to the intercepted message on which the information was based. Supporting this theory, message KV834 was a compilation of oddments about the Balkans and had four references.
>
> The time and date of the message was indicated by a ten digit line. For example, 122219Z/4/44 indicated the 12th day, 10:19 PM, April, 1944.
>
> One conclusion to be drawn from an examination of the Ultra files is that at the operational levels, there

> were few surprises as Winterbotham indicated in The Ultra Secret. The rigid instructions not to make use of the information in such a way as to alert the Germans that the code had been broken prevented the full utilization of the warnings given. However, one now fully understands why Allied generals made so many lucky guesses on German intentions. Ultra interceptions were not 'hit and miss' and dependent on the Germans' use of the wireless to relieve overloaded telegraph circuits; they were daily sources of information on all aspects of the operations.
>
> As more files are released and as more information is made available regarding the open files, especially the list of those to receive the various messages, one will be able to make some observations on the ability of the Allied commanders to respond to Axis intentions and on their choice of subjects to which they chose not to respond. An example is Churchill's refusal to make unusual precautions to save Coventry from a bombing raid that had been revealed by Ultra.[55]

The accuracy of the above notes is subject to question, especially that portion which is almost a direct quote from Winterbotham's book and the comments about Coventry. Nonetheless, there was some rather useful information in this file, particularly the notes pertaining to PRO records filed under the "DEFE-3" index. Apparently, the actual Ultra messages that Lewin and Hinsley refer to in their books are contained in this file. While I did not investigate this file during the short time that I had available for research at the PRO, because I was led to believe from the previously cited PRO informational notes that no military series (i.e., army and air force) messages earlier than November 1943 were available at PRO, I did write PRO following my trip in order to clarify the contents of the "DEFE-3" file. In a response from the Assistant Keeper of the Search Department on 24 April 1980, it was stated:

> Material is being added to DEFE 3 bit by bit, but no decrypts earlier than March 1941 have reached us, and your conclusions in that respect were perfectly sound. The HP series has now been released, but it covers the period from September to December 1944, and is presumably no help to you.

> The references you quote from Lewin are rather a puzzle; no CX series is known to us and the references do not conform to the usual pattern.[56]

The messages referred to are actually in Hinsley's book and are cited as CX/JQ 218, 221, 238, 224, 238, 249, 261, 262, 264, 266, 268.[57] He indicates that the CX/JQ prefix identifies the Luftwaffe Enigma as the source of these particular Ultra decrypts.[58] While this is certainly plausible, one must wonder about the source of his information, particularly when one considers that as recent as April 1980, the Public Record Office states that no decrypts earlier than March 1941 are yet available. In this regard, I assume that the CX/JQ series is merely a continuation of the JP series that was previously cited in the PRO's informational notes.

Nonetheless, in spite of these revelations, my research trip was very rewarding in terms of the information that was located at the Public Record Office and elsewhere. For example, 30 PRO files were searched in a three and a half day period of which five contained references to a "most reliable source." This was the usual cover for Ultra in "Most Secret" intelligence appreciations that were circulated within the Ministry of Defense. Since there are no references to Ultra in the PRO's indexing system or descriptive material of each file's contents, my success rate on finding Ultra material is highly indicative of the "hit and miss" method that such research efforts entail. Accordingly, it is obvious that a one week research trip is woefully inadequate for any serious study endeavors. Having stated my sole complaint about this individual study project and with this background on the current status of Ultra releases to the PRO in mind, specific examples of Ultra's role will now be discussed.

Adler Tag

As previously indicated, Lewin states:

> The details Dowding received in advance about Adler Tag were the most important contribution Bletchley made to the battle. . . . In establishing Ultra's precise contribution to this unexpected feat one must first recall that incoming raids were detected and plotted by radar and reports from the Observer Corps. . . . Without this immediate and accurate tactical information all else would have been useless: it was on radar that the actual fighting depended, and the Germans' gravest error was to under-value its power. . . . [However] whenever Bletchley could provide in advance deciphered German orders for attacks, Dowding was able to plan his response with ample foreknowledge instead of having to think from minute to minute.[59]

The only reference that Lewin uses for these comments is PRO file number WO199/911A titled "D.M.I. 14 Notes on Possible German Invasion of Britain." While numerous items in this War Office file are obviously based upon Ultra intercepts, no specific messages are cited, which I verified during my PRO visit.

Similarly, Hinsley does not indicate any specific references when he states:

> The decrypts made several references to 'Adlertag' between 9 and 13 August, and it was obvious that some new development must be expected, but neither GC and CS nor AI could unravel what the code word 'Adlertag' stood for . . . accordingly [Dowding] depended on his own strategic judgement, with no direct assistance from the Enigma . . . brief forewarning of the attacks was received, it seems, only from radar.[60]

In summary, the currently undocumented status of Ultra's role in the "Adler Tag" attacks of 15 August precludes the formulation of any accurate opinions on Ultra's specific contribution, or lack thereof, to what is considered to be the turning point of the battle. Hence, any further judgements on "Adler Tag" must await the release of applicable Ultra decrypts and associated files of Fighter Command to the Public Record Office.

Operation Seelowe

In regards to Hitler's plans for the invasion of England, there is considerably more documentation available on the role of Ultra. Lewin again fails to cite any specific references of Ultra messages and bases his comments on the references to Ultra in PRO file numbers WO199/911A and WO166/3, Original War Diary of GS1(x) GHQ Home Forces. Due to my limited time for research at PRO, I was unable to review the latter file; however, WO199/911A contained some rather interesting intelligence briefs, based on Ultra decrypts, that are contained in Appendix 1 of this paper. Similarly, another PRO file that contained good examples of Ultra's input to intelligence appreciations is AIR40/1637, Combined Intelligence Committee Daily Summaries--1940, examples of which are contained in Appendix 2. Finally, a D.M.I. 14 intelligence appreciation of 19 August 1940, which is not based on Ultra, following the "Adler Tag battle," is contained in Appendix 3.

It is obvious from the information in the WO199/199A file that Ultra did in fact provide early warning of the Luftwaffe's raids. For example, the notes at items B50 and B51 clearly show that Ultra provided advance warning of the big raid on 15 September. Hinsley is even more precise in his documentation of this forewarning and cites Enigma messages CX/JQ214/T), 220/T168, and 306/T465.[6] He also cites Engima messages CX/JQ324, 326, 333 and 343 of 21-27 September as specifically pertaining to "Operation Seelowe" and the subsequent "on again-off again" status of the invasion following Göring's inability to defeat the RAF on 15 September.[62] As previously stated, PRO disclaims any knowledge of the release of these messages; hence, any final judgements must be postponed until these and other data are available at the Public Record Office.

SUMMARY OF ANALYSIS

In view of the considerable amount of material that has been written by different "authorities" on the subject of Ultra, it is obvious that, as Winterbotham advised me, "most are inaccurate copies of each other."[63] The reason for such discrepancies is the lack of sufficient documentary evidence to support a consensus of opinion at this time.

On the other hand, if one accepts the accounts of Winterbotham, Jones, Lewin and Hinsley as being fairly accurate, albeit with insufficient supporting evidence, a greater appreciation of Ultra's role is possible, even though it is often conflicting amongst authoritative opinions. For example, Hinsley disagrees with Lewin and others about Ultra's role in "Adler Tag" and even its role in providing information, in the strictest sense, about the German order of battle.

Most agree that Ultra's forewarning permitted Dowding to decisively commit his forces and defeat the Luftwaffe in the battle on 15 September and that Ultra was of strategic value in monitoring the Germans' intentions regarding the invasion. My personal review of files at the Public Record Office verifies this fact and I believe it probably played an even larger role than has been revealed.

In this regard, it is strange that the Ultra files on the Battle of Britain have not yet been released. Perhaps this is because the Ultra material was so packed in a vault that, since it was among the first items placed there, it will be the last item released; or on the other hand, if there is a conscious effort by the British government to avoid release of any material that would diminish the remarkable achievement of the British people in what Churchill said: "This was their finest hour."[64] Indeed, his tribute to the courageous and resourceful pilots of Fighter Command that:

"Never in the field of human conflict was so much owed by so many to so few,"[65] is still profoundly admired and respected by the British people today. Thus, why should they not revere their national heroes of the battle that enabled them to survive as a nation and that marked the turning point of the war? Indeed, the importance of maintaining one's national heritage far outweighs the desire to know Ultra's precise contribution to the British success. Therefore, if this is the reason for the non-release of this material, one can certainly understand the British government's reasons for not doing so; after all, they were the ones who stood alone and successfully defeated Hitler--not the United States.

Of final note, and definitely the most important aspect of this study, are the numerous similarities between the overall situation surrounding the Battle of Britain and the World situation today. In fact, the resemblance is so striking that one must wonder if we ever learn any of the great lessons of history at all. Current problems in the United States of national preparedness, both military and civil, coupled with intelligence inadequacies, are the same problems that the British experienced. Additionally, our military professional development system does not place sufficient emphasis on the study of military history so that we can avoid a repetition of past mistakes instead of having to relearn them again on the battlefield; often at the expense of our men's lives. Thus, the lessons of the Battle of Britain are very important to our military and national leadership alike. We are inviting a national disaster if we do not heed them.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

ANALYSIS OF RESEARCH DESIGN

The research design for this individual study project was determined to be sound in both concept and in practice. It provided a good framework for the conduct of the proposed investigation and analysis of data pertaining to the stated problem and hypothesis. The review of available literature, particularly that at the Public Record Office, provided more revelations than was originally anticipated. This compensated for the inability to interview Winterbotham and Lewin, during the trip to England, and for not interviewing Brigadier Tiltman in the United States, due to his poor health. Thus, the methodology for the collection and analysis of data was quite adequate for the conduct of this study.

As previously indicated, the absence of definitive Ultra material at the Public Record Office has precluded a judgement on its actual role in the battle. Hence, the variables that influence the basic hypothesis (i.e., timeliness, accuracy, availability, and utility of the information; the decisive results that were achieved from such information; and the margin of victory as determined by the contribution of various intelligence sources) could not be adequately measured due to the absence of sufficient documentary evidence. However, even though no significant breakthroughs developed on Ultra as a result of this study, a significantly more accurate appraisal of Ultra's role in the Battle of Britain and the status of currently available information has resulted. Thus, this study has been a tremendously worthwhile project.

RELIABILITY OF FINDINGS

The findings of this study will be presented in the following section under "Statement of Conclusions." The reliability of these findings is directly proportionate to the objectivity with which the available data were searched for and analyzed. In this regard, this study has endeavored to provide the most accurate analysis possible, albeit with grossly insufficient research time during the research trip to England and the absence of appropriate Ultra files at the Public Record Office. Nevertheless, the findings of this study are based upon an objective analysis of the available information and is thought to present an accurate picture of the current situation regarding Ultra's role.

STATEMENT OF CONCLUSIONS

In consideration of the available data and the previously discussed analysis it is concluded that:

1. The Battle of Britain provides an excellent case study of a decisive contemporary air battle that is considered to be the turning point of World War II.

2. The British defeated the Germans through timely development of an integrated air defense system prior to the outbreak of war.

3. British scientific developments, particularly radar, provided a significant tactical advantage over the Luftwaffe and reduced the efficiency of their secret navigational aids for bombers.

4. Poor communications security by the Luftwaffe greatly assisted the British in their decypherment of the Enigma and development of Ultra intelligence.

5. British interception of lower-grade German signals provided considerable intelligence that, when pieced together, was important to the outcome of the battle.

6. British failure to integrate all sources of intelligence, high-grade and low-grade, reduced the operational/tactical effectiveness of its potential usefulness.

7. The Battle of Britain was won through the common resolve and resourcefulness of the British and by the Germans' failure to develop an accurate intelligence appreciation of British capabilities; to mass their combat power for a decisive victory in their favor; and their overconfidence in the use of Enigma.

8. Ultra intelligence was of strategic value to the British in the Battle of Britain; however, radar was of greater tactical value.

9. The margin of victory for the British was very slim; thus, the elimination of any intelligence source might have turned the tide in favor of the Germans.

10. Insufficient information has been released on Ultra at this time to accurately determine its role in the Battle of Britain.

11. Follow-up studies should be conducted on this subject when appropriate Ultra files are released to the Public Record Office.

12. More time is needed for future research trips to England in order to accomplish necessary interviews and research at the Public Record Office.

13. Future implications of this study are applicable to high-level decisionmaking; the need for an adequate CONUS air defense system; the need for adequate communications security and SIGINT capabilities; the need for the maximum integration of all intelligence sources (i.e., strategic and tactical) at the lowest possible level, with a focus on the division; the

need for less use and dependability on tactical and strategic radio "secure" nets for command/control and admin/log purposes; the need for greater use of couriers and land lines; finally, the need for strong political and military leadership in periods of national crises; and, perhaps most importantly, the need to review and update plans for the defense of the United States and its territories.

RECOMMENDATIONS

Based upon the conclusions of this study and its possible "downstream effects," it is recommended that:

1. A continuation study should be initiated when appropriate Ultra files are released to the Public Record Office.

2. A research trip of two weeks duration should be authorized to England for the conduct of necessary research and interviews.

3. Development of military and national intelligence means should be given the highest priority for funding and research.

4. Military dependency upon the use of tactical radios and "secure" devices should be substantially reduced and greater use of couriers be initiated.

5. Military and national intelligence means should be integrated and provided to the lowest possible level, at least to Corps; divisions if possible.

6. The need for improved communications security and SIGINT should be stressed through the lessons of Ultra.

7. Military and national political leaders should become familiar with the crucial lessons of national survival and strategic intelligence, as evidenced by the Battle of Britain and Ultra.

8. Military history should be given a higher priority in officer professional development training, to include civilian education programs.

9. Air defense capabilities of the continental United States, Hawaii and Alaska should be immediately improved and designed to permit rapid expansion in the event of war.

10. Most importantly, that military and national contingency plans for the defense of the United States should be reviewed and updated immediately. These should include: military and industrial mobilization; civil defense; emergency preparedness; orientation of state and local leaders; stockpiles of strategic materials and military equipment; and finally, to determine the adequacy of the national command and control system, including the provision of special intelligence, for the conduct of a possible war that would pose a serious invasion threat and aerial attacks on the United States within nine months following the outbreak of hostilities--just as the British experienced in World War II.

ENDNOTES

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3. F. W. Winterbotham, The Ultra Secret, p. 47.

4. B. H. Liddell Hart, History of the Second World War, Vol. 1, p. 101.

5. Ibid., pp. 89, 106-107.

6. Collier, pp. 493-528.

7. Ronald Lewin, Ultra Goes to War, p. 25.

8. Anthony Cave Brown, Bodyguard of Lies, p. 15.

9. Ibid., p. 17.

10. Lewin, p. 44.

11. H. A. Jacobsen and J. Rohwer, Decisive Battles of World War II: The German View, p. 23.

12. Ralph Bennett, Ultra in the West: The Normandy Campaign 1944-45, p. 22.

13. Winterbotham, pp. 15-16.

14. Ibid., p. vii.

15. Ibid., pp. 43, 47.

16. Ibid., p. 48.

17. Ibid., pp. 49-50.

18. Ibid., p. 52.

19. Ibid.

20. Ibid., p. 46.

21. Ibid., p. 25.

22. Ibid.

23. F. W. Winterbotham, letter to author, 24 March 1980.

24. Cave Brown, pp. 36-38.

25. Ibid.

26. Winterbotham, The Ultra Secret, p. 47.

27. Ibid., pp. 60-61.

28. Cave Brown, p. 828.

29. William Stevenson, A Man Called Intrepid: The Secret War, p. 84.

30. Ibid., pp. 86, 102.

31. Ibid., p. 114.

32. Ibid., p. 119.

33. Ibid., p. 128.

34. Ibid., pp. 137, 139.

35. Ibid., p. 144.

36. Ibid., p. 145.

37. R. V. Jones, The Wizard War, p. 92.

38. Ibid., p. 110.

39. Ibid., p. 150.

40. Lewin, p. 69.

41. Ibid., p. 75.

42. Ibid., pp. 82-83.

43. Ibid., pp. 83-84.

44. Ronald Lewin, letter to author, 24 March 1980.

45. F. H. Hinsley, letter to author, 26 February 1980.

46. Interview with F. H. Hinsley, Cambridge, England: 19 March 1980.

47. F. H. Hinsley, et al, British Intelligence in the Second World War: Its Influence on Strategy and Operations, Vol. 1, pp. 161-163.

48. Ibid., p. 164.

49. Ibid., pp. 178-179.

50. Interview with Air Commodore H. A. Probert, RAF (Ret), Director of Air Historical Branch, London, 17 March 1980.

51. Hinsley, pp. vii-viii.

52. Ibid., p. viii.

53. Ibid., p. x.

54. Interview with Probert.

55. Great Britain, Public Record Office, "Ultra" (unpublished information paper on Ultra material at Public Record Office, undated).

56. N. A. M. Rodger, Great Britain, Public Record Office, Assistant Keeper of Search Department, letter to author, 24 April 1980.

57. Hinsley, p. 184.

58. Ibid., p. 529.

59. Lewin, pp. 86-87.

60. Hinsley, pp. 178-179.

61. Ibid., p. 179.

62. Ibid., p. 188.

63. Winterbotham letter.

64. Winston S. Churchill, Memoirs of the Second World War, p. 326.

65. Ibid., p. 366.

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APPENDIX 1

D.M.I. 14 NOTES ON INVASION

The following pages (10) are photo copies of extracts from Public Record Office file number WO199/911A. This material was originally classified "MOST SECRET"; however, it has been declassified by the British Government and released to the Public Record Office. Accordingly, this material is now UNCLASSIFIED

B1

OFFICER ONLY. D171

SECRET.

HF/I.E/2

D.M.I.

1. Information from a most reliable source is to the effect that the Germans will hold a parade of their armed forces in Paris some time between 30 June and 7 July.

We think that it is unlikely that Germany will attack Great Britain before or simultaneously with this parade, but an attack may be launched on its termination.

2. Certain German air defence units are being moved back from France to Germany for the defence of Berlin. It is possible that such moves may indicate the fear of reprisals following an air attack on London.

3. The 2 and 3 Air Fleets, which operated with the German Armies in Belgium, Holland and France, have now been allotted operational areas in England. The dividing line between the Fleets is CHICHESTER - READING - OXFORD - REDDITCH - WOLVERHAMPTON - STAFFORD - STOKE-ON-TRENT - Buxton - HALIFAX and thence an unknown line northwards.

4. This may of course be a line allotting responsibility for bombing. On previous occasions, however, the dividing line between these Air Fleets has also been the dividing line between the two main Army Groups employed for the attacks in the west. If an invasion by sea or air-borne troops is contemplated and this system is followed again it would seem to indicate an attack on a broad front against the south coast. This deduction however is admitedly based on slender evidence and there are no indications of the assembly of sufficient shipping in the French Channel Ports for such an invasion. The only means available at the moment for carrying it out would seem to be by air-borne troops.

5.

Lieutenant-Colonel, G.S.

M.I.14.
29th June, 1940.

Copy to:- H.D.1
G.H.Q., Home Forces.

N.B. Admiral Raeder's conference on invasion - Norway on 5th June.

OFFICER ONLY. B 5 ~~MOST SECRET.~~

(4)

It is reliably reported that harassing attacks will be carried out by German aircraft during night 7/8 July. Instructions have been given to these aircraft to fly over LONDON area as much as possible: no bombs are however to be dropped within the LONDON barrage area.

It is requested that this information should be treated as "OFFICER ONLY" and shall not be transmitted over the telephone. Air Ministry and Admiralty are in possession of this information.

M. I. 14.
7th July, 1940.

DISTRIBUTION:

D. M. I.

G. H. Q., H. F.

M. O. 3.

MOST SECRET.

(OFFICER ONLY)

German Air Tactics Against England and in the Channel.

It is reported by a reliable source that the following orders have been issued to that section of the German air force concerned with attacks on England.

1) Day attacks on England are only to be made when weather conditions offer sufficient cover against fighter-attack. These raids are to be carried out by single aircraft only, and it is impressed on the pilots that they must break off the attack as soon as the weather no longer ensures surprise.

2) In the case of attacks on convoys, these are to be carried out in such strength as to ensure the complete destruction of the convoy.

(Here attention is again drawn to the necessity of both fighter and heavy fighter protection).

In addition, as the result of experiences of A.A. and fighter defence when attacking in the Channel and the south coast of England, the German air force has requested that mining should be carried out along the south coast of England from close inshore up to 10 miles out to sea. The object of this is to drive the convoys further out to sea, where it is hoped to be able to attack them with less risk of losses to the German air force.

From the above it may be concluded, that for the moment, that part of the German air force which is operating against England, is concentrating on attacking shipping rather than land targets.

- - - - - - ooo - - - - - -

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

M.I.14.
1300 hrs.
15.7.40.

R. Whitfoord
Major
Lieut. Colonel, G.S.

Distribution:-

D.M.I.
M.O.3.
G.H.Q., Home Forces
G.H.Q. (Adv.) (I), Home Forces.

OFFICER ONLY. B 44/19 ~~MOST SECRET.~~

It is learned from a reliable source that the victory parade which Hitler proposed to hold in Paris on 23 July has been cancelled.

The reason for the cancellation is not known, but the most probable explanation is considered to be inability of the Gestapo to guarantee the Führer's safety at such a ceremony.

. . . . . .

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

M.I.14.
1100 hrs.
22.7.40.

H. Pakenham Walsh
Major
Lieut-Colonel. G.S.

~~OFFICER ONLY.~~ B 20 ~~MOST SECRET.~~

It is learnt from a very reliable source that the German Air Force have been reminded of the order to avoid at all costs the attacking of quays in harbours along the south coast.

The assumption must be, therefore, that the Germans intend to use certain of those quays in the invasion of this country.

Some confirmation of this may be found in the fact that the German Air Force were forbidden to destroy harbour facilities of French channel ports

It is obvious that a previous order has not been complied with and we are therefore making enquiries with regard to which port or ports on the coast have been bombed recently.

. . . . . .

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

H. Pakenham Walsh
Major
Lieut.Colonel. G.S.

M.I.14.
10.30 hrs.
29.7.40.

Distribution : D.M.I. (for C.I.G.S.)
M.O.3.
G.H.Q. Home Forces.
G.H.Q. (Adv.)(I), Home Forces.

OFFICER ONLY. B/32 MOST SECRET.

From a reliable source, information has been received of an impending attack on WARMWELL aerodrome this morning. Aircraft to be ready to leave at 0700 hours.

This message must be treated as OFFICER ONLY and should not be transmitted telephone. Air Ministry and Admiralty are in possession of this information.

OFFICER ONLY. B 33 MOST SECRET.

It has been reported by a reliable source that on 19 August the Records Office of a German Air Force formation was much agitated over the apparent loss of a package, containing among other things, - 1 gazetteer of small harbours on the South and South-East coast of England; 1 guide to DUNDEE and FIRTH OF TAY, and 1 volume of amendments in 16 parts.

- - - - - - -

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

H Rutherford Major
Lieut.Colonel. G.S,

M.I.14.
1040 hrs.
20.8.40.

Distribution :

D.D.M.I.(I) (for D.M.I)
G.H.Q. Home Forces.
G.H.Q.(Adv.)(I),Home Forces.
M.O.3.

B 36

OFFICER ONLY. ~~MOST SECRET.~~

It is reliably reported that the following orders have recently been issued to formations of the German Air Force.-

(a) Not more than one officer may form part of the crew of any one aircraft.

(b) Restrictions on officers of high rank (group-captain and upwards) from flying in bad weather or at night in single bomber or dive-bomber aircraft apart from exceptional circumstances.

(c) Restrictions on the employment of partly trained personnel who in future are not normally to take part in operations where heavy opposition is to be expected. Should partly trained personnel be used, they should be employed on the less important duties in the aircraft and also not be placed in aircraft exposed to especial danger.

These restrictions appear to indicate measures to conserve trained personnel in view of recent heavy losses.

This message must be treated as OFFICER ONLY and should not be transmitted by telephone. Air Ministry and Admiralty are in possession of this information.

(sgd) H.P. Whitefoord

Lieut-Colonel G.S.

M.I.14.
1900 hrs.
21.8.40.

Distribution: D.D.M.I(I) for D.M.I.
G.H.Q., Home Forces.
G.H.Q(Adv)(I), Home Forces.
M.O.3.
File.

~~MOST SECRET~~. B 48 OFFIC

A reliable source reports that the Commander-in-C. of German Army is today, 12 September, attending Engineer e. south of ~~NAPLES~~. Special A/A. protection is being provi. The demonstrations are being organised by XXXVIII Army corps.

This message must be treated as OFFICER ONLY and must not be transmitted by telephone. The Air Ministry are in possession of this information.

OFFICER ONLY. B 40 ~~MOST SECRET~~.

1. A reliable source reports that on 11 September certain German Air Force officers were appointed to the embarkation staffs(verladestäbe) at ANTWERP, OSTEND, DUNKIRK and CALAIS.

2. Other G.A.F. officers were appointed liaison officers to embarkation staffs at the same ports.

3. Other details supplied include the linking up of the German Air Force system of communications with the embarkation H.Qs. listed in para.1 above.

4. A G.A.F. regional H.Q. made on 11 September certain immediate appointments :

(a) An officer of G.A.F. transport service for liaison duties with 16 Army (which we believe to be in Belgium and North East France).

(b) Two officers to the disembarkation or unloading staff (Ausladekommando) at ANTWERP.

This information suggests invasion preparations; on the other hand it is possible that it is in connection with the movement of G.A.F. stores, etc., by coastal shipping.

This message must be treated as OFFICER ONLY and must not be transmitted by telephone. The Admiralty and Air Ministry are in possession of this information.

M.I.14.
1850 hours.
12.9.40.

Lieut. Colonel, G.S.

Distribution :

D.D.M.I.(I) for D.M.I.
G.H.Q., Home Forces.
G.H.Q. (Adv.)(I).
M. O. 3.

~~MOST SECRET.~~ B 50 OFFICER ONLY.

It has been learned from a reliable source that various German Air Force units have received instructions for heavy attacks upon a target believed to be LONDON at times ranging from 1800 hrs on 13 September to 0300 hrs on 14 September. If the weather permits, long range bombers will be employed.

This message must be treated as OFFICER ONLY and must not be transmitted by telephone. The Air Ministry are in possession of this information.

Sergeant Trumble Capt.

M.I.14,
13.9.40.

for Lieut.-Colonel, G.S.

Distribution:

D.D.M.I.(I), for D.M.I.
G.H.Q., Home Forces.
G.H.Q. (Adv.) (I).
M.O.3.

OFFICER ONLY. B 51 ~~MOST SECRET.~~

Reference statement air attacks will cease at 0300 hours on 14 September, it is now learnt that they may continue into forenoon of 14 September and also probably into the afternoon.

This message must be treated as OFFICER ONLY and must not be transmitted by telephone. The Admiralty and Air Ministry are in possession of this information.

Robt Buckingham Capt. G.S.

M.I.14.
0830 hours.
14.9.40.

for Lieut-Colonel, G.S.

Distribution :- D.D.M.I.(I) for D.M.I.
G.H.Q., Home Forces.
G.H.Q.(Adv)(I), Home Forces.
M.O.3.

OFFICER ONLY.

B 58

MOST SECRET.

German preparations for Invasion.

During the last few days, reliable sources have provided information with regard to the German preparations for an invasion of this country and/or Eire. The specific items may be summarised as follows :-

(a) The 16th German Army (Commander General-Colonel BUSCH), which is located in Belgium and in the PAS de CALAIS, will play an important part in the operations. Supreme control is, however, likely to be entrusted to Field-Marshall von BOCK. Conferences have been held at the 16th Army Headquarters between representatives of the three armed Services. Differences of opinion are referred to the supreme head of the armed Services (Hitler) for decision. As a case in point, at a recent meeting Naval representatives refused to operate with certain ferries and the question was then referred to Combined Defence Staff for decision.

(b) German Air Force officers have been appointed to embarkation staffs at certain ports (for full details see M.I.14 Most Secret, Officer Only, dated 12/9/40).

(c) A German air formation Headquarters which is known to be in charge of German Air Force equipment in Belgium and Northern France is engaged in settling the details of loading of units and equipment into ships, e.g. an aerodrome construction unit has recently been relegated from the first to a second crossing on account of lack of space; similarly, it is known that the ground personnel of certain dive-bomber units have been allotted to the third crossing.

This information is fully confirmed, and in the opinion of the General Staff there is no shadow of doubt that preparations are being pressed forward for a sea-borne expedition. No indications are so far available with regard to the date when all preparations will be complete, but the cessation of movement of shipping tends to show that an advanced state of preparedness has been reached. One known fact is that the move of certain Italian air units to bases in the Low Countries will not be completed before 30 September.

This message must be treated as OFFICER ONLY and must not be transmitted by telephone. The Admiralty and Air Ministry are in possession of the information.

M.I.14,
28.9.40.

Lieut.-Colonel, G.S.

Distribution: D/D.M.I.(I), for D.M.I.
G.H.Q., Home Forces.
G.H.Q.(Adv) (I), Home Forces.
M.O.3.
M.O.8.
File.

OFFICER ONLY. ~~MOST SECRET.~~

Invasion of Great Britain.

Reliable reports have been received to the following effect :

1. German firing practices which are connected with preparations for invasion cannot be completed in Belgium and Northern France owing to frost. In order to ensure that they should be completed in time for their results to be made use of it is proposed to continue them in Southern France.

2. The German wireless stations of the circuit of that air formation H.Q. which is responsible for G.A.F. equipment in Belgium and Northern France are no longer to be manned as from 10 January.

The above reports suggest that the invasion of Britain is not likely to take place for at least a few weeks, possibly until frosts in Northern France and Belgium are less severe. Until the proposal referred to in paragraph one has been accepted, however, we cannot consider that this view is confirmed.

- - - - - - -

This message must be treated as "Officer Only" and must not be transmitted by telephone. The Admiralty and the Air Ministry are in possession of this information.

C R Attwood Maj G.S.

M.I.14. Lieut.-Colonel, G.S.
12.1.41.

DISTRIBUTION.

D.D.M.I.(I) (for D.M.I.)
G.H.Q., Home Forces.
M.O.1.
M.O.3.
M.O.4.
M.O.8.
M.O.8 (for B.T.I.)
File.

Sunday, MARCH 31, 1940.

APPENDIX 2

COMBINED INTELLIGENCE COMMITTEE DAILY SUMMARIES

The following pages (10) are photo copies of extracts from Public Record Office file number AIR40/1637. This material was originally classified "MOST SECRET"; however, it has been declassified by the British Government and released to the Public Record Office. Accordingly, this material is now UNCLASSIFIED

MOST SECRET.

ANNEXE A.

General Situation on 16th August, 1940, in German Occupied Territory facing U.K. and tendencies affecting invasion.

NORWAY.

1. A report was received to the effect that troops were embarked along the whole Norwegian coast on 11th August. No confirmation has been received, but later the report was qualified and is now said to refer to the North Norwegian coast. Such a vague report and the omission to name any particular port suggests hearsay evidence and is inconclusive. If true it is considered that this may have to do with movements of German troops in North Norway and that even if a force were to leave Northern waters its destination might well be other than the United Kingdom.

2. The fighting strength of the German Air Force in Norway and North Denmark remains at about 400 aircraft of all types. Part of this force has been employed on bombing and mining operations against Scotland and the North of England.

GERMANY, DENMARK and THE BALTIC.

3. SCHARNHORST, GNEISENAU and LÜTZOW are still in dock at Kiel. One HIPPER and one K Class cruiser are also present. The following main units are now available for immediate operations.

1 Pocket Battleship.
1 Aircraft Carrier
1 8" cruiser
1 6" cruiser.

4. German ships trading with Finland and German ships in Sweden are reported to have been ordered to return to German Baltic ports, including Stettin. This report has been confirmed. These ships could be used as troop transports.

5. Rather less than a quarter of the operation strength of the German Air Force remains in Germany. This is made up chiefly of coastal squadrons, army co-operation squadrons, fighter units, and a few bomber units which are either re-equipping or are employed on mining operations against this country. Much flying training and operational training continues to be carried out.

6. There have been reports of troop movements towards FREDERIKSHAVEN and AALBORG and it is considered that there are now at least 3 divisions in Denmark.

LOW COUNTRIES and FRANCE.

7. Some movements and assemblies of the barge fleet have been reported, but these do not necessarily have any "Invasion" significance.

8. The main striking force of the German Air Force remains disposed in a crescent from BREST to AMSTERDAM and began intensified bombing operations against this country on Thursday, the 8th August. Targets were chiefly shipping, ports, aerodromes, the reporting system of the R.A.F. and industrial objectives.

9. Reports have been received of troop movements Northwards through occupied France, and from other sources it appears that there are Army H.Q. at Rouen and St. Brieuc. Another report states that military forces are being assembled in Paris, Brussels and Hague Areas.

10. Activity on construction work in the GRIS NEZ area has been intensified during the period and details of information appear in Summary of 15th August. It is established that shells have fallen in the South East coast area of U.K. and it is believed that they were fired from the neighbourhood of GRIS NEZ.

P.T.O.

11. Further consideration has been given to the subject of barges and their use; a note on this subject is attached hereto. (See Annexe B).

CONCLUSION.

12. The German Air Force in the past week has begun the battle for air superiority along the South Coast. It has not been successful and heavy casualties have been inflicted. At present approximately 50% of the total German strength of dive bombers and fighters is being employed daily together with not more than 15% of the long range bomber force. It is believed that the German Air Force is not yet in a position to begin and maintain a sustained maximal attack against this country.

13. Information received during the period suggests the possibility of military preparations for invasion, but it is considered that no decision to invade is likely to be taken pending the result of the present air attacks upon the United Kingdom.

----------oOo----------

MOST SECRET.

Daily Summary of Intelligence of
GERMAN PREPARATIONS FOR INVASION OF & RAIDS ON U.K.

Report No. 95 up to 1200 Hrs., 2nd September, 1940.
Issued by the Combined Intelligence Committee.

(To be read in conjunction with C.I.C. Report No. 92, Annexe A, General Situation on 30th August, 1940).

ANNEXE A. - Summary of developments in the CAP GRIS NEZ area up to August 29th.

ANNEXE B. - Possible use of Gliders.

1. GENERAL.

Source A.1 It is reported that 4 Gruppen of long range bombers are moving from Norway to Belgium, and that numerous units of dive bombers are moving to forward aerodromes in France and that these moves are likely to be completed within the next 3 days.

Comment:- It is likely that these moves precede an intensification of the air attack on Southern England.

Source Paot. The Vienna Award has removed a major political obstacle to the execution of German plans against U.K.

The situation as regards the possible use of gliders is described in ANNEXE B.

2. NORWAY.

No new information.

3. GERMANY & DENMARK.

A.A. Stockholm 31/8/31 B.2. The German vessels of over 1200 tons with a speed of 12 knots recalled about August 7th still remain in German ports. Certain neutral shipping, hitherto laid up, is gradually taking their place in the Baltic trade.

Comment:- This confirms a previous report that German ships in the Baltic were being recalled to German Ports.

4. LOW COUNTRIES & FRANCE.

P.I.U. Photographic reconnaissance yesterday revealed:-

(a) In the Southern 4 miles of the SOUTH BEVELAND CANAL 71 barges of which 23 were moving South and none North.

(b) 80 barges in HANSWEERT Harbour.

(c) In 12 miles of the GHENT-TERNEUZEN Canal, North of GHENT an increase of about 200 barges since the 15th August, of which 50 were moving South and none North, and an increase in the number of vehicles in GHENT.

Comment:- This movement of Barges from the WEST SCHELT seaboard southward into Belgium may be a movement of commerce or military stores.

It is not likely that barges destined to take part in an invasion of U.K. would be moved inland to GHENT from the WEST SCHELT harbours.

5. REMARKS.

There are signs that the effort to gain air superiority over the South of England, the pre-requisite of invasion, will be increased towards the end of this week.

P. T. O.

MOST SECRET

ANNEXE A.

General Situation on 6th September 1940 in German Occupied Territory facing U.K. and tendencies affecting Invasion and Raids.

NORWAY

1. Troop movements northward took place during August, and a German Naval Shore Command has probably been established in the North.

2. Reconnaissance of the area Egeroen, Stavanger, Haugesund, Bergen, on the 3rd September, did not reveal anything unusual in those ports.

3. The fighting strength of the German Air Force in Norway and Northern Denmark has been reduced to about 300 aircraft by the transfer of 160 long range bomber aircraft to Belgium. Of this fighting strength of 300 aircraft only 50-60 are offensive bomber aircraft which can be used against this country.

GERMANY, DENMARK AND THE BALTIC

4. On the 28th August, an assembly of 40-50 ships in Kiel Fjord off Holtenau was reported. This may have had some connection with earlier reports of the recall of certain German Baltic shipping to German ports. On the other hand, their presence may have been due to suspected mining or other temporary restrictions. These ships had left by 5th September.

5. Certain German vessels of over 1,200 tons, with a speed of 12 knots, said to have been recalled about 7th August to German ports, where they still remain. Some neutral shipping, hitherto laid up, is reported to be gradually taking their place in the Baltic trade.

6. Also on 28th August 350 small craft, apparently of standardised types, of between 150 and 50 feet in length, were reported at Emden. On the 30th August, 300 only were present. Further decrease was noted by reconnaissance on the 3rd and again on 5th September. Their possible connection with reports still being received, but never confirmed, of various types of motor craft for invasion purposes, cannot be ignored; but here again there may be some simple explanation. A slight increase of shipping was also observed at Emden on the 28th August, and a considerable increase at Hamburg on the 4th September.

7. Rather less than one-quarter of the operational strength of the German Air Force remains in Germany, and this proportion is made up chiefly of army-co-operation, coastal and fighter units. The only operations against this country carried out from Germany itself are minelaying.

LOW COUNTRIES AND FRANCE.

8. For details of Barge and small craft movements see Annexe C (attached).

At Brest, fishing boats each capable of holding about 50 men, are reported as being requisitioned at Douarnenez, 15 miles south. Air reconnaissance on the 30th showed a slight increase in the number of small craft in the Port Militaire.

9. Reports have been received of small scale embarkation and disembarkation exercises being carried out at various places on the Brest peninsula. At Brest itself a number of small craft has been assembled. There is no evidence as to whether these exercises are part of normal training or bear relation to a proposed operation.

10. Notable increases in the number of barges at various places in the Low Countries have been observed, but although consistent with commercial and normal military supply requirements (especially if, as is likely, certain stretches of canal hitherto closed have now been re-opened for traffic they would also be available for purely military purposes.

LOST FLEETS

11. The increase at Flushing might be accounted for by the re-opening of the lock, which was destroyed; those in the Hoveland canal at Hansweert and in the Ghent-Terneuzen canal, by the supposed recent re-opening of the latter. The assembly at Ostend is somewhat unusual.

12. The bulk of the striking strength of the German Air Force remains disposed in a crescent from Brest to Amsterdam. This striking strength has been increased by the transfer of 160 long range bomber aircraft from Norway to Belgium. There has also been a significant re-disposition of the short range dive-bomber units, which, after being withdrawn on 18th August from the attack on England, have now been moved to forward aerodromes in the Pas de Calais area, presumably in preparation for re-employment against this country.

GENERAL SITUATION

13. Although redistributed, ample forces for a raid or diversion remain available in Norway. Air reconnaissance reveals a reduction of shipping in Southern Norwegian ports, but sufficient shipping to carry at least one division is probably available. German activities in Norway are also consistent with consolidation of their position in the north as well as the south.

14. Although no outstanding development in connection with the various constructional activities on the French coast have been noted, work continues and great activity of M.T. is apparent. The present position is summarised in Annexe B.

15. The German Air Force has devoted its efforts mainly to the weakening of the fighter defences in the southeast of England. It appears likely that air attack on this area will be greatly intensified, weather permitting, within the next seven days.

CONCLUSION

16. (1) There is little evidence other than the movement of small craft towards the Channel Ports to show that preparations for invasion or raids by sea on U.K. are more advanced than they have been for some time.

(2) There is not sufficient shipping in German occupied French Ports to transport an adequate army to invade the U.K. Barge movements may indicate Continental transfer of civil and military stores; but the possibility of their use against the U.K. remains.

(3) The increase in shipping in Hamburg may indicate the assembly of an expedition or may possibly be due to commercial activities.

(4) The disposition of the G.A.F. in France is consistent with operations against air targets in U.K. equally with covering an invasion on our South or S.E. coast.

(5) The G.A.F. is not able to attempt a solely air-borne invasion, but could bring to this country about 8,000 equipped men on its first sortie. This figure does not allow for wastage due to our opposition, and would be greatly reduced on subsequent sorties.

MOST SECRET

(6) The absence of knowledge of shipping activities in STETTIN and other Baltic Ports continues to make it wise to assume that an expedition may be preparing or ready, and that it could sail at any time.

The evidence that shipping is not collecting elsewhere except possibly in Hamburg makes it probable that if there is an intention to invade the U.K. the expedition is being held in readiness in the Baltic or Hamburg out of range of decisive attack by air to await the result of the present battles for air supremacy.

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Daily Summary of Intelligence of
GERMAN PREPARATIONS FOR INVASION, C. & RAIDS ON U.K.

Report No.105 up to 1200 Hrs. 12th September, 1940.
Issued by the Combined Intelligence Committee.

(To be read in conjunction with C.I.C. Report No. 99, Annexe A, General Situation on 6th September, 1940).

ANNEXE A. - State of German Main Units.

1. GENERAL.

(1) Weather Forecast.
Humber to Scillies - 1200/12 - 1200/13.

WIND. West, moderate freshening.

WEATHER. Cloudy. Rain spreading from West reaching East Coast tonight.

VISIBILITY. Good, deteriorating.

A.1. (2) G.A.F. port embarkation officers have now been appointed to ANTWERP, OSTEND, CALAIS and DUNKIRK.

Comment:- This might be to improve ordinary supply arrangements or be directly in connection with preparations for invasion.

CI of 12th Sept. Graded A.1. (3) (i) It is reported that an attack on England may commence at any hour. Preparations are complete. The last preparation has been the detailing of a special detachment of Gestapo for the invading forces. This detachment has been provided with full particulars of certain foreigners in England against whom action is to be taken. This detachment left for Holland on September 10th and arrived at Ostend on 11th September.

CI A.2. (ii) Leave for all troops including those in enemy Protectorate has been stopped as from September 11th. This applies to all branches of the Services including Command Staff. This stoppage of leave is being intentionally cancelled now and then in order to mislead.

(iii) A contingent of air landing troops is being formed in the neighbourhood of HILDERSHEIM.* In this area the Ju.52's and glider units are stationed and are carrying out extensive training.

* Near Hanover.

2. GERMANY & DENMARK.

Air reconnaissance yesterday showed:-

(a) There is a great decrease in the number of ships and barges in BREMEN.

(b) The BREMEN and EUROPA still present in BREMERHAVEN.

(c) 7 torpedo boats and one destroyer have departed from WILHELMSHAVEN.

(d) Almost all the small craft have departed from EMDEN.

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Daily Summary of Intelligence of
GERMAN PREPARATIONS FOR INVASION OF & RAIDS ON U.K.

Report No. 108 up to 1200 Hrs. 15th September, 1940.
Issued by the Combined Intelligence Committee.

GENERAL.

(1) Weather Forecast for 24 Hrs. from 1200 September 15th.

HUMBER to STRAITS OF DOVER.

Wind. N.Wly. moderate to fresh, gusty locally.

Weather. Showery with increasing cloud during afternoon and early evening, becoming mainly fine during night.

Cloud. 5/10 - 7/10 at 1500 to 3000 ft. decreasing after sunset.

Visibility. Mainly good.

STRAITS of DOVER to SCILLIES.

Wind. N.Wly. moderate, backing to W.

Weather. Cloudy, some showers at first, becoming fair.

Cloud. 6 - 8/10 at 2000 ft.

Visibility. Very good.

(2) It is reliably reported that leave in the operational German Air Force was cancelled yesterday for the duration of operations against England.

Comment:- It is not known whether this refers exclusively to air operations.

(3) A Foreign Minister accredited to LISBON was told by the German Minister there on the 2nd September that the present large scale air attacks on England are, in fact, the precursor of a projected invasion. For landing operations countless small steam launches are required and as the sea has not been smooth enough for landing delay has been inevitable. These operations should be carried out shortly - in September without fail; and there is no change whatever in the plans.

(4) Landing is expected to take place on North Sea and Channel coasts simultaneously after bombing of the garrisons.

NORWAY.

Air reconnaissance of TRONDHJEM on 8.9.40 showed little of unusual significance in the Bay, but the harbour proper is not seen.

GERMANY & DENMARK.

Reported on 2nd September twenty M.Vs. between 2,000 and 4,000 tons at STETTIN being fitted out as transports.

LOW COUNTRIES & FRANCE.

Situation of Shipping on Dutch, Belgian & French Coasts 15th September, 1940.

I. Bad weather curtailed reconnaissance, and few successful photographs were taken. Few movements were observed and the general situation shows little change.

II. The Hook.

At 1135/14, a bomber pilot reported 5 vessels alongside the Jetty at the Hook, one of which, of between 300 and 500 ft., is stated to have had "turretted T/T" (?A.F.Vs.) on deck.

MOST SECRET.

Daily Summary of Intelligence of
GERMAN PREPARATIONS FOR INVASION OF & RAIDS ON U.K.

Report No. 120 am to 1200 Hrs. 27th September, 1940.
Issued by the Combined Intelligence Committee.

ANNEXE A. - Situation of Barges and Shipping in Ports in Low Countries and Northern France at 0900 - 27th September, 1940.

1. GENERAL.

(1) Weather Forecast Area HUMBER to SCILLIES for 24 hours from 1200 - 27th September, 1940.

HUMBER to THAMES.

Wind - Westerly moderate, veering N.W. fresh.

Weather - Cloudy, period of rain, then showery.

Cloud - 4 - 8/10 3000 ft. becoming 8 - 10/10 1000 ft.

Visibility - Moderate to good tomorrow.

THAMES to SCILLIES.

Wind - Light, variable, becoming W. to N.W. moderate, fresh locally later.

Weather - Fair to cloudy, risk of occ. rain later.

Cloud. - 4/10 at 4000 ft. increasing to 8 - 9/10 2000 ft.

Visibility - Moderate in E., good in W.

Sea - Calm at 1200 - 27th September.

CX (2) 26/9 A.2. (i) Preparations for an attack on Britain were completed on 10th September.

(ii) The date of the attack on Britain has not been fixed but is to be determined, as in the case of Norway, in accordance with events and circumstances.

A.1.(3) It is reliably reported that glider practice is being carried out on several German Air Force aerodromes inside Germany.

A.1. It is reliably reported that arrangements have been made for some Italian Fighter and Bomber units to arrive in the Low Countries towards the end of this month.

2. LOW COUNTRIES & FRANCE.

(1) Between the 18th and 20th September, a state of general preparedness was ordered and all troops with full equipment (arms and ammunition) were embarked on surface craft requisitioned from the French. 5/9 3.

Comment:- Similar practice "stand to's" were held prior to the actual attack on Holland.

(2) (a) There appears to have been some decrease in barges at FLUSHING, OSTEND and CALAIS, and a large increase in towing craft at CALAIS.

(b) There has been a slight decrease in Merchant Shipping at LE HAVRE, but this port still contains the largest concentration both of shipping and barges, with the exception of ROTTERDAM and ANTWERP.

(c) There was a movement to the North East of 4 vessels of 5000 tons from HAVRE to DUNKIRK. Movements to the westward also continued round the CHERBOURG peninsula.

P. T. O.

MOST SECRET.

Daily Summary of Intelligence of
GERMAN PREPARATIONS FOR INVASION OF & RAIDS ON U.K.

Report No. 133 up to 1200 Hrs., 10th October, 1940.

Issued by the Combined Intelligence Committee.

GENERAL.

Weather Forecast Humber to Scillies 1200/10 to 1200/11.

Wind: S.W. fresh to strong moderating slowly and veering to W. in the E., W. to N.W. in the W.

Weather: Heavy squally showers.

Cloud: 5/10-10/10 at 1000-3000 ft.

Visibility: Mainly good.

Sea at Dungeness at 1200/10th - Moderate swell.

1. It is reliably reported that preparations continue for a major operation in which the German Air Force is interested, and which includes a sea crossing and a landing.

Comment:- There is no doubt that administrative preparations for this operation, which is believed to be the attempted invasion of U.K., do in fact continue. These measures may be:-

(a) To complete preparations so that invasion could be launched should the situation be considered favourable.

(b) To maintain the threat of invasion and to contain our forces in the U.K.

(c) To prevent the fall in morale which would be inevitable were the abandonment of invasion admitted at this stage.

2. LOW COUNTRIES & FRANCE.

Movements of Shipping on Dutch, Belgian & French Coasts as known at 0900/10th October, 1940.

I. Conditions for reconnaissance were again bad yesterday; photographs of Dunkirk, Dieppe and the outer harbour at Boulogne show no major change.

II. Photographs taken on 8th October of Lorient showed no major change in naval units. An accurate count of the other shipping was not possible.

III. There appears to have been a decrease of shipping and barges at Le Havre, but it is not possible to estimate the extent.

IV. A preliminary report also indicates that some T/Bs. have left Cherbourg, but detailed interpretation of the photographs is not yet available.

V. There was no change in the situation at Brest at 1130/9th.

Movements.

VI. Three small M/Vs. were sighted proceeding N.W. off the Hook during the forenoon, and 2 tugs in the Le Touquet estuary, but no other movements were reported.

3. REMARKS.

No change.

4. AIR RECONNAISSANCE CARRIED OUT YESTERDAY and considered by the C.I.C.

Visual: Usual routine patrols.

Photographic: Brest, Cherbourg and Bergen.
Unsatisfactory reconnaissance of Nieuport, Dunkirk, Boulogne and Dieppe.

P.T.O.

APPENDIX 3

D.M.I. 14 APPRECIATION--19 AUGUST 1940

The following page (1) is a photo copy extract from Public Record Office file number WO199/891. This material was originally classified "MOST SECRET"; however, it has been declassified by the British Government and released to the Public Record Office. Accordingly, this material is now UNCLASSIFIED but should be treated as FOR OFFICIAL USE ONLY.

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GERMAN INTENTIONS.

1. It has been pointed out in previous Notes that Germany probably originally intended to start the attack on England at the end of June or beginning of July. For various reasons already discussed, the most important of which was the necessity for reorganising the German Air Force, the date of the attack had to be postponed. The Germans, however, still toyed with the idea of being ready to attack the United Kingdom some time in July or early in August.

2. It now seems clear that Germany has decided that some measure of air superiority must be obtained before invasion can be successful. In previous campaigns, land operations have been accompanied, and not preceded by, attempts to gain air superiority; thus, on the opening day of the campaign against Poland, Polish aerodromes, factories and communications were attacked. A similar procedure was followed in the case of the attacks in the West. In both cases, however, the enemy air forces which Germany had to destroy were comparatively small. The strength of the British Air Force seems to have compelled them to act differently on this occasion and if we transpose the recent air operations into military equivalents, they might be said to correspond to the complete destruction of one German armoured division and failure to cross the R. MEUSE. The reaction of the General Staff to this rebuff would be to increase the strength of the attacking forces and to redouble their efforts to gain a decision.

3. Information available, although scanty, forces us to the assumption that all preparations except for collection of shipping are complete, or nearing completion, for a sea-borne invasion. It is not unlikely that such an expedition is being assembled in the Baltic. It is unlikely, however, that any definite date has been settled for launching it, or that any date will, in fact, be settled until the Germans can determine whether the results of their fight for air superiority are sufficiently successful to permit a sea-borne invasion being launched. The same applies to an air-borne invasion.

4. In the meantime, Hitler will continue his political manoeuvres in the effort to embarrass Great Britain. He is likely to encourage the Spaniards to attack Gibraltar. He may also provide help and encouragement for the Italians to attack Egypt and will endeavour to support the anti-British party in Japan, in the hope that Great Britain may have to detach portions of her sea, land and air forces from the defence of the United Kingdom, thus offering him an opportunity for the invasion, for which he is assumed to be waiting.

5. Concurrently with these operations, German propaganda is making every effort to weaken the morale of the British people and, above all, to weaken the position of the Prime Minister. ("It is better to live for England than to die for Churchill" is the daily finale of one of the German radio stations broadcasting in English.) Before deciding on a course of action, Hitler gives as much weight to the psychological as to the military considerations. He has never attacked a country where the morale has been high or the Government has been strong.

6. It is probably, therefore, a fair estimate to say that the air warfare against this country is likely to be intensified in the future and that propaganda from Germany with the object of undermining our morale, will become more virulent. We may also expect a number of ruses, with the object of confusing our defence, such as the landing of parachutes either with or without the actual parachutists and bogus announcements of impending invasion from German radio stations. It seems possible that such measures will reach a culminating point this month when a decision will then be made by Hitler as to whether invasion is possible this year, or must be postponed till later.

M.I.14.
19.8.40.

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