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SIGSALY
File

SPSIF-2

9 August 1944

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Project
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MEMORANDUM for: File

Subject: SIGSALY Conference

1. Conference was held on 8 August 1944 in Room 7-110C with the following present:

Mr. A. J. Eusach-Bell Telephone Laboratories	
Major L. D. Frehn	} SSA
Capt. D. F. Hoth	
Lt. C. R. Summers	

A number of items relating to the security and operation of the SIGSALY were discussed.

2. Mr. Eusach brought with him and turned over to Lt. Summers a record of about 11 minutes of key obtained from the SIGLUSE. This material was requested by Lt. Summers through Capt. Eswick for use in making security studies.

3. For the past year, the Bell telephone laboratories has been making a comprehensive security study of the SIGLUSE. They now feel satisfied as to the security of the equipment. A report is being prepared, a copy of which will be made available to the SSA. In connection with this security study a special machine aid was designed which was capable of recording the output of the SIGLUSE and the signal at various points within the machine. It is also capable of making certain computations with respect to the signal. The Bell telephone laboratories were anticipating disassembling the machine or modifying it for other purposes. However, Mr. Eusach felt that they would probably be willing to sell the machine to the Signal Corps if so desired. Mr. Eusach agreed to investigate further the possibility of turning the machine over to the Signal Corps and he will attempt to get an approximate price. It was suggested by Major Frehn that Lt. Summers be sent to the Bell laboratories

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to look over the machine and see whether it would be useful to the Signal Corps in their security study work. He also suggested that Lt. Summers talk to the Bell Laboratories' mathematicians concerned in this work. Mr. Dusch felt that this would be possible.

4. The Bell Laboratories have in their possession two SIGROB equipments which were built and used by them for training purposes and for security studies. These equipments are Signal Corps' property and it is expected that they will be turned over to the Signal Corps about 21 August 1944. Mr. Dusch said that it had been proposed that these equipments be installed at the Washington SIGSALY terminal for use in training maintenance personnel. If they are badly needed for security studies, arrangements could probably be made to have them installed at Arlington Hall instead.

5. Mr. Dusch said that of the troubles experienced with the SIGLUS, 80% had been traced to the SIGCUMS. He feels that a tremendous improvement could be obtained in the functioning of the SIGLUS if the SIGCUM troubles could be corrected. He said that, due to these troubles, the use of the SIGLUS was restricted to about 10% of calls, the remainder being enciphered using SIGRUV. One plan for reducing SIGCUM troubles would be to modify the circuit arrangements to use 13 duplicate paths rather than 26 paths now used. This would reduce the frequency of trouble considerably. Mr. Dusch feels that the security of the rest of the equipment is sufficient that this change would not reduce the overall security appreciably.

6. Of the remaining troubles, Mr. Dusch said that about 60% result from operating errors. He feels that most of these could be eliminated by simplifying the key changes which are now made between contacts. He feels that it is unnecessary to change rotors between contacts and that new rotor settings would be sufficient. Mr. Dusch also feels that the 6 minutes now allowed between starting the SIGLUS and transmission of the signal is more than is necessary and favors reduction of this time to 3 minutes.

D. P. Seth
Capt., Signal Corps

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