January 30, 1939

MEMORANDUM for the Executive Officer:

The following study with respect to the duties of the Chief Signal Officer, in so far as the preparation of codes and ciphers is concerned, has been made in connection with the question as to whether the present Signal Intelligence Service is a field or departmental agency.

### I. Law and Regulations:

- 1. There is no specific law which places the responsibility for code and cipher work on the Chief Signal Officer. The Act of October 1, 1850 (10:212 U. S. C.), which states in part that, "The Chief Signal Officer shall have charge, under the direction of the Secretary of War, of all military signal duties and of works, papers and devices connected therewith\*\*\*", may be interpreted to include codes and ciphers. Army Regulations, which have the effect of law, definitely place this responsibility on the Chief Signal Officer.
- 2. Par. 1741, A. R. 1901, charges the Chief Signal Officer, among other duties, "with the preparation, distribution and revision of the War Department Telegraph Code." This same provision is contained in Par. 1528, A. R. 1904; Par. 1574, A. R. 1908; and Par. 1578, A. R. 1910. Par. 1556, A. R. 1913 charged the Chief Signal Officer with the "preparation and revision of the War Department Telegraph Code" and the distribution of the code was charged to The Adjutant General.
- 3. Par. 2 e, A. R. 105-5, Jenuary 14, 1922 and Changes No. 1, October 20, 1923, and Par. 2 e, A. R. 105-5, December 15, 1926, states: "The preparation and revision of the War Department Telegraph code and such other codes and cipheres required by the Army."
- 4. Par. 2 e, A. R. 105-5, Changes No. 1, May 10, 1929, and Par. 2 e, A. R. 105-5, May 16, 1929, states: "The preparation and revision of all codes and ciphers required by the Army and, in time of war, the interception of enemy radio and wire traffic, the goniometric location of enemy radio stations, the solution of intercepted enemy codes and cipher messages and laboratory arrangements for the employment and detection of secret inks."
- 5. Changes No. 2, Per. 2 e, A. R. 105-5, July 1, 1937, states: "The preparation, publication, revision, storage, accounting and distribution of all codes and ciphers required by the Army and in time of war the interception of enemy radio and

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wire traffic, the goniometric location of enemy radio stations, the solution of intercepted enemy code and cipher messages and laboratory arrangements for the employment and detection of secret inks."

### II. Preparation of Codes:

1. The War Department Telegraph Code was published in 1885, 1900, 1906, 1915 and 1919 (file 19452). There is no record of the personnel engaged in the preparation of this code prior to 1901 and it is assumed this work was performed by commissioned officers. The Annual Report of the Chief Signal Officer for the fiscal year ending June 30, 1901, contains the following paragraph:

"The preparation of this code has developed upon the Chief Signal Officer personally as there was no other available officer having knowledge of telegraphy, contined with a familiarity with military usages, special vocabularies, and the cable regulations and nethods of the world."

The following is a chronology of subsequent events:

- a. May 22, 1913, Harry B. Kirtland was employed as a code specialist at 1200 per month in the Signal Service at large for the purpose of revising the War Department telegraph code of 1906. His services were terminated on December 12, 1914.
- b. Mr. John R. Browning, clerk-stenographer, was employed at \$1000 per annum in the Signal Service at large to assist Mr. Kirtland.
- c. April 11, 1919, the Chief Signal Officer, A. E. F. advised the Chief Signal Officer that the Code Compilation Section of the Signal Corps composed of Major H. R. Barnes, Lt. W. B. Chambers, Lt. Mark J. Ryan, 2nd Lt. Lewis Hale, 2nd Lt. J. J. Gillchrist and three enlisted men, was returning to the United States. "This section has been solely engaged since 1917 in the construction of the various Army codes both for the front line and for headquarters purposes." (N. D. Telegraph Code, 1919 SIS).
- d. November 4, 1919, Order No. 100,700 was placed with Pr. Howard R. Barnes, 3632 Tenth Street, N. M., Washington, D. C., for services in connection with the reconstruction and revision of confidential Staff code and he was paid from Signal Service of the Army appropriation. He completed this work on April 29, 1920 amount paid \$1250.
- e. October 29, 1920, letter from Director, Military Intelligence Division (4131-607 M. I.) states that as a result of a conference on October 26, 1920, between Major Hoorman, Colonel

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Curtis and Major Moore, the code and cipher work to be performed by the Signal Corps would consist of the following:

- "a. The Signal Corps, under the supervision of the M. I. D. will undertake the compilation of such codes and ciphers as may be required. Before publication, these are to be approved by this Division of the General Staff.
- "b. The Signal Corps understands that the solution of codes and ciphers is a function of the Hilitary Intelligence Division but will instruct its officers in the Pasic principles of such solution as one of the most effective means of impressing them with the importance of proper use of authorized codes and ciphers.
- "c. In its search for officers for the construction of codes and ciphers, the Signal Corps will give preference to those skilled in their solution on the ground that such mon are best qualified to devise systems difficult of solution and further that with such men the Signal Corps will be in a better position to furnish any aid which may be requested by the Military Intelligence Division.
- "d. Codes and ciphers on their completion will, unless otherwise ordered, be turned over to The Adjutant General for distribution." (311.5 Codes Folder No. 1)
- f. December 6, 1920, Order No. 101, 166 was placed with William F. Friedman, Easton and Batavia Avenue, Geneva, Illinois, for services in connection with the reconstruction and revision of a confidentall staff code and the construction of three field codes at a cost of \$1800, to be paid from Signal Service of the Army funds.
- g. July 7, 1921, Order No. 1C1, 5/7 was placed with Millian F. Friedran, Easton and Batavia Avenues, Ceneva, Illinois for services in connection with demonstration of codes at Camp Alfred Vail, N. J., at a cost of 145, to be paid from Signal Service of the Army funds.
- h. February 28, 1921, Order No. 101, 303 was placed with William F. Friedman, Easton and Eatavia Avenues, Geneva, Illinois, for services in connection with the reconstruction and revision of two field codes at a cost of \$700 to be paid from Signal Service of the Army funds.
- i. July 27, 1921, Order No. 101, 573 was placed with William F. Friedman, 1803 Connecticut Avenue, N. W., Washington, D. C., for services in connection with the preparation of a monograph on military cryptography and for services in connection with the delivery of a course of lectures and conduction a course of instruction in cryptography at Camp Alfred Vail, ... J., at a cost of \$450 to be paid from Signal Service of the Army funds.

- J. August 1, 1921, Order No. 101, 581 was placed with William F. Friedman, \$203 Connecticut Avenue, N. W., Washington, D. C., for services in connection with the revision and reconstruction of two special editions of the Field Code, five energency code lists for use in the field and thelve sets of eigher tables to be used in connection with the Stuff Code, at a cost of \$3350, to be paid from Signal Service of the Army funds.
- \*k. Movember 16, 1921, recommendation was submitted to the Secretary of War for the employment of William F. Friedman as cryptanelyst, 34500 ptr annum, Signal Service at large, Lashington, D. C., under Section 10 of Rule II Civil Service Rules, which was approved December 7, 1921. (201 Friedman, Fr. F.)
- 1. October 25, 1923, James J. Skelly, Clark-typist was employed at 31200 per annum in the Signal Service at large, Vashington, D. C. as an assistant to Mr. Friedman. He was discharged for cause May 15, 1929. (201 Skelly, James J.)
- reference to the organization of the Signal Intelligence Service consequent upon taking over the Code and Cipher Solution and Secret Ink Services from M. I. D., at which It. Col. Membili, Major Plair Najor Albright and Mr. Friedman were present. Among other things it was concluded than the primary function of the Signal Intelligence Service was to be one of training personnel for war. It was also determined that to accomplish this mission, the organization of the following services was involved:

Code and Cinher Committion
Code and Cinher Solution
Intercept and Conjonetric
Secret Ink (231.7 Cryote wigst)

- a. December 16, 1929, funds in the sum of MARGARE were allotted by the Assistant Chief of Stuff, 9-2 to the Chief Signal Officer P/A NID-3/ P 5205A 1310-0 for payment of personnel engaged on code and eigher work.

organization required for successful functioning of Signal Intelligence sections in war time." (231.2 Cryptanalyst)

- p. January 13, 1930; above recommendation was approved by the Jecretary of War.
- q. March 1, 1930, Mrs. Louise N. Nelson (nec Newkirk) was appointed as Assistant Cryptographic Clerk 21620, Signal Service at large. (201 Nelson, Louise N.)
- r. March 26, 1930, authority to employ one cryptenalyst at \$312.50 per month, Signal Service at large, Washington, D. C., was requested of the Secretary of War. "The transfer of the responsibility for the solution of enemy codes and ciphers in time of war from the Military Intelligence Division, General Staff, to the Chief Signal Officer included the taking over of practically all of the records and files of the Military Intelligence Division. These records and files constitute an extremely important source of information that is of great value to the War Department as a whole and will be of inestinable value to the Signal Intelligence Service now being established to carry out the assigned mission of organization and training for efficient operation in time of war. The only man known to the Signal Corps and to the Military Intelligence Division who is qualified to do the work described in this letter is Mr. Herbert O. Yardley. --- " (231.2 Cryptenalyst).
  - s. March 29, 1930, approved by the Secretary of War.
  - t. April 1, 1930, F. B. Rowlett appointed junior cryptanelyst at \$2000 per annum, Signal Service at large, Pashington, D. C.
  - u. April 10, 1930, A. Sinkov appointed junior cryptanalyst at \$2000 per annum, Signal Scrvice at large, Washington, D. C.
  - v. April 21, 1930, S. Kullhack appointed junior cryptenalyst at \$2000 per annum, Signal Service at large, Washington, D. C.
  - w. April 22, 1930, letter from The Adjutant General, file Ag 311.5 (4-14-30) Pub.

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"2. c. Army Regulations 165-5, as amended by Changes No. 1, places the responsibility for the following activities upon the Chief Signal Officer:

(1) Code and cipher compilation.

(2) Code and cipher solution.

- (3) Interocption of energy radio and wire traffic.
- (4) Togation of enemy radio transmitting stations by contrastric acons.
- f) Laboratory arrangements for the en-

The fundmental reason for placing the reason with the first is that all correlated duties upon the Chief Fignal Affiner is that all correlated duties in connection with searct communication may be essigned to one operating agency for efficiency of operation. To serve this purpose these duties will be organized by the Chief Signal Officer into 4 single coordinated service.

"c. Within the discretion of the Chief Lignal Officer it is suggested that 'dignal Intelligence Service' to the designation for this coordinated service.

"3. The general mission of this service is, as for all other military services, the proper organization and development in peace time to the end that the service may be propered to operate at Laxinum efficiency in wer.

"4. The specific missions of this service may be stated as follows:

"A. The proparation and revision of all codes, ciphers and other means of secret communication to be employed by the Army in time of peace and wer.

"Note: In this connection it should be noted that in accordance with current army Regulations this office is responsible for the printing of codes and cinhers, for their distribution in accordance with distribution tebles prepared by the Chief Signal Officer, and for their accounting."

z. April 30, 103C, authority requested to curloy one cryptanalyst wide: at \$1800 per annum, Signal Bortice at large, Washington, D. C. in connection with compilation of codes, preparation of ciphers and cipher tables, resourch on new oryptographic methods and machinery, research in the solution of codes and ciphers as required by Changes Fo. 1, A.R. 105-5, (231.2 Cryptanalyst)

y. May 1, 1930, above recommendation approved by . Secretary of War.



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- z. May 13, 1030, J. B. hurt appointed cryptamalyst aid at \$1800 per annum, Signal Service at Large, Washington, D. C.
- aa. June 1, 1930, H. O. Yardley declined appointment as cryptanalyst 2312.50 per month.
- bb. September 2, 1930, Lawrence Clark was appointed assistant cryptanalyst clork \$1620 per annum, Signal Service at Large, Washington, D. C.
- cc. August 23, 1935, authority of Secretary of War requested for employment of one assistant cryptographic clarations annum, Signal Service at Large, to replace Laurence Clark. Approved August 26, 1935.
- dd. September 28, 1935, authority of Secretary of Mar requested for temporary employment of one senior typist \$1440, Signal Intelligence Section. Signal Service at Large. Approved October 1, 1935. (231.3 Clerks)
- ec. January 1, 1936, H. F. Bear ecappointed assistant cryptographic clark \$1620, Signal Service at Large.
- ff. January 2, 1936, Lorraine C. techens accointed Junior Stenographer \$1440 per annum, Signal Intelligence Service, Signal Service at Large.
- gg. June 3, 1936, Authority of Secretary of Var requested to employ 1 junior cryptanalyst "2000, Signal Service at Large, to replace A. Sinkov, transferred to Fanane. Approved June 5, 1936. (231.2 Cryptanalyst)
- hh. July 1, 1936, R. C. Ferner appointed junior cryptanalyst \$2000 per annum Signal Service at Large, Washington, D.C.
- ii. August 17, 1936, S. S. Snyder appointed assistant cryptographic clerk \$1620 per annum, Signal Service at Large.
- jj. February 1, 1937, authority to employ 1 junior cryptanalyst \$2000 per annum, Signal Service at large, Washington, D. C. requested, to replace S. Kullback, transferred to Hawaii.
- kk. February 3, 1937, above approved by Secretary of War.
- 11. April 16, 1937, M. A. Jones appointed junior cryptanalyst #2000 per annum, Signal Service at Large, Washington, D. C.
- requested for employment of 1 assistant cryptographic clerk \$1620 per annum, Signel Service at Large. Approved February 21, 1938. (231.3 Clerks)

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nn. Marchil, 1938, authority of Secretary of War requested for temporary employment of 1 junior stenographer \$1440 per annum, Signal Intelligence Service, Signal Service, Signal Service at Large. Approved March 2, 1938. (231.3 Clerks)

oo. March 28, 1938, P. S. Cate appointed assistant research analyst \$2600 per annum, Signal Service at Large, Washington, D. C.

pp. July 1, 1938, Mary L. Prather appointed assistant cryptographic clerk \$1620 per annum, Signal Service at Large, Washington, D. C.

qq. July 1, 1938, Margaret A. Will appointed assistant cryptographic clerk \$1620 per annum, Signal Service at Large, Washington, D. C.

### III. Budget Estimates:

1. Provision has been made in the Eudget Estimates under Project 1. Signal Service of the Army, for personnel for the Signal Intelligence Service as follows:

	1922	to	192	4	
	-	1	Cry	tanalyst	<b>\$</b> 4500
	1925	to	197	8	
		ı	Cry	tanalyst	5200
	1929	ţ	19	31	
		1	Cry	tanalyst	\$5600
	1932:				
	_	3	Jr. Cry		3360
		7			17060
	1933	-	Pro	ject 1:	
		3	Jr Cry Ass	Cryptanalysts \$2100 tanalyst Aide t. Cryptographic rks \$1620	\$5600 6300 2000 3240
•			•	•	



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1934	and	1935	+ Project	1:
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l	Cryp	tanalyst	\$5600
. 3	Jr	tanalyst Cryptanalyst 22100	6300
. 1	Cryr	tanalyst Aide	1800
÷2	Asst	· Cryptographic Clerks	
	\$168	C TOPOGETOPHIC OTEFAS	3360

# 1936 - 1937 - Project 1:

1 Cryptanalyst 22100 2 Cryptanalyst Aide 2 Asst. Cryptographic Clerks 21680	5600 6300 1860 3360
7	<u> ፕሬተርስ</u>

## 1938 - Project 1:

1 Cryptanalyst 5 Jr. Cryptanalysts \$2060 1 Cryptanalyst Aide 4 Asst. Cryptographic Clerks \$1650	5600 10300 1860 6600
II i	24.360

# 1939 - Project 1:

3 1 5	Cryptanalyst Assoc. Cryptanalysts \$3200 Research Analyst Jr. Cryptanalysts \$2060 Asst. Cryptographic Clerks *1650	5600 9600 2600 10300 6600
14		34.700

## 1940 - Project 1:

1 Cryptanalyst 3 Assoc. Cryptanalysts \$3200 1 Research Analysts 2 Asst; Cryptanalysts \$2600 5 Jr. Cryptanalysts \$2060 1 Cryptanalysts Aide 5 Asst; Cryptographic Clerks \$1644	5800 9600 2600 5200 10300 1800 8220
TO 4	13520

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### 1940 - Project 24:

"Required for Signal Intelligence Service. The expanding activities of this scrvice and additional personnel requested in Project 1 are the basis for the increase in equipment and surplies - \$1320.

Office equipment, including labor saving devices \$1100
Office supplies 220

IV. Status:

1. The Comptroller General has defined departmental and field work as follows:

"The executive departments of the Government execute the laws which Congress enacts through the instrumentalities sometimes designated 'departmental' and 'field' establishments. What is known as the 'field force' is engaged directly or indirectly in locally executing the laws, while the 'departmental force' is engaged in general supervisory and administrative direction and control of the various field forces. (21 Comp. Dec. 709, 711)

"If officers or employees are directly under the direction, supervision, and control of a Government department, establishment, or bureau reporting directly to the head thereof, their status is that of departmental officers or employees; but if they are directly under the direction, supervision, and control of a local field organization, reporting directly to the head thereof, their status is that of a field officer or employee." (27 Comp. Dec. 122)

"What is known as a 'field' force is engaged, directly or indirectly, in executing the laws locally, while a 'departmental' force is engaged in general supervisory and administrative direction and control of the various field forces. Various general laws, such as the postal laws, must be executed in the District of Columbia as well as elsewhere. A force engaged exclusively in the local execution of such laws in the District of Columbia is a field force as much so as a like force in any other section of the country. It is only in this sense that the term 'field' force may properly be applied to the District."

(5 Comp. Gen. 272.273)

"A force engaged exclusively in departmental work, that is, in general supervision and administrative direction and control of the various field forces, even though with head-quarters outside of the District of Columbia - in this instance at Baltimore - is hevertheless a departmental force as much so

as the departmental force in the District of Columbia." (17 Comp. Gen 565)

- 2. It will be noted from the alove quoted decisions of the Comptroller General that classification as to departmental or field work is based solely upon the character of the work involved, i.e., if the work consists of the supervision and administrative direction and control of the various field forces it is departmental work; if the work is performed locally and is other than the supervision and administrative direction and control of the various field forces, it is field work. It is immaterial where the work is performed. Departmental work may be performed outside the District of Columbia, while field work may be performed inside the District of Columbia, and in buildings housing departmental activities, as, for example, the Finance Officer, U.S.Arny.
- 3. The present Signal Intelligence Service was organized as a "single coordinated service" in accordance with the direction contained in letter from the Adjutant General dated April 22, 1930, file AG 311.5 Pub. (4-14-30), paragraph 2 w above. As stated in the above mentioned directive, its general mission is "as for all other military services, (underscoring supplied) the proper organization and development in peace time to the end that the service may be prepared to operate at maximum efficiency in war", while its specific mission is "the preparation and revision of all codes, ciphers and other means of secret communication to be employed by the Army in time of peace and war".
- 4. The Signal Intelligence Service as at present organized is composed of 1 combissioned officer and 14 civilian employees and is operating under authority of paragraph 2 A. R. 105-5. Under this Army Regulation the Chief Signal Officer has intediate charge of "the preparation, publication, revision, storage, accounting and distribution of all codes and ciphers required by the Army". There are no specific directions as to now these duties are to be accomplished. That is a decision which is left to the Chief Signal Officer as an administrative officer of the Government, appointed by the President and confirmed by the Senate. In the discretion of the Chief Signal Officer, the duties assigned may be performed in his immediate office or by a field agency already organized or one created for the purpose.
- 5. As early as 1913 it was determined that the work of revising the War Department Telegraph Code was a function of the Signal Corps of the Army, rather than that of the Office of the Chief Signal Officer, and accordingly a code specialist and a clerk were employed for this work and paid from the Signal Corps of the Army Funds. (Par. 2 A and b above)
- 6. In 1917 the concilation of all codes required by the Army was a function of commissioned officers of the Army (Par. 2c above) and not those assigned to the office.

- 7. In 1919, 1920, and 1921 the preparation of codes required by the Army was considered as a Signal Corps function rather than a function of the Office of the Chief Signal Officer and such codes as were required were procured under contract for which Signal Corps funds were used.
- E. Since 1921, all personnel engaged in the compilation of codes and since 1930, when the cipher work of the Military Intelligence Division was assigned to the Signal Corps, all personnel engaged in that work have been paid from Signal Corps funds and from those allotted from the appropriation, "Contingencies, Military Intelligence Division", a military organization.
- 9. The primary mission of the Signal Intelligence Service is to train personnel in code and cipher work for service with the Army in time of war (per. 11 lm above) and the preparation and revision of all codes, ciphers and other means of secret communication to be employed by the Army in time of peace and war. (Par. 11 l w above) There is nothing in the files to indicate that the training of personnel for service in the Army is a function of the Office of the Chief Signal Officer. This is a military or field function and not a departmental function. Likewise, the preparation of the codes is under the supervision of the Military Intelligence Division, War Department General Staff (A. R. 10-15), which is not a bureau or office of the War Department listed in A. R. 310-10.
- 10. It is apparent, therefore, that the Signal Intelligence Service is a field activity for the following reasons:
- a. For over a quarter of a century the preparation of codes and ciphers has been a function of personnel paid from field appropriations, i.e. Pay of the Army, Signal Service of the Army, and Contingencies, Military Intelligence Division.
- b. The employment of field service personnel on these duties has been authorized by the Secretary of War, the Director, Military Intelligence Division, and the Director of the Eureau of the Eudget, and expenditures therefore have been passed without question by the General Accounting Office.
- c. The Signal Intelligence Service is not a departnental organization as it is not engaged in "general supervisory
  and administrative direction and control of the various field
  forces" since there is no other field force engaged on similar
  or comparable duties.
- code and cipher work constitutes a field force, as defined by

the Comptroller General, and have been paid from Signal Corps appropriations since 1913, it is logical to conclude that all of the services, supplies and equipment required by this field force to perform their duties should be provided from field appropriations, for which adequate provision should be made in the Signal Corps budget estimates.

Edward Barnett, Civilian Assistant

February 1, 1939

#### MEMORANDULI FOR THE EXECUTIVE OFFICER:

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I have just received from New Cumberland Depot, the attached records, which I intended to use in connection with my study of the status of the S.I.S. These files are I believe fairly representative of those pertaining to the supply of the S.I.S and have been selected at random from data available in this office.

- P 36328 dated January 6, 1933 calls for 1 mimeograph machine and accessories for the Signal Intelligence Section approved by the OIC, S & I Section and Furchase Section.
- P 36449 dated January 27, 1933, calls for supplies for the mimeograph machine which were likewise purchased in Washington, D. C.
- R 3 dated December 28, 1933, calls for miscellaneous supplies and equipment for the Signal Intelligence Section all items (30) of which except 4 were procured by the Purchase Section; the 4 items referred to were procured by MY PD.
- R 76 dated January 15, 1934, calls for nineograph supplies and pencil leads for the Signal Intelligence Section which were produced by the Purchase Section.
- R 2856 dated April 12, 1935, calls for 2 card index cabinets for the Signal Intelligence Section which were procured by the Purchase Section in Washington.
- R 1711 dated September 27, 1934, calls for 4 cabinets and 4 extra shelves for the safe storage of codes which were procured by the Furchase Section.

It will be noted that the requisitions state specifically that this equipment and supplies are for the Signal Intelligence Service and that no question was raised by the Supply Division as to the legality of their purchase even though the Signal Intelligence Service was considered a part of the War Plans and Training Division. Since the Signal Intelligence Service is now a field activity separate and distinct from the War Plans & Training Division, it would appear that there is less doubt as to the legality of supplying this service from Signal Corps funds as there was in previous years.

Edward Barnett Civilian Assistant