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THE GENERAL BOARD

United States Forces, European Theater

SIGNAL CORPS PERSONNEL, TRAINING, AND COMMAND AND ADMINISTRATIVE STRUCTURE

MISSION: Prepare a Report and Recommendations for Submission to the Theater Commander on Signal Corps Personnel, Training, and Command and Administrative Structure in the European Theater.

The General Board was established by General Orders 128, Headquarters European Theater of Operations, US Army, dated 17 June 1945, as amended by General Orders 182, dated 7 August 1945 and General Orders 312 dated 20 November 1945, Headquarters United States Forces, European Theater, to prepare a factual analysis of the strategy, tactics, and administration employed by the United States forces in the European Theater.

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General Reference Branch

File: R 320.2/25 Study Number 112

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UNITED STATES FORCES, EUROPEAN THEATER
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SIGNAL CORPS PERSONNEL, TRAINING, AND COMMAND AND ADMINISTRATIVE STRUCTURE

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CHAPTER ONE

PERSONNEL

1. GENERAL. a. Uniformity in method appeared to characterize procedures of both the Army Ground Forces and the Army Service Forces in all personnel matters incident to basic, specialist and unit training as well as to methods of furnishing units and reinforcements to the European Theater. Despite the advantages of such simplified procedures, experience in the European Theater indicates that benefit might have been gained had some exceptions been made in the case of certain Signal Corps units and specialist personnel. The fact is recognized that other technical arms and services might reasonably advance similar theses and that, were special procedures set up for each, the resulting system might be different to administer. However, opposed to any potential difficulties inherent in such special procedures there should be set the task which each arm or service is required to accomplish and an optimum arrangement agreed upon.

b. In support of this proposal it may be stated that the degree of technical proficiency demanded of certain Signal Corps personnel today and the length of time it takes to bring such personnel to the required standard of proficiency is not generally appreciated. A prospective teletypewriter operator having the requisite degree of manual dexterity may be brought to proficiency in a matter of days. On the other hand, a cable splicer cannot be considered competent until he has had at least two years training and experience. In this latter case, the best the Army can do in the allotted training time is to produce an apprentice. Similarly, the advances the stimulus of war has brought to the electronic sciences, with the resulting complexity of equipment, requires a degree of training far beyond that heretofore necessary. That such types of highly trained personnel should be accorded some special handling does not seem unreasonable when such handling would further the war effort.

c. Many highly trained Signal Corps specialists sent to this Theater from the Zone of the Interior were lost somewhere in the "system" and never reached any Signal Corps unit. Others were mis-assigned and hence were of little use to their organization. The time which had been spent in training this personnel was as a result largely wasted. In some cases, specialists were retrained upon assignment to a unit in another (and organically "critical") specialty to compensate for these defects in the system. This practice did not prove satisfactory. The genesis of some of the problems mentioned below may therefore be found in the personnel system itself when the reasons are not otherwise readily apparent.

SECTION 1

PERSONNEL REQUIREMENTS

2. Requirements. a. On 26 April 1943, a combined

British and United States Army Staff charged with the framing of a basic plan for the invasion of Europe was formally established in London under the Chief of Staff to the Supreme Allied Commander, designate.[1] The short title of this staff was 'COSSAC'. The plan drawn up by Headquarters 'COSSAC' for the invasion of Europe was approved by the Combined Chiefs of Staff and issued on 15 July 1943 under the code-name 'OVERLORD'.

b. After the official appointment of General Eisenhower as Supreme Commander of the Allied Expeditionary Force on 14 January 1944, Headquarters 'COSSAC' was redesignated Supreme Headquarters, Allied Expeditionary Force, and formal command channels were established. Directly and solely responsible to the Combined Chiefs of Staff in Washington, the Supreme Commander was charged with planning, coordinating and controlling the entire European operation. Included in the Supreme Commander's staff was the Signal Division, Supreme Headquarters, Allied Expeditionary Force.

c. An important task of the Signal Division was that of securing personnel. This problem headed the list of difficulties in the planning stage because of the fact that standard procedure provided personnel only for specific operational needs. Solutions to other personnel requirements had therefore to be sought on somewhat makeshift lines. The troop basis for the European Theater was initially drawn up in the fall of 1942. Only minor changes were made in it thereafter, the War Department having established a troop flow on the basis of an absolute ceiling on units for the European Theater within which troop requirements of all arms and services had to be adjusted. This procedure precluded, by its inflexibility, the establishment of a reserve of Signal Corps troops as such. Troop requirements as set up by the Theater Chief Signal Officer and presented to the Theater General Staff for approval could not be met within the prescribed Theater troop basis. Reductions were accordingly made which subsequent events proved were sufficient to militate against the accomplishment of the Signal Corps' dual mission of operations and supply throughout the campaign. During the spring, summer and fall of 1945, a strong and partially successful effort was made on the part of the War Department to further reduce Signal Corps troop requirements above and beyond the reductions already imposed by the European Theater troop basis.

d. Correlated with the reductions in Signal Corps troop requirements imposed by the War Department policy referred to above was the difficulty later found to exist in the matter of meeting needs occasioned by operational necessity for additional Signal Corps troops. Many requirements could not be favorably regarded either because the Signal Corps troops themselves were not available to the War Department or because it was thought undesirable to reduce other troop allotments to bring the overall figure within the approved force framework. It is believed that shortages in many categories of Signal Corps personnel developed due to a failure of the War Department to appreciate in early planning the magnitude of the Signal Corps' task and to establish reasonably accurate estimate of untimate Signal Corps troop requirements for all theaters and the Zone of the Interior.

3. Proficiency of Signal Corps Personnel Upon Arrival.

a. Those Signal Corps units which were covered by the original 1942 Theater troop basis and which arrived in the Theater at an early date were in general well trained and at authorized strength. As the date for the initiation of operations approached, the War Department was asked to accelerate the flow of Signal Corps units and, if necessary, to ship such units regardless of their training status. This policy continued throughout the entire operation and, as the campaign progressed and the shortage of Signal Corps troops became more acute, the proficiency of units arriving in the European Theater fell off appreciably. To compensate for this lack of adequate Zone of the Interior training, many improvisions had to be resorted to within the European Theater, as planning had not visualized the necessity for such activity on the scale that developed, nor were adequate training facilities available.

b. The personnel of units arriving in the European Theater also showed a progressive diminution in inherent ability as time went on. It is believed that had original estimates provided for adequate numbers of Signal Corps troops, this latter condition would not have existed, as personnel with inherent latent ability would have found their way to the Signal Corps rather than being directed to other and possibly less important duties.

4. Rate of Flow of Signal Corps Troops Into The European Theater. Since, as has been indicated, inadequate provision was made for the accomplishment of the Signal Corps' mission when the initial Theater troop basis was drawn up, it naturally follows that the rate of flow of Signal Corps troops to the Theater was slower than circumstances proved desirable. In general, the movement of Signal Corps troops to the European Theater was, with some exceptions, as originally scheduled. In some instances these exceptions were occasioned by (1) demands for Signal Corps troops placed upon the War Department from other theaters, (2) transportation difficulties, and (3) the mandatory diversion of Signal Corps personnel to other types of duty to meet urgent operational needs. As became evident in the later stages of the European operation, some delay must have been due to the partial failure of sources of competent Signal Corps personnel available to the War Department.

5. Conclusions. The troop basis against which the War Department furnished Signal Corps troops to the European Theater of Operations did not represent the true Theater needs nor did it provide for the creation of a Theater reserve to cushion estimated needs against the needs that actually developed. In general, the Signal Corps troop requirements estimate made by the Theater Chief Signal Officer proved sound. Plans failed to provide for a sufficiently early arrival of certain Signal Corps troops in the European Theater and certain units of such troops had to be asked for and accepted in a partially trained status.

6. Recommendations. It is recommended that:

a. A continuing study be made to determine the proper ratio of Signal Corps troops to other troops required for each type of major operation and necessary to assure a balance consistent with operational needs.

b. In planning for any future operation of a magnitude comparable to operation "Overlord", such planning include provision for the establishment of a theater reserve of Signal Corps personnel.

c. The requirements for Signal Corps troops to install, operate and maintain General Headquarters' signal communication installations be established on an adequate scale and the necessary troops be made available at an early date.

SECTION 2

REINFORCEMENTS[2]

7. General. The established procedure of requisitionning and assigning Signal Corps reinforcement personnel in the European Theater during the war was in general unsatisfactory. Like other branches of the service, the Signal Corps made allowances for personnel attrition, both normal and combat. Unlike most other branches, however, the great majority of Signal Corps reinforcements had to receive careful specialized training before they could be of value to the Army in carrying out their assigned mission. The delay involved in receiving urgently needed reinforcements and their state of training upon receipt were such that official complaints on the subject were registered by many Signal Corps unit commanders. The reinforcement system they were dependent upon gave them, as a rule, neither rapid replacement of personnel nor skilled signal communication personnel.

8. Method of Requisiti ring Reinforcements. As indicated, Signal Corps units followed the same procedure in requisitioning reinforcement personnel as did units of other branches. Units in the field submitted requisitions to the appropriate headquarters for all personnel reinforcement by Military Occupational Specialty. These requisitions then flowed through normal military channels until they reached army headquarters where they were consolidated and forwarded to the Ground Force Reinforcement Command. This branch of Headquarters, European Theater of Operations, was responsible for the procurement of all reinforcement personnel from the Zone of the Interior and for furnishing reinforcements to requisitioning units.

9. Reinforcements Upon Arrival in the European Theater. a. All reinforcements arriving from the Zone of the Interior entered a receiving depot of the Ground Force Reinforcement Command. Here these reinforcements were processed and made available as stockage against all outstanding requisitions. From the receiving depots, reinforcements were filtered down through a series of lower echelon depots and reinforcement battalions until they arrived at a reinforcement unit which was in immediate support of a certain group of tactical units engaged in the operation. Until they joined their units, Signal Corps reinforcement personnel underwent a type of basic training similar to that given reinforcements for other branches.

10. Substitutes Furnished by the Reinforcement System.

a. Signal Corps reinforcements with the proper specialty experience were furnished against Signal Corps requisitions whenever possible. If they were not available in the specialty requested, substitutes in general were supplied irrespective of their specialty numbers. These substitutes proved in most cases to be unsatisfactory, because depot classification officers making the substitutions were unfamiliar with Signal Corps units and their operation. In many instances these substitutes were not Signal Corps personnel, but came from other branches for which reinforcements were not in great demand at the particular time. The result was that many reinforcements reporting to Signal Corps units were not trained in the duties for which they were requisitioned. Some of these reinforcements were not capable of being retrained to fill either the existing vacancies or any other position within the unit.

b. In other instances Signal Corps personnel having a secondary Military Occupational Specialty of a general nature, such as truck driver (345), were furnished to units other than Signal Corps when there was no immediate demand for the primary Military Occupational Specialty involved. By this policy or procedure the Signal Corps lost numerous highly trained technicians.

11. Delay in Receiving Reinforcements. The lapse of time between the submission of a personnel requisition and the arrival of the desired reinforcements extended in many cases to several weeks. Considering that units had to requisition personnel on the basis of actual losses and that they were not authorized to do so on the basis of anticipated requirements, it is obvious that a unit commander was often compelled to operate under the handicap of a personnel shortage. If anticipated losses could have been accurately estimated it would nevertheless have been difficult for a unit commander to make personnel adjustments within his unit, as he was neither informed as to when reinforcements would arrive nor whether such reinforcements could be used without further training. A part of the delay (especially notable in the case of Communications Zone units which operated over a large area and had little or no organic transportation) resulted from the transportation policy followed in shipping reinforcements to requisitioning units. The practice employed was to inform the requisitioning unit that reinforcements were available at a particular depot and here leaving it to the requisitioning unit to move the reinforcements to their destination.

12. Lack of Control by the Chief Signal Officer. There was no regularly established liaison between Headquarters, Ground Force Reinforcement Command, and the Office of the Chief Signal Officer, European Theater of Operations. Such information as was obtained regarding Signal Corps personnel was acquired on an informal basis. Specifically this meant that the Theater Chief Signal Officer was not kept currently informed of the quantity or specialties of reinforcements available in the depots or the anticipated arrival of additional reinforcements from the Zone of the Interior and their specialties. Neither was information regarding outstanding requisitions placed by Signal Corps units for personnel furnished to the Theater Chief Signal

Officer.

13. Conclusions. Under the system used for supplying Signal Corps reinforcements the Theater Chief Signal Officer was, for the following reasons, in a large measure uninformed as to Signal Corps personnel problems incident to reinforcements:

a. Personnel requisitions submitted by Signal Corps units went through normal military channels to Ground Force Reinforcement Command Headquarters, thus by-passing the Office of the Chief Signal Officer, European Theater of Operations.

b. Theater Headquarters (Adjutant General Reinforcement and Classification Branch, Ground Force Reinforcement Command) submitted personnel requisitions on the Zone of the Interior.

c. Reinforcements were under command of Ground Force Reinforcement Command for administration, training and assignment from the time of their arrival in the European Theater until they reported to the requisitioning unit.

14. Recommendations. In any future major theater of operations, it is recommended that:

a. All Signal Corps reinforcements be centralized in one depot under the Ground Force Reinforcement Command.

b. A highly qualified Signal Corps officer be assigned or attached to the Ground Force Reinforcement Command staff to assist in the classification and assignment of Signal Corps personnel.

c. Signal Corps personnel be assigned or attached to the Ground Force Reinforcement Command staff to supervise that specialized training which must be continuous if skilled technicians are not to lose their efficiency.

d. The Theater Chief Signal Officer be kept currently informed, through his senior representative with the Ground Force Reinforcement Command, as to the status of Signal Corps Reinforcement personnel.

SECTION 3

UTILIZATION OF SPECIALIST PERSONNEL

15. Personnel Within Table of Organization Units.

a. The majority of Signal Corps units available in the European Theater were organized under current Tables of Organization and Equipment, each unit being provided with specific personnel and equipment to perform a particular mission. The signal light construction company, for example, under Table of Organization and Equipment 11-27, was equipped for the primary mission of the installation and maintenance of field wire and spiral-four cable. Signal pigeon companies were furnished to provide an emergency means of communication, and signal operation battalions were designed to furnish communication at the various army headquarters. In many cases the unit did not fit the mission and in others, units were assigned consecutive missions not requiring the same specialists. For this reason, the services of highly skilled technicians assigned to these units were often wasted.

b. To exemplify the foregoing, one of the chief difficulties in the European Theater was the rehabilitation program necessary to put the Continental wire system into serviceable condition. This program required a great number of cable repair personnel. Although cable splicers were authorized on the basis of one for each division signal company and four for each signal light construction company, it was found that most of these men were engaged in other duties. An attempt to withdraw them from organizations engaged in operations was found to be unsatisfactory as they were not made available in the quantity nor with the speed required. Experience demonstrated that the value of these and certain other specialists was dissipated when they were assigned in small numbers to many organizations. A greater and more immediate benefit could have been attained if cable splicers and certain other key specialists had been available to the Theater Chief Signal Officer for use wherever and whenever they were needed.

16. Personnel Within Specialized Teams. The Table of Organization and Equipment, 11-500 series, in effect since 1943, was designed to overcome the sort of situation outlined above. It provided for the grouping of certain specialists such as switchboard installers and newsreel photographers into teams designed to perform a specific mission wherever they were most urgently required. These and similar teams were used to augment other Signal Corps organizations in providing the additional personnel and equipment necessary for the specific job. In other cases, groups were selected to provide an organization capable of performing certain specialized assignments. The organization of specialists into such teams permitted greater economy in the utilization of highly skilled personnel than was possible when the same specialists were a part of a normal Table of Organization unit.

17. Conclusions: a. At the time when specialized missions had to be accomplished in the European Theater and capable personnel should have been available for their accomplishment, specialists were being used in operations of a less important nature as the result of the inflexible provisions of current unit type Tables of Organization and Equipment.

b. Personnel for certain specialist tasks can best be utilized when organized into teams such as provided by Table of Organization and Equipment 11-500.

18. Recommendations: It is recommended that:

a. Existing Tables of Organization for Signal Corp units be reviewed and the requirements for highly skilled personnel such as cable splicers, repeaterman, etc., be reestimated with a view to reducing the number of such specialists in these units to a minimum consistent with normal operational requirements.

b. In so reducing the standard unit type Table of Organization, the proper overall balance of Signal Corps personnel be maintained by placing the deleted specialists in Table of Organization and Equipment 11-500 teams.

Bibliography

1. Report of Signal Division Supreme Headquarters Allied Expeditionary Force, Operation "Overlord", Page 1, Volume 1.

2. Army Ground Force Report Number 555, dated 24 January 1948, Subject: "Enlisted Replacements for ASF Signal Units".
3. After Action Report, Third United States Army, 1 August 1944, 9 May 1945, Part 22, Volume II.

CHAPTER 2

TRAINING

SECTION 4

Status of Training of Units and Personnel upon Arrival in the European Theater.

19. Units. a. In many instances Signal Corps units arrived in the European Theater with personnel who had only completed basic or specialist training. Such personnel had been assigned just before unit concerned was alerted for overseas movement. In other instances units arrived without completion of unit training or participation in maneuvers.[1] This was due to the desperate and immediate need for Signal Corps troops in the European Theater. Newly arrived personnel who had completed a specialist training course were in general found to be familiar with the theoretical aspects of their duties but lacked practical experience. (Appendix 1).

b. Some units arriving in the European Theater had completed unit and maneuver training but lacked an appreciation of the large task confronting them. In general, Signal Corps troops acquired little understanding of the continuing supply and communication problems of actual warfare as a result of maneuver experience. Supply troops received little practical training in the handling of equipment due to shortages of materials for maneuver training.[2] Maintenance personnel repaired damages caused by normal wear, but received no demands for the servicing of combat-damaged equipment such as later confronted them in the European Theater. Operational personnel did not receive training in handling a large volume of traffic over an extended period of time such as they experienced later under combat conditions. Units arriving overseas in many cases lacked sufficient practical experience to carry out their assigned missions in an efficient manner.

20. Reinforcements. a. Before reinforcements were sent overseas they were required to successfully complete an intensive specialized training course at reinforcement centers located in the Zone of the Interior. Certain highly skilled specialists received training from various civilian agencies. After their arrival in the European Theater the reinforcements were, if possible, given further training by Ground Force Reinforcement Command. The technical training of Signal Corps reinforcements by the Ground Force Reinforcement Command was limited primarily to refresher training of radio operators. All other training for Signal Corps reinforcements was similar to that undergone by reinforcements of other arms and services.

b. The lack of additional specialized training at reinforcement depots by the Ground Force Reinforcement Command can be attributed to several factors. No intelligent training program could be carried out as it was impossible to determine how long a reinforcement would remain in the depot. The retention period was usually a

matter of a few days but there were instances where it was a matter of months. The length of stay depended upon outstanding requisitions in the reinforcement's particular Military Occupational Specialty. Personnel were not segregated by branch of service at reinforcement depots, but were scattered throughout the depot. There was a lack of equipment necessary to the resumption of technical training in the various Signal Corps specialties. The reinforcement depot Table of Organization did not authorize the number of qualified instructors required to teach the specialized subjects peculiar to the many branches represented in the depot. The fact that Signal Corps units often received reinforcements bearing Military Occupational Specialty numbers in which they were not qualified was due in part to the above circumstances.

c. Units receiving reinforcements have stated that those received carrying the requested Military Occupational Specialty were in general familiar with the basic theory of their occupation but lacked necessary practical experience.

21. Conclusions.

a. Units received worthwhile training in the Zone of the Interior but lacked practical experience in large scale, continuing operations. Reinforcements who had completed specialist training were grounded in theory and basic principles but lacked practical experience.

b. Training facilities at reinforcement depots were inadequate to permit resumption of Signal Corps specialist training thereat.

22. Recommendations. It is recommended that:

a. Training in the Zone of the Interior include more practical work given under conditions approaching as closely as possible the actual conditions under which individuals and units will be expected to operate in an active theater.

b. Reinforcement depots be used for the further training of Signal Corps reinforcements, and the training be in accordance with the individual's specialty.

SECTION 5

Training within the Theater

23. General. The problem of training Signal Corps personnel in the European Theater was always present. This training was necessary because, as stated in the preceding section, units often arrived in the Theater with only partially trained personnel. It was also found that many reinforcements were not capable of performing their duties without additional specialist training. Likewise the introduction of new types of equipment in the European Theater necessitated the training of personnel in the use of this equipment.

24. Specific Deficiencies in Training. Some of the specific training problems that arose were as follows:

a. Signal Center Personnel. (Appendix 1)

(1) Switchboard Operators. In headquarters of corps and higher echelons, it was found that a more extensive communications system than that authorized by the pertinent Table of Equipment was required. The use of

large switchboards at these headquarters required a higher degree of training on the part of operators and greater supervision. Training was necessary to familiarize operators with the use of foreign equipment. The traffic load was greater than operators had been trained to handle.

(2) Teletypewriter Operators. The increasing use of tape relay equipment, with which teletype operators were for the most part unfamiliar, required a large amount of on-the-job training. Each change in operational procedure called for a period of schooling.

(3) Cryptographic Operators. Cryptographic operators had been trained primarily in the use of the M-209 converter with little or no training on high-grade machines such as SIGABA and SIGCUM.

(4) Carrier and Repeatermen. The limited amount of available American repeater equipment necessitated the maximum use of French and German equipment. Available repeatermen were inadequate to man all repeater stations properly and they lacked experience with foreign type equipment.

(5) Cable Splicers. The training of cable splicers in the Zone of the Interior provided only the elements of this specialty. Lack of time permitted no more than this, since it requires approximately two years training and experience to produce a competent cable splicer. The splicing of aluminum cable, used to a large extent on the Continent, required additional instruction for both trained and partially trained cable splicers.

(6) Radio Operators. Variations in radio procedures as taught in the Zone of the Interior and as used in the European Theater of Operations called for retraining and constant supervision of radio operators. Radio telegraphy is a skill in which there is a rapid loss of accuracy and speed unless practice is constant. Reinforcements, while being transferred from the Zone of the Interior to the European Theater and while in reinforcement depots, had little opportunity or incentive to further their training. This made it necessary for the unit receiving the reinforcements to provide an extensive refresher course.

(7) Linemen.[4] In training linemen in the Zone of the Interior, emphasis was placed on the use of field wire. Material shortages prevented an adequate training program for linemen in the use of spiral-four cable. Construction units received only a few weeks training in the building of open wire lines. This situation required units in the Theater to conduct a continuous training program for linemen.

b. Training Methods Employed.

(1) On-the-job Training. The lack of practical experience of units arriving in the European Theater was largely overcome by assigning newly arrived units to missions in rear areas where they replaced trained units who were pushed forward.[5] This use permitted new arrivals to get gradually familiar with conditions and practices as they existed in the European Theater of Operations. In the fulfillment of these rear area missions, personnel acquire the experience necessary to assure an efficient discharge of their unit's primary

mission. (Appendix 1). Close supervision was necessary to assure proper on-the-job training. It is the opinion of many unit commanders that maximum training results are obtained in a minimum time by this method.

(2) Personnel Exchange. Because of the interchange of equipment with the British Forces, arrangements were made whereby personnel was exchanged with the British for further training. Some of this training was accomplished in established British commericial or army schools and some through practical experience with British signal units. This exchange training arrangement proved valuable in arriving at combined procedures as it acquainted personnel with the practices of both armies.

(3) Unit Schools. Unit schools were usually at army level where schools for radio operators and telephone operators were conducted. Such training, carried on while the army was engaged in operations, did not immediately contribute to the efficient performance of the signal mission since the services of instructors as well as trainees were denied their units during the training period.

(4) Specialized Training Schools. Specialized training schools were established at Theater level and provided courses in telephone operation, radio operation, very high frequency radio relay operation and maintenance, teletypewriter operation and repair, and instruction in maintenance and operation of carrier and repeater equipment. The operation of these schools was a great aid in qualifying men for their respective Signal Corps duties. It also relieved operating units of a significant part of the training load. It was possible to give superior training at these schools since competent instructors and the necessary training aids were available.

25. Conclusions.

a. Signal center personnel initially lacked the practical experience necessary to the operation of large signal centers.

b. The time of issue of new types of equipment did not in all instances coincide with that of the furnishing of the specialists essential to its operation.

c. Schools operated at Theater level were able to combine the best available instructors with the most appropriate training facilities, thereby providing a standard of training which was not possible at lower headquarters.

26. Recommendations. It is recommended that:

a. Signal center personnel receive training and practical experience in large signal centers in the Zone of the Interior.

b. The training of personnel in the use of a new type of equipment be phased whenever possible to permit their assignment to duty coincident with the introduction of the new type of equipment.

c. Training in highly specialized subjects which for any reason cannot be conducted or completed in the Zone of the Interior be accomplished in schools operated at theater of operations level.

Bibliography.

1. Army Ground Force Report No. 515, 9 January 1945, Subject: "Questionnaire for ASF Signal Units and Personnel".

2. Study No. 110 of the General Board, USFET, "Signal Supply, Repair and Maintenance".

3. Page 64, Chapter 13, Volume II, After Action Report Third US Army, 1 August 1945, 9 May 1945, "Lessons Learned and Conclusions".

4. Study No. 111 of the General Board, United States Forces, European Theater, "Signal Corps Operations". Section 2.

5. Study No. 112 of the General Board, United States Forces, European Theater, "Signal Corps Personnel, Training, and Command and Administrative Structure". Chapter 1.

CHAPTER 3

COMMAND AND ADMINISTRATIVE STRUCTURE

SECTION 6

THE POSITION OF THE SIGNAL OFFICER ON THE MILITARY STAFF

27. Scope. It is proposed to examine here only those aspects of command and staff organization which directly affect the Signal Officer in the performance of his primary mission of providing signal communication. Only those features of basic doctrine and common practice which have handicapped Signal Officers in the performance of their duties will be considered.

28. Command Responsibility. The exercise of command requires efficient operation of reliable means of signal communication. It is the responsibility of the commander to establish and maintain the signal communication system within his unit. The scope of this responsibility has recently been broadened to include responsibility for the integration of his signal communication system with that of the next higher command.[1] The complexity of modern signal communication equipment and systems makes such integration difficult, and requires the highest degree of coordination to be effective. The difficulties in attaining such integration vary directly with the number of major commands established.

29. Relation of Signal Communication to Command Functions. The duties of a commander are divided into functional categories. Each such category is represented by a general staff officer who is responsible for advising and assisting the commander in the discharge of his duties incident thereto. The importance of signal communication to the discharge of all command functions is recognized in basic doctrine, but it is sometimes lost sight of in the preliminary planning for military operations and in their execution.

30. The Signal Officer and the Commander. The Signal Officer advises and assists the commander in the provision of adequate means of signal communication. The extremely technical nature of modern military communication equipment has required the commander to place an increased reliance on his Signal Officer. Habitually, the recommendations of the Signal Officer on communication matters within the immediate province of the commander are adopted and acted upon. This is less true in matters pertaining to the integration of the signal systems of subordinate commanders. As a general rule, no commander wishes to become involved in the operational details by which an immediate subordinate executes his mission, and likewise does not favorably regard a similar interest in his own activities on the part of higher headquarters.

b. It is therefore often difficult for the Signal Officer to secure approval of directives designed to integrate the signal communication systems of one

or more subordinate commands with that of the more senior command which he represents. For example, it is difficult to present to a commander or a member of his general staff, in non-technical terms, the reasons necessitating the issuance of a directive to control the methods by which a subordinate command rehabilitates existing long lines cable facilities for its own use in an area which the commander has placed under its control.

c. For the reasons given above, the Signal Officer usually attempts to handle such matters through "technical channels". This is an unsatisfactory solution in that the integration of the signal system as a whole becomes one of coordination rather than command, and the degree of coordination attained is dependent upon the personalities of the commanders and staff officers concerned.

d. The essential problem in the relationship of a Signal Officer to his commander hinges upon the fact that a commander establishes a chain of command by delegating responsibility to subordinates on the basis of a specific mission and/or a geographic zone. Usually the responsibility for signal communication is delegated along with other elements of command responsibility, whereas the degree of effectiveness of the various means of signal communication is directly proportional to the degree of integration achieved on a theater-wide basis. This integration can be fully realized only if each commander, from theater level down, retains control of those phases of signal communication which tend to weld the signal communication system into a single unit.

31. Relation of the Signal Officer to the General Staff. a. The individual policies of the commander are the determining factor in the relationship between the Signal Officer and the general staff. The echelon of command involved may also exercise considerable influence on these working relationships. (Paragraph 32b)

b. The capabilities of Signal Corps troops in establishing and maintaining signal communication for a proposed operation are of critical importance in the preparation of G-3 plans. Close coordination between G-3 and the Signal Officer in the planning stage is essential. During operations, the necessity for the prompt exchange of information on tactical and signal communication developments between the two is axiomatic.

c. The Signal Officer must at all times work closely with G-2 not only on questions of signal intelligence but also on intelligence and counter-intelligence signal communication problems. This requirement becomes greater as we consider successively higher echelons of command.

d. As distinct from operational functions involved in the accomplishment of his primary mission of providing signal communication, the Signal Officer works closely with G-4 in the discharge of his supply responsibilities. The relationship of the Signal Officer to G-4 with respect to signal supply is similar to that of the chiefs of staff sections of the supply services.

32. Staff Organization as Related to Signal Corps Functions. a. In what was apparently an endeavor to

reduce the number of subordinates from whom they (or their chiefs of staff) received direct reports, a number of commanders in the European Theater have required the chiefs of all sections of their special staffs to report through a designated general staff officer, the latter being determined by the functions of the special staff section concerned. This procedure is believed to be unsound in principle, except in matters involving questions of supply coordination, and illogical in application when it attempts to subordinate to a single general staff section those special staff officers representing a branch which has both operational and service functions.

b. Under the procedure outlined above, in echelons which have no supply functions such as corps and army groups, the Signal Officer becomes a G-3 operating agency, while in army, communications zone and theater headquarters he may become either a G-3 or a G-4 agency. The tendency in higher headquarters to regard the Signal Corps primarily as a supply agency can only be attributed to the current War Department organization which places the Signal Corps entirely under the Army Service Forces.[2] In any form of staff organization and procedure which may be adopted by a headquarters, the fundamental distinction between the signal communication functions and signal supply functions of the Signal Officer should be clearly recognized.[3] In the organization of Headquarters, European Theater of Operations, the placing of the Signal Officer under G-4 and the delegation of responsibility for signal communication in the Communications Zone to subordinate commanders having area responsibility therein did much to hamper the efforts of the Theater Chief Signal Officer in integrating signal communication for the European Theater as a whole.

33. Conclusions. Signal Communication is an indispensable agency in the exercise of command. This fact is implicit in the basic doctrine which sets forth the responsibilities of a unit commander for establishing and maintaining signal communication within his unit. Present Tables of Organization provide a Signal Officer on a unit commander's special staff, whose fundamental duty is to provide the necessary signal communication system for the unit. The provision of a satisfactory communication system is a matter of primary interest to G-3. As secondary responsibilities, he has, amongst others, signal supply (G-4) and signal intelligence (G-2) missions. The growing practice of subordinating the Signal Officer to the general staff or any section thereof is believed to be unsound and is inconsistent with the scope of his activities.

34. Recommendations. It is recommended that the dual functions of the Signal Officer (Operations and Supply) at all levels of command be recognized, and that general and special staff procedures be such as to discourage the placing of emphasis upon one of these responsibilities to an extent that would interfere with the efficient discharge of the other.

Bibliography

1. Paragraph 169, FM 100-5, 15 June 1944
2. See Appendix 6
3. See Appendix 5
4. See Appendix 2

SECTION 7

ORGANIZATION OF THE THEATER SIGNAL SERVICE

35. Introduction. This section is devoted primarily to a consideration of those physical characteristics of signal communication which are determining factors in the organization and control of a theater signal communications system. This will include an evaluation of the organization of the European Theater in terms of its effectiveness in establishing and operating the Theater Signal Service, to include certain aspects of signal supply functions. In the ensuing discussion all signal communication activities have been grouped into three categories: tactical, long-lines, and local. Each category includes all means of signal communication, viz, wire, radio, motor messenger, etc. Each category has a definite relationship to the command structure and organization.

36. Tactical Signal Communication.

a. Tactical signal communication as referred to herein includes all signal communication facilities forward of a field army's rear boundary which are installed and operated by troops of the army or by subordinate units. This includes facilities serving supply or service units assigned or attached to the field army and located within the army zone. Direct signal communication between an army group headquarters and component armies, and to adjacent army group headquarters, are regarded as tactical, irrespective of the location of the army group headquarters.

b. Established tactical doctrine specifies that higher headquarters is responsible for establishing and maintaining signal communication to the echelons immediately subordinate to it and that a supporting unit provides communication to the supported unit. To this end, each tactical unit from army down to division is provided with the necessary organic Signal Corps troops operating under the control of the Signal Officer of the command echelon concerned. In practice this doctrine has proved sound.

c. Tactical signal communication is generally characterized by relatively short distances between command echelons and the temporary nature of the signal installations. In lower echelons, little or no use is made of commercial communication facilities which have been overrun. This is particularly true in a fast moving situation. The location of these facilities seldom meets the requirements of a unit such as a division operating in a relatively restricted zone. Moreover these facilities generally require rehabilitation, thus necessitating the employment of specialized personnel and equipment not available to a division signal officer. At corps and army levels a progressively greater use is made of existing facilities. The extent of such utilization is determined by the location of the installations, the amount of rehabilitation required and the time and means available. In any case, the temporary nature of tactical installations dictates the methods of rehabilitation to be employed. Additional repairs are invariably required if these facilities are later to be used on a permanent or semi-permanent basis.

d. To accomplish the tactical signal communication mission, it is imperative that the Signal Officer exercis

actual command over the organic Signal Corps troops and that, for the reasons given below, the Signal Officer's participation in the planning and execution of tactical operations be implicit in the organization of the staff:

(1) Command: Current Tables of Organization identify the Signal Officer at army and division level as a troop commander. This is not the case at corps level. Furthermore, there have been instances where army and division commanders have limited the command functions of the Signal Officer to "operational control". Experience indicates that administrative matters cannot be clearly separated from operational matters, particularly in the case of technical troops. The effective employment of Signal Corps troops requires a single chain of command in which the Signal Officer, serving in a dual capacity, expresses the will of the commander in the direction of all signal activities. This type of control should be uniform at all echelons.

(2) Staff Organization: Time and space factors necessitate the formulation of the signal plan concurrently with the formulation of the tactical plan in order to assure control of the operation through continuous signal communication. This obvious necessity is not always recognized in staff procedures. Many instances have been reported wherein the Signal Officer has not been advised of the tactical plan until the commander's decision has been given to the general staff and the latter are well advanced in the preparation of orders necessary to implement this decision. This situation will obtain where the commander and his G-3 fail to take cognizance of the time required to plan and install the signal communication system necessary to control the operation. The organization of the staff must be such as will assure the Signal Officer's participation in the planning stages on the same basis as other comparable members of the staff.

37. Long Lines Communication.

a. Long lines communication as referred to herein includes all long distance terminal and transmitting facilities established between principal signal centers in the communications zone and between the communications zone and the combat zone. With respect to land-lines, the scope of this definition includes such portions of the civilian and captured military long distance wire plant, and augmentations and extensions thereof, as are used to tie together the major static or semi-static signal centers of the theater. The exact composition of the theater long lines wire-radio relay system is fixed by the theater commander. High frequency and very high frequency radio circuits connecting major signal centers are also included in the long lines category, as are long distance air and motor messenger service.

b. The basic signal doctrine has been applied to the development of long lines communication. The principle of placing responsibility on the higher headquarters for providing signal communication to a subordinate headquarters is applicable and the need for integration between all echelons is of primary importance. Centralized control at the highest level is mandatory for successful

operation. This is evidenced by the fact that as of 1 September 1944 the Supreme Commander, through his Signal Officer, assumed control of long lines communication on the Continent.

c. As distinguished from the tactical category, long lines communication is characterized by relatively great distances between signal centers and by permanent or semi-permanent installations. Where practicable and logical, the basic long lines network is superimposed upon existing facilities. That these factors were recognized in the plan of signal operations for the European Theater is evident from the following extracts of Supreme Headquarters, Allied Expeditionary Force "OVERLORD" Signal Instruction, Part I:

* * * * * * * *

"SECTION VI

LANDLINE COMMUNICATIONS

"ITEM 1 CONTROL OF MAIN WIRE NETWORK

* * * * * * * *

"2. Since the rapid advance of the Allied Armies has exceeded that envisaged in the earlier operation plan, it has become evident that the long line requirements of all services cannot be met from normal Signal resources. Great reliance will, therefore, have to be placed on the FRENCH PTT (1) and corresponding organizations in BELGIUM and HOLLAND.

"ITEM 2 CONSTRUCTION AND REHABILITATION OF WIRE LINES AND CABLES

"1. The lines of communication for all services on the Continent will be developed from the existing main underground cable routes * * * * * *, supplemented as necessary by Army type underground or overhead construction. Such existing wire communications may be partially unserviceable due to enemy demolitions etc., rendering new construction necessary, but a full and adequate scale of communications, particularly in the rear areas, can only be provided by the restoration of the existing network."

* * * * * * *

d. The normal concept of an axis of signal communication is not entirely applicable to long lines. So far as the combat zone is concerned, long lines provide the link with theater or higher headquarters and as such may be regarded as an axis. However, they also provide signal facilities linking the combat zone with supporting communications zone installations of all types, as well as all long distance intra-communication for the communications zone itself. Long lines must be regarded as a network the backbone of which is in many cases the existing "commercial" communication system. Furthermore, effective operation and economy of personnel and equipment require

(1) Bureau of Postal, Telephone and Telegraph Services.

that long lines be regarded as a single system under centralized control and not as an association of independent parts.

e. Acceptance of the principle that long lines must constitute a single system obviously requires the reflection of this principle in the structure of the organization charged with the establishment and maintenance of long lines. From the technical point of view it should also be noted that the closest coordination in the use of personnel and equipment is required to provide high quality long distance speech and teletype circuits. This coordination cannot be readily achieved unless terminal and intermediate amplifying or relay installations are centrally controlled.

f. Organization in the European Theater for long lines control and coordination was as follows:

(1) The basic signal plan for the European Theater established an organization to work in conjunction with civilian communication agencies and to control the use of long distance wire facilities. This organization was an agency of the Signal Officer on the staff of the Supreme Commander and was designated as Allied Expeditionary Forces Long Lines Control.[1] For purposes of this discussion, two salient features of this organization should be noted:

(a) It was concerned only with long lines wire facilities. Control of "long lines" messenger, radio and other means was largely the responsibility of the Chief Signal Officer, Communications Zone.

(b) It was primarily a staff organization in that responsibility for implementing its decisions was delegated to other agencies. Within the U.S. zone, the principal military operating agencies involved were those under the control of the Chief Signal Officer, Communications Zone.

(2) Major responsibility for long lines communication in the U.S. zone was charged to the Chief Signal Officer, Communications Zone.[2] In general he was responsible for: The development and coordination of the main line wire system in the U.S. zone; fixed radio installations; planning, installation, operation and maintenance of fixed wire facilities associated with the main line network; and the establishment of a main route messenger service. As a member of the special staff of the Communications Zone commander, the Chief Signal Officer discharged these responsibilities through the Communications Zone organizational structure.

(3) (a) In the organization of Headquarters Communications Zone the Chief Signal Officer was placed under G-4.[3] Placing the Chief Signal Officer in this position was undoubtedly based on consideration of the Communications Zone's primary mission of supply and the Signal Officer's supply functions in particular. As stated in Section 1, this form of organization reflects the War Department organization and fails to recognize the dual responsibilities of the Signal Officer for both signal communication and signal supply. Furthermore, the Communications Zone was divided geographically into base, intermediate and advance sections, and control was

decentralized by the delegation of command functions to section commanders for their respective areas. In keeping with this structure, the control of Signal Corps troops and installations was largely decentralized, each base, intermediate and advance section commander being responsible for signal communication within his area. The signal officers on the staffs of the various section commanders were necessarily concerned primarily with the internal signal communication of their areas, and theater signal communication tended to become an association of independent local systems rather than a unified system. The Chief Signal Officer could not exercise direct control over all long lines activities except by first securing approval in each instance, for the issuance of a directive through command channels. The delays (and attendant confusion and misunderstanding) in this procedure militated against achieving the required coordination.

(b) As an example, the following instance was cited by Colonel Cooper, Chief of the Personnel Branch, Office of the Chief Signal Officer, Communications Zone: "During one period a very high frequency radio relay circuit carrying both speech and teletype channels was being operated between a point on the French North coast and Paris. Relay stations were located in the areas of three different base sections. Despite the fact that these base sections were not concerned with the operation of this circuit, it was necessary for the Chief Signal Officer to have directives issued through command channels, and to secure the concurrence of all base section commanders, in order to move a man from a relay station in one base section to a relay station in another base section."

(c) The implementing of other administrative instructions under this system proved equally awkward and indicated that the agency charged with installing and operating long lines signal communication should exercise direct control over operating personnel and equipment, wherever located.

38. Local Communication. a. Local communication as referred to herein consists of that portion of the signal communication facilities available to a headquarters which provides communication between the headquarters' signal centers and units or installations in the immediate vicinity.

b. Local communication is characterized by relatively short distances between installations. So far as telephone service is concerned, the facilities may be regarded as identical to those between a local subscriber and the exchange serving the area in a civil system. The characteristics are the same for both the combat zone and the communications zone, differing only in the degree of permanence of the installation.

c. Local communication is generally organized on the basis of area control. The headquarters controlling the area is responsible for establishing communication to its subordinate installations and usually provides service to other installations within the area which are under another command but which are supporting the local troops. The Signal Officer on the staff of the area commander normally has the necessary personnel and equipment required to furnish local communication. In the combat zone, the local

system is incorporated into the theater system by the facilities established between the headquarters of the area commander and higher headquarters. In the communications zone, the area (base, etc. sections) signal centers are linked to the long lines system by establishing signal communication to one or more of the signal centers operated by the theater signal communication service. To assure effective operation, there must be a clear distinction between the control of local communication and of long lines facilities within each area. The theater signal officer must retain complete control of personnel and equipment operating long lines installations in a given area, whereas local communication remains the responsibility of the local area commander.

39. The Theater Signal Supply Service. a. As an arm with service functions, the Signal Corps is charged with the procurement, storage and issue of a vast amount and variety of equipment. During operations in the European Theater, Signal Corps supply functions were essentially the responsibility of the Chief Signal Officer, Communications Zone.[4]

b. Organization and Control. As indicated above, the organization of Headquarters, Communications Zone placed the Chief Signal Officer under the direct control of G-4. Superficially such organization would appear to be eminently suitable for the discharge of supply functions, however illogical it is for the accomplishment of the signal communication mission. Practically, the decentralization of the Communications Zone into a cellular organization of base, intermediate and advance sections precluded the realization of any advantages for expediting supply activities gained from the structural organization of its headquarters. All signal installations were controlled by the commander of the section in which they were located. These sections operated under relatively broad directives issued by Headquarters, Communications Zone through command channels. The emphasis in these directives was on total tonnage to be shipped rather than upon a detailed control of the movement of specific items. Control exercised on a "tonnage basis" alone made it difficult to expedite the movement of critical items in short supply. In general, the Theater Signal Officer was unable to control the movement of any specific items except by coordination obtained through "technical channels". As in the case of signal communication, the inherent fallacy of operating a complex system on the basis of "cooperation" rather than "command" becomes apparent in analyzing the signal supply system of the European Theater. From the standpoint of sound organization, both responsibility and authority must be vested in the same person or agency. The organization of the signal supply system in a combat zone provides an example of this axiom. The Signal Officer of a field army is responsible for providing, storing and issuing all signal supplies for the entire army. To execute this mission, the army signal service which he commands normally includes a signal depot company. The principle of indivisibility of responsibility and authority would appear to be equally applicable at theater level.

40. Conclusions. a. The organization of a theater signal service should be based on the following considerations:

(1) Tactical signal communication is the

responsibility of each tactical commander in the chain of command. Through his Signal Officer, the commander directly controls the personnel and equipment employed to install, operate and maintain the required tactical Signal installation.

(2) Long lines communication must be organized as a single system in which the installation, operating and maintenance personnel are centrally controlled. Long lines comprise the basic network of theater signal communication and are of such a nature as to preclude any decentralization of responsibility, or of control entirely through command channels.

(3) Local signal communication serves a restricted area and should normally be the responsibility of the area commander. The distinction between local and long lines facilities must be clearly recognized.

(4) The supply responsibilities of a theater chief signal officer are defined by the service functions of the Signal Corps as set forth in Field Service Regulation. The decentralization of control over signal supply installations is inconsistent with a theater chief signal officer's responsibilities.

b. The responsibilities of the Chief Signal Officer, European Theater of Operations, as defined in basic Theater policies, and the organization of the European Theater to implement these responsibilities were not entirely consistent. Experience has proved that responsibility and authority are inseparable. A theater chief signal officer cannot effectively perform his mission unless given control of the personnel, equipment and other facilities necessary for its accomplishment.

41. Recommendations. It is recommended that:

a. In each future theater of operations, a theater signal service be organized as an agency commanded by the chief signal officer of the theater.

b. Through the theater signal service, the commander exercised direct control of all long lines communication facilities in the theater and all signal supply installations in the communications zone.

Bibliography

1. See Appendix 3
2. See Appendix 4
3. See Appendix 2
4. See Appendix 4

APPENDIX 1

The following selected extracts from documents as indicated are quoted for reference convenience:

1. Extract from "AGF Report No. 573 - Aspects of Training of Army Service Forces Signal Units Which Need Greater Emphasis, 28 January 1945"

"Comments of unit commanders:---b. 3111th Signal Service Battalion.

(1) Experience in operation shows that what is needed by the technical man is more actual practice under conditions similar to what will be encountered. Field exercises of the unit are important to iron out operating procedures, to shake down before actual operations, and develop administrative efficiency."

2. Extract from "Synopsis of Interview with Lt. Col. Horace M. Wood, Officer-In-Charge Signal Center, Headquarters Communication Zone, European Theater of Operations, 8 September 1945":

"Training. Fundamental concept of procedures was not included in training of teletype operators in Zone of Interior service schools. They did not have the sense of traffic handling. Forms were taught without any consideration given to the underlying reasons for their use. All operators received had to be retrained for about three weeks."

3. Extract from "Synopsis of Interview with Major William P. Richmond, Staff-Officer-In-Charge Signal Center Operations, Headquarters Communication Zone, European Theater of Operations, 8 September 1945".

"Signal Personnel and Training. Dire need exists for the training of signal specialists in the Zone of Interior for work at higher echelons. For example, all SSN 805 received were trained in the use of Converter M-209 only. All had to be trained to operate automatic cryptographic devices.---Prior to D-Day, ETOUSA had two Signal Service Battalions operating for the headquarters. In July 1944, the 3104th was assigned to Com Z to operate the signal center. This unit collapsed within a short time due to the inexperience of its personnel in ETO procedures, and lack of the type training necessary in operating for a large headquarters.

4. Extracts from "AGF Report No. 637 - Instances of Application or Adaptation of Doctrine, Technique or Tactics as Taught in the United States, 5 March 1945":

"2 (c) Operators

1. The Army training given these operators in the States, in the majority at Camp Crowder, Missouri, was good, but lacked the completeness necessary for efficient operation in large installations such as Com Z. Too much emphasis seems to have been placed upon subjects such as Army Organization and Basic Training and too little upon just what a message should contain. In many cases men were totally unfamiliar with just what they were responsible for doing as an operator. They lacked confidence in their own ability. More thorough training in the handling of model Nineteen teletype machines and greater emphasis on speed and accuracy of operation, instruction in the reading of tape and a more

complete instruction in the capability of the equipment they operate would undoubtedly make for more efficient operation.

2. ---- Tape relay operation is one of the most used methods of passing messages within the Army Networks among the higher headquarters and for men unfamiliar with tape relay procedure to even attempt to operate in a signal center where tape relay operation is employed is disastrous to complete and efficient handling of traffic. A wider, more complete distribution of material contained in TCL's 2, 3, 4, 5, 6, and complete and thorough instruction in the procedures outlined therein at some large station in the States prior to shipping men overseas would aid greatly in eliminating this lack of knowledge so necessary for operation in higher headquarters."

"2 (d) Repairmen

1. The G. I. training given teletype repairmen in the States was good, but it was not enough, or given to men to prepare them for a commercial installation, such as we of our battalion had had to install and maintain."

"(2) Telephone Switchboard.

(b) The installations operated abroad have varied considerably from those encountered in the USA and have been entirely different from those studied in G. I. Schools. However, in general, it has been possible to combine G. I. and Bell system telephone practices to meet the new situations.

"(3) Message or Signal Center.

(b) The preliminary training that was given in the Sates was wholly inadequate even though fixed signal center procedures and techniques were stressed throughout. The reason for the inadequacies were that too much stress was given to FM 24-5, and not enough to procedures as laid down in TCL 2, 3, 4, 5, 6.

(d) Crypto men spent too much time in training on cipher converter M-209 and too little time with the SIGABA and autocode equipment. Procedures as used at WAR were given to the men in their training but limited facilities did not permit giving the men training in such things as cryptonets."

"(6) Carrier.

(a) --- Training of carrier and repeater men was skimpy, but not entirely inadequate by reason of operation of G. I. schools in conjunction with the Bell System. In general, the personnel and equipment of the team were inadequate for proper handling of its assignments, but the civilian experience of the men plus their willingness and aptitude have enabled them to do a good job throughout."

5. Extract from "Analysis of Signal Problems" (undated) a report to Chief Signal Officer, European Theater of Operations, prepared by Colonel P. A. Wakeman, Signal Officer, Advance Section, Communications Zone, European Theater of Operations.

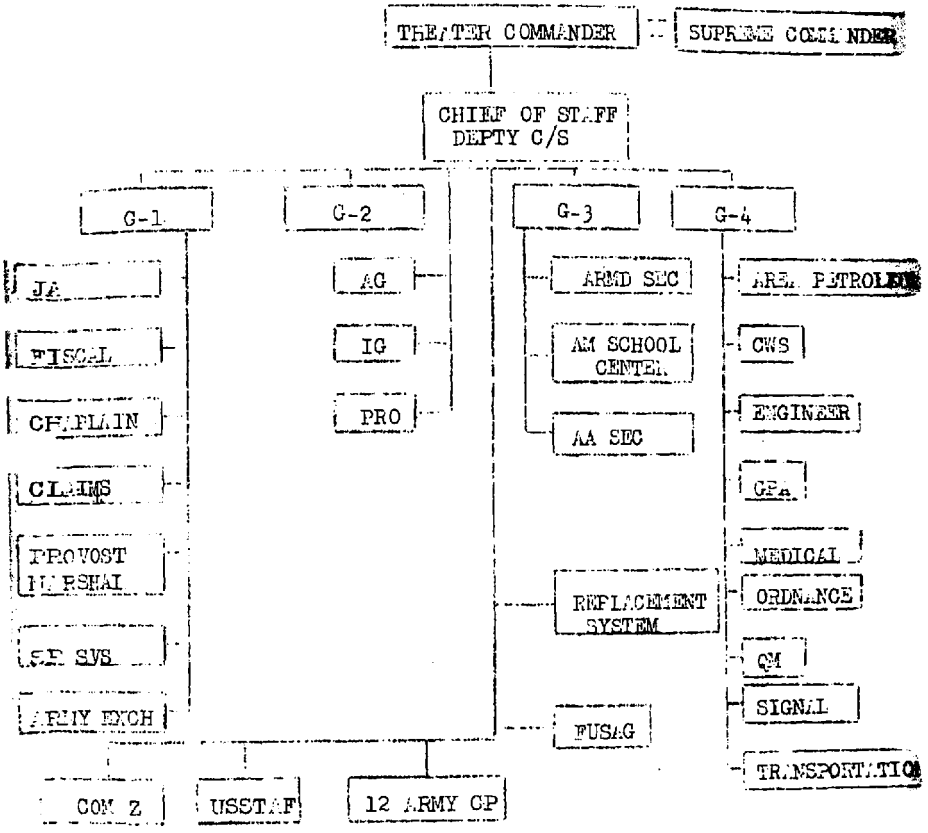
"d. Telephone Operations.

(1) Personnel and training---A real and adequate training course for operators is not

provided in the Army system. A man is classified as a telephone operator upon learning something about a BD-72 and handling a few test calls, and after gaining a knowledge of a few useful phrases and of the phonetic alphabet. As a result, all training and development of operators had to be accomplished on the job. This had a very detrimental effect on the service, particularly in the first months on the continent. Proper training would consist of an intelligently prepared training period of a minimum of three weeks followed by an extended period of actual full time operating on all types of switchboards.

APPENDIX 2

ADMINISTRATIVE ORGANIZATION OF ETOUSA
2 August 1944
Compiled From Collateral Information



Appendix 2

APPENDIX 3

SUPREME HEADQUARTERS

ALLIED EXPEDITIONARY FORCE

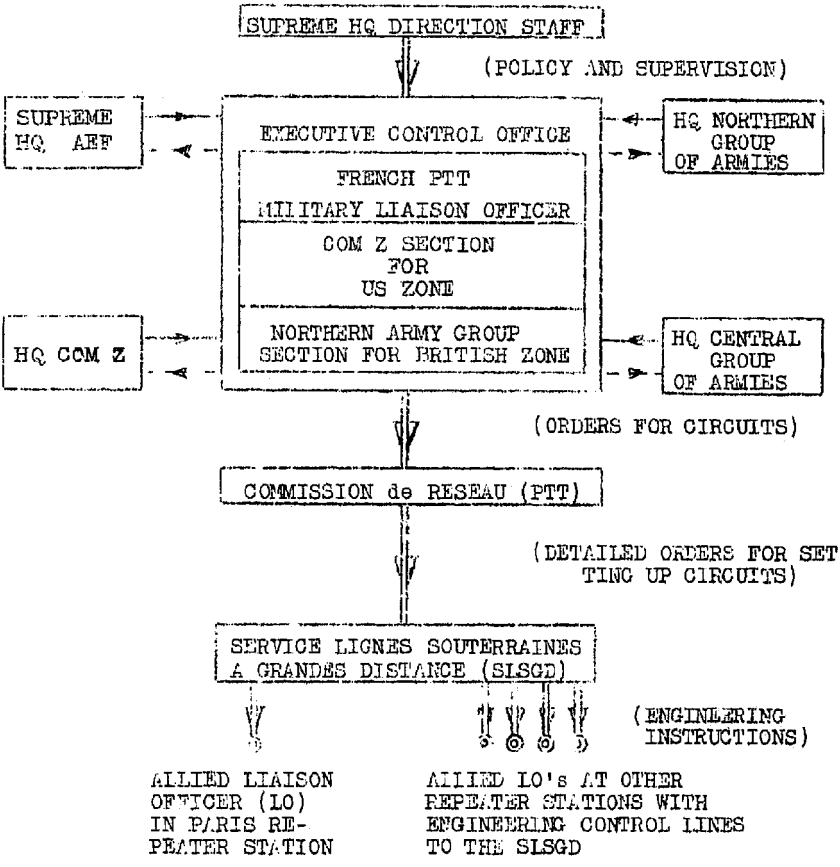
Copy No.____

"OVERLORD"

SIGNAL INSTRUCTION - PART 1

issued 16 Sep 44
APPENDIX "T"
REFERENCE SECTION VI
PAGE I

APPENDIX "T" ALLIED EXPEDITIONARY FORCE LONG LINES CONTROL (AEF LLC



_____ Requests for circuits

LEGEND:

- - - - - - - - Instructions regarding restoration and construction

APPENDIX 4

SUPREME HEADQUARTERS

ALLIED EXPEDITIONARY FORCE "OVERLORD" SIGNAL INSTRUCTION

PART I - SECTION II

* * E X T R A C T * *

ITEM 5 RESPONSIBILITIES FOR SIGNAL FUNCTIONS IN THE US ZONES

1. A division of responsibility for major signal function within the Central Zone and the Southern France Zone which require close coordination between the CSOs of Groups of Armies and the CSO Com Z has been arranged as follows:

a. Responsibilities of the Chief Signal Officer, Com Z.

(1) The coordination of communications in the US zones referring all matters which cannot be settled by direct agreement to the US Joint Signal Board.

(2) The development and coordination of the main wire system in the US Zones referring all matters which cannot be settled by direct agreement to the US Joint Signal Board.

(3) Fixed radio installations, except those peculiar to Supreme Hq AEF, the Air Forces, Army Airways Communication System, the Navy, Press and Psychological Warfare.

(4) The planning, installation, operation and maintenance of fixed wire installations associated with the main line network and other similar common-user systems, as well as fixed wire installations forming an integral part of the wire system of the Com Z.

(5) The establishment of a main messenger service in the US Zones with connections to the NDS and messenger service for the Press within the Com Z.

(6) The supply and installation of Railway Signal Systems in conjunction with the Chief of Transportation, Com Z. Maintenance of wire lines along right of way will also be included in the responsibilities of the Chief Signal Officer, Com Z, when such wire lines are used jointly by the Transportation Corps with others.

(7) The supply of all signal items for the Ground Forces, and of all signal items common to Ground and Air Forces for the Air Forces.

(8) The supply of all US signal equipment require by Supreme Hq AEF and the provision of storage of the Supreme HQ AEF reserve of US signal equipment listed in Appendix "1-3".

(9) The technical coordination and supervision of signal intelligence in the US Zones as the agent of the War Department and of the Theater Commander.

(10) Signal security in the US Zones as the agent of the War Department and of the Theater Commander.

b. Chief Signal Officers Central Group of Armies and Southern Group of Armies.

(1) The planning and coordination of fixed radio installations for the Press and Psychological Warfare, delegating to the Chief Signal Officer, Com Z, appropriate responsibility for fixed radio installations, operation and maintenance pertaining thereto.

(2) The planning, installation, operation and maintenance of fixed wire installations forming an integral part of the wire system of the Army Group, requesting necessary technical assistance from the Chief Signal Officer, Com Z.

(3) Messenger service for the Press within the Combat Zones but a separate Press Messenger Service will be discouraged.

APPENDIX 5

HEADQUARTERS
THEATER SERVICE FORCES
EUROPEAN THEATER
OFFICE OF THE THEATER CHIEF SIGNAL OFFICER

(REAR) APO 887

18 October 1945

SUBJECT: Organization of Signal Corps

TO : The General Board, U.S. Forces European Theater, APO 408, U S Army, Attn: Signal Section

1. Confirming my conversation with Colonel Downing on 7 September 1945, herewith are presented in consolidated form the ideas I expressed concerning recommendations for future organization of the Signal Corps based on 40 months' experience overseas as Signal Officer with the Fighter Command in England, Acting Signal Officer of the Air Force in England, Assistant Signal Officer of the Torch Planning Group, Assistant Signal Officer of the Air Forces in North Africa, Signal Officer of SOS, Communications Zone, and SOLOC (Mediterranean Theater of Operations), and Deputy Chief Signal Officer, European Theater of Operations and Theater Service Forces, European Theater.

a. The Signal Corps should have two principal functions:

(1) Communications (all wire and radio communications, postal service, V-mail service, message service, Signal dispatch service, air dispatch service, letter dispatch service, and special courier services of all kind).

(2) Signal Supply functions (including research, development, and procurement, etc.)

(a) Practically all other governments have a single unified communications service; England, the General Post office in England; the Post Telegraph and Telephone in France; or the Reichs Post in Germany.

(b) A single unified agency to handle all matters of communications, mail, telephone, cables, dispatches, packages, V-mail, radio photo, would be much more efficient than the present system of divided responsibility. At present, the AG postal service frequently calls upon the Signal Corps for the location of units, organizations, agencies, etc., the location of which have been lost to the AG directory service. Practically everyone having access to a telephone directory uses it to secure the address of individuals and organizations. The various dispatch agencies now operating to handle cables, messages (message centers) could just as well handle all mail and postal services with comparatively little additional personnel and with a considerable saving of vehicles and other means of transportation. An example of divided responsibility is the V-mail service. Letters are received in the post office and after being receipted

for are turned over to the V-mail section of the Signal Corps for processing and then returned to the post office for transmission via air courier.

2. All communication responsibilities should be organized under a single operating head for each Theater or other similar areas commanded by an officer who should operate in the dual function as the Commander of the service and as the communication staff officer of the appropriate commander. This should also be on a general staff level, possibly G-6 or G-Signals. He should operate as a Division Corps Artillery Officer operates, both as the commanding officer and as a general staff officer.

a. This communication service should include all communications down to armies, communications for the armies being an integral part of the army. The installation and maintenance of long lines and trunk lines between switchboards (in general) and all toll switching should be performed by the Communications Service. All radio except that of inter-army should also be a part of the Theater Communications Service (parenthetically, the Army Communications Service should be world-wide in scope to include service to all military and diplomatic agencies in the world wherever that might be located). The Communications Service would include all code and cipher functions necessary in connection with the handling of traffic.

3. The supply side of Signal Corps could be entirely distinct and separate from the operating side of communications service and be a part of the service forces. It could also include all research, development, procurement, storage, issue and distribution of all items peculiar to the Signal Corps as it is now or with the suggested assimilation of other functions now being performed by other agencies.

/s/ H. G. Miller
/t/ H. G. MILLER
Colonel, Signal Corps
Deputy Chief Signal Officer

APPENDIX 6

HEADQUARTERS
THEATER SERVICE FORCES
EUROPEAN THEATER
OFFICE OF THE CHIEF SIGNAL OFFICER

(main) APO 757
16 August, 1945

Lieutenant General John C. H. Lee,
Commanding General,
Hq, Theater Service Forces, European Theater,
APO 887 - U. S. Army

Subject: Signal matters for consideration by Theater General Board.

Dear General:-

In compliance with the instructions contained in your letter of 7 August 1945, I submit the suggestions set forth in Appendix "A" as items in the Signal field appropriate for consideration by the General Board.

You may rest assured that I and my staff will cooperate to the fullest with Colonel Downing and the other Signal representatives on the Board.

Sincerely,

s/ F. H. LANAHAN, JR.,
t/ F. H. LANAHAN, JR.,
Major General, USA,
Chief Signal Officer

1 Incl:
As stated:

E-X-T-R-A-C-T

APPENDIX "A"

SIGNAL SUBJECTS RECOMMENDED FOR CONSIDERATION BY THE THEATER GENERAL BOARD

COMMAND AND STAFF ORGANIZATION

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"2. The position of the Signal Officer in Combined and Theater Staffs.

"The British thought is that the Signal Officer is primarily an operational Staff Officer. The American thought tends towards the idea that the Signal Officer is primarily a Service Force Officer. The present location of the U. S. Chief Signal Officer in the Service Forces has advantages in the performance of his responsibilities relative to Signal supply, maintenance, and similar service responsibility. On the other hand, he is usually handicapped in this position in fulfilling his responsibilities in the coordination of the overall communications system, Signal intelligence matters, coordination of communications between Air, Ground and Service Forces, and similar operational responsibilities. It is suggested that the Board study the lessons learned in this theater to determine whether or not in our post-war organization the Chief Signal Officer should be considered as the Operational Officer and Service Force Officer, or that there should be a Director of Signals responsible for operational and theater wide coordination, and a Signal Service Officer responsible for those matters which are purely of a service nature."

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