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Hagelin case*GOVERNMENT COMMUNICATIONS HEADQUARTERS
U. S. Liaison OfficeGC/151/51

19 June 1951

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PL 86-36/50 USC 3605MEMORANDUM FOR THE DIRECTOR, AFSA

Subject: French Modification of the M209B Converter

References: (a) UC 082024Z June 1951
 (b) USLO Memorandum GC/149/51,
 18 June 1951
 (c)
 (d) USLO Memorandum GC/133/51,
 25 May 1951

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1. Herein is submitted a detailed account of my meetings with French cryptographic personnel in Paris on 14 and 15 June 1951 for the purpose of obtaining information requested in reference (a) and forwarded in reference (b). The report may be summarized as follows:

a. The patent information was furnished readily, except that the patent specifications and drawings were released only after prolonged hesitation;

b. Monsieur Joseph Auguste Raffalli is identified as an engineer closely connected with the development of French cipher equipment;

c. It appears that the United States can obtain the license under the patents for a nominal amount;

d. The French probably will complete the manufacture of the number of modified printwheels required by them by the end of 1951, and it was indicated that they might accept orders for as many as 50,000 units per year thereafter;

e. Confirmation is lent to the association of Commandant Arnaud with French communication intelligence by the fact that he has translated foreign books on cryptanalysis;

f. Colonel LaCroix is anxious to receive any news of the U.S. decision with respect to the modified M209B.

Declassified and approved for release by NSA on 07-11-2014 pursuant to E.O. 13526

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[REDACTED]

2. Not having been able to make an advance appointment, I called at the office of Colonel Veyron LaCroix, 51 Boulevard de Latour-Maubourg, Paris (ETAT-MAJOR COMBINE DES FORCES ARMEES) about ten o'clock morning of 14 June and luckily found him there. Because his English is about on a par with my French, I presented to him an unclassified memorandum [REDACTED] from my draft based on reference (a)), which explained what was wanted. He immediately telephoned Commandant Arnaud at Ministere de la Guerre, 231 Boulevard Saint-Germain, and provided transportation for me to Arnaud's office.

3. Commandant Arnaud's English is rudimentary, but was sufficient for our business to be carried on without an interpreter. He said he was glad to see me again, and I presented to him the written request mentioned in the preceding paragraph. His first question was "Who has translated this?" (!) and I replied that one of our officers in London had done his best. The English and French versions of this memorandum are forwarded as Enclosure (a).

4. It became apparent at once that Arnaud was doubtful about the propriety of furnishing a copy of the patent documents. He said he did not have any of the information in his office, but promised to do what he could to obtain it. He said he would see the man to whom the patents were issued (RAFFALLI) and asked me to call again at 1730. Although reference (a) did not request the information, I asked Arnaud also to give me some idea of the probable cost of a license under the patents, if we should want it.

5. I returned at Arnaud's office at the appointed time, where he gave me the paper enclosed herewith as (b). He had not brought the patent documents, and explained that since the patent had implications affecting the national security it was "AJOURNE", i.e., deposited to be withheld from publication for five years. I pressed him to obtain the documents for us and he insisted it was impossible under the law. He said further that he felt we had been given all the details that should be needed in order to reach a decision. I then asked his permission to appeal the matter of the patent papers to Colonel LaCroix, or anyone else who could authorize their release, whereupon he offered to go with me to see Colonel LaCroix.

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5. We called on the colonel immediately. A third French officer (I think an army captain) acted as interpreter. Colonel LaCroix agreed with Arnaud that they could not possibly release the papers. There was much discussion in high-speed French. While debating the question with Arnaud in his office, I had asked him (merely as an argument) if he felt the French government would withhold the patent details of this device from even General Eisenhower, and was somewhat startled later to hear the General's name mentioned by Arnaud to LaCroix. Colonel LaCroix was disappointed that I had come for more information and had brought none; he asked very pointedly about our evaluation of the machine's security and whether we had any counter-proposals to make. He then wanted to know when "the expert, [redacted] would return. I replied I had no information about [redacted] or what he had done subsequent to our original visit to the French, and said that if he - LaCroix - would give me a letter to [redacted]

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[redacted] I could place it in a channel that would eventually get it delivered. He immediately scribbled off a note and passed it out to be typed - of which matter more will be said later. I told Colonel LaCroix that I had no connection with the security study but was only the messenger who brought the questions and would take back his answers with, of course, any word he might want to send. There was a little more conversation on the subject of experts and I finally told Colonel LaCroix that I doubted very much that our "experts", whoever they were, ever would discuss details of the subject with the French experts. At no point did this conversation become other than "cryptographic in nature". I was extremely careful to say nothing [redacted]

6. We then returned to the subject of the patent documents. After further talk, they said that perhaps the man to whom the patents had been issued (Monsieur Raffalli) would be in position to release them to me and offered to allow me to talk with him in the presence of Colonel LaCroix. I replied that I would have to obtain permission before discussing this subject with this third party and would let them know.

7. On thinking it out, there seemed to be no reason why I should not talk with Raffalli. On Friday morning, 15 June, I asked Colonel LaCroix to arrange the meeting, which he set for 1700, in his office. There were present Colonel LaCroix, Commandant Arnaud, Monsieur Raffalli, the interpreter mentioned in paragraph 5, an unidentified subordinate of Colonel LaCroix who remained at his desk in the colonel's office but took no part in the discussion,

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and myself. Monsieur Raffalli, whose address is given in reference (b), obviously occupied a position of close collaboration with LaCroix and Arnaud, so that any doubts I had about talking with him were immediately dispersed. Raffalli is about 50, bald with fringe, grey mustache, short, stocky and well-fed, affable and self-assured, and wore a Legion of Honour rosette in his lapel. He speaks an adequate amount of English for conversation. I said that we needed the patent details in order to make a thorough investigation of pertinent U.S. patents, because if our use of the invention infringed some U.S. patent we might become involved in an expensive lawsuit. Monsieur Raffalli was immediately sympathetic to this approach (which was only a surmise) and produced from his briefcase a copy of the patent papers for examination. Finally, after much discussion, Raffalli said he thought he could give me a copy of the patent papers; LaCroix and Arnaud surrendered. They then said this was the only copy and that they would have a copy made for us, which would require two days. I urged them to lend me the papers overnight, saying that I would copy them myself and return them the following morning. Raffalli then telephoned someone, I think the patent attorney, and in about fifteen minutes a messenger arrived with another copy which Raffalli gave me, declining my offer of an official receipt. This was the patent document forwarded with reference (b).

8. Monsieur Raffalli pointed out that he had drawn the patent papers carefully, applying the idea to printing devices in general, such as communication equipment, numbering stamps, etc. without any mention of cipher machines. I gathered he has been in this business a long time, as he spoke of "...twenty years ago..." I am almost certain he identified himself on the telephone as "Colonel Raffalli". It was said that he "owns the machine tools", which I took to mean the machine shop of the French licensee (M. Rene Presseq de Chauny), which is a small establishment. Raffalli said he had shown the device to "the people who make our teletype equipment" who said they could manufacture it; this and his remarks about the small capacity of the licensee firm imply that if there is a large demand a subcontract will be let. It seemed best not to ask too many questions about Raffalli and his machine shop.

9. It was stated that the United States might obtain a license under the patents for a nominal amount. Monsieur Raffalli volunteered the statement that after December (by which time French needs will have been applied) they would be able to manufacture, in a year, 50,000 wheels each with

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two complete outfits of type. I told him I would like to know, as incidental information since I had not been instructed to discuss that phase of the matter, whether he would be interested in filling an order from the United States and if so what the price would be. They could fill an order, he said, and the price mentioned in reference (c) - 8,000 francs or about \$23.00 per machine - includes cutting off and slotting the original M209B component as described in paragraph 3.a and .b of reference (d). He went on to say, "This is the cost now," and that as it depends upon labor and material costs, "Who can say what it will be next year?"

10. While we were waiting for the messenger to bring the additional copy of the patent papers, the group discussed in French other items of their business. There was a general chuckle and the interpreter said to me, "It has been suggested that perhaps you would tell us how a U.S. Army signal center is organized." I replied that in the first place I was in the Navy (I was in uniform) and knew little of the Army, that my only knowledge of these subjects dealt with purely mechanical details of the insides of cipher machines and that even if I was familiar with Army signal centers I probably could not answer the question.

11. At the end of the discussion I thanked them for the cooperation and help, and asked Colonel LaCroix for the letter which he wanted sent to [redacted]. He said he had decided that it was not necessary. He asked if I was returning to Washington. After all the talking I had done about good faith in order to obtain the patent papers, it seemed inadvisable to allow his misconception that I had come from Washington to persist, so I replied that I was going to London and expected to be in the Naval Attache's office there for about three months, but that the information they had given me would be despatched to Washington immediately. Colonel LaCroix asked whether I would return to Paris or, if not, through what channel he would receive the U.S. decision about the machine, which he is anxious to learn at the earliest moment. I answered that I supposed he would learn of it through the same channel that arranged my original appointment with him and that I probably would not return unless more information was needed. My impressions of LaCroix, Raffalli, and Arnaud are entirely favorable. I believe they are sincere in their dealings with us. I then left, and returned to London by air the following day, 17 June.

12. [redacted] report (reference (c) in Part II, paragraphs 11 and 12) describes Commandant Arnaud's plans for an electric, keyboard model of the Hagelin using M209B parts. Arnaud told us he expects to use the changeable

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alphabet wheel on this new machine. [redacted]

[redacted] had begun to wonder if this could be so, as each change of print-wheel sequence would require a corresponding change in the keyboard. I took advantage of the opportunity afforded by seeing Arnaud again to ask whether he did intend to use the new wheel on a keyboard machine. He replied affirmatively. I asked about the keyboard detail. He said there would be a suitable mechanism, and that the proposed machine existed only on paper. It was obvious that he is not a "mechanic", and I do not believe the difficulty about the keyboard had occurred to him. It will be a nice trick if he can do it.

13. More information turned up about Commandant Arnaud. I saw in the window of a Paris book store a book which Ferrin and I had noted in Arnaud's bookcase, "Manuel de Cryptographie" by General L. Sacco. It is a 1951 French translation of the third edition of the Italian original and contains a great deal of material not previously [redacted]. This book, for which I would like to be paid 1200 francs or \$3.40 if AFSA wants to keep it for the library, is forwarded as Enclosure (c). It will be noted near the bottom of page 6 that an acknowledgment is made to Commandant Arnaud,

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"Enfin, il faut savoir gre au Commandant E. Arnaud d'avoir bien voulu se charger de revoir avec le plus grand soin la traduction et les epreuves."

He is also mentioned in the bibliography on page 370 as the translator of Item 224 B, "Histoire de la Cryptographie" by Fletcher Pratt. I believe this is the book published in the United States under the title "Secret and Urgent".

14. Finally, to make the record complete, some Paris telephone numbers are:

Colonel Veyron LaCroix - INValides 8500, Ext. 529
Commandant Arnaud - INValides 6870, Ext. 3333

- 3 Enclosures (1 copy each)
- (a) Cdr Chiles' memorandum presented to French, in French & English versions
 - (b) Information furnished in response to (a)
 - (c) "Manuel de Cryptographie" by Gen. Sacco, 3d Edition (French translation 1951)

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