

(1) William F. Friedman

(2) Signal Service at Large, Washington, D. C.

(3) Principal Cryptanalyst

(4) \$5600

(5) \$6000

(6) None

(7) Mr. Friedman has demonstrated exceptional ability as a cryptanalyst, not only in executing the technical details of the work involved, but also in administration, research and instruction along these lines. He is, without doubt, the leading authority on codes and ciphers in this country. He is often consulted by other governmental agencies and renders valuable assistance to them in the solution of their problems connected with secret communication in general. In 1929 responsibility for the solution of enemy codes and ciphers and the preparation and detection of secret inks was transferred from the Military Intelligence Division, General Staff, to the Signal Corps. Until this time, the Signal Corps has responsibility only for the compilation of codes and ciphers for the use of the Army, and for intercept and radio goniometric work in war time. Mr. Friedman has been in charge of these activities since 1921. The newly transferred responsibilities connected with solution of enemy codes and ciphers, and the preparation and detection of secret inks necessitated the organization of a new service termed the Signal Intelligence Service of the Signal Corps. Mr. Friedman was placed in charge of the Signal Intelligence Section of the Office of the Chief Signal Officer, under the Officer in Charge of the War Plans and Training Division. Mr. Friedman has been largely responsible for organizing the work of the new section, has prepared both residence and correspondence courses of instruction for cryptanalysts, and, in addition, has conducted all the regular work of the section in compilation and solution of codes and ciphers. He has demonstrated his fitness to carry the additional large responsibilities entailed by the transfer of code and cipher activities of the Military Intelligence Division as noted above. Since his original appointment in 1921, carrying compensation at the rate of \$4800 per year, the two increases in compensation he has received were the result of automatic adjustments in salary scales occasioned by the Reclassification Act of 1924 (from \$4800 to \$5200) and the Welch Bill of 1928 (from \$5200 to \$5600). When the solution activities now under Mr. Friedman were conducted by the Military Intelligence Division, the salary of the Chief of the Code Section thereunder was \$7500 per year.

(8) To a large extent on his own responsibility.

(9) Supervises work of following:

3 Junior Cryptanalysts	@ \$2000
1 Cryptanalyst Aide	1800
2 Assistant Cryptographic Clerks	1620

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- (10) Efficiency rating (May 15, 1930) - 95, lineal number in salary range: 1
- (11) Cryptanalytic activities are not conducted outside the government service, Mr. Friedman is the only Principal Cryptanalyst in government service. His position is classified as P-6 in "Preliminary Class Specifications of Positions in the Field Service, 1930" (page 177).
- (12) From December 31, 1921 to date.
- (13) Same as under (12)
- (14) Last promotion, automatic, under Welch Act, May 28, 1928, from \$5200 to \$5600.
- (15) Mr. Friedman graduated with the degree of B.S. from Cornell University in 1914 and continued thereat for two years as an instructor in the University and student in the Graduate School doing work for doctorate degree. In 1916 he joined the staff of the Riverbank Laboratories at Geneva, Illinois, becoming Director of the Genetics Department thereat. At this time he became interested in cryptography as an avocation and found such special aptitude for the work that the Director of the Laboratories, in view of the probable entrance of the United States in the World War, organized a Cipher Department, placing Mr. Friedman in charge, in addition to his other duties. From January 1917 to June 1918 he was director of this department of the above-mentioned Laboratories, which, as a war-time establishment operated for the benefit of the government during the war. From June 1918 to April 1919 he was First Lieutenant, M. I. D., U. S. A., in charge of code work in the G-2 section of GPO-AEF. From April 1919 to December 1920 he was again director of the cipher department Riverbank Laboratories. From January 1920 to December 31, 1920 he was engaged as consultant in code work for the Office of the Chief Signal Officer, Washington, on a contractual basis. He entered the Civil Service on December 31, 1921 under the provisions of Section 10 of Rule II of the Civil Service Act. His practical experience in the cryptographic field within the past fifteen years has been more extensive than that of any other person in this country, and it may be said that his experience, ability, and success, in this type of work make him preeminently the leading authority on codes and ciphers in this country. As such he was commissioned in 1928 to prepare the article on this subject for the New Encyclopaedia Britannica.
- (16) With reference to this item, see copy of Memo dated January 4, 1930 to Major Coles, Fiscal Division, O.C.Sig.O. I understood that Research & Development Division would make provision for this increase to be included in estimates for FY 1932, since Mr. Friedman was then under the supervision of the Research & Development Division.

## WAR DEPARTMENT

Office of The Chief Signal Officer

Washington

October 20, 1930

## Civilian Personnel

Signal Corps Civilian Personnel Board (THROUGH Executive Officer, Office of Chief Signal Officer).

1. Reference is made to a letter dated October 7, 1930, from the Chief Signal Officer, subject as above, The data called for under the above-mentioned letter are applicable to the civilian personnel of the Signal Intelligence Section of this division, since the employees of this section are carried on the rolls as field employees of the Signal Service at Large.

2. The specific recommendations set forth below under subparagraphs (a), (b), and (c) are submitted for the consideration of the Board. Accompanying the recommendations of subparagraph (a) are completed questionnaires drawn up in accordance with the instructions contained in War Department memorandum of February 18, 1926, addressed to Chiefs of Bureaus having field services.

(a) Increases or decreases in compensation.

Specific Recommendations for Increases as below:

<u>Name</u>	<u>Recommended Annual Pay</u>	<u>Increase</u>
William F. Friedman	\$6000	\$400
Frank B. Rowlett	2200	200
Solomon Kullback	2200	200
Abraham Sinkov	2200	200
John B. Hurt	1920	120
Lawrence Clark	1740	120
Annie Louise Newkirk	1740	120

(b) No new positions are considered essential at this time.

(c) No positions can be eliminated without manifest injury to the activities under my jurisdiction.

3. The paragraphs which follow are in connection with the

*Incl 1<sup>2</sup>*

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recommendations contained in subparagraph (a) above, especially as regards the new personnel of the Signal Intelligence Section. Although the information given may have no direct bearing upon the subject at hand, viz , recommendations for promotions, it is presented in order to afford the Board some background for special consideration of the factors involved in their cases.

4. Until 1929, so far as code and cipher work is concerned, the Signal Corps was charged with the responsibility for only the preparation and revision of codes and ciphers for the use of the Army, and the production of cipher devices and machinery. Only a small amount of research in the solution of codes and ciphers was involved. From 1921 to 1929, these code compilation activities were conducted by a section consisting of two persons, viz., a cryptanalyst and a clerk. Under Change No. 1, Army Regulation 105-5, (May 10, 1929), responsibility for all work connected with codes and ciphers, including the solution of enemy codes and ciphers and the preparation and detection of secretinks, was transferred from the Military Intelligence Division, General Staff, to the Signal Corps. The Principal purpose of this transfer was to concentrate all work connected with codes and ciphers under one authority, so that a permanent, continuously operative organization for cryptographic work could be established during peace time, which, as a result of a proper organization and training, would be prepared for immediate and successful operation in war time. As a consequence of this transfer the organization of a Signal Intelligence Service was proposed, the headquarters section of which was to be maintained in the Office of the Chief Signal Officer as one section of the War Plans and Training Division. The interest that the Military Intelligence Division took in this proposal and the importance with which its prompt accomplishment was regarded by them may be gauged by the fact that they provided funds for the operation of the proposed Service for the remainder of the fiscal year 1929, viz., \$6666.66, and for the whole fiscal year 1930, viz., \$10,000.

5. The first step in the organization of the Signal Intelligence Service was the transfer of what has theretofore been the Code and Cipher Compilation Section, O.C.Sig.O., from the Research and Development Division, O.C.Sig.O., to the War Plans and Training Division, O.C.Sig.O., This involved only Mr. William F. Friedman and Mr. James J. Skelly, the latter was discharged soon thereafter, and his position abolished. The next step was to obtain additional personnel for the Signal Intelligence Service. This necessitated much careful study of organization, type of personnel required, the nature of the positions to be filled, restrictions of the Civil Service Act, etc. All of this had to be of the nature of pioneer work in an uncharted field, for there existed no equivalent organizations of this kind anywhere in the government service. Finally a

carefully planned schedule of positions was drawn up to be used as a guide in obtaining the personnel desired. This schedule, attached hereto as Exhibit A, was submitted to and approved by the Chief Signal Officer. Funds made available by the Military Intelligence Division together with funds already available in the O.C.Sig. O. were sufficient to permit of the immediate creation of six new positions, viz., three Junior Cryptanalysts, one Cryptanalyst Aide, and two Assistant Cryptographic Clerks. Authority to establish these new positions and to fill the vacancies was obtained from the Secretary of War and the matter was then taken up with the Civil Service Commission. After many months of careful study of Civil Service rosters of various kinds, the individuals herein recommended for promotion were selected on account of their apparent character and latent ability. They were given to understand that this office is seeking to establish a permanent corps of trained experts in cryptography and that on one who was not disposed to make this work his life work would be engaged.

6. The latter factor deserves special consideration, Cryptographic work is a specialty among certain few restricted governmental activities. Work of this kind, particularly as regards solution activities, is not conducted in business and even in the government service the personnel engaged in cryptographic work is extremely limited. Counting the personnel in the Signal Intelligence Section, there are in the entire government service not more than ten or possibly a dozen persons employed for cryptographic and cryptanalytic studies. The consequences of this peculiar situation are obvious, the longer a person stays in so a restricted field, the more dependent he becomes upon the particular position for which he has qualified and which he occupies. Should the position be abolished, or funds for its continuance become unavailable, all of his training and accomplishments in this work avail him nothing in gaining a livelihood elsewhere, because there is no demand for services of the kind he can perform and because his long years of work in this specialty have not fitted him for other kinds of work. Should no provision be made for promotion consistent with advancement in skill, there is no opportunity to offer his services elsewhere to organizations where they might be more appreciated and better rewarded. It is therefore evident that very restricted activities of this kind impose amoral obligation of those who are responsible for their conduct, to see to it that the young persons they engage for these activities, who demonstrate aptitude for the difficult work, earnestness and sincerity of purposes, and loyalty, should be warranted in adopting a feeling of security of tenure of position and of certainty of substantial recognition of accomplishment on a par with that which they might have obtained in other fields of endeavor where these factors are the basis for advancement.

7. It is believed that due consideration of the necessity for long continued training in this type of work, the unusual combination of high grade intelligence and undoubted character required, places this group of employees in a considerably different category than those normally employed by the Signal Corps. This is apparent when it is realized that practically all other classes of employees may be obtained from the open market, whereas it is essential that the Signal Corps devote several years and much money to the training of specially selected individuals in order to produce qualified cryptographic personnel. This is especially true of those filling the cryptanalyst positions, for they have already devoted many years to professional studies and training and must yet undergo special instruction of several years duration in cryptographic studies. It is therefore my opinion that the new employees would be justified in assuming that the Signal Corps is not living up to its obligations, if an initial increase is not provided in the near future. Furthermore, it would be only logical for them to feel that future recognition of their services would likewise be quite problematical and possibly without results so far as financial advancement is concerned. Since age was an important factor in the selection of these individuals, even after a year or two of training, all of them would still be young enough to profit by a change to some other activity wherein the prospects of advancement might be considerably greater and therefore there would soon come the desire to separate themselves from the Signal Corps, with a consequent loss to the service of all the time and money expended in their training.

8. The training of the newly acquired personnel is progressing rapidly and time will shortly arrive when steps must be taken to furnish strategic corps areas and departments with Signal Intelligence Sections to be composed of two Junior Cryptanalysts and one Cryptographic Clerk. This will require the taking in of an equivalent number of additional employees under the same classifications until such time as the above-mentioned corps areas and departments have been completely supplied. In this connection it may be pointed out that duty in the Signal Intelligence Service will impose the same type of personal restrictions as are imposed upon military personnel, in that they will be expected to perform the duty at stations not subject to their own selections.

9. The foregoing facts are believed to explain the necessity for regular increases in their pay, reasonable in amount and consistent with their progress and length of service, and to the end that no dissatisfaction may be engendered through the failure of the Signal Corps to look properly to their interests.

10. If consistent with the rules of procedure of the Board, it is desired that I be given an opportunity to appear before the Board, in person, with the view to indicating more clearly the peculiar conditions involved in the development and operations of the Signal Intelligence Service.

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D. M. Crawford,  
Major, Signal Corps.

Attached:

7 Completed Questionnaires,  
Copy of memo to Fiscal Division,  
Exhibit A - Schedule of positions  
in the Signal Intelligence Service.

SIGCP-2 (28 Aug 51) 1st Ind  
 SUBJECT Request for Job Descriptions

Department of the Army, OCSigO, Washington 25, D C , 14 September 1951

TO Department of Defense, Armed Forces Security Agency, Washington 25, D C

1 In response to request in basic communication regarding job descriptions for William F Friedman for the years 1921 and 1930, it is believed that all personnel records for Mr Friedman, a Signal Service at Large (field) employee, were forwarded to the Army Security Agency in conjunction with the transfer of Mr Friedman. However, a search has been made of records and regulations and the inclosed copy of correspondence and answers to a questionnaire, dated October 30, 1930 relating to the position of William F Friedman were found in Signal Security Agency files maintained by OCSigO. As evinced by these data a questionnaire system was used when submitting recommendations for promotion of SSL employees during the 1926 - 1930 period.

2 In all probability, there would be no job sheet for Mr Friedman for the year 1921. It would appear that prior to the establishment of the Classification Act of 1923, official job sheets were not required for civilian employees. According to records of other field employees in 1921 recommendations for promotion of SSL employees, including very brief synopses of duties, were forwarded in letter form to the Office, Secretary of the Army. If the latter type of record for Mr Friedman during the 1921 period is in existence, it should be in his 201 file at the Army Security Agency.

3 The Records Administrator, OCSigO, has suggested that your office might request the National Archives for any available data on Mr Friedman under reference codes 319 1, Payroll and 248 8, Increase and Reduction in Salaries, as those codes were used in correspondence on SSL promotion matters in 1921.

4 If data and references suggested are not satisfactory to complete your requirements, this office will be glad to check for possibility of other reference codes.

FOR THE CHIEF SIGNAL OFFICER:

*G J Brislin*

2 Incls  
 1 Cy of Ltr, dtd 20 Oct 30  
 2, Answer to Ques (in dup)

G J BRISLIN  
 Asst Chief, Class & Wage Admin Section  
 Civilian Personnel Branch