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Interview Dr. Dulany Terrett, Signal Corps Section, Office of Military History, and Captain Frederick Reinstein, Signal Corps Rese with Mr. William F. Friedman and Captain Mark Rhoads, Signal Corps Reserve,
Wednesday, 17 May 1950, 1300 hours.

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Mr. Friedman spoke first of the recent passage of the Forrestal security bill, which imposes such stringent penalties that we wondered whether we ought to leave then and there, without going beyond the opening pleasantries. However, I stated very firmly what I had said on other occasions of talking with him and Captain Rhoads: that I had no wish to waste either his time or mine on topics which would be likely to remain under security classification, because the History is a document designed for publication. On that basis, we talked. At the end of an hour and a half, I returned to the use I would make of the Signal Corps intelligence story, and explained that I wanted to have Mr. Friedman see whatever I wrote on the subject even before it goes to review here in the Office of Military History. I think he was relieved, and I know I shall be when I get it out of the way, for I am determined to forego the entire subject rather than risk the faintest contention of having revealed any secrets. The real problem lies not there, but in the use of materials in the public domain, like the 39-volume series of Pearl Harbor reports, which make Intelligence unhappy. Regarding them, Intelligen has persuaded itself that if nobody mentions them again, nobody will think of them again. I don't think that the opposite Intelligence is quite so thickheaded as to forget unless we remind.

In any event, this was the substance of our talk:

Interview with W.F. Friedman, 17 May 1950

When Friedman and wife went to work for Signal Corps in 1921 it was on a contract basis for six months. At end of second six months she dropped out and he became a Civil Service employee. In 1922 the Code and Cipher Unit, OCSigO, had one clerk besides Friedman.

Beginning in 1921 he gave a two-week course at Monmouth for officers. The next year it was made a regular course of the officer curriculum and continued to be offered till about 1931.

Friedman's other duties in his first years consisted of working out field codes, WD staff codes, MI code and the WD Telegraph Code. He also started certain cryptanalytic studies and laid down methods and principles. He even wrote technical papers.

Not until about 1930, when the new duties devolved on the SC, did Signal Intelligence Section acquire additional civilian personnel. Four men came in as cryptographic assistants via Civil Service. They have been with Signal Corps ever since.

Until the war shadows began to darken in 1938-9 the Sig Intell Sect remained a small organization. Training a nucleus of expert civilian cryptanalysts and code and cipher compilers was its main object. Fortunately, beginning in the fall of 1931 (?) Signal Corps officers began to receive training in the Section. They were expected to learn cryptographic techniques and become proficient in supervising code and cipher work. By December, 1941 about a dozen officers had been given this training but on Pearl Harbor day less than half were engaged in SC cryptographic work.

Another source of officer personnel for cryptographic work was the Japanese language officers assigned to Sig Intell Sect after tour of duty in Japan. This began by the late Thirties but never involved many officers.

As a result of the limited and unlimited emergencies, Sig Intell Sec began to build up so that by 7 Dec 41 there were about 35-40 civilians and three officers in the newly created Sig Intell Service. (Arlington Hall site was chosen because it was about the right size though it should have been some 40 miles from Washington. Buildings begun about 1939.) The Service was activated in 1938 for administrative reasons: easier to get funds (?).

Gen. Mauborgne supported cryptography quite strongly. Reason why he ordered Friedman to concentrate on Jap codes in 1939 was that U.S. had always anticipated that its enemy lay to the East, and could depend on the British to handle Germany and Italy. There was an understanding between us and G.B. about this division of work. Mauborgne evidently was a bit worried about Japan by 1939— enough so to order a concerted attack on the Jap codes and ciphers.

Cryptanalysis was not an organized, regular activity of Sig Intell Sec in 1920's and early 1930's. The chief obstacle was shortage of foreign cryptograms. The first monitoring station for this purpose constructed at Monmouth (when?) and then transferred in turn to Ft. Hancock and Ft.(?) Hunt. For another thing, there was little encouragement within the SC or G-2 to proceed with crypt analysis; there was a widespread feeling that it wasn't right for us to engage in this sort of underhanded stuff.

(Interview continued)

It was because Friedman, more or less on his own initiative, dabbled in this field of cryptography that his later accomplishments with Jap codes xxx were possible. Until Yardley's office was closed, SC did almost no cryptanalysis. But after Friedman took over Yardley's records and the SC was authorized the solution of enemy cryptograms during wartime, a slight impetus was given.

Friedman never discussed Yardley's work with the latter (while N.Y. office was open) but knew somewhat what Yardley was doing. Not much cryptanalysis was accomplished in N.Y. because the unit there had the job of turning out a shipping code for a private firm; it didn't keep very good office hours; and Yardley was mixed up in a number of outside activities. (Friedman thinks that Yardley was a better administrator than cryptanalyst and that breaking of Jap code in 1920 more the work of Yardley's subordinate (L.F., who is now with State Dept.) than of Y.

In 1929 a study was made by Major Owen S. Albright (SC) of WD cryptography. Because N.Y. office not well organized he recommended that its solution duties be turned over to SC. (Stuart Heintzelmann headed MI in 1929.) Not clear how instrumental Friedman was in the closing down of N.Y. office.

The closing down may have been decided upon even before Stimson became aware of its work on 15 May 1929. Friedman even believes that Hoover was responsible for the withdrawal of State Dept funds; rather Yardley told Friedman this. Since State was contributing annually 15,000. by 1929, and WD $10,000., latter decided it could not foot the entire bill and so the N.Y. was closed. This does not mean that officials in State Dept did not appreciate value of N.Y. office. However, they had no authority to continue it once State brass decided otherwise.

It may be said that in years 1930 to 1935 cryptanalysis in WD lagged, primarily because there was no impetus from top WD officials and because Sig Intell Sect found it so hard to get cryptograms. Another factor was shortage of SC personnel and funds. At one time about only source of foreign cryptograms was what Mauborgne could pick up with his small intercept station at the Presidio in Calif.

IBM tabulating machines began to be purchased (4 machines) in 1936 though some were used a short time before, and paid for by QMG. These machines did the work of many clerks and were most valuable in code and cipher work.

As for encoding and enciphering machines, these were developed and in use before the war. SIGABA was conceived by Friedman and developed jointly with Navy. SIGCUM was conceived and developed solely by SC. They proved their worth in the war and it is Friedman's opinion that our codes and ciphers surpassed the German and Japanese. Whether they were better than the British, F would not say. He hold patents on SIGABA and SIGCUM but hasn't realized a dime yet.

As for the EM trained at Arlington Hall during the war, many of them went out with Sig Intell Detachments. Few went into cryptanalysis because we already had trained civilian experts (check this).

It would appear that SC was short in officers (cryptographic) when war cam but we were set up to expand xxxx rather easily. Equally important, the most important code machines were already in use and we had quite a body of codes and ciphers. Latter far superior to what was available in WW I. We seem to have made greater strides in code work between the wars than did Germany. England is a question mark Friedman would not discuss.

QUESTIONS

1. What was the main activity of the Code and Cipher Unit prior to 1929-30?

   Training + compilation of codes & ciphers.

2. ~~When did the Signal Intelligence Section begin to gird for World War II?~~

3. In the 1930's what percentage of the activities of the Signal Intelligene Section ~~were~~ was devoted to cryptanalysis of foreign messages?

   1930-35 very little done in cryptanalysis.

4. How successful was the Signal Intelligence Section in producing expert civilian cryptanalysts?

   Quite successful.

5. When a Signal Corps officer completed the two year course in the Signal Intelligence Section, what was he qualified to do well? In the event of war, would he be expected to be a compiler of codes and ciphers? No. A cryptanalyst? No.

   Officer would know techniques to supervise crypt. work.

6. Were mobilization plans re signal intelligence followed when World War II boke out?

   More or less (?)

7. Was Arlington Hall visualized just as it came to develop?

8. In 1940 and 1941 what percentage of EM who transferred from the code clerks' school at Ft. Monmouth's RTC made good at Arlington Hall?

   EM given additional duty for SI detachments. Some went into field crypt. work.

9. How did the Army's code and ciphers used in World War II stack up against those used by England, Germany, Japan?

   Better than German & Japs.

10. Was the Army Field Code a success in WW II?

11. When were SIGABA and SIGCUM developed?

    Before the war.

12. ~~Were~~ Were the Hollerith machines in use when Pearl Harbor came along? Had ~~it~~ they been replaced, and by what?

    Some sort of tabulating machines were used.

[illegible]

[illegible] Code - Sig Serv (1921 -)

[illegible] Hessian [illegible] for six months for code. After one year he came [illegible] employee of Mr. F. [illegible].

[illegible] few field codes + WD [illegible] codes + M I [illegible] + [illegible]. Code produced. In addition certain studies in cryptanalysis [illegible] certain methods + principles. [illegible] also wrote tech. papers.

Begin in 1921 F. gave [illegible] for 2 weeks. [illegible] around 1932. [illegible] until about 1931.

(Sig C)
In 1929 [illegible] S. [illegible], of WD Crypt. [illegible] 6-2 function (solution) to [illegible] 0.
On 15 May 29 [illegible] first [illegible] translation.

(15 [illegible] [illegible]) 25 ago.

[illegible] in 1929.
F [illegible] seems.

1930-35 very few cryptographers [illegible].
[illegible] police cryptograms [illegible].
[illegible]

[illegible] responsible for [illegible] in 1938.

[illegible] 2 officers trained in Sig [illegible] actually [illegible] Dec. 41.

1. When did SC receive responsibility for compiling codes and ciphers?

Had it from the start.

2. Was the Code Compilation Section of G-2 (in WW I) staffed largely with SC personnel? How long did Colonel Gibbs retain control of tiny MI unit in 1917?

Section to have been absorbed by G-2 except for Gibbs.

3. What were the units of Code and Cipher Section of G-2 (MI-8)? Was there a code and cipher solution unit, as Yardley says?

4. Did CSO have <u>any</u> control over MI-8 during WWI?

No.

5. When did SC begin to use signal intell. units in the overseas departments for training?

See Rowlett notes

6. Did the SC ~~or War Dept~~. know well in advance that Yardley's N. Y. office would fold in fall of 1929?

Knew at least 2 months before because Friedman received
Albright in his visit to N.Y. early in 1929.

7. What were the reasons for Signal Intell. Service being created in April, 1938?

Mr. administrative reasons.

8. Why did Mauborgne ask Friedman and his people to concentrate on Japanese codes? Had SC ever before broken any Jap codes? Other foreign codes?

Was worried about Japs and was looking hard
on Japs as potential enemy. No Jap codes broken
before 1940.

9. Exactly what was meant by "magic" when it was used in 1940-41?

10. What was the strength of SIS in 1938, 1939, 1940? Were any really new functions assigned to SIS between 1938 and 1941?

About 6 civilians in 1938 + Maj. Rowlett
After - the same people were brought in gradually.
Funds were the problem.

11. What was Gen. Mauborgne's influence on crytography while CSO? Gen. Olmstead?

Mauborgne encouraged crypt. art but was never
to assign more officers & big detail. Service.

12. When did the SIS really gear for war, get on a war footing?

In 1929 it got its major functions
in Code Section some people + equip, were made
available.

By time of PH. there were about 35-40 civilians & 3 officers in Sig Intell Service. Increases began about 1939.

By late 1930's language officers were assigned to Sig Intell Sect for duty.

Site of Arlington Hall selected because of required size.

Comm. sec. ... better than Jap & German.

SIGABA & SIGCUM conceived by Sig C personnel and [illegible] — conceived & devel. by Sig C. — [illegible] Brit before the war.

Tab. Machines came into Sig C ~~about~~ in 1936.

13. In the early 1930's it was expected that mobilization requirements for crypt. personnel would be about 170 officers. How far off was this planning?

We were far short - officers & clerks
We were getting well geared for war operations.

REF ID:A72912

Cryptography

Questions

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12. When did the SIS really gear for war, get on a war footing?

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WF came to Sig C 21 Jan 21 on contract. His work ... field code, WD Telgf Code, Staff codes, MI code.

On his own initiative did studies in cryptanalysis, set up principles and methods, wrote texts and technical papers. From 1921 gave a regular course at Sig Sch, 2 weeks to Officers Div

1929 Allright, at Army Section of G-2, made a survey, recommended consolidation of Sig C, AGO and MI functions.

Rhoads, [Cole] Cordeman, Hayes, Becker