

ARLINGTON HALL STATION

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To

From

Gen. Stoner

Col. Corderman

Mr. Friedman's report of his
activities in England during period
Apr 23 - June 13.

For your information and return.

WPC.

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SPSIS 311.5-Gen.

SPSIS-3

8 July 1943

To: Colonel Corderman

Subject: Preliminary Report of Trip to England

1. This is in the nature of a preliminary and general report of my visit to England. Detailed reports on the various operations and activities observed will be submitted at a later date.

2a. The activities to which I devoted the major portion of my time and attention at BP were those in connection with their handling of German Army and German Air Force high grade secret communications. A detailed report of those operations, which are very complex but well coordinated, will be made as promptly as time and opportunity affords. It is a story which has never been written. It may not be amiss to indicate in this preliminary report, however, that British success in this field represents, without question, the most astounding and the most important cryptanalytic and intelligence achievement in all history.

b. Their achievement is astounding not only because of the breadth of the concept upon which the operations are based and of the directness with which they are prosecuted, but also because of the manner in which the British tackled and successfully solved a cryptographic system which apparently presents insurmountable and impenetrable bulworks against attack by pure cryptanalysis. It must be understood that the solution was attained not by pure cryptanalysis at all but by exploiting to the fullest degree possible the weaknesses injected into the system by the methodicalness of the Germans in their formulation and operation of the system, by studying and making use of the well-known German addiction to fixed habits, and by taking advantage of the occasional carelessnesses and blunders on the part of German cipher clerks. The margin upon which the British had and still have to operate in their solution is indeed a very narrow one, so far as technical cryptanalytic weaknesses in the system are concerned, but dogged British

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persistence, extremely painstaking attention to minute details, and brilliance in coordinating and integrating into one vast picture the many small operations involved, have brought about a success beyond the wildest expectations of any cryptanalyst's fancy.

c. Moreover, the success the British have attained and continue to attain in this field is also astounding in that they have been able to keep the whole operation utterly secret from the enemy for so long a time, despite the hundreds of people who participate in the operations and despite the very tenuous threads upon which these operations rest--threads which might be broken by a mere whisper in the proper place at any moment. How they have maintained security will also be told.

d. The British success in the solution of E communications is the most important cryptanalytic achievement in all history because it is, in fact, largely responsible for Britain's continuance in the present war: the Battle of Britain in 1940 was won largely on the basis of information provided by this source. It is perhaps also largely responsible for the military successes of the United Nations in the North African theater, and for the successful conduct of the Battle of the Atlantic. Indeed, the E operations constitute Churchill's "Secret Weapon" and its very existence and astonishing accomplishments constitute the most carefully guarded secret of the many secrets of this war.

3. In the course of my tour through the many divisions at BP I was given the opportunity of making detailed notes of my observations, a courtesy which is not accorded as a rule and reflects the spirit of cordiality and cooperation accorded me by the GC & CS directing heads. When the time for my departure came it was realized that nobody had hitherto been permitted to carry away such highly secret and detailed information and accordingly it was agreed that these notes should be transported by the official BP courier in the regular diplomatic bag. In order to insure that my note-taking should not have been in vain, in case of accident, a complete microfilm negative of the notes was made at BP at my request, and it was further agreed that this microfilm should be retained there until word of the safe arrival of the originals reached BP. To write a detailed story based upon these notes, which arrived without mishap after a couple of weeks, will be a job requiring

much time and labor but I hope to keep at it as steadily as possible until it is completed.

4. During the course of my sojourn and especially while in London numerous telegrams were sent to Washington, embodying the gist of the observations and impressions of myself, Colonel Alfred McCormack, GSC, and Lieutenant Colonel Telford Taylor, GSC, the latter two officers accompanying me on the trip. Except as regards the E operations I believe those telegrams cover fairly well the story of what we saw. However, even at the risk of some duplication, I hope to prepare special reports on all the activities observed by me, with a view to presenting a unified picture of the British accomplishments in our field.

5. The things which most impressed me during the whole of my tour through GC & CS operations are these:

a. The importance of continuity of studies. They have many people who have been engaged in this field ever since 1914. Their experience and training constitutes the most valuable asset of the British Government in the intelligence field. Their continuity of records of past studies constitutes the greatest store of cryptanalytic treasure in the world—a source of information that is useful every day.

b. The close attention they give to minutiae of detail. No bit of information is too small for them to note and to use to good advantage. The painstaking records they keep—largely by hand—have paid large dividends.

c. The fluidity of their organization, which takes one who is accustomed to rigidity in this respect quite by surprise. They state frankly, at times, that they have no formal organization, can show no detailed charts, or schedules of responsibilities; that they added to the organization as needs developed, paying little attention to chains of command, lines of responsibility, etc. The organization is distinctly not a military organization. Its personnel comprises many people in uniform, of course, but they are superimposed upon a purely civil organization of the Foreign Office. The buildings and grounds are occupied by a curious conglomeration of army and navy officers in and out of uniform and on active and inactive status, of WAAF officers and privates, of ATS officers and privates, of WRNS officers and privates, of civilian men and women, of quasi-military people, etc. The person having

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the longest experience and the most ability in each division, section, and subsection runs the show, regardless of uniform, rank, or sex.

d. The ability and high calibre of their key personnel. The largest portion of their leading people are men of eminence in their respective fields if they are University people, or if they came from the business or professional world, as did a few, they were top-notch business and professional men. For the most part, their leading personalities from Cambridge and Oxford are not the young graduates but the older more experienced "dons" and professors, men with wide backgrounds and excellent training in research.

e. The extent and excellence of their own communications systems. This is in reality the crux of modern global cryptanalysis. The GC & CS communications networks for contact with the many intercept stations producing the raw material and with their several cryptanalytic echelons at overseas stations are astonishing in their scope and impressive in their efficiency.

f. The manner in which complex operations are coordinated and integrated to make a unified picture. The most amazing illustration of this will be found in my report on their E operations.

g. The manner in which the cryptanalytic work is integrated with the intelligence operations; how the two phases react on each other. It became perfectly obvious that so far as military operational cryptanalysis is concerned the two activities must be conducted side-by-side. And as far as diplomatic cryptanalysis is concerned, the equivalent of military intelligence, which is information fed back by the diplomatic establishment (Foreign Office, Colonial Office, India Office), is just as important in its reaction upon the technical side of the work in that field. The contrast between the GC & CS situation and our own in this respect was quite striking. In both military and diplomatic operations the cryptanalysis and the intelligence phases could, of course, be kept in more or less separate compartments but the British were emphatic in stating that the loss in efficiency would be considerable and would undoubtedly be reflected in both, thus yielding an incomplete and unsatisfactory picture.

h. The manner in which traffic analysis, cryptanalysis, and intelligence are coordinated and integrated to make one

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astonishing, complete, detailed, and accurate picture of the enemy's battle order, his communication systems, his supply situation, the morale of his troops, and his immediate as well as his long term intentions. It is in this field that we should be able to derive much benefit from British experience, for they have demonstrated brilliance in it, to judge only from the amazing results they have produced. Of course, it must be noted that they have had four years of active operations in which to attain this high level of efficiency but we should take advantage of their experience and save time in attaining a similar stage, if possible, in connection with our Japanese Army operations.

1. Finally, I was much impressed with the manner in which the British have unified, under one parent organization, all the cryptanalytic and related intelligence activities of all the services, and what is really more important, at the same time have set up mechanisms adequately to insure that each of the services gets everything it needs in the way of information arising from cryptanalysis and intelligence thereon for its own effective operations. These have been the most important elements which led to the establishment and control (for security purposes) of the extremely effective military weapon they now possess. Just what the mechanisms they have set up to serve the respective services both at home and in the field are, how they function, and so on, must form the subject of a separate report. It appears to the British, at least, that without unification such activities can make an only partially effective weapon, difficult to control, giving rise to unnecessary duplication of effort, conflicts in responsibilities and aims, and, on the whole, one that is much more likely to be found out and thwarted by the enemy because multiple organizations are not conducive to security control. The foregoing statements are, of course, beyond my sphere of interest and responsibility but I offer them for what they are worth.

6. A few words may not be amiss as regards my estimate of their technical efficiency and ability in pure cryptanalysis. If one were merely to judge them by the language they use in their daily activities, or by the terminology and nomenclature they employ in technical reports, one might be deluded into thinking that the British are merely gifted (if not brilliant) amateurs—but amateurs nonetheless. They use a jargon all their own, especially in the E operations. For the most part the reports they issue in the latter field would be quite unintelligible to people not knowing what the whole thing is about. Perhaps the peculiar language is intended as a camouflage, for security reasons, but I doubt it. However, it is not the type

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of language one uses that differentiates the amateur from the skilled professional, but their relative accomplishments. As regards the accomplishment of difficult tasks and the solution of complex problems I am of the opinion that our own people are certainly as good as the British cryptanalysts when pure cryptanalysis is all that is involved. But when it comes to operating upon a problem where pure cryptanalysis and high cryptanalytic skill are of little avail, I am sure that we have lots to learn from the British. Their uncanny ability to gather up scraps of information and add them together properly, their high class "second story work", their painstaking devotion to minutiae, their genius in coordinating the efforts of thousands of people, and, above all, their downright practicality when it comes to getting things done, are well worth admiration and copying. The successes and achievements of the GC & CS has brought them such prestige in the circles of the British Government that practically anything within reason they ask for is granted them. I am sure they are deserving of this. It is reflected, perhaps, in their growth in numbers. I note, for instance, that in a report made by (then) Major Kullback after his visit there in the summer of 1942 the strength of the organization was 2100 people; now it is 4700, and is still on the increase. Their chief, Commander Travis, reports directly to a man who has direct and frequent contact with the Prime Minister himself. The latter made a special visit to BP not long ago; and while I was there Mr. Joshua Cooper, the head of the Air Section there, was accorded a very high honor, having been made a Commander in the Order of St. Michael and St. George, in recognition of his achievements. I cite all this merely by way of indicating the importance which the Government attaches to the work and accomplishments of the GC & CS.

7a. A chronological account of my tour begins with my departure shortly after 1 p.m. on April 23, 1943, from the National Airport with Colonel Alfred McCormack, GSC, and Lieutenant Colonel Telford Taylor, GSC. We arrived in London, after a quick passage without special incidents worth noting, at 8:30 p.m. (London time) Saturday, April 24. The next day I reported my arrival to the Adjutant General's Office Headquarters, ETOUSA. The afternoon was spent in conferring with Colonel George A. Bicher in connection with the Signal Intelligence activities conducted by him in London, under the Chief Signal Officer, ETOUSA. The next morning (Monday, April 26), in company with Colonels McCormack and Taylor, I reported to General Peabody, the U. S. Military Attache; the afternoon was spent with Colonel Bicher, making a hasty tour through his

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SIS activities. We also had a conference with Captain Johnson in regard to E matters. Later we called upon Colonel Black, G-2 of ETOUSA. In view of Colonel Bicher's imminent departure for the United States we continued our discussion of his and British SIS activities during the whole of the long evening.

b. On Tuesday, April 27, I reported to General Rumbough, Chief Signal Officer, ETOUSA, and attended to various administrative duties, including the making of arrangements (pursuant to a telegram from you) to meet Commander Travis the next day. A very friendly meeting with the latter was held in my room at the Park Lane Hotel about noon on Wednesday, as a result of which arrangements were made to call upon Brigadier Menzies that same afternoon at 3 p.m. The conference with Brigadier Manzies occupied approximately one and a half hours. We received a very cordial welcome from him and it was agreed that we should proceed with our tour of the activities under his charge, without reference to the then-pending controversy. Brigadier Menzies stated that he wished to facilitate our visit and that all GC & CS activities would be open to us for our inspection.

c. On Thursday, I continued with administrative duties and in the evening I had a very nice meeting with General Ingles, being his guest for dinner; Colonel McCormack accompanied me. A first telegraphic report to you (on our meeting with Travis and Menzies) was sent on this day.

d. On Friday, April 30, the three of us proceeded to Tidworth with Major Damey, Deputy for Colonel Bicher, to observe the activities of the Radio Intelligence Company producing raw material for Colonel Bicher's SIS. We were all most favorably impressed with the layout there, with the scope of the SIS activities at the intercept station, as well as those in London.

e. On Saturday, May 1, Commander Denniston made a courtesy call at the hotel and extended a very cordial welcome to all of us. We again called on General Peabody, who took us up to call upon General Davidson, Director of Military Intelligence at the War Office. This was a very short and formal call; no discussion of official business took place. In the afternoon we made our first visit to Commander Denniston's office and had a brief talk which indicated that careful preliminary

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discussions had taken place between him and Brigadier Menzies. It was agreed that we were to present Commander Denniston with a schedule of what we wanted to see; such a schedule was submitted to him after preparation by the three of us the next day.

f. On Monday, May 3, we made our first visit to Bletchley Park, arriving there on the noon train. We were met at the station by Colonel Tiltman, who took us to Commander Travis' office. There we had a few minutes discussion relative to their organization, sources of raw material, methods of getting the latter to BP, and its routing thereafter. We were informed at this preliminary conference that we were to be permitted to see everything at BP except Naval material. This latter decision, we were informed, had been made at the request of our own Navy, for reasons best known to them; it was with some embarrassment that Commander Travis told us of this decision.

g. The afternoon was spent by me in discussions with Colonel Tiltman and some of his assistants, at the end of which Colonel Tiltman took the three of us for a quick external survey of the buildings at BP.

h. There are at BP now over 4700 workers, exclusive of maintenance and guard personnel. The activities are housed in frame "huts" of various sizes, which were constructed in the early days (1938) and some of which are still in use. There are also 9 new, one-story, brick buildings. We did not go inside any of them as there was insufficient time on this day, except that Mr. DeGrey, Deputy for Commander Travis, took us on a rather hasty tour of the traffic reception and communication center, which will be described in my detailed report later. We returned to London in the early afternoon.

i. The next three days were spent in London going through various sections of Commander Denniston's operations in the diplomatic field. On Friday, Colonel McCormack and I again went to Bletchley Park arriving there at noon. At this time we met Lieutenant Colonel Marr-Johnson from Delhi, India, and Lieutenant Colonel Sandford, of the Central Bureau, Brisbane, together with two or three others who were going to participate in the conference on Japanese Army codes. The opening session of the conference was held immediately upon our arrival, in Commander Travis' office. With a few preliminary and carefully-chosen words of welcome he outlined the scope of the discussions

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and indicated the principal subjects thereof. Commander Travis, who was about to depart for Washington, then asked me to act as chairman, an honor which I declined in favor of Colonel Tiltman, in accordance with the requirements of protocol. After lunch the conference reconvened and began its work. My next few days were taken up with this work and a copy of the minutes of the several meetings held have already been received. Occasionally during the foregoing conference, when an intermission of an hour or two provided an opportunity, I took advantage of the interval to meet with various persons of interest, as for example, Major Morgan, who is the head of the research group under Colonel Tiltman, and Mr. Cooper, head of the Air section, with whom I spent almost a whole afternoon making a tour through his establishment. In the Air Section I saw Dr. McVittie (head of meteorological section) and spent a few minutes discussing an accomplishment which he had just finished and which had occupied his attention on and off for about two years. The solution, which he finally had just reached after only two days' study, is one which yields a five-way crib. The thing which impressed itself upon me most in connection with the meteorological work is that while the results obtained are, of course, useful in themselves, they are perhaps more important in that they afford first class cribs into the E and other material.

j. On Monday, May 10, we practically completed the deliberations on JAC and finished up what we were able to, pending the receipt of further data from the various centers. It was agreed that the final session was to be held on Monday, May 17, in order to be able to have Brigadier Harris, chairman of the Y Committee, present.

k. Monday afternoon was spent with Colonel Pritchard, who is the head of what they call the No. IV Intelligence School, which is not a school at all but conducts cryptanalytic activities on German police, Italian military and problems of similar nature outside the E field.

l. On Tuesday, May 11, I visited Major ^{LEWIS'} Evans' activities on the WT side of the E picture. This was the beginning of a long tour of observation of how they tackle the E problem. The tour was interrupted by visits to London and other points. From Wednesday, May 12, to Sunday, May 16, the three of us continued our tour of Commander Denniston's activities.

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m. On Monday, May 17, I returned to BP and took up the tour of the E activities from the point where I had left off, and this continued, with some minor interruptions, until the end of my stay. One of the interesting interruptions consisted in making a visit to Oxford, where I made a tour of the code and cipher compilation activities of the GC & CS under Commander Hok, which will form the subject of a special report. On Saturday, May 29, I returned to London to participate in a Signal Corps conference and tour of the various Signal Corps installations in London.

n. On Sunday, May 30, Colonel Taylor and I left by train for a visit to the largest intercept station run by the British Army, known as "WOYG", meaning "War Office Y Group". We were met at the station in London and conducted through the show on Sunday evening and Monday morning by Colonel Lycett, who supervises the Y activities of the War Office. A report thereon will be made in detail later. Monday afternoon I returned to Bletchley Park by auto with Colonel Lycett and spent the next four days continuing my tour of E operations and other activities. Among the latter visited were Major Morgan's research section, the Air Section, the No. VI Intelligence School, and the activities known as "ISOS" and "ISK" in the clandestine field. All these will be dealt with in special reports.

o. On Sunday, June 6, I made a journey to Cambridge with Professor Vincent, who is coordinator of certain activities at BP. This was purely a social visit, as there are no GC & CS activities there. I returned to BP at noon Monday, June 7, finished up some odds and ends of work, turned over my notes and papers, and left for London in the evening.

p. On Tuesday, Lieutenant Colonel Taylor and I made a journey from London to the large RAF intercept station at Cheadle. A report of the activities thereat will be made later. I returned to London in the late afternoon on Wednesday, June 9, and found that arrangements had been made by Colonel McCormack for our return to Washington on the coming Friday.

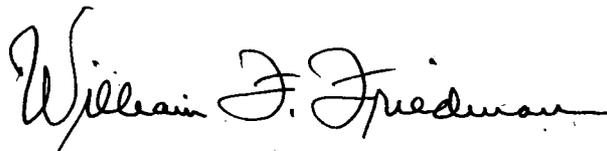
q. Thursday and Friday were spent in conference with various people at the War Office, among whom were Mr. Williams, in charge of code and cipher compilation and distribution for the Army; Colonel Lycett, who has been mentioned before; and Wing Commander Johnson of the RAF security group. Reports of these visits will also be made.

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r. Colonel McCormack and I left London on Friday evening, June 11, and arrived at the National Airport on Sunday evening, June 13, after an uneventful trip.

8. In closing this preliminary report I wish to indicate that I found all the British with whom I came in contact most cordial, cooperative, and anxious to show me all I wished to see. If I went to England with a high estimate of the ability of the people at the GC & CS, I saw nothing that caused me to revise my estimate downward, much that leads me to revise it in the upward direction. From a technical viewpoint my visit was quite a valuable experience and I derived much benefit therefrom, which I hope can be reflected in future progress. It is specifically recommended that we try to emulate the British in respect to the points which I have cited above as being the ones which impressed me most.

9. Finally, I desire to convey my thanks to all those who made my trip possible and afforded me the time and opportunity to do so.



William F. Friedman
Director of Communications
Research