

WAR DEPARTMENT
Office of the Chief Signal Officer
Washington

January 29, 1929.

MEMORANDUM ON HEBERN ELECTRIC CODE MACHINE.

This memorandum is for the purpose of recording the substance of a conference between Lieut. Commander A.D. Struble, U.S.N., Officer in Charge of the Code and Signal Section, Naval Communications, and myself, yesterday afternoon.

Lieut. Commander Struble came to see me with reference to another matter, but in the course of our conversation, the subject of the Hebern Machine came up. Lieut. Commander Struble stated that he had never seen the five-wheel model and asked me if I could show him ours. I did so, and in the course of my explanation the problem of suitably modifying the three-wheel machine which the Navy Department now has, in order to increase the degree of security of messages enciphered by its means, was introduced by Lieut. Commander Struble. I proposed to him that if the present arrangement of an unremovable enciphering-deciphering connection plate in the rear of the five-wheel model were substituted by an arrangement permitting of slipping different plates with different connections into position, the result would be that new entry and exit connections would be possible to establish at will, quickly and with no difficulty. I proposed that the apparatus be so changed as to permit of removing the plate and slipping a new plate into position in the same place it occupies now on the five-wheel model; or it would be possible to have a separate little box provided with a set of fixed contacts and a mechanism for slipping a new plate into position at will. Cables from the machine proper to this plate-box would be an easy matter. In an analogous manner, a removable entry-exit controlling plate could be provided for the present three-wheel printing model which the Navy Department has. The latter is provided with a revolving base, the principal function of which is to provide for the enciphering-deciphering relationship which is equivalent to the laterally movable plate in the rear of our five-wheel model.

I then further proposed with respect to such a readily removable entry-exit connection-controlling plate that the electrical connection arrangements on the plate could be such that the changes in connections might be made while the plate is in situ, by plug and jack arrangement or flexible cord contacts

or the like. Lieut. Commander Struble indicated, with respect to these proposals, that he and his cryptographic staff had previously clearly understood how the secrecy features could be improved by modifying the machine so that the connections controlling the entry and exit points of the ciphering movable disks could be changed at will, quickly and with no difficulty. Lieut. Commander Struble stated that my latter proposal concerning a plug and jack arrangement or flexible cord contacts had been proposed previously by his cryptographic staff, but that the idea had not been further developed at that time as it did not appear suitable for naval use, and as other features for improving security were under consideration which appeared to be suitable. Lieut. Commander Struble stated that my proposal of a sliding removable plate was novel to him, and might be practicable for naval use.

I pointed out the advisability of protecting the interests of the Government in the matter, and therefore the substance of the conference has been reduced to writing.

William F. Friedman
 W. F. Friedman,
 Cryptanalyst, Signal Corps.

Navy Department,
 Code and Signal Section,
 Washington, D.C.

1 February 1929.

The foregoing is a substantially correct version of the conference held between Mr. Friedman and myself.

A. D. Struble,
 Lieut. Commander, U.S.N.,
 Officer in Charge,
 Code and Signal Section.