

## FOREWORD

The information enclosed in this folder was prepared for use by Mr. W.F. Friedman as the basis of a lecture to be given before student members of the ASA Officers Course Part II, on 10 February 1948.

Tab A concerns the Army Security Agency participation in the formation of the Army-Navy Crypto-equipment Coordinating Committee. Tab B discusses the Army Security Agency relations with the Signal Corps and the present status of agreements.

This material will also be used to supplement a chapter in Volume V, History of Signal Security Agency, entitled Command, Coordination, and Liaison.

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**RELATIONS BETWEEN THE ARMY SECURITY AGENCY  
AND THE SIGNAL CORPS**

From December 1944 to 6 September 1945 the Signal Security Agency was responsible to the Chief Signal Officer for all matters of communications security and to the Assistant Chief of Staff, G-2 for signal intelligence operations. This period of dual control was terminated when the Army Security Agency was organized under the direct control of the Director of Intelligence, War Department General Staff.

Provisions of the Adjutant General letter of 6 September 1945, which officially established Army Security Agency, placed the responsibilities for all phases of the protection of classified communications in the hands of the Chief, Army Security Agency. The Chief Signal Officer was charged with the responsibility of furnishing all communication facilities required by ASA organizations. These provisions required more specific agreements between the two agencies; therefore, a program for very close liaison was initiated.

Actually liaison with the Signal Corps can be broken down into three phases:

1. Planning for future types of communications and the facilities.
2. The research and development of communications and security equipment.
3. Providing users with equipment facilities to satisfy their needs.

Since the operation of security equipment cannot in any way

be divorced from communication facilities either under present circumstances or in the future, the problem of adaptability of each type of equipment is concerned in all three breakdowns. An important way in which both agencies are informed of changes in equipment or other facilities, other than by correspondence or informal discussion, is by ASA representation on the Signal Corps Technical Committee. Action at these meetings which concerns the initiation of new projects and the cancellation of others particularly effect the issuance and distribution of cryptographic material and equipment. Standardization of design, spare parts, and components also effect our operations in research, development, production, and installation.

Planning: Liaison in the planning of future communications has been concerned principally with approaches to an integrated communication system to provide for any type of transmission. Although the basic communication plan is being worked out without extreme difficulty, the incorporation of security equipment in the system is a problem which at the present time has no solution.

In other plans for the future consideration is given to the feasibility and advisability of miniaturizing equipment by the use of subminiature electronic tubes, printed circuits and various shortcuts still in the stages of research and development.

Research and Development: After thorough discussions

representatives of the Assistant Chief of Staff, G-2, and the Chief Signal Officer decided the line for the division of responsibilities for research and development, the second phase of liaison, could not be drawn decisively. Cryptographic equipment might be utilized with communications equipment or it might be an integral part of a piece of communication equipment and these differences in equipment were used as a basis for the agreement between the two agencies (Tab 1).

Terms of this agreement charge the Chief, Army Security Agency, with responsibility for research and development of cryptographic equipment which is utilized with communication equipment but is not an integral part of such equipment and does not materially effect the operation of that equipment. He is also responsible for providing the Chief Signal Officer with specifications of the cryptographic principles and circuits for research and development of communication equipment containing cryptographic elements as an integral part. An additional responsibility is that of approving or disapproving any specifications of cryptographic principles or circuits presented by the Chief Signal Officer.

Plans for coordinating the research and development of communication equipment and security equipment were made by representatives of the Chief Signal Officer and the ASA at a conference on 8 April 1946.

The following conclusions and agreements were

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reached:

1. To improve and facilitate the coordination there is a need for more frequent discussions between the ASA and the SCEL at policy, staff, and working levels down to and including the project engineers. Accordingly "cryptographic clearance" should be obtained for those SCEL personnel who are directly concerned with the development of communication equipment which is to be used with security equipment.

2. There would be an exchange of liaison personnel. SCEL would send a liaison engineer to the ASA and the ASA would send a liaison engineer (or officer) to SCEL. It was understood that initially the liaison activity would in all probability be full-time. However, details in this connection would be worked out further between ASA and SCEL after the exchange had been made and activity surveyed.

3. There would be an exchange of development programs. One copy of the "Report of the SCEL Wire Committee", dated 11 October 1945, was made available to the ASA representatives in connection with the discussion of the basic communication plan. Copies of the development program on radio equipment are to be made available to ASA, as soon as they are completed.

4. A further conference would be held at which:

a. SCEL would present its proposed development program for radio equipment.

b. ASA would present its proposed development program for security equipment.

c. Any modifications to the wire and radio communication programs which the Army Security Agency would recommend from the security viewpoint would be discussed.

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1. Letter to CSO, SPSGD from Col. J.D. O'Connell, Director of Engineering, 17 April 1946, subj: Coordination with Army Security Agency.

Until the present time the personnel status at the Army Security Agency has prohibited the assignment of liaison personnel to the Signal Corps Laboratories but active liaison has been maintained by the project engineers. In fact the informal liaison conducted in this manner has been considered entirely satisfactory.

In order that the security regulations are upheld the Army Security Agency secures cryptographic clearance for the personnel from the Signal Corps. Lists of liaison personnel are exchanged and also maintained on a current basis to provide for changes in personnel assignments. The ASA list includes a member of Staff who attend meetings in which policies are discussed.

In attempts to coordinate the initiation of new lines of research and development the Signal Corps sends to the Agency research and development project cards and quarterly technical reports which contain resumes of the projects and statements of the status. These reports and cards are circulated among the Divisions and Branches of the Agency for information. The engineers then may establish liaison on the subjects which are of interest in their work. When this Agency is contemplating a project which might be of interest or come under the cognizance of the Signal Corps,

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2. All correspondence relating to S.C. liaison and all requests for liaison are prepared by ASA, Staff.

the matter is referred to the Signal Corps before a research and development project is established.

The greatest share of information is provided by the Signal Corps since the work of this Agency is highly specialized and highly classified. The Engineering and Technical Service, OCSigO, is especially interested in the development of equipment which can have widespread application throughout the Army. In order that equipment developed at Army Security Agency may conform to Signal Corps design, its standardization data governs much component selection. The ASA engineers concerned with teletype equipment development become familiar with Signal Corps development of connectors, relays, and similar components; the engineers on eiphony equipment maintain constant liaison on Signal Corps radios for which they were designing an encrypting arrangement; and engineers concerned with intercept projects confer on the subjects of recording mechanisms and non-Morse processing equipment.

The Signal Corps also cooperates with Army Security Agency in the development of its equipment. Such cooperation is evident in the development of facsimile equipment.

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3. Many specialized items of equipment have no direct bearing on cryptographic equipment, but are required in operations peculiar to the Agency. Since they would have no other application within the Army, the Signal Corps is not interested in the development. Therefore, the ASA undertakes its own development after the proper coordination.

The status of the development of encrypting components or cifax equipment has placed a few limitations upon certain phases of facsimile transmission and the Signal Corps is making all new developments adaptable to these limitations. In ciphony equipment the same condition exists.

The Army Security Agency, however, does have items of research and development which are of interest to the Signal Corps. Among these are the development of a half-band telephone system using the principle of frequency-halving and doubling; fundamental pitch derivation; high-frequency multicouplers, antennas, and transmission lines; high-precision recorders; an electronic-governed dynamotor; miniature telegraph relays; and special vacuum tubes. Technical reports, and status reports on these subjects are furnished to the Signal Corps as well as engineering reports received from the contractors.

Provision of Equipment and Facilities to Users: The third phase of liaison, that of providing users with facilities to satisfy their needs, is initiated by the Signal Corps. An outside organization furnishes the Signal Corps with detailed communication requirements and if security equipment is necessary the Signal Corps confers with the Army Security Agency. From then on until the project is completed close liaison is maintained.

In most cases the responsibility for the installation

and maintenance is divided. The Signal Corps procures and installs the necessary transmitting and receiving equipment and provides the requisite circuits and power supplies. Modifications of the teletype machines or radios, which are necessary for the on-line operation of the security equipment, are accomplished by ASA personnel. The training of Signal Corps personnel for the operation and maintenance of the entire circuit is done at Vint Hill Farms Station and in AS-85 at Arlington Hall.

In the case of the SIGTOT equipment only does the responsibility of the Agency end with the completion of the installation and the training of personnel. Thereafter, the Agency acts as a service organization in furnishing the required tapes to maintain the necessary security in SIGTOT communications.

For all other security equipment, however, Army Security Agency controls the issuance, distribution, the use of system indicators, and all other phases necessary to maintain adequate security.

The most recent example of coordination with the Signal Corps in providing users with security equipment was the design and layout of a Cryptographic Van as one part of a 6 or 7 part mobile signal center destined for use within each of the armies.

The complete plans for the Cryptographic Van including detailed specifications and blue prints, were furnished the Signal Corps Engineering Laboratories by this Agency. When

one van was nearly complete it was delivered to Arlington Hall and personnel of Security Division performed all the necessary wiring and tests to insure efficient operation.

Budgets, Contracts, Supplies: From the foregoing discussion it can be seen that the transfer of funds from one organization to the other is sometimes necessary. Although the transfer is usually a matter of routine the subject leads to the question: "By what means is the ASA budget submitted for approval and how does the Agency carry out its necessary purchases and contracts?"

The ASA budget and all fiscal affairs are at present handled through the Fiscal Division, Office of the Chief Signal Officer, on a project basis. This plan has been in effect since the organization of the Army Security Agency and has provided the funds necessary to carry on our operations. There are many pro and con views on the advisability of continuing these channels but the present status seems to be satisfactory. For one reason the Office of the Chief Signal Officer has had long experience in the defense of budgets such as ours, while a budget for our operational needs is entirely new to Intelligence Division. The problem of the security of our operations is not one

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4. A discussion of these arrangements and documents supporting them are included as Section L, Annual Report of ASA Staff, Fiscal Year 1946.

of major importance for in no case are the funds for research and development broken down. The request for Project 610, (research and development), 221 (construction), 421 (maintenance) and other funds are lumped with those the Signal Corps and the budget estimates are then submitted to the Budget Officer, Department of the Army, for forwarding to the Bureau of the Budget and to Congress. Any cuts or additional appropriations are shared proportionately between the two agencies. In specific cases where additional funds are needed this Agency appeals directly to the Director of Intelligence and the matter is settled without much ado.

The authority for purchasing and contracting functions was not quite so clear cut. When the Army Security Agency was organized, the AG letter establishing the Agency placed all such functions in the hands of the Army Security Agency. However, until 1 July 1946 the status of such functions was quite unstable and the situations resulting were somewhat embarrassing.

During the month of February 1946 the War Manpower Board conducted a survey of this installation and as a result saw no reason for the Army Security Agency to be encumbered with purchasing channels when such channels were readily available through the Signal Corps.

The recommendations of the Board came down through the Commanding General, Army Service Forces, for the action

of Brigadier General Frank E. Stoner, Chief, Army Communication Service, OCSigO. General Stoner, in view of the experience and knowledge gained while Signal Security Agency was a part of Army Communications Service, maintained that ASA purchasing and contracting functions should be divorced from the Signal Corps. His reason was based upon the question of security. Under the Signal Corps, the correspondence and associated records of classified material would be distributed among several offices outside the Agency and, therefore, would be open to widespread compromise. In other words if the Agency were to maintain adequate security it should be allowed to do so.

However, after 1 July 1946, a branch office of the Office of the Chief Signal Officer was established at Arlington Hall Station for the purpose of procuring all items which required contractual negotiations. The office was known as the Army Security Agency Purchase Section of Procurement Branch under the Procurement and Distribution Division, OCSigO.

The procurement of supplies is also accomplished through Signal Corps depots by Supply Branch, AS-62. Although some delays are encountered in deliveries because of the numerous channels and the great amount of paper work involved, these arrangements are amicable and no changes in policy are contemplated at the present time.

5 January 1946

**MEMORANDUM FOR THE CHIEF SIGNAL OFFICER****SUBJECT: Research and Development Responsibilities.**

1. After thorough discussion between representatives of the ACoFS, G-2 and the Chief Signal Officer, it has been concluded that there can be no rigid division of responsibility between the Military Intelligence Division and the Chief Signal Officer relative to the research and development of cryptographic equipment which is an integral part of the communication equipment. It has also been concluded that it is essential that the closest cooperation and coordination be effected between these two agencies in this matter. It is recognized that it is necessary that the Chief Signal Officer be in a position to fulfill his responsibilities for providing the Army with adequate communication facilities. Likewise, it is recognized that it is necessary that the Army Security Agency of the Military Intelligence Division be in a position to discharge its responsibilities for providing the Army with secure cryptographic equipment and material. Accordingly, the following general division of responsibilities in the research and development of cryptographic equipment are agreed:

a. The Chief Signal Officer will be responsible for research and development of communication equipment containing cryptographic elements as an integral part thereof and the Chief, Army Security Agency will be responsible for providing the specifications of the cryptographic principles and circuits of any cryptographic elements in such communication equipment, and for analyzing for the purposes of approving or disapproving any specifications of cryptographic principles or circuits presented by the Chief Signal Officer arising incidental to the research and development of communications equipment. In the event of disapproval of the cryptographic principles or circuits so presented, any faults in principles or circuits will be disclosed, to the greatest extent consistent with security, to cleared personnel selected by the Chief Signal Officer to the end that the Chief Signal Officer may benefit from such analysis.

b. The Chief Signal Officer will not undertake the development of a cryptographic component, which is an integral part of a piece of communication equipment, with-

out full participation in such development by the Army Security Agency. In this connection, it will be the responsibility of the Chief, Army Security Agency to furnish necessary liaison officers or engineers at Signal Corps Engineering Laboratories to participate in the research and development of any cryptographic or secrecy elements which are to be included as an integral part of communication equipment.

8. The Chief, Army Security Agency will be responsible for the research and development of cryptographic equipment and material which is not included as an integral part of communication equipment and for the research and development of cryptographic equipment which is utilized with communication equipment but is not an integral part of such equipment and does not materially affect the operational functioning of such equipment.

2. If a fundamental difference of opinion arises during the development of communication equipment and remains unresolved between the communications engineers of the Chief Signal Officer and the communication security engineers of the Army Security Agency, the matter will be referred to the respective Chiefs who will consult on the matter, after which the Chief Signal Officer will be responsible for making a decision in the matter.

3. The Chief, Army Security Agency, will remain responsible for service and cryptanalytic tests of all cryptographic equipment and secrecy devices.

4. Action will be initiated by this Division to amend War Department letter, AG 322 (4 Sep 45) OB-S-B-M, 6 September 1945, subject: Establishment of the Army Security Agency, in accordance with the above.

CLAYTON BISSELL  
Major General, GSC  
Assistant Chief of Staff, G-2

SPSEC-4 (5 Jan 46)

1st Ind.

ASF, OCSigO, Washington 25, D. C., 12 January 1946.

To: Assistant Chief of Staff, G-2, WDGS.

Amendment to War Department letter, AG 322  
(4 Sept 45) OB-S-B-M, 6 September 1945, subject: "Estab-  
lishment of the Army Security Agency", in accordance  
with the provisions of the basic memorandum is concurred  
in.

H. C. INGLES  
Major General  
Chief Signal Officer