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WAR DEPARTMENT
Office of the Chief Signal Officer
Washington 25, D. C.

17 APR 1947

MEMORANDUM to Director, Plans and Operations Division, WDS.

1. Reference is made to "Memorandum for General Eisenhower, SUBJECT, Military Communications Objective, dated 27 March 1947", and Inclosure thereto. Reference is also made to your disposition form directing a conference on the subject of the above Memorandum, 21 April 1947.

2. It is possible that some representatives of General Staff sections attending the conference will not be aware of all War Department policies concerned by the referenced Memorandum. Therefore comments have been prepared below on these policies. For convenient reference, pertinent parts of the Memorandum are quoted and immediately thereafter is found the comment setting forth the present War Department policy and any relevant comment. It is suggested that a copy of this memorandum be furnished to each of the conferees.

3. "In the interest of national security we should work toward the realization of a unified global network designed to satisfy the administrative needs of the Army, Navy, and Air".

This is the objective and policy of the War Department. Inclosure 1 to this memorandum is a joint statement furnished the Hall Board by the Chief Signal Officer and the Air Communications Officer. The Hall Board on Unification adopted this solution of global communications and embodied it in its report. Inclosure 1 has been shown to the Chief of Naval Communications, who concurs generally. A committee under the Joint Communications Board is now engaged in restating the material of the inclosure in form which can be agreed upon and signed by Army, Navy and Air.

4. "It would be the function of this network to make available along its routes channels for global weather, air transport control, inter-command and other communications services. The user would have complete control of the terminals of these "leased" channels. This service by the global net would not be a bar to the installation by the user of communication facilities where the global network does not extend".

This is the policy set forth in Inclosure 1 to this Memorandum. The principle of allocation of channels to users is set forth in some detail in Paragraph 7 of FM 100 - () which is the signal communication doctrine recommended to the Chief of Staff by the War Department Board on Signal Communication doctrine. The recommendations of that Board were generally concurred in by the Army Ground Forces and by the Army Air Forces and are now under study by the WDS.

5. "These strategic networks would be exempt from theater control".

The meaning here is not entirely clear. During World War II, many stations of the global net were terminals of circuits linking the theater to the War Department and were simultaneously the net control station of the theater net. Under these circumstances, it was customary for the theater to furnish personnel for the station and operate it but under the technical control of the War Department net. In addition to such stations, the supervision of the War Department net extended to many tributary stations within the theater. An example of this may be taken from the CBI theater where not only Delhi but Calcutta, Chabua, Hastings Hill, Kunming and Chungking also were under War Department technical supervision and control. The method operated successfully and has certain housekeeping advantages over the method of setting down an exempted station in the midst of a theater.

6. "In fixed point-to-point communications, of which this global network is illustrative, we should make the utmost use of our commercial communications resources, which are acknowledged experts in this field. They would serve not simply as purveyors of equipment, individual talent, and manpower but as organic entities. Particularly in the event of emergency, by contract they would take over technical planning, engineering, installation, maintenance and operation of this facility".

It is and has been the War Department policy to make the utmost use of our commercial communications resources. The commercial companies furnished the cadres for affiliated communication units during the war and the War Department proposes to make even greater use of the affiliated system in the future. All of the key personnel which the companies could spare were commissioned and used to staff and operate the Army Command Net and to fill key positions in the signal communications setup. The demands made on the companies were carefully coordinated with them so that their services would not break down. The Bell system not only served the civilian needs but also furnished the entire domestic long lines network for the armed forces. The Signal Corps alone leased 400,000 circuit miles of American communication facilities during the war. The overseas terminals of the A.T. & T. Co. in New York and San Francisco were taken over and integrated into the global system: Bell personnel continued to operate and maintain these facilities. The entire network of Globe Wireless Inc. was integrated. The Dull Committee, consisting of twelve top experts of the A.T. & T. Co. recommended by Mr. McHugh, functioned constantly in high planning of systems. The Bell Telephone Laboratories devoted its research and development efforts almost entirely to armed forces work and the output of the Western Electric Company was taken by the armed forces except for the trickle needed to maintain the civilian economy. The Bell system built thousands of miles of new toll plant to meet the needs of the armed forces. It installed and operated the post telephone systems in all new continents and in addition took over many post telephone systems at the request of the government. Besides these things, the commercial companies conducted instruction for the armed forces, wrote technical manuals and assisted informally in countless ways. Nor should it be forgotten that the non-key personnel of the commercial companies who were drafted rather than commissioned, were key personnel in the hundreds of signal communication units which served the armed forces. It is difficult to know how greater use could have been made of the commercial communication resources of the country.

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It is the policy of the War Department to make full use of the commercial companies by leasing communication channels from them and having them operate many domestic telephone systems. It is not the policy of the War Department to contract for overseas communications systems from the commercial companies. The reasons for this are many. First, no international circuits are owned at both ends by the commercial companies. War Department communications would therefore be in the hands of foreigners at the distant end of each circuit. In time of war, the War Department has not considered it wise to entrust the administration of signal communication security to civilian control. Commanders are very sensitive about their communications and prefer to have the personnel operating them directly under their control and not to be dependent upon the execution of a commercial contract. There are seven companies operating in the overseas field and it would be difficult either to single out some for contract operation or to operate with as many as seven simultaneously. Any company selected for contract would need not only all its peacetime personnel but much more. To operate successfully, all its personnel, old and new, would have to be exempt from the draft: the policy of deferring all employees of a given company was considered and rejected in World War I, it was not even considered in World War II. Any commercial company selected for contract would have to build its overseas system just as the Armed Forces do: all of its material would have to be secured with permission of the Armed Forces, transported by the Armed Forces: its overseas personnel would have to be transported and maintained by the Armed Forces. Finally, it is inconceivable that military communications should be interrupted by labor troubles and there were instances of civilian labor striking in the combat zones.

7. "The operation of this global communication system should be under an individual rather than committee command authority, answerable directly to the Secretary of National Defense or to the Joint Chiefs of Staff. Conceivably, this network would be made up of integrated components operated by the individual services".

At present, the War Department policy is clearly stated in W.D. Circular 105-5-1 which charges the Chief Signal Officer with installation, maintenance, and operation of the Army Command and Administrative Net. The policy on unification is thus far only that stated in the report of the Hall Board. (See Inclosure 1). Operation under an individual would of course be preferable but under the conditions of unification proposed in pending legislation, such does not appear possible unless the Joint Chiefs of Staff can agree on designating an individual to operate it. The Chief Signal Officer and the Air Communications Officer, therefore, agreed that the network should be operated by a joint agency under the Joint Communications Board. This proposal was made in view of the extreme sensitiveness of the Navy Command to communications. It is felt that at this time the Navy will not agree to a joint global net operating under a single head unless that head is a Navy officer. Under these circumstances, control of the global net by the Joint Communications Board appears to be the only reasonable solution.

Inclosure 1 and the Hall Board propose that the network shall be made up of components operated by the individual services. Both further propose that the operating services shall lease channels to other services from the facilities which it operates.

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8. "Strategic planning of communications should be the responsibility of the Director of Plans and Operations, for it is an integral part of military planning and not a separate technical function".

This statement appears to be at cross purposes with the proposal that a commercial company take over planning by contract.

Strategic planning of military communications is definitely an integral part of military planning. This is expressed clearly and strongly in the signal communication doctrine recommended by the War Department Signal Communication Doctrine Board. It is true at all levels of command: the responsibility in the War Department is that of the Director of Plans and Operations. However, such planning requires not only general military knowledge, but technical knowledge as well. Therefore the planning is done by the signal or communications officer who coordinates the plan with G-3's overall plan. During the War OGD furnished requirements for communication for each operation in the plan process. The technical plan to meet the requirements was worked out by the Army Communications Service and submitted to OGD for approval. Upon approval, the plan was implemented by the Army Communications Service.

Command is so intimately concerned with signal communication that it is believed that frequently commanders and their chiefs of staff will interest themselves closely in signal communication planning, although most details of coordination will remain with G-3. For example, General MacArthur considered this a matter of direct personal interest to him.

9. "Responsibility for the operation of the Army Communications Service - what is logically expanded into a component of the global network (described under I) - is not a logical function of supply. The commander of this network should be associated with a normal operating organization".

The signal communication doctrine proposed by the War Department Signal Communication Doctrine Board makes it very clear that responsibility for signal communications is not a supply function. Coordination of signal communication operations is clearly to be done with G-3 (Director of Plans and Operations in the War Department).

As far as the Army Communications Service is concerned, the Chief of Staff has a normal operating organization. He is responsible to the Chief Signal Officer who in turn is responsible in this matter to the Chief of Staff.

So clearly is this responsibility of Plans and Operations for operation of signal communication understood that the responsibility remained so in spite of the existence of a common channel that denied it. When the Army was re-organized into the IAF, the ASF, and the ASF, the Chief Signal Officer was placed under ASF. However, the Chief of Staff and the OGD continued to deal directly with the Chief Signal Officer in matters of planning and operation, by-passing the intervening General, ASF. The latter did not protest. This irregular existing situation was cleared in a Circular 138, I.D. 1946 eliminating the ASF.

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10. "Responsibility for the development of systems for tactical communications of ground and air forces should rest with these forces, just as the ultimate operational responsibility. This includes specialized communications such as that characteristic of air transport operation, which includes radio and radar navigational aids.

The responsibility does rest upon the ground and air forces but there is a need for coordinating the systems of both forces to the end that all signal communication may form an integrated whole. Signal communication in all echelons should be integrated as far as is possible from an operational viewpoint. This will include standard operational procedures, etc. and interconnection when such does not interfere with the purpose of the components of the overall system. There is a very definite need for integration from the material viewpoint so that American industry is confronted with the task of building as few different types of equipment as possible.

The matter of integration of signal communication and the various responsibilities are dealt with in the recommended signal communication doctrine previously mentioned. In particular, integration is required in the theater signal system which lies between the War Department (or Department of National Defense) network and the major fighting forces in the theater. Paragraph 33 of the proposed signal communication doctrine should be read in this connection.

11. "Although the individual tactical commanders must have control of their own local or tactical communications, allowance must be made for possible interconnection with the global net. This applies to main trunks and particularly where the global network is extended forward with the advance of the forces."

This paragraph is not quite clear. It implies but does not state that the global net operates main trunks within theaters. During the war there was interconnection of the global net with theater signal systems and interconnection of theater signal communication systems with the signal communication systems of the tactical commanders. The policy recommended in the proposed signal communication doctrine is that tactical commanders must have control of their own communications, that these communications must interconnect with the theater signal system and that the latter must interconnect with the global system, the whole forming an integrated signal communication system.

12. "Responsibility for the procurement, storage, and distribution of communications equipment is a normal supply function and therefore a proper function of the Signal Corps in its present organizational relationship to the Directorate of Supply."

This is correct. Procurement, storage and distribution of communications equipment is one of the responsibilities of the Chief Signal Officer; he discharges through the Chief of the Procurement and Distribution Division and the latter's organization. In this function, the Chief Signal Officer is responsible to the Chief of Staff through the Director of SS&P.

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13. "Responsibility for the development of communications and electronic equipment peculiar to the ground forces should be left with the Signal Corps as a supply organization and for equipment peculiar to the Air Forces should be left with the Aerial Command, as a supply organization. This allocation should be reassessed when the problem of unification is resolved."

The above is War Department policy except that it is incomplete and in one particular incorrect. The Chief Signal Officer is responsible not only for development of communications and electronic equipment peculiar to the ground forces but also for such communications and electronic equipment as is common to both ground and air forces. The Chief Signal Officer is responsible for this not as a supply function but as a research and development function for which he is responsible to the Director of Research and Development. The Engineering and Technical Division of the Signal Corps discharges this responsibility under the Chief Signal Officer.

14. "We should work toward a War Department organization in which responsibility for basic research - research of common interest to various technical services and other military fields - is administered directly by a central authority, answerable to the Director of Research and Development."

Present War Department policy is to leave basic research with the Air Force and with the technical services, assigning primary cognizance in various fields as seems best and requiring coordination with other services of the results of research. This policy seems sound in view of the wide field that basic research covers and of the fact that basic research blends rapidly into directed research and thence into development. It is likely that in covering so wide a field as all basic research, the proposed central agency would have to establish subdivisions which would cover the same fields as those now covered in the Air Forces and the technical services. The technical setups which would service these various subdivisions would have to be created, whereas they presently exist in the research and development facilities of the Air Forces and the technical services.

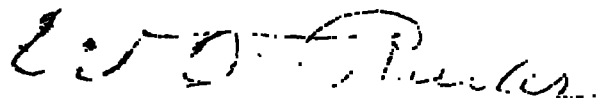
15. "Policies on personnel, administration, and organization should recognize that military communications is a profession in itself, requiring not only able military leadership but able scientists, engineers and managers."

It is believed that this is the policy of the War Department and that in furtherance of this policy, the Signal Corps was established. Certainly the above is the policy of the Chief Signal Officer and of preceding Chief Signal Officers. Frequently the means fully to implement such policy clash with overall War Department policy and must be changed in numerous instances so that the results are not as good as would be liked.

16. "There are no further objectives stated and nothing further is therefore cited from the memorandum. As a general statement, it can be said that the proposed objectives are in nearly every instance present or proposed War Department policy. The outstanding exception is the proposed objective of contracting with a commercial company or companies for military communication in overseas operation.

17. Of interest in connection with this study is a comparison of the organization of the largest of our communications companies and the Office of the Chief Signal Officer. The American Telephone and Telegraph Company is the largest communications company in the world. It is interested in research and development, manufacture of its material, operation of long lines, engineering of its systems, establishment of uniform procedures and in the coordination of operations of its subsidiary operating companies. The Chief Signal Officer is similarly charged with research and development, with procurement and distribution, with operation of a global network, with the planning of communications systems, with the establishment of uniform procedures and with the coordination of the operation of signal communications in the major commands. The AT&T Company places its research under the Bell Telephone Labs whose President is also an official of the parent company. The Chief Signal Officer has organized his research and development facilities in the Engineering and Technical Division whose Chief reports directly to him. The AT&T Company handles its manufacturing in the Western Electric Company whose President is also an official of the parent company. The Chief Signal Officer discharges his similar responsibilities through the operation of the Procurement and Distribution Division whose Chief reports directly to him. The Long Lines Division of the AT&T Company is similar to the Army Communications Service Division whose Chief reports directly to the Chief Signal Officer. For planning purposes the engineering staff of the AT&T Company is paralleled by the Signal Plans and Operations Division of the Chief Signal Officer's office, supplemented with technical assistance from the engineers of Army Communications Service Division. The establishment of uniform procedures is discharged by the Signal Plans and Operations Division assisted by the pertinent parts of the Office of the Chief Signal Officer; the operation is very similar to the process used by the American Telephone and Telegraph Company in its coordination of AT&T and Bell specifications. The coordination of operations of subsidiary companies by the AT&T is, in effect, a staff function and is accomplished in very much the same manner as it would be in the Army.

FOR THE CHIEF SIGNAL OFFICER:



W. O. REEDER
Brigadier General
Deputy Chief Signal Officer

Inclosure: 1

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