CLIENTS OF ULTRA: AMERICAN CAPTAINS

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by

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The United States was a late entrant into World War II, 27 months after Adolf Hitler invaded Poland. The coming of war in Europe had only slight effect on the American defense posture, including, of course, the area of intelligence. It was not anti-war sentiment alone that operated against involvement but an optimistic estimate of the resources of the belligerents. This engendered such confidence in Allied victory that few could perceive either a moral obligation or a compelling national interest favoring American intervention. The disaster in France of May-June 1940 produced a shock that made eventual involvement conceivable. Closely in line with this was the rapidly worsening state of relations with Japan. Accordingly, vastly expanded ground, naval, and air programs were launched nearly a year after war had begun to inundate Europe and continued to grow during the following 18 months.

Among the branches of the armed services involved in this overhaul was a perennial stepchild of military establishments, intelligence. Past neglect, however, did not mean special consideration now. Only the intercept and cryptanalytical departments had enjoyed a certain kudos during the interwar years. The beginning of the 1930s had witnessed a national sensation with the revelation that breaking Japanese codes had played an important part in American diplomatic success at the 1922 Washington Arms Conference.[1] Informed military and government circles were further impressed by the remarkable work of William Friedman and his associates for Army intelligence. About 1935 they had begun to concentrate on Japanese cipher machines and only two years later scored their first major triumph in the solution of the Red machine. An even greater achievement was scored in September 1940 with the breaking of the infinitely more difficult Purple machine after 18 months of frantic team effort led by Frank B. Rowlett. If there is anyone who merits the accolade "the man who broke Purple," it was he rather than Friedman, who was ill and incapacitated during much of this period.[2] MAGIC thus took a vital place beside ULTRA as a first-line war winner.[3]

Strictly speaking, the terms ULTRA and MAGIC should apply only to the exploitation of information derived from intercepted messages transmitted by the Enigma, Red, and Purple machines. However, both popular and historical usage have served to broaden these concepts and to apply them widely to interception and cryptanalysis of high-level wireless communications, at times even to wireless communications generally. As employed in this article, ULTRA will refer essentially to Enigma traffic and MAGIC, more broadly, to work of Americans on high-level wireless signals of the Japanese in the Pacific conflict.

Despite much debate, it remains uncertain just when American cryptanalysts were first initiated into the mysteries of the Enigma by the British. Their own labors had been almost exclusively centered on forms of Japanese communications. Though some attention had been given to German and

Italian codes, this had been rather haphazard and had achieved no substantial break-throughs. Guesses on just when London drew the veil guarding the triumphs of Bletchley Park vary from the period of first scientific exchanges in the late summer and autumn of 1940 to meetings between cryptographic specialists early in 1942.[4]

In any event, there is no evidence even to hint that American military leaders destined for the European Theater of Operations were apprised, before leaving, of the intelligence windfall that awaited them in the form of ULTRA. Most of the principal American commanders shared with their British colleagues an initial discomfort, heavily mixed with skepticism, when finally confronted with this startling information. It was too sensational, too breathtaking to pass easily for real. Of course, there was also the traditional professional military bias against intelligence, tainted as it perforce is with the ungentlemanly game of espionage.

US CLIENTS OF ULTRA IN EUROPE

Almost alone, Dwight D. Eisenhower did not share the prejudice and distaste for intelligence. No doubt his own personal conversion to the cult of ULTRA also owed much to the impressiveness and solemnity of his initiation by Winston Churchill.[5] At any rate, as will be seen later, he was to show little reluctance to venture one of history's great gambles, the invasion of Normandy, in association with a deception that relied heavily on controls demanding multiple exploitation of ULTRA. Like most British commanders, his principal lieutenants held back at first. The less-imaginative Bradley for a time was enrolled in the "too-good-to-be-true" brotherhood. Only the success of the deception on the invasion made him into a complete convert. Patton courteously told his briefer, "I do not go much for this sort of thing." Mark Clark carried his lack of enthusiasm to the point of rudeness, interrupting Group Captain F. W. Winterbottom's explanations by leaving him in the middle of them with an excuse of having much to do.

In a sense, Eisenhower, albeit in less despotic fashion, acted something like the part of his mentor, Churchill, in constraining his subordinates to make at least a show of respect for what ULTRA was saying to them. British commanders, acutely aware that the Prime Minister was also reading ULTRA items that came to them via the Special Liaison Units, knew that their professional lives depended on close attention. In time, of course, neither British nor American military leaders required much urging to become zealous worshippers at the shrine of ULTRA. Day after day the proof of the pudding lay in the eating. At Mortain, Bradley won what was perhaps the most clear-cut ULTRA victory in the European Theater. Any final doubts Patton may have entertained vanished after ULTRA had guided him around the western German flank via Avranches. He has been characterized as having been one of the most effective users of ULTRA.

Clark's role as one of ULTRA's clients is a subject of much controversy. Winterbottom never forgave him the slight put upon him, and British authors, in particular, have tended to be rough on him.[6] As the ULTRA sensation spread in the mid-1970s, he countered mounting criticism by stressing his own high estimate of its contributions to decision-making.[7] Yet each phase of the war in Italy regarding which he has been widely criticized (the crisis during the landing at Salerno; failing to oblige General Lucas to

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strike inland from the beachhead at Anzio; and the dash to Rome after the collapse of the Gustav Line) is claimed to be an instance where closer attention to intelligence yielded by ULTRA would have reduced losses or enhanced success. The only instance where Clark holds ULTRA to have determined his decision is an alibi for staying put at Anzio. Learning of German concentrations aimed to contain or erase the beachhead, he avers that these made it too precarious to stick to the original scenario of aiming for the Alban Hills. Yet each of the German units involved had been identified by Army Group G-2 *before* the landing was determined, and their moves to central Italy had been fully anticipated.[8]

It is ever a risk to anticipate too confidently an ultimate verdict of history, but it seems likely to be a mixed one in judging the effectiveness of the use of ULTRA by American military leaders. Like their British counterparts, they were in the main disinclined to engage in adventurous moves, the Rommel-like *volte-face*, changing dispositions instantly on the basis of new information. This, of course, does not apply to defensive situations.

The reasons for holding back this way on the British side are not of concern here. As for those which moved Americans, German military figures with whom one conversed after the war, when pressed, would confess astonishment at what they thought a lack of daring and constant leaning toward safer courses. Almost always, Patton would be cited as an exception.

Explanations which spring to mind include a certain awe of German opponents who already had so much war experience and who could lean on a prestigious staff tradition. Caution was further advised by the need of gaining experience in the handling of large formations and problems associated with the use of unblooded troops. Failure to exploit the successful landing at Anzio is a case in point.

One instance where ULTRA information facilitated a major advance is that of the 7th Army after its landing in southern France. The decision here for an immediate leap forward was based on ULTRA's revelation that the routes in question were not to be defended. This, however, can scarcely be defined as an "offensive" in the usual sense. It was the 7th Army, also, that later was a major beneficiary of intelligence in a defensive sense in being able to wreck the German New Year's offensive of 1945.

This last experience helped to convince the gifted ULTRA guardian of the 7th Army, Major Donald S. Bussey, that ULTRA's "primary value lay in static/defensive situations," a feature which he believed to be largely true of intelligence generally.[9] Defensive dispositions can often change with comparative facility; the offensive demands more in the way of planning and preparation. This would seem to be especially true in operational terms, where the American reticence concerning bold, offensive strokes as evidenced in the ETO would most clearly manifest itself.

The picture assumes a different aspect when it touches on strategy. There is a considerable tendency among students of ULTRA to underestimate its effect on strategic decision-making as well as on the execution of strategic plans. Obviously (except perhaps negatively in compelling the abandonment of plans already made), it is highly unlikely that strategy would be much affected by isolated items of information. On the other hand, the steady accumulation of data and development of insights gained from intercepted messages over a considerable period are indispensable aids to decision-making. Often most important, the types of control inherent in ULTRA for keeping track of an enemy's comprehension of what was toward were vital to the success of strategic deception.

Consideration of this leads directly to an appraisal of American performance in the area of deception. A wealth of new insight on this problem may be anticipated once Michael Howard's long-delayed fourth volume of the epoch-making *British Intelligence in the Second World War* has been released for publication. This volume was completed several years ago and only awaits authorization from government quarters.[10]

Though concentrating, of course, on the British side of Allied intelligence gathering and exploitation, it perforce must frequently skirt on what the Americans were doing. As matters now stand, the evidence shows the Americans lagging sadly behind their allies. British concern referred not only to displays of ineptitude but to what seemed to be a lack of interest in the art itself. So greatly was London troubled that it twice alerted the American Joint Chiefs of Staff to the lack of coordination. The first plea was addressed to Washington in June 1942 and appeared to fall on deaf ears. This proved to be the more troubling as combined operations in the Mediterranean expanded. Toward the end of 1943, therefore, the British Joint Service Chiefs delivered to the JCS a veritable bombshell in the form of a massive report on the serious gap between American and British performance.[11]

This dramatic move had so sobering an effect that the JCS adopted measures to assure both greater effort and cooperation on the American side. Two other major developments further strengthened this resolve during the following months. The first of these was a long-delayed British decision to reveal to their allies the secret of the Double X system, through which they were manipulating the entire German intelligence network on their island. Even more of a clincher was the triumph of *Operation Fortitude*, which, in its consequences, must be counted among the most far-reaching military deceptions of history. Thereby the Germans were hoodwinked into believing that the invasion was scheduled for the Pas de Calais rather than Normandy. Once the landing was effected, they were led to expect a further move across the Straits of Dover.

Eisenhower took a strong personal interest in the orchestration of the stratagems that sparked the great deception. In appraising the role of ULTRA, there seems cause for speculation on whether its availability helped greatly to determine the choice of Normandy for the invasion. The argument hinges on the point that it was ULTRA, together with the closely intertwined Double X operation, which inspired

confidence that the deception could proceed without a hitch. Particularly the follow-through of keeping the Germans on tenterhooks in expectation of a second landing would have been meaningless if the reverse course had been chosen; the Germans could never have been induced to believe that after landing in the Pas de Calais, the Allies would venture a supporting move in remote Normandy. This is not to suggest that Eisenhower and those of his associates who were ULTRA-initiated founded their calculations from the first on the rock of ULTRA. Rather, a necessarily unrecorded and probably unspoken awareness of the importance of ULTRA as a guide and control element must have played an increasing role as plans progressed. Any proposal other than the one adopted would perforce have collided with obstacles which ULTRA could not deal with so effectively.

Discussion of the performance of American captains in the ETO with respect to the utilization of ULTRA should include attention to what they owed the talented officers who presided over what was, almost everywhere, a smooth and sophisticated operation. In the first two years after the American entry, commanders relied entirely on British Special Liaison Units for this function.[12] Only in November 1943 was there an agreement on assigning American Special Security Officers to field commanders.[13]

There followed one of the most extraordinary selection processes that occurred during World War II. The officers (captains or majors) attached as SSOs to army groups and army commands were, without exception, former civilians who had distinguished themselves in such fields as law, business, or the academic world. They were men who stood out for such qualities as tact, lack of awe in the face of rank or position, knowledge of men, and whenever appropriate, a readiness for self-effacement. In the latter sense, they could be classed as unknowing disciples of the brilliant Frank B. Rowlett, who on the wall of his office displayed a plaque proclaiming what should ever be the credo of the intelligence officer and might well be that of public servants

generally: "There is no limit to what a man can accomplish if he does not care who gets the credit for it."

The usual setup at an army command included access to ULTRA on the part of the commander-in-chief, the chief of staff, the chief of operations, and the chief of intelligence. In some instances the principal order of battle specialist was also admitted to this charmed circle. The function of an SSO greatly transcended those of a transmission belt between Bletchley Park and field commanders. He was expected to familiarize himself as thoroughly as possible with situations in his army sector so as to promote speedy recognition of the potential exploitations of items of information. On the basis of such insight, he was to be prepared to advise when it was appropriate or desired.

Another major responsibility of the SSO was guardianship over security. At times over-eager superiors would strain at the leash, itching to use ULTRA information in ways that endangered the source. If such moves could not be prevented or occurred without prior knowledge on the part of the SSO, it was his duty to report the circumstances to London. One SSO made such reports on five different occasions.[14] Though commanders were not officially aware of this surveillance, they could sense enough of it usually to accept with grace the ULTRA-discipline expected of them.

ULTRA AND MAGIC IN THE PACIFIC

In appraising the performance of American military leaders in using signal intelligence, it deserves notice that in the Pacific they could count on both built-in and growing advantages. Compared with the ETO, where opponents initially won almost every inning in the intercept war, the contest in the Pacific was from the beginning one-sided in American favor. Neither the Germans nor the Japanese were ever able to make meaningful headway toward solution of the Sigaba, a machine that in time became the workhorse of American communications.[15] Relatively speaking, Japanese commanders continued to stumble in the dark, whereas their American rivals could count on constant advances in both intercept and crypt-analytical services. As against the situation in Europe, where the shrinking of German territorial control correspondingly lessened use of wireless communication, the increasing isolation of Japanese island garrisons made codes and ciphers that much more vulnerable.

Douglas MacArthur, like Dwight Eisenhower, seems to have been free of the all-too-common military scorn of intelligence. Against this, he had such faith in his judgments that once formed, he did not easily change his mind on the basis of new information or arguments. Because of this quality, the more sycophantic elements in his entourage shrank from disturbing him with information that conflicted with such predispositions. This state of affairs worsened with time and produced its most fateful consequences during the Korean War, when MacArthur, after penetrating the north, disrelished the prospect, moving rapidly toward certainty, of Chinese intervention. Throughout this crucial period his G-2, Major General Charles A. Willoughby, appears to have systematically screened out reports that spelled out this unwelcome threat.[16]

Three signal intelligence organizations, American or American-controlled, presented a sometimes badly divided front in the Pacific intercept war. In Washington, the War Department's Special Branch very naturally aspired to coordinate American signals intelligence throughout the world. This function was to be exercised in large part by the SSOs, who were being readied to implement the April 1943 accord with the British. Eisenhower and MacArthur were notified routinely of their approaching assignment to all front commands. For Eisenhower this meant no more than the simple substitution of American SSOs for British Special Liaison Units. Not entirely without reason, MacArthur saw in the continuation of the SSOs as members of Special Branch an extension of leading strings to his headquarters. It required a mission of the deputy chief of Special Branch, Colonel Carter Clarke, to

induce him to accept them in the Southwest Pacific Area (SWPA). He was determined, however, to keep them fenced in. They were never integrated nor even admitted into the headquarters intelligence operation, the Central Bureau Brisbane (CBB); did not receive the daily intelligence bulletin; and were all too often subjected to shabby personal treatment. Both in the move of MacArthur's headquarters to Hollandia and the invasion of Leyte, they were left behind and had to seek ways to hitch a ride in follow-up transportation.[17]

MacArthur's further dealings with Special Branch demonstrated all too frequently the "localitis" which was a perpetual lament of General Marshall. As CBB progressed in solving Japanese army signals, this knowledge was withheld both from the SSOs and from Special Branch itself. Washington only gained access to the highest-level Japanese cipher when Australian cryptanalysts in New Delhi solved it and relayed the information.

One need not go far for an explanation of MacArthur's interest in keeping Special Branch in the dark on the penetration of Japanese military traffic. No doubt confidence in his own huge signals intelligence establishment (by the end of the war CBB had grown to over 4000 persons) promoted a feeling that he had little to gain from a flow of exchanges with Washington. A more positive motivation must have sprung from his well-known propensity to promote the impression that any success gained within the sphere of his command was the outcome of his judgment or intuition. Like Montgomery, he was loath to let it be known, especially in higher headquarters, that a victory had anything to do with "reading the enemy's mail."[18]

MacArthur's suspicions and obsession with self-assertion influenced similar relations with the other great signals intelligence center in the Pacific—that of the Navy at Pearl Harbor. Under the impression that this facility had withheld information from him, he directed that Navy representatives should not be admitted to CBB. Yet CBB had as much to gain from a close cooperative relationship as Pearl Harbor, which produced MAGIC material of the first order. Fortunately MacArthur's usually complacent chief of staff, Major General Richard K. Sutherland, who was closer to these matters than his commander, ventured behind his back to make arrangements by which products of Navy signals intelligence continued to flow to SWPA.

Even in combined operations, the Navy from time to time suffered severely from usually careless, rather than malicious, withholding of information by SWPA. A particularly serious instance concerned Admiral Marc Mitcher's Fast Carrier Force as it approached to cover the landing at Hollandia. Mitcher was left so completely in the dark by Willoughby on this occasion that his chief of staff, Captain Arleigh Burke, saw no solution but to make a personal aerial reconnaissance.[19] In part, Willoughby's neglect may have been associated with a serious intelligence failure on his part with respect both to the estimate of Japanese forces at Hollandia and the topography of the beach area.

From the standpoint of building a sound, coordinated intercept and crypt-analytical operation in the Pacific, the verdict of history appears likely to be that MacArthur and his immediately involved subordinates (Sutherland, Willoughby, and the chief of signals, Brigadier General Spencer B. Akin) did scarcely more to help than to hinder. This is not to imply that the three great operating centers (Special Branch in Washington, Pearl Harbor, and CBB) did not have much to say to each other. About a third of all communications between MacArthur and Admirals Nimitz and Halsey had to do with intercept information.[20] But when such cooperation was endangered or broke down, the responsibility usually lay with SWPA, and all too often with its commander personally. If further evidence of the intrusion of the personal equation into these matters were required, it could be found in the famed episode of Admiral Yamamoto's death. When the commander of Japan's Combined Fleet was waylaid and gunned down over Bougainville, it required no less

than the intervention of the JCS to prevent MacArthur from publicizing it as a triumph of his command, though at the probable sacrifice of the intercept bonanza that had been so laboriously put together.[21]

If the SWPA command had a questionable record in the matter of its contribution to erecting the best possible signals intelligence in the Pacific, where can it be said to stand in relation to utilizing the *products* of ULTRA and MAGIC? Unquestionably, they had much to do both with individual successes and the steady advance northward. Summing up the benefits of ULTRA and MAGIC for the entire war period, SWPA's G-3 (Operations), Major General Stephen A. Chamberlain, holds that the Pacific war was shortened by three years! In specific instances it was a key factor in such spectacular victories as the Battle of the Bismarck Sea, the destruction of the airfields at Wewak, and the bloody repulse of the Japanese at Aitape. In other instances (Kokoda, Biak, Peleliu) it was used so inexpertly as to exact disproportionate sacrifices of American lives. It is difficult to escape the conclusion that Willoughby all too frequently failed to appreciate how vital intelligence items could best be used in the conduct of operations.[22]

The record of the use of communications intelligence in the Pacific by the US Navy is not free from errors, oversight, and the usual growing pains. The defeat at Savo Island (8-9 August 1942), for example, has been called the worst in American naval history. But seen as a whole, the picture shows much that is exciting and sometimes inspiring. It produced the single victory of World War II that can be advanced as a respectable candidate among the decisive battles of history.[23] American naval intelligence also scored heavily in more drawn-out aspects of the intercept war by playing the major role in the submarine success story. Probably only the airplane can rival the submarine as an instrument in the steady attrition of the power of Japan.[24] ULTRA and MAGIC were indispensable for what was accomplished by both.

The vital role of cryptanalysis in the staging of the Battle of Midway is eloquently related in many publications and requires no

further elucidation. What does perhaps deserve additional comment is the uniqueness of the roles of Admiral Chester A. Nimitz and his Fleet Intelligence Officer, the later Admiral Edwin Layton. The former stands almost alone in staking so much on the basis of information derived from intercepts at a time when naval authorities in Washington were highly skeptical.[25] Layton stands out as a chief of intelligence who had an unfailing appreciation of what could be gleaned from wireless sources and for the professional integrity that gained and maintained for him the confidence of his chief. Together they deserve a major portion of the credit for the brilliant record of the Navy in turning the tide in the Pacific with a dramatic beginning only a few months after the disaster of Pearl Harbor had seemed to eliminate it as a significant factor for at least a year to come.

Those who relish pricking "the bubble reputation" may look forward to a never-ending field day in reassessing the performance of Allied leaders in the light of the intrusion of the ULTRA and MAGIC factor. There is no getting around that ULTRA and MAGIC presented British and American commanders, as it were on a silver platter, a veritable bonanza of openings to surprise, mislead, deceive, frustrate, logistically starve, or disrupt the plans of their opponents. Revelations on the workings of ULTRA and MAGIC, as they flow from declassification teams into archives, threaten to erode, at times perhaps deal heavy blows to, the reputations of specific Allied generals, and occasionally of Allied leadership generally. More rarely, the renown of those who possessed the vision to discern the vistas opened to them by ULTRA and MAGIC merits enhancement. In effect, American captains, like their colleagues and adversaries of many lands, must from this new perspective once again submit themselves to the scrutiny of history.

NOTES

1. The year 1931 witnessed the publication of Herbert O. Yardley's *The American Black Chamber*.
2. Only eight Purple machines were produced and were confined strictly to signals exchanged with the most important

embassies. Interview with Frank B. Rowlett, 16 March 1983. The measure of their employment thus differs profoundly from that of the Enigma, of which around 100,000 rolled off German assembly lines. Particularly remarkable about the solution of Purple is that it was accomplished solely by cryptanalysis and from intercepts so limited in number. Also, there was no awareness as yet of the prior breaking of the Enigma as a result of Polish/French/British strivings. If this had been known, it would have encouraged and spurred on the project. Both the Red and Purple machines were constructed on principles wholly different from those of the Enigma. Interview with Frank B. Rowlett.

3. As ULTRA is frequently written in capital letters, it is logical to do so also for MAGIC.

4. Debates upon the various theses (there are at least four) about the timing of the revelation of ULTRA to Americans need not concern us in this essay but will be analyzed by the author elsewhere.

5. Inviting Eisenhower to Chequers for the weekend, Churchill introduced him to the ULTRA secret by exacting a prior oath that he would never expose himself to capture by flying over enemy-held territory or approaching closely to the front.

6. Thus Ronald Lewin, *ULTRA Goes to War* (New York: McGraw-Hill, 1978) on the situations enumerated below.

7. In a letter of 6 August 1980 to Jack E. Ingram of which a copy is available to the writer, Clark protests that he "sought" ULTRA and that "anyone who did not accept it would have been crazy, for it was like reading the enemy's mail." Though stressing that ULTRA material reaching his headquarters often did not pertain to his command area, Clark states that, "When we were in trouble at Anzio the intercepts helped us tremendously."

8. Lewin, *ULTRA Goes to War*, p. 86.

9. Donald S. Bussey, "ULTRA and the Seventh Army." Also conversations with Colonel Bussey.

10. It appears a safe assumption that this postponement of publication reflects the public furor over the Anthony Blunt affair, in which a highly honored art historian was identified as the recruiter in chief for Soviet intelligence at Cambridge University in the 1930s. There is a reluctance, we hope a temporary one, to publicize certain aspects of World War II intelligence history.

11. It was highly unusual for British or American military authorities to criticize one another in official documents.

12. British Special Liaison Units attached to American commands were selected and dedicated men who had to perform their duties more or less under crossfire. The presence of a mysterious and, it seemed, somewhat privileged foreigner within an American intelligence unit at times inspired jealousy and even suspicion. The reports of inspectors who visited headquarters in the Mediterranean wherever ULTRA had clients repeatedly dwell on such situations.

13. The agreement of 29 November 1943 was concluded between Group Captain F. W. Winterbottom on the British side and Major General George V. Strong and Colonel Alfred T. McCormack on the American.

14. Bussey, "ULTRA and the Seventh Army," and conversations with Colonel Bussey.

15. The Sigaba was by far the most sophisticated communications device of World War II. One item: whereas the Enigma contained either three or four rotors within the machine and the far more formidable *Geheimschreiber* ten, the Sigaba featured 15.

16. Colonel Eric H. F. Svensson, then on Willoughby's staff (apparently as chief of counter-intelligence) was utterly convinced that all indications pointed to an impending Chinese intervention. Finding himself unable to penetrate to MacArthur via Willoughby, he, in his desperation, thought of waylaying the commander in the hallway. As related by Colonel Donald P. Shaw, then on the staff of Colonel Svensson.

17. During the invasion of Leyte, the SSO, Major John Gunn, had to hitch a boat ride in the tail end of the expeditionary force and wander disconsolately along the beach on which he was dumped hoping to be taken in by some kindly mess. Ronald Lewin, *The American Magic: Ciphers and the Defeat of Japan* (New York: Farrar Straus Giroux, 1980), pp. 267-70.

18. Montgomery was similarly inclined to reserve credit for any success to himself. He resented having even Churchill read the same ULTRA reports that reached him and that made clear how much he owed to them.

19. As communicated to Ronald Lewin by Admiral Burke (*The American Magic*, p. 232) and spelled out further to the Admiral in a conversation of 28 March 1983. In Burke's view, Willoughby lacked the insight to determine well the intelligence that fitted the needs of its clients and how an item could affect current operations. Burke and his pilot had a narrow escape, their plane being hit by gunfire and barely making it back to the carrier, a wing falling off as they landed on the deck.

20. As related to the writer by members of the National Security Agency staff engaged in the declassification of intercept material.

21. MacArthur's resentment at what he probably saw as "meddling" is demonstrated in the acid tone of his postwar reference to the incident: "Washington lauded it as one of the most important bags of the war, but labelled it top secret and forbade publication."

22. This was the conclusion of the later Admiral Arleigh Burke after prolonged experience with these phases of the Pacific War. Conversation with Admiral Burke, 28 March 1983.

23. It is interesting and significant from the standpoint of appraising the role of sea power in World War II that the other "battle" which is sometimes put forward as having been decisive is that of the Atlantic. It is questionable, of course, whether one can validly compare the weight of a single encounter with that of a series of operations that endured over years.

24. By the termination of the war in the Pacific, the Japanese merchant fleet had been reduced to seven percent of its original strength plus what had been produced or captured during the conflict. Well over 60 percent of these losses had been accounted for by the submarine, which in the later phases of the war went out almost solely on specific missions rather than on search and destroy cruises.

25. Admiral King, the chief of naval operations, was a rather inflexible, irascible man who did not adjust easily to the sensational upgrading of the role of wireless intelligence that was developing in the Pacific command.