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File Development

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SIGEO

7 May 1947

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1. Herewith is draft of report of our subcommittee. Please telephone your concurrence or comments as soon as possible.

2. Should the draft be generally concurred in, I believe it will not be necessary for the committee to meet again.

/s/ W. O. Reeder
 W. O. REEDER
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1 Incl.
 Draft - Report of Subcommittee on Establishment
 of a Unified Global or Strategic Com-
 munications Network

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SUBJECT: Report of Subcommittee on Establishment of a Unified Global or Strategic Communications Network

1. PROBLEM PRESENTED. a. The subcommittee appointed to consider the above subject, concerned itself with the following germane excerpts from Dr. Bowles's memorandum and its attached paper:

- " In the interest of national security we should work toward the realization of a unified global network designed to satisfy the administrative needs of Army, Navy, and Air."
- " It would also be the function of this network to make available along its routes channels for global weather, air transport control, intercommand, 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 communications facilities where the global network does not extend. These strategic networks would be exempt from theater control."
- " 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 the technical planning, engineering, installation, maintenance, and operation of this facility."
- " 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."

- " 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 net should be associated with a normal operating organization."
- " Although the individual tactical commanders must have control of their 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 forces."
- " One of the prerequisites in the field of communications will be a single global or strategic communications net. The least that the merger of Army, Navy, and Air should achieve is the over-all direction of electrical communications, which will insure a single global net at the disposal of the Commander in Chief, his Secretaries, and his Chiefs of Staff for the administration of world-wide military operations. Forewarned as we are of the tempo of any future war, it is inconceivable that this nation could tolerate as a part of its over-all security structure individual communications nets for the three primary branches of the armed forces. Coordination is no substitute for command, particularly when immediate action is vital."
- " At the same time such a global net must be planned to serve not only the over-all command, but also the many specialized operations which depend on global coordination. Sufficient "spare" or "private" lines must be available for use by the Air Transport Command for traffic control, by the weather services for global weather reporting, by Army, Navy, and Air commands for extensive operations like those of the 20th Air Force during the last war, by the intelligence services and the State Department for the rapid transmission of special information, and by other agencies which operate on a global scope. These channels would be leased to the using agencies, thus making unnecessary large scale independent installations of long distance communications facilities. With full operational control of the channel and its terminal equipment, the using agencies will, in effect, have their own communications system."
- " Such a strategic net involves fixed point-to-point communications in which several of our commercial organizations are expert. Companies like Bell, RCA, Mackay, Tropical Radio, and others are in fact more expert than we can ever hope to be. To neglect these civilian resources and their possible contributions to the field of military communications as organic elements would lead to unnecessary duplication and retard progress."

" Therefore, not only must both types of communications nets be independent and complementary at the same time, but they must be interconnectable."

b. Summarizing. Dr. Bowles proposes as objectives for the War Department, a unified global communication network which should "lease" channels to other users when its routes coincided with such users' routes, the system to operate under an individual rather than under a committee, the operator not to be under control of the supply function of the War Department, and the system to be interconnectable where possible to tactical systems. A further objective proposed is the operation of the global system by contract with commercial communication companies.

2. DISCUSSION. a. The global network. The War Department developed during World War II the greatest global communication network the world had ever known, capable of handling more than fifty million words a day. This network has shrunk with the termination of the war and the demobilization. However, it still exists, and the Chief Signal Officer is charged in Circular 105-5-1, 1947 with the operation of this network. The principle of a single global network for command and administration is also stated clearly in paragraph 6 of MEMORANDUM dated 4 April 1946, Subject: "Statement of Approved Policies to Effect Increased Autonomy of the Army Air Forces within the War Department Structure." A War Department Board to restate signal communication doctrine has submitted its proposed doctrine to the Chief of Staff with the concurrence of the Army Air Forces and the Army Ground Forces. This proposed doctrine restates in paragraph 26 the principle of having a single global communications network. It is obvious that continuing War Department policy and objective is a single unified global communications network.

b. The global network should "lease" channels to other users. This was done to a limited extent during World War II, although the scarcity of multi-channel equipment did not encourage this practice. However, this principle is strongly stated in the proposed signal communication doctrine referred to above. Paragraph 7 of that document is a full exposition of the allocation of channels: such allocation is applicable generally in signal communication systems and not merely to the global network. The Chief Signal Officer and the Air Communications Officer prepared a list of joint questions and answers concerning signal communication under unification; these questions and answers embodied a statement of the principle of "leasing" or allocation of communication channels. The policy implicit in these agreed joint questions and answers was adopted by the Hall Board on unification and with the approval of that Board's report, such policy is the War Department policy. Dr. Bowles's proposed objective of "leasing" circuits is and has been for some time the War Department's objective.

e. Global Communication system under unification. After agreeing on the joint questions and answers for the Hall Board referred to above, the Chief Signal Officer and the Air Communications Officer visited the Chief of Naval Communications and his Staff to explain to them the principles thus agreed to in the War Department. The Chief of Naval Communications has indicated general agreement with those principles and a committee under the Joint Communications Board is presently engaged in writing in explicit form the principles to guide the unification of communications among the three services.

- (1) In the unification process, the global system must consist initially of the existing global systems of the Army and the Navy. These have each their own physical facilities and personnel at the present time and such facilities cannot be abandoned in order to produce unified system: they can be operated so as to eliminate any duplication, exchange traffic, and utilize uniform methods and procedures. Work to this end has long been in progress. Personnel cannot be combined to form a single system unless there is a single commander of all the armed forces. There is no question but that signal communication operates most effectively as a monopoly but so long as the services exist on a coordinate level and without a single commander, it appears impracticable to organize a single Long Lines Service to operate a completely unified global network. Any possible organization must parallel the command setup of the three services which will head up in the Joint Chiefs of Staff. It is, therefore, the objective of the War Department to operate a global communication system under unification by the principle of cross servicing and under the control of the Joint Communications Board.
- (2) The objective of a single head for the global communication service does not now appear practicable and will not be until the command setup of the Joint Chiefs of Staff is superseded by a single commander for all of the armed services. In the meantime, the objective of the War Department is as close to single control as is now possible.

d. Operation of global communications is not a supply function.

" 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 that service 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 command channel that denied it. When the Army was reorganized into the AAF, the AGF, and the ASF, the Chief Signal Officer was placed under ASF. However, the Chief of Staff and the OPD continued to deal directly with the Chief Signal Officer in matters of planning and operation, bypassing the Commanding General, AAF. The latter did not protest. This irregular Command situation was cleared when Circular 138, W.D. 1946 eliminated the ASF."

It is not the objective of the War Department to subordinate communication to the supply function.

e. Allowance must be made for interconnection of the global system with tactical systems. During World War II, message traffic passed to and from tactical systems and the global network. Direct interconnection was not always possible; equipment was not sufficiently integrated to permit it. The present Signal Corps program of communication equipment development aims at complete interconnectability between systems or parts of systems. The interconnection of tactical and global nets, either directly or indirectly, must always be possible and is the long time objective of the War Department.

f. The operation of the global system by contract with commercial companies. This proposed objective results in part from the belief that the commercial communication companies were not fully utilized during World War II.

" 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 cantonments 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."

" 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."

The proposed objective is not the objective of the War Department and should never be the objective of the War Department.

3. CONCLUSIONS. The objectives proposed by Dr. Bowles are those of the War Department except in two cases. While the War Department recognizes the desirability of operating global communications under a single head, it also recognizes the impracticability of this at this time and will resort to committee control as the best available substitute. The War Department does not and should not contract with commercial companies for operation of its global network in either peace or war.

4. RECOMMENDATIONS. That the objectives proposed by Dr. Bowles be recognized as being the War Department's present objectives except that control of global communication system by a single head is presently impossible of accomplishment under unification and that operation of the global communication network by contract with commercial companies is neither feasible nor desirable.