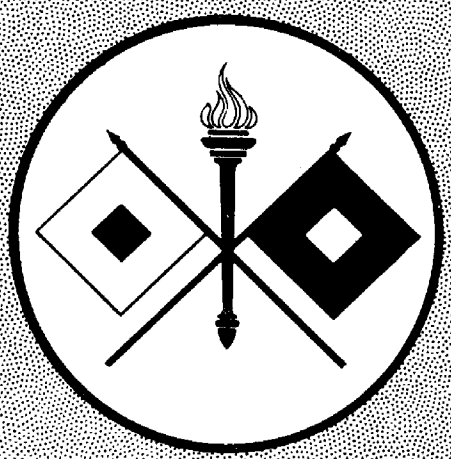
No. 17

RESTRICTED

SIGNAL CORPS TECHNICAL INFORMATION LETTER

APRIL 1943

ARMY SERVICE FORCES · OFFICE OF THE CHIEF SIGNAL OFFICER



SIGNAL CORPS TECHNICAL

INFORMATION LETTER

Number 17 · · · April 1943

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WAR DEPARTMENT · ARMY SERVICE FORCES

OFFICE OF THE CHIEF SIGNAL OFFICER

EXECUTIVE OFFICE · SPECIAL ACTIVITIES BRANCH

SIGNAL CORPS TECHNICAL INFORMATION LETTER

Signal Corps Technical Information Letter (SCTIL) is issued monthly for the purpose of keeping officers in charge of field activities informed on the newest training methods, operational procedures, equipment under development, standardization or procurement, and other pertinent information as coordinated in the Office of the Chief Signal Officer.

This Letter is compiled largely from information available in the divisions and branches of the Office of the Chief Signal Officer. All Signal Corps training centers and other agencies are invited to submit items of general interest. Such items should reach the Office of the Chief Signal Officer (SPSAY) not later than the 15th of each month for inclusion in the Letter of the following month.

Distribution of the Letter is made to army, corps and division signal officers; commanding officers of signal companies and battalions; service command and department signal officers; post, camp, and depot signal officers; the signal officers of bases and task forces; Signal Corps inspection zones, procurement districts, training centers and laboratories; directors of Signal Corps ROTC units; signal officers of Army Air Forces and Army Ground Forces headquarters and major commands; overseas headquarters; signal officers of bases and task forces; units of the Office of the Chief Signal Officer and of Headquarters, Army Service Forces.

If any such activity is now receiving a number of copies either insufficient or excessive for its present needs, a memorandum addressed to the Chief Signal Officer (SPSAY) will effect a correction of the mailing list.

This Letter is for information only. Requisitions for new types of equipment will not be submitted on the basis of data contained in this Letter.

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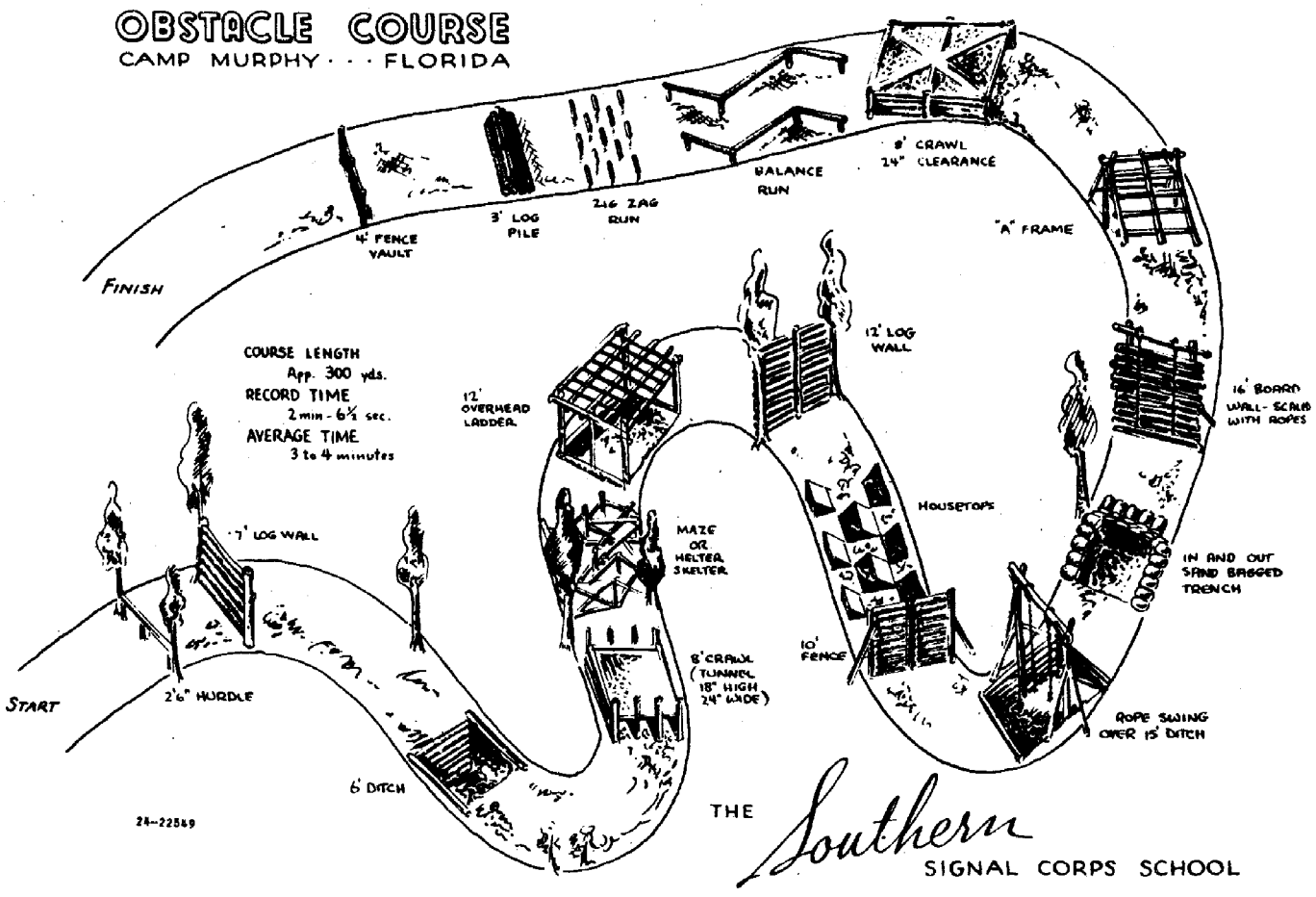

Sgt. A.M. Rothbard

MURPHY OBSTACLE COURSE

One of the newest obstacle courses in the Army is the one at the Southern Signal Corps School at Camp Murphy, Fla. The hardening process that all men in the Army undergo is exemplified in the diagram of the Camp Murphy course above. It is approximately 300 yards long and contains nineteen obstacles. The course is run in an average time of four minutes, the record so far being two minutes, twenty-eight seconds.

A week of drill, a week of manual-at-arms, and a week of heavy calisthenics condition the Signal Corps men at Camp Murphy for the course. On their first trip Murphyites are led through; afterward they are on their own. Hundreds of men have gone through the preliminary training on this muscle builder.

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ONE YEAR OF THE S.O.S.

"Working in secrecy, our Signal Corps has revolutionized communications and detection devices that will affect not only the winning of the war, but the daily lives of all people in the peaceful years to come," Lieutenant General Brehon B. Somervell said in a statement issued on the anniversary of the first year of Services of Supply (now the Army Service Forces).

For the fiscal year ending June 30, 1942, the Signal Corps quadrupled its military personnel and had its appropriations increased by 1,000 percent. These figures are shown in the Annual Report of the Services of Supply, recently made public.

At the beginning of the fiscal year, the Signal Corps had 2,064 officers and 36,762 enlisted men. By June 30, 1942, there were 9,572 officers and 120,000 enlisted men. During the same period appropriations for communications equipment for the Army went from $300,000,000 to more than $3,000,000,000. Civilian employes during the fiscal year jumped from 6,902 to 54,000.

"The reliance placed upon communication instruments of many kinds indicated how truly this war has become a 'war of science'," the Report says. "The Signal Corps had to procure and supply to the various arms 40,000 items of equipment. By December 1941 the Signal Corps had placed with the radio industry alone orders amounting to over $600,000,000; by May 1942 the figure had reached the total of about $2,000,000,000."

Speaking of the problem of meeting shortages in critical materials, the Report declares: "The Signal Corps sought, wherever possible, to employ substitutes for critical metals."

Referring to the Army communication network, the Report discloses that the War Department Signal Center handled a total wordage of 130,773,400 for the fiscal year, an increase of 79 percent over the preceding year.

The Signal Corps' training film program amounted to 164 reels during the fiscal year. This number covered 78 subjects. Approximately 175 training films were translated and rescored for release through Central and South America. Films were exchanged with the U.S.S.R. and were provided to China.

Almost 20,000 trainees were taking courses conducted at approximately 250 vocational schools at the end of the fiscal year, the Report states.

COMBAT REPORT

The following is an extract of a letter from Colonel T. J. Tully, Corps Signal Officer in the North African Theater of Operations, to Brigadier General George L. Van Deusen, Commanding General of the Eastern Signal Corps Training Center at Fort Monmouth, New Jersey:

"As I dictate this letter in our field set-up here in the woods tonight at 2200 o'clock, we are in the midst of a very mobile, very fast moving operation with a very fluid front. This operation might be compared to a football game where the Corps Command Post is in the position of quarterback, well back of the line of scrimmage, directing a play with its full force on one end of the line; and then, without waiting to call a new set of signals, the play is suddenly shifted to the extreme opposite end of the line — some dozens of miles across from end to end.

"At the moment, the Corps Wire Officer is making his shifts of circuits by a series of telephone calls to various key points where, with the aid of an interpreter, he hopes to switch over the connections necessary to insure telephone and telegraph service at the other end of the lines for the major units within the next three hours.

"The Corps Radio Officer is also at the phone arranging details to cover emergency radio communication on one end of the line where the enemy has suddenly withdrawn and where communication at the moment is rather uncertain, since wire installations had not been entirely completed.

"Corps radio, wire, teletypewriter, and message center teams are moving at this moment to the other end of the line, to an advance Corps signal center being established there from which we will give more detailed instructions to the teams later tonight as the tactical plan unfolds. Our message center people are planning the revision of their scheduled messenger runs to take care of the new developments. By midnight we hope to have both ends of the line well in hand.

"Such a change of tactical plan introduces new controls as units normally operating under division control suddenly revert to Corps control while still in the field of battle, and units under Corps control switch to division control. The very few open wire commercial circuits available must be assigned to all the different services in the area. Since all circuits are always in use, this presents a tricky wire problem. This office controls the assignment of all commercial long line facilities in our area of operation.

"This is proving to be a very interesting experience. It can truly be said that, as far as Signal Operations are concerned, 'there is never a dull moment.'

"We are on the go continuously, and if we have had any success to date — and I think we really have — such success is due mostly to a thorough anticipation or a damn good guess as to what somebody else will decide later. I am convinced by this time that successful communications depend upon getting the

actual means of communication under way even before the staff has completed its plans. If the Signal Officer waits for the staff's decision before planning his communications in an operation of this kind over such distances, it might be too late.

"Our equipment is generally excellent. Our switchboard and radio sets, particularly the handie talkies, the cavalry guidon sets, the mobile command sets, and the long range sets are doing an excellent job.

"Field wire does well within its normal range. In this operation which involves dozens of miles at a time, field wire is chiefly used to extend, for short distances, open wire circuits that we are able to use. The field telephone is doing a fine job. We are making some use of the repeater on some of our longer circuits where several switchboards or some field wire come into the picture.

"In our present operations the power units for the radio sets, switchboards and other equipment are getting a real 24-hour-day, 7-day-week workout. The absolute necessity for keeping an accurate record of usage of such power plants, together with their servicing, has become apparent to all.

"We have been faced with the necessity of providing proper lighting facilities for operations under blackout conditions, so it can be easily seen that the repeated reproduction at any hour of the day or night of necessary diagrams presents a problem of no mean magnitude.

"So far, our planning and the efforts of those back of us to give us the supplies called for, has resulted in a satisfactory supply situation, for signal equipment and expendable supplies. In fact, I feel that the satisfactory Signal Supply is due to three reasons:

1. A careful estimate of the situation, revising previous conceptions, to make satisfactory plans for depot stocks;

2. Everybody's whole-hearted effort to ship us requirements as we stated them;

3. The energetic efforts of the key personnel to see that these supplies were moved to the places where they are needed — and yet without wastage — in time to meet demands.

"We are operating a Corps Signal Dump ten miles from this Command Post. It has one officer and fifteen men from a Depot Company. Daily shipment to the depot of all types of signal supplies averages approximately ten tons. All units in the area know where the Dump is. Most of them call for their own supplies. Issues are controlled by the Corps Signal Officer, but such control is exercised only on critical items. Approvals or disapprovals are rendered by phone to the Depot so that the unit supply or Signal Officer goes directly to the Dump and normally has it filled within an hour so that he can take it back to his unit. This is important (from a delivery standpoint) in a fast changing situation, since we often do not know where the unit is located, and we encourage the unit to come to the Depot and get what it needs.

"Our main personnel problem is apparent after these few weeks of field operations. It is going to be the replacement of men trained in the various specialties for which we cannot provide training in the theater of operations. It is going to be necessary that these trained specialists be sent to the theater and held in a pool for transfer into the units as needed, so that these replacements, particularly radio operators, be sent to their units in advance of their use in regular operations so that they can be fitted into the actual procedures in the theater.

"Men cannot be trained on the spot to become good motor messengers. They must have had sound basic training. Messengers must have plenty of initiative in getting through, must be able to handle the weapons with which they are armed, must be able to read any and all types of maps, and must be trained to keep posted on the latest dope on the location of our units and the probable places the enemy may appear. Great stress should be placed on these qualifications because to date two officers and three men, all on messenger runs, have lost their lives because they apparently took the wrong road.

"Officers and men are getting battle-wise under field conditions — in fact, under theater of operation conditions. In such circumstances teamwork develops fast. The younger officers are getting excellent training, and many of them will pay dividends as communication officers in the near future. All are learning the importance of initiative and the necessity of following through on the delivery of messages."

NATIVES HELP THEMSELVES

Signalmen on one of the islands in the South Pacific, in Allied hands and with the natives friendly, couldn't figure out who was clipping sections of their telephone lines, strung through the jungles, a news story relates.

Happening upon a native "concert," two members of the Signal Corps unit noticed that the strings on a homemade banjo looked familiar. Closer inspection revealed that they were made of telephone wire.

Inquiry revealed that the natives had been "borrowing" wire for clothes lines and for other purposes. They didn't think such small pieces would be missed.

A "pow-wow" with native tribal chieftains straightened the matter out.

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POLE LINE IN PANAMA

There's a telephone line down in the jungles of the Panama Canal Department that owes its existence to the initiative and common sense of the Department Signal Officer, Colonel Harry E. Storms.

Along about April or May of 1942, during the construction of a wood pole line between Thatcher Ferry and Davisa, the communications men of the Panama Canal Department faced a stoppage of work due to the nonarrival of two shipments of crossarms from the States.

Such a suspension of work would have constituted a serious delay in the communications program of the Department. Means were sought to avoid such a crisis.

The local market was combed for a wood that could be procured in suitable quantity and size to meet the requirements. Several local woods were considered but only mahogany seemed to be satisfactory.

A woodworking shop was tooled to turn out crossarms and a few experimental mahogany arms were manufactured. It was soon apparent, however, that even mahogany was not entirely satisfactory for the job because it had a tendency to curl and split.

Yellow Pine Found

This being the only durable type wood available, however, it was decided to use it regardless of its below-par characteristics. At that time, however, a source of yellow pine was located which had the necessary sturdiness for the job at hand.

This yellow pine was machined, creosoted and installed and has given excellent service to date.

In addition to the shortage in crossarms, there was also an acute need for pins. A total of 60,000 mahogany pins were manufactured locally and are now installed on the line.

The Thatcher Ferry-Davisa pole line is 137 miles in length, and consists of two miles of five-arm construction, 70 miles of four-arm construction, and sixty-five miles of three-arm construction. Twelve wires are used by the Republic of Panama, while all others are for Army use alone. The line was constructed by the Department Signal Construction Company and is operated by an Aviation Signal Construction Battalion.

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ATTACK SIGNAL

The first morale motion picture short for workers making Signal Corps and Navy communications equipment, is now being shown throughout the more than 3,500 manufacturing plants in the United States.

The picture is "Attack Signal," and has as its subject SCR-195, the ubiquitous "walkie-talkie." The film shows workers and managers the importance of the part they are playing in the war effort in producing equipment for Army communications.

The story of "Attack Signal" is of a landing "somewhere in the South Pacific." The picture reveals the operations of the landing, and the importance of proper communications to the success of such a mission. Initial contact with the beachhead forces are established via SCR-195 and it is this point that is made the plot of the fast moving, suspenseful short.

"Attack Signal" is the fourth of a series of twelve films being made by the Special Projects Section of the Motion Picture Branch, Army Pictorial Service, for the Industrial Services Branch of the Bureau of Public Relations. It was written by Major Richard W. Maibaum, officer in charge of the Special Projects Section, and Max Trell, civilian editor and writer.

Broaden Scope of Distribution

So responsive has been the reaction to "Attack Signal" that plans have been made to show it to all war workers, not alone communications employees. Plans have also been made to show it to troops in the field. This film was shown to several House and Senate committees at the request of the Under Secretary of War.

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First showing took place February 16 before thousands of RCA workers at Camden, New Jersey.

The Special Projects Section was set up some eleven months ago to implement Under Secretary of War Robert P. Patterson's desire for motion pictures to dramatize the job war-workers were doing. Plans were made for one picture to be made a month, each one for a particular industry. They were to be shown in factories during lunch hour, plant rallies, between shifts, and at other times that would not interfere with production.

The first picture produced was "The Army Behind the Army," a documentary showing the importance of civilian producers in backing up the military forces. Second film was "Combat Report," made for aircraft factory workers. Third film was "Firepower," for Ordnance arsenal workers.

In production or in the scenario writing stage are "For God and Country," for chaplains; "War on Wheels," for tank and vehicular workers; "Shock Troops," for loggers and sawyers; "Battle Performance," a report on specific accomplishments of American warplanes. Similar movie reports are scheduled on the WAACs, Army Depots workers, Army civilian personnel. In addition a series is planned for Military Intelligence.

Pictures produced and forthcoming are being dubbed into Spanish and Portuguese for showings in Central and South America through the Office of the Coordinator of Inter-American affairs. The Office of War Information has also planned to send some of the films overseas for showings in neutral and allied countries.

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JOINT ARMY-NAVY NOMENCLATURE SYSTEM

In this global war the Supply Services of the Army, Navy and Marines are cooperating in many theaters of operations throughout the world. Vitally important time can often be saved if one service can obtain equipment readily from a supply agency of another service. Obviously there will be supply delays if identical and interchangeable equipment have different nomenclature.

The Army-Navy Nomenclature System, referred to as the "AN Nomenclature System," has been developed to establish one standard plan of nomenclature for the communication and the associated equipment of the two services.

In developing the "AN Nomenclature System," it was considered that the system should:

1. Be logical in principle so that the nomenclature type numbers will be readily understood, and the operations of the Army and Navy Supply Services will be facilitated;

2. Be flexible and sufficiently broad in scope to cover present types of equipment, and the new types and uses of equipment that will be developed in the future;

3. Avoid conflict with nomenclature at present assigned to Army and Navy equipment;

4. Provide adequate identification on nameplates with the name part of the nomenclature omitted in conformance with new nameplate policy;

5. Provide ready identification of equipment that has been formally standardized for the combined use of the U. S. Army or Navy and another of the United Nations.

In general, the type indicators in the "AN" system provide more specific and more complete information than the type indicators used in the Signal Corps system. As an illustration, the BC indicator of the Signal Corps system was assigned to major components of radio sets. An item BC-7 might be a radio receiver, a radio transmitter, a control box or some other similar component of a radio set. In the "AN" system comparable nomenclature would be Radio Receiver R-7/ARC-1, Radio transmitter T-7/ARC-1, and Control Box C-7/ ARC-1. The indicators R, T, and C identify specific classes such as receiver, transmitter and control box and in addition the /ARC-1 provides information that the item is a component of or is used with aircraft radio communication set number 1.

Effective February 16, 1943, the "AN" system was authorized for application to all new Signal Corps equipment and to all new U. S. Navy airborne, radio, and radar equipment. Further application to other Navy communication and associated equipment is under consideration. At the present time, it is not contemplated that there will be any changes made in the nomenclature now shown in the Master Signal Corps General Catalog, the Signal Corps Catalog of T/BA items, or the Signal Corps Tables of equipment. A study is to be

made to determine the practicability and the appropriate time of converting present nomenclature. The "AN" Nomenclature System does not change stock numbers, or the stock numbering plan in any way.

The assignment of "AN" Nomenclature is centrally controlled under the joint supervision of the Navy Bureau of Ships, and the Army Office of the Chief Signal Officer, Research and Development Division.

This standardization of nomenclature for the two services has led to standardization of nameplate information, and studies are now in progress on joint Army-Navy specifications to cover all requirements relating to nameplates and markings.

Principles of the AN Nomenclature System

The AN System retains the principle of the Signal Corps Nomenclature System that standard nomenclature will consist of a name followed by a type number. The system has two forms of type numbers, one for complete sets of equipment known as set nomenclature and a second form for items that are a part of or are used with a set known as component nomenclature.

An example of set nomenclature is "Radio Set AN/ARC-7" in which the "AN" shows that the assignment was made in the "AN" System. In the ARC-7 designation, the "A" indicates that the set is to be installed in an airplane, the "R" that the general type of the set is radio and the "C" that its general purpose is communications. The number 7 indicates that it is the seventh airborne radio communication set to which "AN" Nomenclature has been assigned.

Major maintenance, test and tool assemblies for general tactical use for which military requirements and characteristics have been determined are also assigned set nomenclature. Example: Maintenance Set AN/TRM-1, a radio repair set for a Signal Company, consisting of power equipment, test sets, rectifier, etc. Test Set TS-1/TRM-1 might be a vacuum tube test set used as a part of the general Maintenance Set AN/TRM-1.

An example of component nomenclature for items that are parts of or used with a set is Radio Transmitter T-1/ARC-7. The Radio Transmitter T-1 is a part of or is used with Radio Set AN/ARC-7.

Major units or a group of items which are less than complete sets but have common usage are also assigned component nomenclature. Example: Switchboard SB-1/TT; the switchboard is a major unit, less complete than a set, that has general usage with ground transportable telephone equipment. Similarly Amplifier AM-1/GRC consisting of an amplifier with cords, plugs, mountings, etc., is less complete than a set and has general usage as an amplifier with ground radio communication equipment.

The system indicator "AN" does not imply standardization by the Army and Navy; however, a star (*) placed as a prefix to the normal nomenclature type number is used to identify equipment adopted for use by the U. S. Army or Navy and another of the United Nations. Example: Radio Set *AN/ARC-10 and and Transmitter *T-1/ARC-7.

If the military characteristics of a set are modified slightly by changes in its components, the modification will be indicated by the addition of a letter. Example: The nomenclature of Radio Set AN/ARC-7, if its military characteristics are modified to a minor extent, will be changed by the addition of a letter after the type number to Radio Set AN/ARC-7A.

If a component of a set is modified to the extent that internal parts are no longer interchangeable but with little or no change in its basic function, the modification will be indicated by an addition of a letter. Example: The nomenclature of Radio Transmitter T-1/GRC-7 if it is modified so that the internal parts are not interchangeable but its basic function is not changed, or only slightly changed, will become Radio Transmitter T-1A/GRC-7.

The letter symbols used in the derivation of type numbers for sets are listed below:

INSTALLATION	TYPE EQUIPMENT	PURPOSE*
A - airborne (installed and operated in aircraft)	B - pigeon	C - communications (receiving & transmitting)
C - air transportable, (designed to be air-transportable as stated in specification or military characteristics)	C - carrier (wire)	D - direction finder
F - ground, fixed	F - photographic	L - search light control
G - ground, general ground use (includes two or more ground installations)	G - telegraph or teletype	M - maintenance and test assemblies (including tools)
M - ground, mobile (installed as operating unit in a vehicle which has no function other than transporting the equipment)	I - interphone & public address	N - navigational aids (including altimeters beacons, compass & instrument landing)
P - ground, pack or portable (horse or man)	M - meteorological	Q - special
S - shipboard	N - sound	R - receiving
	P - radar	S - search &/or detecting
	R - radio	
	S - special types (heat, magnetic, etc.)	
	T - telephone (wire)	
	V - visual and light	

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INSTALLATION	TYPE EQUIPMENT	PURPOSE*
V - ground, vehicular (installed in vehicle designed for functions other than carrying radio equipment, etc., such as tanks)	S - facsimile or television	T - transmitting
T - ground, transportable		W - remote control
U - general utility includes two or more general installation classes, airborne, shipboard and ground.		X - identification and recognition

* Any purpose symbol followed by a "T" indicates training equipment.

ELECTRONICS MANPOWER

Representing management and labor, the "Electronics Manpower Advisory Committee" has been organized to prepare recommendations to the War Manpower Commission and other government agencies on manpower problems in the electronics industry. It was formed by the Radio Division of the Bureau of Ships, United States Navy; the Army and Navy Electronic Production Agency; and the Radio Division of the War Production Board.

Members of the committee representing management are:

L.B. Morris, R.C.A. Manufacturing Company, Inc., Chairman;
J.D. Washburn, Sprague Specialties Co., North Adams, Mass.;
W.K. Wiggins, Western Electric Co., Chicago, Illinois.

Members representing labor are:

Harold Sharpe and James J. Conroy, United Electric, Radio, and Machine Workers of America, C.I.O., and Lawson B. Wimberly, International Brotherhood of Electrical Workers, A.F.L.

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"WHAT YOU SHOULD KNOW ABOUT THE SIGNAL CORPS"

W.W. Norton & Company, 214 pages, $2.50

The Signal Corps is the subject of the latest in the popular "What You Should Know" series of books on wartime services.

Written by Harry M. Davis, an electrical engineer and science writer on the New York Times and recently employed in the Office of the Chief Signal Officer, and Professor F. G. Fassett, Jr., of the Massachusetts Institute of Technology and editor of Technology Review, "What You Should Know About the Signal Corps" is a well-organized, timely book on the scope and activities of the Signal Corps. In straightforward, non-technical language, Mr. Davis and Professor Fassett describe what the Signal Corps is, how it works, what its duties are, and its place in the Army.

In the opening chapters the authors cover the history of signal communications — from the days of the torch to the era of radio waves and electrons. Emphasized is the distinguished part played by the Signal Corps in the recent development of communications science. Its wire-laying and exploring parties pioneered America's frontiers in the once Wild West, in Alaska, and in the Arctic; its aeronautics section and aviators pioneered in flying by balloon and later by airplane; its engineers have made important contributions to electrical science.

The authors describe the relationship of the Signal Corps to other branches and arms of the service, specifically pointing out the importance of communications in linking the innumerable elements of our vast and complex army into a unified striking force. In a chapter on "Army Communications Service," the War Department Signal Center is discussed. A subsequent chapter, "Getting the Message Through," describes the problems and functions of various means of communication in an active theater of operations. A chapter, "Men of the Signal Corps," outlines the occupations of particular value in the Signal Corps and the process by which these specialists are trained.

The many phases of the Signal Corps' job as photographer for the army are also included — from shooting combat scenes to producing training films, from maintaining historical photographic records to taking reconnaissance photos for intelligence and strategic purposes. The problems involved in procurement and distribution are also described.

"The history of signal communication," point out the authors, "shows that, like many other arts and sciences, its development has been prodded periodically by the urgent demands of military need." Miraculous inventions in electrical and communication science that will have an everyday importance to the future citizen are foreseen.

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GROUND SIGNAL

HOW HEADSET HS-30 CAN BE FITTED FOR COMFORT

Headset HS-30, now being produced at a rate exceeding 45,000 complete units per month, is designed so that it can be worn with comfort. But some troops have complained of discomfort caused by pressure from the rubber noise seals, Insert M-300. These complaints usually result from lack of understanding of the method of adjustment. As each headset will ordinarily remain for an indefinite period in the possession of the man to whom it is originally issued, each man can fit his headset to his own ears to secure the maximum comfort. Like spectacles, the headset will feel strange when first worn; like spectacles, it will be far less noticeable to the wearer once it is fitted correctly, and when he has become accustomed to it. The first attempt at adjustment may not always produce perfect results, but one or more readjustments should result in greatly increased comfort.

The headset includes a Headband HB-30 which is made of soft steel. This headband should be so adjusted that it rests upon the top of the wearer's head and fits closely at his temples. Spring-mounted to this headband are a pair of Receivers R-30; the tension of the springs is such that the "inserts" M-300 will be pressed against the orifice of the outer ear tightly enough to keep out ambient noise, but not tightly enough to cause appreciable discomfort. Occasionally users, misled by the name "insert," have tried to force these soft rubber noise seals (M-300) into the ear canal; this should not be done.

The seal afforded by M-300 between the ear and R-30 is appreciably better than was obtained with old-type headsets and sponge-rubber ear cups. In order to afford a seal against external noise, much more pressure had to be used with the older headsets; this was particularly objectionable in tropical climates, where the pressure of the rubber on sweat-dampened skin often caused severe irritation. Even the heat of wearing the old-fashioned "ear-muff" type of headset was reported as a source of discomfort. The new HS-30 is designed to permit free circulation of air.

Safety of the wearer, as well as his comfort and efficiency, has been a prime consideration in the design of the HS-30. The M-1 helmet can not be worn with old type headsets, either with or without ear cups; it can be worn with HS-30. A soldier can continue his radio work while protected with a helmet if he is wearing HS-30; he would have to remove either his helmet or his phones when the older types were used.

At least one authority on hearing has expressed the definite opinion that blows against the ear of a wearer of HS-30 will be less harmful than if no headset, or an older type headset, is worn. An object striking the Receiver R-30 of an HS-30 actually causes relatively little shock to the wearer, for its force is cushioned by the soft rubber of Insert M-300. Further, for use in tanks, HS-30 will be provided with an additional cushioning device which surrounds the ear and rests against the head, thus affording added safety to the wearer who is especially liable to shocks.

Sanitation, too, is provided by HS-30. When older types of headset were

reissued, phones which had been in contact with the ear of one wearer soon were against the ear of another. If Headset HS-30 is reissued, a new pair of Inserts M-300 will ordinarily be given to each new wearer; they will be as much his own property as his toothbrush.

Strategic materials are saved in the use of HS-30; for example, the inserts require only a fraction of the rubber formerly needed for ear cups, for an Insert M-300 weighs but 0.083 ounce, while such older type ear cushions as MC-114 weigh 2 ounces each; the saving in rubber is approximately 96 per cent. Savings in other strategic materials are comparable.

SAVINGS IN STRATEGIC MATERIALS INCREASE

The following chart shows further savings in strategic materials which have been effected by the Signal Corps laboratories since last month's report:

Substitute Material	Where Used	Saving per 1000 units
Steel	Box, stop strips, plates, brackets of Radio Receiver BC-312, BC-314, BC-342, BC-344	3851 lb aluminum
Phenolic plate	Nameplate of Radio Receiver BC-312, BC-314, BC-342, and BC-344	0.8 lb aluminum alloy
Paper	Circuit label of Radio Receiver BC-312, BC-314, BC-342, and BC-344	9 lb aluminum
Brass	Rivets in Radio Receiver BC-312, BC-314, BC-342 and BC-344	0.4 lb aluminum
Steel	Rivets and spacers in Radio Receiver BC-312, BC-314, BC-342 and BC-344	1284 lb nickel silver
Paper	Circuit plate of Interphone Amplifier BC-367	46 lb aluminum
Steel	Washer in Interphone Amplifier BC-367 and BC-667	1.8 lb aluminum
Steel & Plastic	Nameplate of Interphone Amplifier BC-367 and BC-667	44 lb nickel silver
Spring steel	Spring of Interphone Amplifier BC-667	7 lb beryllium copper
Steel	Guide angles, slide angles, screws, nuts and washers of Interphone Amplifier BC-367	799 lb brass

Substitute Material	Where Used	Saving per 1000 units
Steel	Guide angles, slide angles, screws, nuts, washers and rivets of Interphone Amplifier BC-667	863 lb brass
Steel	Nuts of Control Box BC-739	3 lb aluminum
Wrought zinc	Cases of Transformer C-253 and C-255	275 lb aluminum
Brass	Corner blocks and rivets of Transformer C-253 and C-255	12.5 lb aluminum
Wrought zinc	Case of Transformer C-254	26 lb aluminum
Steel	Rivets in Dynamotor DM-21	0.3 lb nickel silver
Steel & plastic	Nameplate of Dynamotor DM-21	29 lb nickel silver
Wrought zinc	Box and bottom of Coil C-279	93 lb copper
Steel	Case of Filter FL-6-( )	98 lb copper
Steel	Screws and support of Filter FL-6-( )	49 lb brass
Steel	Knob and switch in Control Box BC-739	118.5 lb brass
Zinc	Support in Ringer MC-131	20.7 lb brass
Steel	Screws in Ringer MC-131	2 lb brass
Steel	Gong in Ringer MC-131	207 lb bronze

The above information is reported by the Materials and Pre-Service Tests Branch of the Fort Monmouth Signal Laboratory.

8-DEGREE SPREAD IN NEW SIGNAL LAMPS

A special reflector which provides a uniform 8-degree beam spread is being incorporated in current orders for Signal Lamp Equipment SE-11. The reflector is used in Signal Lamp M-227.

NEW TEST SET FOR DYNAMOTORS

Specifications for Test Set I-199 (Dynamotor) are being completed by the Test and Maintenance Equipment Section of Camp Coles Signal Laboratory. The new test set will expedite the servicing of dynamotor units.

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THIS RUBBER NOT A DIELECTRIC

As rubber is normally a non-conductor of electricity, gasoline trucks commonly have a dragging chain to ground the static generated by the friction of the tires on the road; the rubber tires act as insulators. The static, a fire hazard in such trucks, is a source of radio interference in all motor vehicles. But rubber may be treated to render it conductive and thus eliminate the hazard.

The Laboratory Radio Noise Elimination Section recently held a conference with representatives of a rubber company on the research and development of conductive rubber, which should aid in grounding static.

BEATING BATTERY TROUBLES

The Special Projects Section of Ground Signal Equipment Branch, R & D Division, has requested FMSL to furnish recommendations for a procedure for testing all Signal Corps dry batteries, to eliminate defective batteries prior to issue. This Section has also furnished recommendations to the Storage and Issue Agency as to the maximum period of storage and transportation of each type of Signal Corps dry battery. This is intended to assure the issuance of fresh batteries to troops.

To expedite battery testing and development, the Section has obtained permission from Purchases Branch to make direct purchases of batteries for these purposes. The purchases will be limited to such batteries as are required by the Signal Corps Ground Signal Service.

TOUGHER PLUG FOR FIELD SERVICE

A new plug, to which the nomenclature Plug PL-315 has been assigned, has been designed for use with retractable cord assemblies employed in tanks. It will be part of Cord Assembly CD-801. The new Plug PL-315 is similar to Plug PL-55, but is more rugged to prevent breakage when subjected to rough use. The development was announced by the Microphones and Receivers Section of FMSL.

SPARE PARTS LISTS COMPLETED

A list of depot spare parts for Van Bodies K-56-A, K-53-D, K-60-A, K-60-B, K-60-C, K-60-D and K-60-E, and for Trailers K-76 and K-77 has been completed by the Automotive and Power Branch. The list for Van Body K-53-D has been sent to FMSL; the others to CESL. Further action to initiate procurements will be taken by the laboratories.

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PREPARE REQUIREMENTS FOR WIRE

Representatives of the Wire Branch, ESL, conferred with manufacturers' representatives to prepare requirements to be used as a basis of inspection for the Chief Signal Officer's emergency order of Wire W-110-T6, W-110-T10, S-143-T5, W-143-T6, W-143-T7 and W-143-T8.

It was necessary to remove the shielding on Wire W-110-T6, W-143-T5 and W-143-T6 because of difficulties encountered by the manufacturer in locating faults in the wire.

The following table shows the relation between the various wires:

Wire W-110-T10 is non-shielded Wire W-110-T6
Wire W-143-T7 is non-shielded Wire W-143-T5
Wire W-143-T8 is non-shielded Wire W-143-T6

MAKING BIG ONES OUT OF LITTLE ONES

Because of the usual difficulty of synchronizing two or more A.C. generators for parallel operation, it has been common engineering practice to provide field installations with a single generator capable of carrying the peak load. This, of course, has involved running a large unit at a small fraction of its rated load during the off-peak hours in many Signal Corps installations. Frequently these large generators lack the necessary mobility, since they are cumbersome to transport. A possible solution to this problem appears to be in the making in a form of a "closely regulated" type of generator of such internal design that an additional unit can be thrown in on the line at any phase of the cycle, thus eliminating the usual use of synchroscopes or similar apparatus and the care required to close the circuit at the exact moment when the generators are in step. Such generators were recently demonstrated at Fort Belvoir. A representative of the OCSigO attended the demonstration by the Corps of Engineers. Two 40-kilowatt Diesel-driven generators (60 cycle 3-phase, 127-220 volts) were thrown in parallel without any special synchronizing equipment, being brought into synchronizing by their own inherent regulation. A committee operating under the ASF is now preparing specifications with a view to the possible standardization of this type of power unit for all Army needs. One advantage argued for this set-up would be the feasibility of transporting two or more smaller power units on trailers and setting them up to provide the same power as would be available from a single larger and non-transportable power units.

DOES "SUPPRESSION" CAUSE HARD STARTING

A Mack Truck Co. 6-ton 6 x 6 Prime Mover was run into the Cold Room at the Bethlehem Field Section of the Toms River Signal Laboratory. Personnel wanted to learn several things, among them the answer to the question, "Does

the installation of radio noise suppression equipment in a motor vehicle cause hard starting?"

The temperature of the room was reduced to 40 degrees below zero, Fahrenheit, and was kept at that point for thirty hours. Then the suppression components were given a visual inspection; they appeared unharmed. Finally, in the -40 degree temperature, an attempt was made to start the motor; it was found that the suppression had no detrimental effect whatever.

All available data from the automotive industry on the effect of resistor suppression on engine performance is being collected by the Detroit Field Section of TRSL, and will be compiled in a single condensed but comprehensive report.

The Detroit Field Section of the Toms River Signal Laboratory has obtained information from Aberdeen Proving Ground relative to results of shock and vibration measurements of tanks in connection with firing tests and road vibration tests. An engineering memorandum covering the information is in preparation. A chart showing estimated forces in multiples of G, and the vibration frequencies in various vehicles including tanks, is being reproduced for distribution to interested engineers.

ALASKAN COMMUNICATIONS

"Bombing" a glacier with telephone wire was just one of the schemes the Signal Corps had to use to establish communications on our Alaskan frontier, according to Colonel Harry L. Vitzthum, who has just returned from a thirty-month tour of duty as Signal Officer of the Alaska Defense Command.

The bombing took place while the Alaska Railroad was being extended. A tunnel had to be dug under a moving glacier, and communications were badly needed even before completion of the tunnels. Survey of the route across the glacier showed the difficulties of transporting the heavy reels of telephone wire across its rugged and nearly impassable expanse.

At the suggestion of an ingenious Signal Corps lieutenant, ten reels of twisted pair telephone wire were loaded aboard an Army bomber. With bomb bay doors open, the plane flew over the glacier, aiming a reel at each of the stakes that had been lined up in the deep snow. Only one of the ten reels was lost. The line crew then struggled out onto the glacier and strung the wire from reel to reel. Even without the task of carrying the heavy, awkward reels across the rugged glacier, the job of establishing communications was neither easy nor safe.

MILITARY TRAINING

NOMOGRAM FOR DETERMINING EXPECTED RANGES OF VHF COMMUNICATIONS EQUIPMENT (70-156 mc)

Field tests have been conducted to provide a means of predicting the performance of Signal Corps VHF communications equipment. It has been found possible to put the results of these tests into the form of a very simple chart or nomogram so that a determination may be made of the expected range of the equipment or, knowing the range over which communications are to be established, the required transmitter power, antenna heights and antenna directivity may be determined.

To determine the expected range, a straightedge should be connected between the point on the transmitter antenna height scale, H_T, and the point on the receiver antenna height scale, H_R, corresponding to the transmitter and receiver antenna heights respectively. Hold a pencil at the point of intersection of the straightedge with Scale A. The straightedge should then be connected between the point on Scale A and the point on the power scale, P, corresponding to the transmitter antenna power multiplied by the transmitter antenna gain and the receiver antenna gain. The expected range is then read off the range scale, R, at its point of intersection with the straightedge.

If the range over which communications are to be established and the power of the transmitters available are known, it is only necessary to reverse the procedure outlined above to determine the antenna heights required for satisfactory communication.

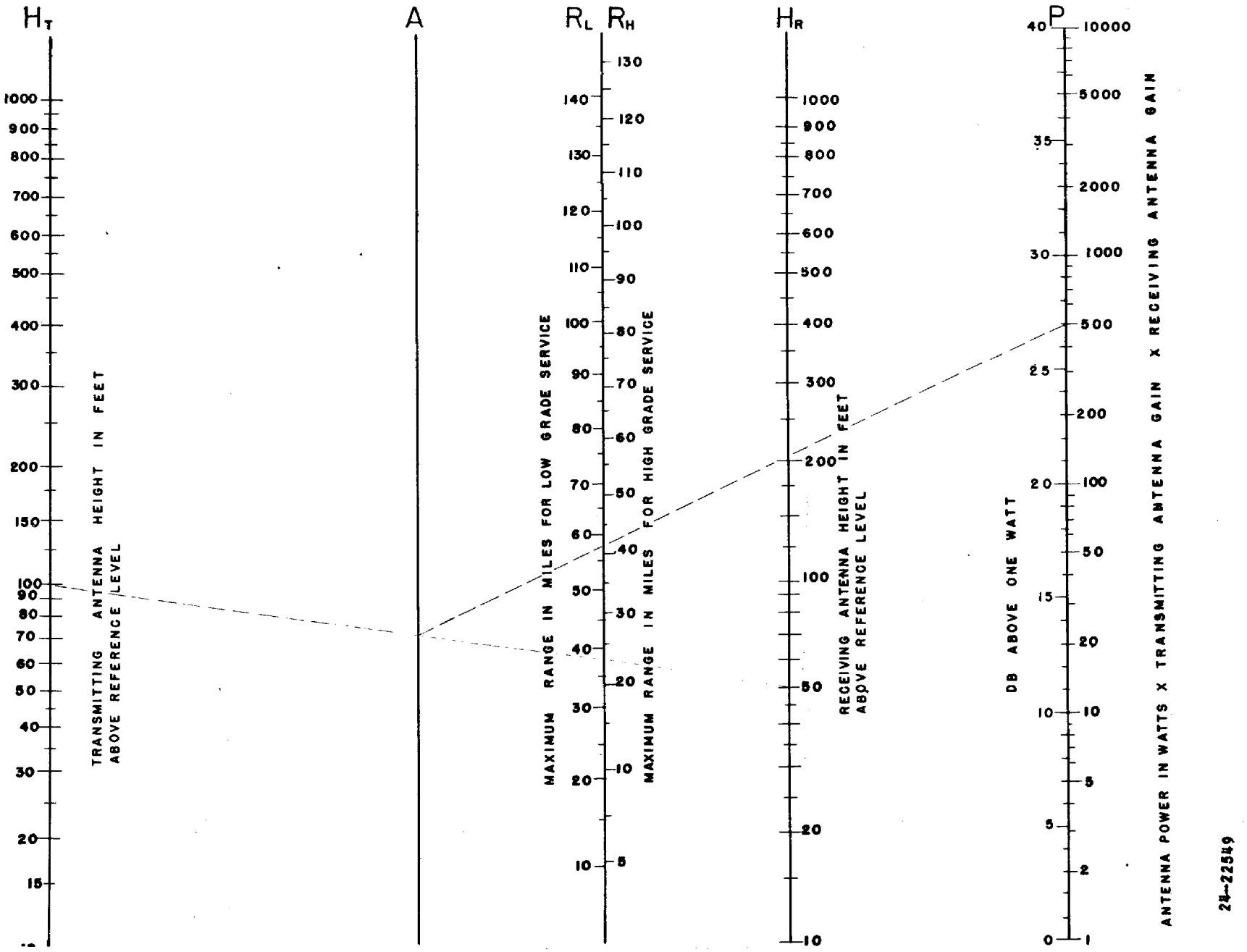
Likewise, if the antenna heights are known, the required transmitter power and antenna directivity may be determined for a given range of communications.

Explanation of Scales

Antenna Height (H_T and H_R): For transmission paths over flat or gently rolling terrain or over sea water, the values of antenna heights used should be the height of the center of the antenna above the average level of the intervening terrain. If the transmitting or receiving antenna is located on top of a high hill with comparatively flat low land in the transmission path, the elevation of the hill above the average terrain level should be added to the height of the antenna mast. The chart will not give accurate results for transmission paths over very high hills or mountains; however, reasonable approximations may be made by making a judicious selection of the antenna height reference level considering the height of the intervening hills and their proximity to the transmitting and receiving locations.

Power (P): The value of power used should be the power in watts delivered to the antenna multiplied by the transmitting antenna gain multiplied by the receiving antenna gain. Half-wave antennas have a transmitting or receiving gain of one. The loss in short transmission lines may be disregarded in calculation of power. For longer transmission lines introducing appreciable

RANGE OF VHF COMMUNICATIONS EQUIPMENT
70–156 MEGACYCLES



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losses, these losses must be considered. Vertical rhombic antennas will have higher gains, depending on the type and installation.

A decibel (db) scale has also been provided so that if the transmitting and receiving antenna gains over a half wave antenna are known in db, instead of multiplying the antenna power by the antenna gains, it is only necessary to add the db antenna gains to the db figure corresponding to the antenna power to obtain the db power above one watt represented by the directional antenna or antennas.

The power outputs of several sample standard Signal Corps VHF transmitters have been measured and were found to be as follows:

SCR-640	50 watts
SCR-522	1 watt
Link 70-100 mc FM	50 watts

Range (R_H and R_L): Two range scales are provided, one giving a range at which high grade service may be expected and the other a range at which a low grade service may be expected. At all ranges within the range for high grade service, excellent communications will be possible. Communications will be possible to the ranges indicated by the low grade service range; however, weak signals and fading will render the communications unusable at times, especially at the distances predicted for antenna power X transmitting antenna gain X receiving antenna gain greater than 500. The ranges given are for both AM and narrow band FM types of transmission; however, narrow band FM may be expected to render somewhat better service than AM at the high grade service ranges.

Example: The example shown by the dashed lines on the chart illustrates its use for the following situation:

Transmitting Antenna Height	100 feet
Receiving Antenna Height	50 feet
Transmitter Power	50 watts
Transmitting Antenna	Rhombic (Gain 10)
Receiving Antenna	Half wave (Gain 1)
Range (High Grade Service)	41.5 miles
Range (Low Grade Service)	57.5 miles

NATIONAL DEFENSE TRAINING SCHOOL

The National Defense Training School in Washington, D. C., has an enrollment of Enlisted Reserve Corps trainees in both the Mechanic Learner and Junior Repairman Trainee (Radio) Courses. Several new units of test equipment recently have been added to the laboratory and students are given a chance to use their own initiative in the laboratory and shop portion of both courses. Due to the scarcity of training material in the past, a plan has been devised whereby the Mechanic Learner students were given practice in how to hook up

batteries by using wooden blocks about the size of regular dry cells. These blocks are all printed and the polarity of each cell is color-coded. The course of instruction being given at this school is unique in that all students are given code training in addition to the regular repairman course. The objective of the code training is to qualify students to transmit and receive the International Morse Code at a rate of five to ten words per minute.

Many of the students in these classes are college and university graduates; Harvard, Yale, Lehigh, John Hopkins, Temple and others are represented. The trainees were all previously employed in the Washington area; an artist, an organist, economists, an analyst, a statistician, an electrician's helper, reporters, an electrical engineer, a college treasurer, an editor of a national fraternity paper, a Naval Air Station Radio Test Department employee, a clerk, a mimeograph operator, and other employees of the War Department, Navy Department, etc.

The school's first graduation exercises were held in the Sulgrave Club in Washington, December 5, 1942. The graduates were addressed by Colonel Murray B. Dilley of the Philadelphia Signal Depot, on temporary duty in the Office of the Chief Signal Officer, Signal Corps officers of the Third Service Command, representatives of the United States Office of Education, and Wilhelm Munthe de Morgenstierne, Norwegian Ambassador.

VISUAL AIDS

The latest Signal Corps training films to be approved for release to the service include:

TF 11-952, Pole Line Construction, Part II, Installation of Crossarms
TF 11-968, Pole Line Construction, Part III, Installation of Special Crossarms .
TF 11-1082, Oscilloscope Target Interpretation.

An old saying often quoted is that "the shoemaker's children are most likely to be poorly shod." The analogy does not hold good, however, with respect to the new releases of training films on Signal Corps subjects. Pole Line Construction, Part II, Installation of Crossarms, as the name implies, is an excellent portrayal of all the operations involved in the installation of crossarms. Photography is excellent and the narration conveys the information in a clear straight-forward manner, which will enable the student to grasp readily the information presented. Pole Line Construction, Part III, deals with the installation of special crossarms. The treatment is quite similar to Part II, and here again a very clear impression of the use and function of special crossarms is conveyed to the student.

Oscilloscope Target Interpretation will be of interest to all personnel concerned with the subject of hostile aircraft. The direction of approach of enemy planes, number of planes in the flight, altitude, and similar consider-

ations are handled in this film.

Although "Cable Laying in Panama" and "Men and Material in the South Pacific," titles of Film Bulletin No. 52, would indicate an interest for Signal Corps personnel, this is purely an informational type of film of general interest value.

PUBLICATIONS

The following field manuals and technical manuals have been published and may be obtained through regular Adjutant General channels:

FM 21-6, List of Publications for Training, January 1, 1943
FM 21-7, List of Training Films, Film Strips, and Film Bulletins; January 1, 1943

TM 1-260, Dive Bombing, December 14, 1942
TM 5-266, Protective Concealment for Airfields and Other Field Installations, January 1, 1943
TM 12-260, Personnel Classification Tests, December 31, 1942
TM 30-249, Italian Phrase Book, January 25, 1943

C1 TM 11-450, Training of Signal Communication Personnel, March 1, 1943.

TRAINING AT CAMP CROWDER

On August 31, 1942, the Midwestern Signal Corps Training Center was established at Camp Crowder, Missouri, and was authorized to operate as an installation under the provision of paragraph 6a of AR 170-10. This order authorized the Midwestern Signal Corps Unit Training Center to coordinate the activation and supervise the training of such units as may be designated by the Chief Signal Officer. At that time there were nine units undergoing training at Camp Crowder for which the Chief Signal Officer was responsible. Their actual strength was 53 officers and 463 enlisted men. At the same time there were three other units under the control of the Chief Signal Officer for training, located at other stations. Their strength totaled 33 officers and 433 enlisted men. The total number being trained by the Chief Signal Officer at the time of establishment of the Midwestern Signal Corps Training Center, therefore, was 86 officers and 896 enlisted men.

As of March 1, 1943, the number of units undergoing unit training has grown considerably. There were 25 units at Camp Crowder and 31 units at other stations undergoing training. The actual strength of these units at Camp Crowder is 172 officers and 2,922 enlisted men. The actual strength of the units of other stations is 125 officers and 2,450 enlisted men making a total

of 297 officers and 5,372 enlisted men undergoing unit training on March 1, 1943, as compared to 86 officers and 896 enlisted men undergoing this type of training on September 1, 1942.

In this connection a recent request has been submitted to Military Personnel Branch, Army Service Forces, for an increase in allotment of officers and enlisted men to the Unit Training Center Headquarters.

PIGEONS OVER WATER

During the month of January, experiments were carried out by one of the Signal Pigeon Companies at Fort George G. Meade, Maryland, in overwater training on Chesapeake Bay. In spite of the generally accepted fact that homing pigeons are averse to crossing large bodies of water, this training was given to acquaint the birds with flying over water.

Under the supervision of the Company Commander, Captain Joseph F. Spears, assisted by Lieutenant Michael J. Mrakava, Pigeon Officer of the Pigeon Company, these experiments were carried out with the cooperation and assistance of the authorities of the United States Naval Academy, who generously furnished the pigeon company with three substantial boats; one a former Coast Guard cutter for use when the weather was rough, and the other two converted pleasure yachts for use in milder weather. During these experiments all kinds of weather were encountered, including high winds, fog, and rain. All these training tests were held during daylight hours.

The birds were carried to Annapolis by motor truck where they were transferred to the boat. At least one Pigeon Officer with a squad of four enlisted Pigeoneers accompanied the birds on these trips. The first liberation was made from a distance of one mile offshore and each subsequent liberation was increased from one to two miles until the end of January, when the birds were being released from the opposite side of Chesapeake Bay, at a point where the bay is approximately fourteen miles wide.

On the occasions of the first several tosses over water, the birds showed a marked nervousness not generally exhibited when liberated on land. By the time the liberations were being made from the opposite side of the bay, this nervousness had almost disappeared and the birds homed promptly. Over an airline distance of approximately thirty miles, fourteen of which were over water, they often averaged fifty to fifty-five miles per hour to their home lofts at Fort Meade. Valuable information was obtained from these tests for adequate training of Army pigeons for over-water flying.

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RADIO CODE KIT

As a consequence of a shortage of authorized code practice equipment, many Signal Corps installations and field units have requested advice as to other types of equipment which may be adapted for the purpose. Substitute receiving practice equipment which is currently available consists of a Basic Radio Code Kit. Phonograph records in this kit contain complete instructions for learning the International Morse Code and include exercises which enable the student to increase his operating speed up to twenty words per minute. In addition to the records, the kit includes a supply of practice forms and an instruction manual. The course itself has been so designed that no expert skill is required on the part of the instructor. The records can be heard either through headphones or through an ordinary phonograph.

The Radio Code Kit is issued without charge by the United States Army Institute, Madison, Wisconsin, and orders may be placed with the Commandant of the Institute by division or separate unit commanders. For the present, requests for these code kits will be limited to fifteen sets per division and single sets for smaller, isolated units.

Code practice equipment may also be improvised with any available tone source, amplifier, loudspeaker or headphones, and key. The Telegraph Set TG-5, connected to headphones in a loop of wire, may be used as instructional practice equipment.

OFFICERS OF THE DAY

Pointing out that the officer of the day has command functions, the War Department has stated that officers of the Infantry, Cavalry, Field Artillery, Coast Artillery, Air Corps, Corps of Engineers and Signal Corps are eligible for assignment as officers of the day and to command troops of any arm or service.

An officer of any other branch will not be ordered to duty as officer of the day unless the entire guard is composed of troops of his service.

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MILITARY PERSONNEL

ELECTRONICS TRAINING GROUP, OVERSEAS

The Overseas Electronics Training Group, one of the most unique training programs of the Army, in that it provides the Aircraft Warning Service with trained personnel having combat experience, is to be continued. Decision was reached on March 3, 1943, to make no substantial change in this program which has demonstrated also the effectiveness of British and American cooperation in the training of officers for maintenance and operation of aircraft warning equipment.

The Commanding General, Army Air Forces, has been notified of the continuation of the Overseas Signal Corps Electronics Training Group program, and the scope of future plans which entail the number of officers with overseas training which will be supplied the Army Air Forces out of the current program, as well as the number which will be supplied to make up any shortage in the requirements for graduates of the Southern Signal Corps School. Definite requirements have been submitted by the Army Air Forces so that the Headquarters of the ETG in England might be advised as to the negotiations that must be undertaken with the British in order to renew contracts and continue the program.

The story of the Electronics Training Group is one of foresight and ingenuity. In the spring of 1941, Dr. J. B. Conant, President of Harvard University and Chairman of the National Defense Research Council, visited England and returned to the United States where he conferred with the President and the Secretary of War about the possibilities of having the British services assist the Signal Corps in the training of officers to direct the operation and maintenance of the direction finding equipment used in the Aircraft Warning Services. The training facilities in the United States for these officers were limited and the expected requirements indicated that this scheme of training would be of great assistance to the United States Army.

Arrangements subsequently were made by the Chief Signal Officer and representatives of the British Air Commission to train a certain number of officers in the United Kingdom. The War Department authorized the Signal Corps in June 1941 to recruit and recommend for appointment as second lieutenants individuals who were graduate electrical engineers between the ages of twenty-one and thirty-six and unmarried. These qualifications have now been changed to include persons between eighteen and forty-seven who may be married. The number of officers authorized under the initial program was increased in January 1942, and increased still further in May 1942. Under the expanded program, junior and senior electrical engineering students were enlisted in the enlisted reserve corps so that they might complete their technical training prior to their being called for active duty, either as officers or enlisted men.

This program was given extensive publicity in radio magazines, through the colleges and universities, newspaper and radio announcements in metropoli-

tan areas visited from time to time by representatives of the Chief Signal Officer, and on the bulletin board of every overhead installation and combat unit down to and including companies. This latter medium was used because any enlisted man who meets the technical and other qualifications is eligible for appointment. Twenty-five percent of the new appointments have been from enlisted men. Any reserve officer in the grade of lieutenant also is eligible for transfer to the Electronics Training group.

The arrangements with the British for the training of Electronics Training Group personnel provided that beginning in September 1941 the designated number of officers would proceed from the United States to Great Britain at specified intervals. Upon arrival in England, they received training in British schools and several months of experience serving as technical officers of British installations. Many of these ETG students have been in command of British personnel and installations; others have taken advanced training in laboratories on special projects.

During the summer of 1941, it was realized that the supply of personnel in the United States capable of directing the operation and maintenance of aircraft warning equipment was inadequate to meet the demands for this type of personnel. Previous experience by Harvard University and the Massachusetts Institute of Technology in the training of Signal Corps Reserve Officers in radio theory, led to the initiation in November 1941 of a conference of representatives from thirty-five universities at Cambridge, Massachusetts, to formulate a syllabus of a course in Ultra-High Frequency Techniques to be given in the major technical schools of the country.

Arrangements were made by the Chief Signal Officer to have the Office of Education defray the costs of giving these courses under the ESMWT program at forty-three universities beginning in January and February 1942. Beginning in September 1942, these seven to ten semester credit courses were being given in seventy universities. The Electronics Training Group Enlisted Reservists are either taking these courses now or taking other courses in preparation for the Ultra-High Frequency courses.

The urgent requirements for officers with training in electrical engineering necessitates a diversion of Electronics Training Group officers to training assignments other than in England. This policy was approved by the War Department.

However, at the present time, the Overseas Electronics Training Group will continue to afford the Army the use of this type of personnel — one of the few divisions of the Army which supplies combat-trained personnel to take their places in the ranks and add their "trial by fire" experience to the scientific methods being developed more and more effectively each day.

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DIRECTORY OF SIGNAL CORPS OFFICERS

On March 4, 1943, the Military Personnel Branch received from the Government Printing Office copies of a revised and inclusive directory of Signal Corps officers. Distribution has been made to officers within the continental limits of the United States, and a limited supply for further distribution is now available.

The number of Signal Corps officers has multiplied many times, both from transfer of officers from other Services, calling in Reserves, and graduates of Officer Candidate Schools.

The preparation of this directory, involving large number of names and including important data, was made possible by the use of punch cards and IBM equipment now in use by the Military Personnel Branch. The compilation of this directory also rectified certain errors which existed in The Adjutant General's or the Signal Corps' records, which would have caused injustices to officers, in the matter of pay, promotion, etc. The problem of determining the amount of service to which each officer is entitled, and the keeping of records as to the service to which assigned, was a considerable one, and this directory will afford a single source from which existing information may be secured readily.

Interesting features of this publication are the presentation of officers both in order of rank and alphabetically, listing of serial numbers, dates of rank, and ages. It may be found useful in securing uniformity of promotions throughout the Signal Corps, in determining seniority in the field, and for many other purposes.

As one of the most inclusive directories of officers which has been compiled since the Signal Corps grew from a few thousand officers to its present strength, its use should facilitate the securing of information on officers to a great extent.

TRANSFER OF OFFICER ALLOTMENTS

In line with the present policy set forth in AR 170-10, whereby the Service Commander takes over the administrative functions of the posts on which Signal Corps training installations are located, the officer allotments of Fort Monmouth are being transferred to the Second Service Command. This means that the personnel of all Signal Corps Training installations is now allotted to the Service Commands. The Service Commander assumes administrative supervision over the training installations, and the Chief Signal Officer retains the training functions and responsibilities.

Thus the personnel at all Signal Corps training installations have a dual responsibility divided between the Service Commander and the Chief Sig-

nal Officer. Evidence of this is the fact that a recent memorandum provides that the station complement to various training posts wear shoulder patch of the Service Command, whereas the training personnel, for example, the Staff and Faculty, of the schools and Replacement Training Centers, wear the shoulder patch of Army Service Forces.

The Chief Signal Officer is responsible for the promulgation of the training doctrine, the programming, conduction, and supervision of training, and the selection, assignment, promotion and relief of training staff and faculty personnel. Otherwise the Service Commander is responsible for administrative, supply, and other functions.

APPROVAL OF AFFILIATED PLAN

Approval has been given to continue the affiliated plan during 1943. On March 1, Mr. W. A. Hughes, Assistant Vice President of the American Telephone & Telegraph Company, formally accepted, on behalf of the American Telephone and Telegraph Companies and its associated Companies, the sponsorship of Signal Corps Affiliated Units to be activated during 1943. The Joint Army and Navy Personnel Board approved the enlisted portion of the Affiliated Program on March 8, 1943.

This plan is now in a class with the Aviation Cadets and certain Navy construction personnel — which are the only types of personnel allowed to volunteer for induction and be assured of assignment to units. Official War Department sanction of both the enlisted and officer phases of the plan has also been received. Affiliated Signal Corps units must now conform to the age and grade restrictions set forth in AR 605-10, dated December 30, 1942. However, even with these restrictions, the Chief Signal Officer will be able to secure the services of highly skilled men with technical background from the telephone companies to form the nucleus of Signal Corps units to be activated in 1943.

A sizeable number of affiliated enlistments have been received since January 1, 1943, and several Army Ground Force and Army Air Force units have been activated during the same period, indicating that considerable progress can be accomplished within a short time through the use of the Affiliated Plan.

ARMY AIR FORCES TRAINING IN SIGNAL CORPS SCHOOLS

Military Personnel Branch on March 5, 1943, approved the assignment of a thousand Signal Corps unassigned enlisted men who have completed their

basic training, have an Army General Classification Test score of eighty to one hundred and five, and have not completed their specialist training, to the Aircraft Warning Unit Training Center, Drew Field, Florida. This is an emergency requirement, their services being needed in order to provide men capable of being trained as aircraft warning operators, tellers, filterers, and plotters.

Also on March 5, 1943, approval was obtained from the Army Air Forces and Military Training Branch, ASF, for Military Personnel Branch, to move Army Air Force unassigned enlisted men attending Signal Corps training facilities from one school to another, and from basic to advanced courses.

SUPPLYING REPLACEMENTS TO OVERSEAS THEATERS

In a discussion between representatives of Military Personnel Division, ASF, and Military Personnel Branch, OCSigO, the procedure for supplying replacements to overseas theaters was outlined. It consists of the establishment of replacement depots in the theaters of operation, to vary from several hundred to a maximum of 5,000 men capacity. Theater commanders requisition monthly, or sooner if need be, the total number of men they desire in each arm and service as fillers to maintain replacement depots at established levels. They are broken down by specialists in accordance with occurrence rates for casualties previously determined.

However, this is not entirely satisfactory, since the theaters sometimes get specialists they do not need. In order to improve this phase of the existing plan, ASF Military Personnel Division is making a study based upon troops of various arms and services now actually in the theater, to determine the major family groups of specialists (about ten in the case of the Signal Corps).

The proposed plan calls for ASF Military Personnel Division upon receipt of bulk requisitions by arms and services from the theater, to subdivide into the major groupings and include this breakdown in their directive to The Adjutant General. When the requisition is forwarded to Military Personnel Branch, OCSigO, a further breakdown within the major groups, dependent upon availability, will be accomplished.

The present method of requisitioning men by specification serial number from theaters, in case of augmentation or special requirements, will continue.

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SIGNAL CORPS BOARD

The following Signal Corps Board Cases have been acted upon by the Chief Signal Officer during the past month:

CASE No. 492 - PART F. Approved February 18, 1943.

Lightweight Flashlight for Jungle Operations

The Signal Corps Board examined a lightweight flashlight for use in jungle operations, to determine its suitability for standardization by the Signal Corps.

The Military Characteristics for Flashlight TL-194 were adopted and the flashlight recommended for standardization by the Signal Corps Technical Committee. This action was approved by the Commanding General, Services of Supply, November 24, 1942. Tentative Specification No. 71-1599 for Flashlight TL-194 were made available December 1, 1942.

This Report covers the test of a development model, meeting most of these specifications, referred to as Flashlight TL-194 (Development Model).

The Board considered that the tentative specifications should be modified to include provisions for:

a. An efficient reflector
b. A smaller-sized lamp
c. A new plastic head having an opaque body and a sealed-in plane diffusing lens.

The approved recommendations are that:

a. The Signal Corps Ground Signal Service be directed to obtain for service test, model flashlights in accordance with modified Specification No. 71-1599.

b. The models, together with samples of Flashlight TL-194 (Quartermaster Model) then be submitted to the Army Ground Forces for service test to determine which of the two flashlights more nearly meets the military characteristics for Flashlight TL-194.

c. As a result of the test referred to in paragraph b. above, the Signal Corps Ground Signal Service be directed to prepare final specifications for Flashlight TL-194.

d. Future procurement of TL-194 be based on the final specifications and current procurement be changed to comply with the final specifications as soon as possible.

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CASE NO. 504. Approved February 19, 1943.

Receiving Amplifier EE-118-T1 (Telephone)

The Signal Corps Board was directed to test fifty Receiving Amplifiers EE-118-T1 (Telephone) to determine their suitability for military use as a means of increasing the range of field wire when used with Telephone EE-8-A.

After tests had been completed, the Board concluded that the Receiving Amplifier EE-118-T1 (Telephone) was unsatisfactory for general field use with Telephone EE-8-A and that development and procurement should be concentrated upon other equipment for improving telephone transmission over field wire.

It was recommended that:

a. No further considerations be given to standardization of Receiving Amplifier EE-118-T1 (Telephone).

b. The Signal Corps Ground Signal Service be directed to concentrate development and procurement effort on the following apparatus:

(1) Telephone TP-9
(2) Sound Power Receiver
(3) Repeaters 2-wire, 22 type for use of stabilized field wire.

c. Communication Coordination Division be directed to coordinate results of service tests on Telephone Repeater EE-89-T3 and take action towards adoption and standardization if results warrant.

CASE NO. 496, Revised. Disapproved February 24, 1943.

Shelter for Small Portable Communication Equipments

The Signal Corps Board was directed to examine the specifications of the Bell Telephone Laboratories' Ground Tent, to determine whether or not a military need exists for the tentage as temporary protection against weather for items of signal equipment or installations when not operated within a vehicle.

After study the Board concluded that a need exists for such a shelter and recommended that specifications be prepared and the Tent LC-( ) standardized for use in the field for protecting small, portable field installations of signal communication equipment, except power units, against the elements and hostile observation.

When the report of the Board was reviewed in the Office of the Chief Signal Officer, it was agreed that the tent had desirable features but the following objections were raised:

a. The weight of the tent is too great
b. A special tent to replace the present Quartermaster issue would complicate the supply program
c. The tent is a non-essential item of equipment and is fabricated of critical materials
d. The basis of issue proposed was unnecessarily large

As a result of the above conclusions, the Chief Signal Officer disapproved the report of the Signal Corps Board.

CASE NO. 517. Approved March 9, 1943.

Print-O-Matic Duplicating Machine

The Signal Corps Board was directed to examine and study the Print-O-Matic duplicating machine to determine if a military need exists for small duplicating machines for field use by Signal Corps units.

The machine submitted for test was a standard portable, rotary, stencil type machine, weighing $2\frac{1}{2}$ pounds and designed to handle paper $3\frac{1}{4}$" x $5\frac{1}{2}$" in size.

The Board secured data on present equipment furnished field units for duplicating purposes, examined the model and conferred with experienced officers.

The Board concluded that the Print-O-Matic duplicating machine was unsatisfactory for use by the Signal Corps and that no military need exists for equipment not already standard issue.

It was recommended that no further consideration be given small duplicating machines of the Print-O-Matic type.

CASE NO. 495. Approved March 10, 1943.

Shielded Blackout Lamp for Command Post Tents

The Signal Corps Board was directed to conduct an investigation to determine upon a suitable lamp and reflector for the purpose of illuminating the interior of Command Post Tents and Mobile Telephone Centrals installed in trucks during blackout conditions.

The Board investigated light transmitting properties of tenting materials now used in the manufacture of standard Quartermaster tents and lighting equipment presently available to military organizations.

The Board concluded that:

a. The lighting equipment presently available to the Army is not satisfactory for the lighting of command post or other tents, or truck shelters under blackout conditions.

b. The maximum blackout security in tent lighting will be obtained through the use of specially designed lighting equipment at each working point where illumination is required.

c. A military necessity exists for the development of a Lamp, Tent, Blackout.

After review in the Office of the Chief Signal Officer, it was recommended that the report be brought to the attention of the Chief of Engineers with the suggestion that the Corps of Engineers consider the development of a Lamp, Command Post, Blackout, for use in command post and similar tents, giving consideration to the material presented and the conclusions reached in the report by the Signal Corps Board.

RADIO NOISE

Radio communications are of military value, of course, only when signals can be heard over them. A weak, distant signal has little chance of getting through intense local "static" or man-made interference, and "Get the Message Through" is the motto of the Signal Corps.

The work of the Detroit Field Section of the Tom's River Signal Laboratory is concerned largely with the suppression of electrical interference. One of its numerous discoveries is so simple and effective that it may result in great improvements in auto-radio installation after the United Nations have won the war. It was found that substituting a choke coil for the ordinary wire lead from the brush and armature terminal inside a generator "showed very great improvement in noise reduction."

So busy is that Laboratory, in fact, that 24-hour stock room service has been established for the Test Equipment Maintenance Unit, to expedite the flow of equipment in and out, and to serve the needs of repair crews who work three shifts.

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EQUIPMENT COORDINATION

AIR-GROUND SUPPORT OBSERVATION TRIP

Two officers of the Equipment Coordination Branch have returned from an observation trip to the Air Ground Support Training School at Gainesville, Florida.

The purpose of the trip was to observe extensive field trials of Telephone and Telegraph carrier equipment operated over Spiral-four cable, various types of repeater equipment, the recently standardized wire and cable laying Plow LC-61, and various types of testing equipment. Much information was secured as to the capabilities of the equipment, operating procedures, and maintenance problems.

The trials are being conducted by the 930th Signal Battalion under the supervision of the Signal Corps Board, and complete reports covering the trials will be prepared by that Board.

DISTRIBUTION OF TELETYPEWRITER EQUIPMENT FOLDER

Copies of a folder, subject: "Descriptive Data, Signal Corps Teletypewriters and Associated Equipment," received from Ground Signal Equipment Branch, have been distributed to Army Air Forces, Army Ground Forces, Director of Naval Communications, Signal Corps Board, Procedures Coordination Branch, and Army Communications Board. Other distribution is being made directly by Ground Signal Equipment Branch.

SPEECH PLUS DUPLEX EQUIPMENT

A draft of military characteristics for Speech Plus Duplex Equipment has been prepared and forwarded to Ground Signal Equipment Branch for comments. This development program is being coordinated with Plant Engineering Agency and War Plans Branch, in view of an urgent need in active theaters.

RADIO SET SCR-194

Recommendation for the reclassification of Radio Set SCR-194 from Standard to Limited Standard was forwarded to the Signal Corps Technical Committee.

Radio Set SCR-194 is the Field Artillery version of the "walkie-talkie,"

and operates from 27.7 to 52.2 mc. The use of vehicular radio sets of the type of Radio Set SCR-608, 610, etc., by the Field Artillery, has fulfilled the military need which formerly existed for Radio Set SCR-194.

RADIO SET SCR-195

Recommendation for the reclassification of Radio Set SCR-195 from Standard to Limited Standard was forwarded to the Signal Corps Technical Committee.

Radio Set SCR-195 is the Infantry version of the "walkie-talkie" operating from 52.8 to 65.8 mc. The development and standardization of Radio Set SCR-300 was undertaken to replace Radio Set SCR-195.

RADIO SETS SCR-178 and SCR-179

Recommendations for the reclassification from Standard to Limited Standard of Radio Sets SCR-178 and SCR-179 were forwarded to the Signal Corps Technical Committee.

Radio Set SCR-178 is a transmitting and receiving set with a frequency range of 2.4 to 3.7 mc. This set was packed in three chests arranged for transportation in vehicles. Radio Set SCR-179 is Radio Set SCR-178 arranged for pack animal transportation. These radio sets were used by the Field Artillery, and the military need for the sets is now fulfilled by the vehicular sets of the type of Radio Set SCR-608, 610, etc.

C-3 LAMP

Arrangements to provide C-3 Lamps for a service test by the Tank Destroyer Board were completed. A C-3 lamp is an Air Corps item.

RC-33

Action was taken to have the RC-33 reclassified to obsolete. The RC-33 is a Marker Beacon Receiving Equipment.

RADIO SET SCR-583-( )

Radio Set SCR-583-( ) has been adopted as standard by the Commanding General, Army Service Forces. The standard set differs in some details from the development type illustrated on page 26 of Signal Corps Technical Information Letter No. 16, last month.

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REQUIREMENTS

This war necessitates armies of such size and mobility that much depends on perfect coordination and timing, thereby placing the stress on communications to a degree never before attempted nor achieved.

Communication has become the very breath of our operations in every echelon. Modern science has met the call for lightning-speed communication by supplying an amazing variety of electronics devices, all of them Signal Corps equipment.

Tanks roll along by the thousands, radio and telephone equipped; jeeps, trucks and motorcycles, too, have their radios. Foot troops stream by equipped with "walkie-talkie" sets. Army photographers, using various types of speed and motion picture cameras, are active where action is heaviest. Wire is laid, mile after mile of it, and field-telephone and telegraph stations spring into being. Aircraft warning posts are established, putting into operation secret and often mysterious electrical apparatus. Powerful searchlights and countless items of meteorological equipment travel with the Army. Transmitting stations to maintain regimental, division, and Army contact are set in operation. The thousands of aircraft guarding and attacking before and with the ground forces, above all, must be electronically equipped.

In supporting echelons the same type of equipment is again found, augmented by generating plants, air conditioning units, lighting systems for shops and supply centers — to say nothing of thousands of other small items of signal equipment. So it goes, increasing, rather than diminishing, back through the various echelons to mobilization centers and supply depots, activation areas, developmental laboratories and Headquarters offices. And it is all signal equipment.

Everyone concerned has come to take as a matter of fact that this equipment MUST BE if a victorious Army is to be maintained. Few, including the users themselves, ever stop or have time to stop to consider how it is planned that these items of signal equipment get to where they are needed, when they are needed, and in the proper quantities. In other words, few consider how material is procured or how requirements are provided for.

Back in the Army Service Forces housed in The Pentagon in Washington, the Chief Signal Officer carries the responsibility for supplying the Army, and in part the Navy, government agencies and Lend-Lease nations with the thousands of items constituting Signal Corps equipment.

One of the first steps in discharging this responsibility is carried out in the Requirements Branch of the Materiel Division.

The Chief of the Requirements Branch is Colonel Charles M. Simpson, Jr., a Signal Corps officer with twenty-six years of active background; experience gained in World War I, and subsequent service in the Philippines, Panama, the Chicago and Lexington Signal Depots, Fort Monmouth, and The Office of the Under Secretary of War.

Assisting Colonel Simpson is a staff of nine officers and 168 civilians.

They have been chosen because of their technical and industrial backgrounds necessary in working out the details of volume procurement of electronics equipment.

Branch Functions

The basic functions of the Requirements Branch are to compile and coordinate all requirements of signal equipment, to budget and to "program" toward the purchase of these requirements, and to initiate the Requirements Plan Request (R.P.R.), the document which places in motion the machinery for procurement of Signal Equipment Requirements.

The functional procedures, extremely varied and detailed, may be summed up in the following manner:

a. To compute tactical organization requirements on those items stated on Tables of Basic Allowances;

b. To augment these T/BA requirements by such additional requirements as do not appear on the Tables; that is, special items for the Army Air Forces, certain radar equipment, all International Aid and Navy requirements, and those of all the various agencies for such items of equipment as have been designated by Army Service Forces: "Procurement by Signal Corps." This involves obtaining and coordinating such requirements from those outside agencies;

c. To prepare and maintain supply and expenditure programs for items, and to prepare information for the budget to be submitted to Congress and defended by the Chief Signal Officer;

d. To obtain from Headquarters, ASF, the authority to place our requirements in the Army Supply Program;

e. To indicate delivery schedules for the required items, computed in an orderly and business-like manner;

f. To draw up and forward the Requirements Plan Request (R.P.R.), covering all of the items programmed and budgeted;

g. To indicate the Precedence (the manner in which procurement of one item may precede procurement of another) to be granted on items which bear like Priority.

The division of work in order to perform the Branch functions has resulted in the establishment of four major Sections and seven Sub-Sections, each in charge of a commissioned officer or a civilian. Work processes have been so organized as to operate along the same orderly lines of efficient production practiced in the best industrial assembly lines.

The problems present in the Requirements Branch are voluminous, varied, and interesting. The duties require relations with all Branches of the Materiel Division, with all using Arms and Services, and with the Army Service Forces. Thus the aim of the Requirements Branch is to compute requirements, initiate procurement, and to provide the funds necessary to assure purchase.

FACILITIES

CERAMIC TEMPERATURE COMPENSATING CONDENSERS

One of the most important items of Signal Corps components today is the ceramic temperature compensating condenser. These condensers, while insignificant insofar as their size is related to the size of the encompassing equipment, are making possible radio applications to field service which were possible only in the laboratory several years ago.

In all radio frequency circuits the exact frequency of resonance will change to some degree with changes in temperature. This is due to small changes in resistance, capacity or inductance in such components as coils, condensers, tube cases and wiring. As it is apparent that the difficulties in correcting such individual variables would be relatively impossible in practical design, it has been found necessary to introduce an overall compensation by means of compensating condensers in the oscillatory circuit and in associated circuits, where needed. It is, therefore, possible to correct undesirable frequency drift by introducing a reactive component having a temperature coefficient of the opposite "sign" and having such a value as to offset the undesired change with temperature. Such compensation is obtained by utilizing a compensating type of condenser.

Ceramic temperature compensating condensers consist basically of a ceramic dielectric with coated plates of pure silver fired on at a very high temperature. The desired amount of temperature coefficient of dielectric constant required by the circuit design is achieved by using different percentages of Titanium Dioxide in the ceramic body. As the percentage of Titanium Dioxide decreases and the percentage of other ceramic material, usually steatite, increases, the dielectric constant decreases and the temperature coefficient becomes less and less negative. It, therefore, follows that the higher the negative temperature coefficient used, the higher the capacity obtainable from the condenser.

In planning for the production of components required for Signal Corps equipment, full cognizance was taken of the definite need for expanding production facilities for ceramic temperature compensating condensers. The expansion planning was done to the end that a sufficient margin of safety to care for increasing program requirements would be available. By making possible ample capacity for the supply of these items, laboratory precision has been made available to production design.

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MILITARY INTELLIGENCE

The following items are reproduced from "Tactical and Technical Trends," prepared by the Military Intelligence Service, War Department, by specific authority of the Assistant Chief of Staff, G-2:

BRITISH SIGNAL SECURITY IN NORTH AFRICA

"Radio, when properly used, furnishes a valuable means of signal communication. It is used for both tactical and administrative messages by all units of a modern army. It is an essential means for highly mobile elements such as aircraft and armored units, and is especially useful for control of motor movements and for dealing with fast moving situations.

"One of the chief disadvantages of radio communication is that radio intelligence is one of the enemy's best methods of obtaining information of our plans, dispositions, and operations. In order to provide the necessary signal security a high state of training is required of all personnel. In North Africa the British have come to understand the importance of proper security measures in radio communication. In one campaign, security measures were poor and, as indicated below, valuable information fell into enemy hands. In a later campaign, corrective measures were taken; many of the earlier failings in the British signal security were remedied by the introduction of new procedure, combined with the reduction of traffic in the clear.

Lack of Signal Security

"The following weaknesses in British signal security in one of the earlier campaigns resulted in the enemy acquiring valuable information on the strength and disposition of British forces and on their future plans:

1. The enemy found it possible to predict a certain attack from an examination of requests for supplies. The sudden increase in requests for rations, fuel, and ammunition indicated the imminence of an attack. It was this extra supply traffic, combined with the German knowledge of the code call system, which enabled the enemy to anticipate the attack, and to make the necessary dispositions to meet it.

2. The exact location of British unit positions was made easier by one station asking another to call back at a prearranged time.

3. The identification of units was often made much easier by the constant repetition of names and code references, and the almost complete lack of security measures in conversation under conditions of bad communication.

4. Carelessness in the use of plain language, especially under battle conditions, allowed information to escape relating to matters as important as command and operation plans.

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5. The practice of giving the coordinates of enemy positions in the clear was of value to the Germans by giving them information as to:

a. The exact location of their own troops;

b. The general location of British troops, since the report of the position of enemy forces obtained by visual observation necessarily gives the approximate location of the reporting unit;

c. British intentions. The traffic between two British stations included reporting in the clear locations of enemy tanks, followed by a reply stating an intention to attack then or at a prearranged time.

6. From the number of captured British codes and documents found in enemy possession, it was evident that the practice of forwarding a code name or list to all units in a division, and of showing the complete distribution list, has proved of great value to the enemy in determining the exact British order of battle.

Success of Signal Security

"The effects of improved methods were most clearly seen at the time of a later British offensive. The Germans were unaware as to whether British preparations were offensive or defensive, nor did they know either the time of the attack or the strength of the forces employed.

"This lack of information was attributed to the new signal procedure, increased radio security measures, the observance of radio silence by units arriving in their assembly areas, and the fact that no special supply preparations were identified."

NEWSMEN SEE SIGNAL CORPS IMPROVEMENTS

The country's leading journalists - newspapermen, magazine writers, and radio commentators - saw some of the marvels and mysteries of Signal Corps Research activities in a one-day tour of Fort Monmouth, N. J., February 5, 1943. The tour was arranged by Under Secretary of War Robert P. Patterson to acquaint the newsmen with the problems and responsibilities of the Signal Corps as well as to show them some of the more advanced projects that are making the Signal Corps the pioneer in the communications field.

On a tour of the Signal Corps laboratories, the visitors saw for themselves the latest developments in radio detector devices, teletypewriter equipment, sea rescue radio sets, mobile direction-finding units, handie talkies, new wire throwers, field photographic laboratories and other war material.

ARMY PICTORIAL

THE FIGHTING MAN

The Training Film Section is supervising the production of a new group of films known as "The Fighting Man" series. These films vividly and in soldier language acquaint troops with actual battle conditions, the tricks of soldiering, and the mental attitudes conducive to effective warmaking. The first of these films are about to be released for distribution. Opinions expressed indicate these films are the most unusual training films made by any army, United Nations or Axis.

Between November 1, 1941, and November 1, 1942, the Training Film Section supervised the production of more reels of film than were turned out by the largest Hollywood studio in a similar period.

"First Aid," one of the most utilized training films, has recently figured in news stories covering soldiers who effect rescues and attribute their heroism to having seen the film.

CASABLANCA CONFERENCE

The Still Picture Distribution Section has received the following negatives from Africa: 226 - 4x5 negatives, 2 reels 35 mm negatives and 85 Kodachromes of President Roosevelt, Prime Minister Winston Churchill, and others at the conference in Casablanca in January. From these negatives 900 prints were made up for release through the Bureau of Public Relations in a record time of 7 hours. This included developing the negatives.

This Section also furnished forty - 24x30 enlargements to Fort Monmouth for an exhibit for the Secretary of War, these later being sent to the Photographic Center at Astoria for further exhibition.

The new sub-laboratory for still photographs in The Pentagon will make it possible to produce quantity prints with no delays due to delivery.

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NEW RELEASES

During the month of January 1943, nine new sub-libraries were established. In the same period, 40 newly released training films and 16 film strips were initially distributed to sub-libraries.

Outstanding new releases included TF 25-670, "Organization of the Army," a complete series on the care and maintenance of pneumatic tires, and three medical subjects, "The Fly," "The Louse," and "Malaria."

Under the auspices of this Branch, a two weeks' orientation course was conducted for new personnel preceding assignment to Service Commands. The Visual Aids Coordinators of the Eighth and Ninth Service Commands participated in this conference. Upon completion of this training period, an officer was assigned to each of the Third, Fourth, Fifth, and Seventh Service Commands. In addition, one civilian specialist was assigned to each of the Sixth and Seventh Service Commands. Two civilian specialists were assigned to the Fifth Service Command.

FILM TRAINED ENGINEERS PUT UP BRIDGE

When green soldiers perform a job after one showing of a training film, with no supervision, that's news.

That's exactly what happened, though, out at Camp Chaffee, Arkansas. The story is told by Major John Jannarone of the 125th Engineers in a letter to Major Richard A. Carroll of the Army Pictorial Service, Office of the Chief Signal Officer.

" . . . Two weeks ago we performed the little experiment you and I were talking about a long time ago. We took a platoon of 36 recruits who had had three weeks of training which did not include any Engineer training. We showed them our Timber Trestle Bridge pictures, brought them out to a bridge site, gave them a sergeant who had never built a bridge, and told them to build one.

" . . . In three and a half hours they had completed a 45-foot timber trestle bridge which is as good as any I've ever seen.

"If that isn't an argument for training films, I'll eat one."

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INSPECTION AGENCY

INSPECTION ZONE TERRITORIES

For the better functioning of the Signal Corps Inspection Agency, territorial rearrangements of the five Zone offices have been made. The changes became effective midnight, March 31. The following are the assigned territories of the Signal Corps Inspection Zones:

Zones	Territory
Newark Signal Corps Inspection Zone	Massachusetts, Connecticut, New Hampshire, Maine, Rhode Island, Vermont, New York, Canadian Provinces of Ontario and Quebec. The northern portion of New Jersey including Mercer, Middlesex, and Monmouth Counties and the counties north thereof.
Philadelphia Signal Corps Inspection Zone	The southern part of New Jersey including Ocean, Burlington and Camden Counties and the counties south thereof. Eastern Pennsylvania including Potter, Cameron, Clinton, Centre, Huntington and Franklin Counties and the counties east thereof. Delaware, District of Columbia, North Carolina, Maryland, Virginia, South Carolina
Dayton Signal Corps Inspection Zone	The west portion of Pennsylvania including McKean, Elk, Clearfield, Blair, Bedford and Fulton Counties and the counties west thereof. Michigan with the exception of the northwest peninsula lying between Lakes Michigan and Superior. West Virginia, Kentucky, Tennessee, Florida, Ohio, Georgia, Mississippi, Alabama. The southern portion of Indiana including Wayne, Henry, Hancock, Marion, Hendricks, Putnam, Clay and Vigo Counties and the counties south thereof.
Chicago Signal Corps Inspection Zone	The northwest peninsula of Michigan lying between Lakes Michigan and Superior. The northern portion of Indiana including Randolph, Delaware, Madison, Hamilton, Boone, Montgomery, Parke and Vermillion Counties and the counties north thereof. Illinois, North Dakota, Iowa, Nebraska, Arkansas, Wisconsin, South Dakota, Kansas, Missouri, New Mexico, Minnesota, Louisiana, Texas, Oklahoma, Colorado
San Francisco Signal Corps Inspection Zone	California, Washington, Idaho, Wyoming, Utah, Oregon, Nevada, Montana, Arizona

MILITARY ORGANIZATION

REASSIGN CONSTRUCTION COMPANY

The 258th Signal Construction Company (Negro enlisted personnel), stationed at Camp Crowder, Missouri, has been relieved from the control of the Commanding General, Army Ground Forces and assigned to the Second Army. This unit now is placed under the control of the Commanding General, Army Service Forces, reassigned to the Seventh Service Command, and will be prepared for extended field service by the Commanding General of the Seventh Service Command.

The establishment of a post photographic laboratory at Camp Maxey, Texas, has been authorized. The laboratory is classified as an installation under the jurisdiction of the Commanding General, Eighth Service Command.

The 1st Signal Operation Platoon, Special Troops, Headquarters Eastern Defense Command, has been constituted and assigned to the Eastern Defense Command. This unit was scheduled for activation by the Commanding General, Eastern Defense Command, at Fort Jay, Governors Island, New York, during the month of March, with an authorized strength of three officers and seventy-two enlisted men.

The 13th Port Headquarters and Headquarters Company (Transportation Corps) is redesignated as the 13th Port Headquarters and Headquarters Company (Transportation Corps) (Special) and will be reorganized by the Commanding General, New York Port of Embarkation, without change of station or assignment.

The 65th Signal Battalion, affiliated with the Illinois Bell Telephone Company; the 303d Signal Operation Battalion, affiliated with the Illinois Bell Telephone Company, and the 166th Signal Photographic Company, affiliated with the Research Council of the Academy of Motion Picture Arts and Sciences, have been ordered into the military service of the United States and will be organized as early in April 1943, as is practicable.

Orders have been issued to transfer the 33d Signal Company from Fort Lewis, Washington, to the Desert Training Center, Camp Young, California, for permanent change of station.

Upon arrival at the Desert Training Center this unit will be relieved from its present assignment and will be reassigned to the Desert Training Center.

Instructions have been given to transfer the 181st Signal Repair Company from Camp Crowder, Missouri, to the Desert Training Center, Camp Young, California. This is a permanent change of station.

This unit will be reassigned to the Desert Training Center upon arrival at the Desert Training Center.

The establishment of a Signal Corps Photographic Laboratory at Headquarters, Utah Quartermaster Depot, Ogden, Utah, is authorized. This laboratory

will be classified as a Class I installation under the jurisdiction of the Commanding General, Ninth Service Command.

The 81st Signal Company will be transferred from Camp Rucker, Alabama, to Lebanon, Tennessee, for temporary change of station. This unit will not return to Camp Rucker, Alabama, but will be ordered to a new permanent station to be announced later.

The Army Service Forces Unit Training Center, Camp Ellis, Lewiston, Illinois, has been established, and will be organized by the Commanding General, Sixth Service Command. The Center will be operated as an installation.

The ASF Unit Training Center will coordinate and supervise the training of such units as may be designated by the Commanding General, Army Service Forces.

The Western Signal Aviation Unit Training Center is established at Pinedale, California, assigned to the Headquarters, Army Air Forces, and placed under the immediate supervision and jurisdiction of the Commanding General, Fourth Air Force.

Effective February 1, 1943, the 1306 Signal Pigeon Company (Aviation) was constituted, assigned to the Headquarters, Army Air Forces, and will be activated at Pope Field, North Carolina, by the Commanding Officer of Pope Field, North Carolina. The unit will be attached to the 92d Base Headquarters and Air Base Squadron and will be under the control of the Commanding General, Army Air Forces (Director of Communications).

Under authority of War Department letter dated March 6, 1943, units in the continental United States under control of the Commanding Generals, Army Ground Forces, Army Air Forces and Army Service Forces will reorganize under new Tables of Organization only when specifically directed to do so by the particular commander of one of these three Commands to which the units are assigned. The purpose of this centralization of authority is to insure effective utilization of personnel made surplus by introduction of new Tables of Organization of reduced strength.

Units in the continental United States under control of the Commanding Generals of Defense Commands or the War Department and those outside continental United States will reorganize under new Tables of Organization only when authorized or directed to do so by the War Department by specific instructions with reference to a particular unit, command or theater. These instructions do not change the present authority of overseas commanders to make such provisional changes in organization as may be necessary for special training and operations to carry out their missions. However, such changes do not authorize additional allotments of grades and authorized strengths and will not constitute a basis for requisition of personnel or equipment without approval of the War Department.

FORT MONMOUTH

EASTERN REPLACEMENT TRAINING CENTER

Within recent months the subject of supervision of training has come into the limelight. Over and above the problem of detailed supervision of training is the question of obtaining a clear view of the operations of the major divisions of a training center.

To this end Brigadier General Edgar L. Clewell has in operation an inspection system whereby a board of approximately ten officers makes a thorough investigation of the facilities and operation of each division every ninety days.

The E.S.C.R.T.C. comprises the Signal Communication Division, Basic Training Division, Clerk Specialist Division, Mess Specialist Division, Motor Vehicle Division, and the Training Standards Division. Prior to the inspection of each division, a check list of points to be noted is prepared under the direction of the Plans and Training Officer, Colonel Albert F. Hogle. This check list covers by means of pointed questions, the major aspects of the training problem. It includes not only a study of the buildings, furniture, and equipment with an eye toward adequacy for current training needs, but also a spot check of actual training work.

The manner in which the school is administered — the schedules, the charts of progress, and the supply system — are likewise subjected to close scrutiny. An estimate is made of the efficiency of the cadre by means of rating scales and visits to classrooms.

The board of officers invariably includes several directors of other school divisions who are able to employ their broad experience and knowledge to discern potential improvements and training.

The several inspection reports are consolidated by the officer in charge of inspection and submitted to General Clewell to give him a comprehensive picture and to direct his personal attention to points where changes seem indicated. Additional copies of the report go to Colonel Hogle and to the Director of the school division who institutes corrective action and reports on steps taken.

Toughening Training

Consistently, reports from the field have driven home the lesson that signal men must be fighting men as well as technicians. To inculcate the rough and tumble techniques of the foot soldier in basic trainees, the E.S.C.R.T.C. has imported thirty infantry officers from Fort Benning, Ga.

Increased emphasis will be placed on the digging of fox holes and slit trenches and digging them fast — before the enemy heaves into view. Under the direction of Major Joseph D. Carton, the Basic Training Division has al-

ready installed a realistic combat course at Allaire, New Jersey. Machine guns, tanks, and other weapons of war give the face of things a completely realistic appearance, and men rushing across the terrain at port arms sometimes find themselves face to face with a thirty caliber machine gun so cleverly camouflaged that they do not recognize it until they are in its fire lane. It is a lesson learned much more cheaply than it could be in combat.

To assure maximum efficiency among the new officers, the thirty infantrymen were given a complete tour of E.S.C.R.T.C. facilities and an opportunity to observe and discuss the training in which they are to participate. Graduates of the Infantry Officer Candidate School, the new platoon leaders have a broad background of experience on maneuvers and other training which will enable them to make forcefully clear the application of ground troop techniques to signal work.

Replacement Center Insignia

"Discimus ut Serviamus" — "We learn that we may serve" — that's the new by-word of the Eastern Signal Corps Replacement Training Center, and it is now being borne proudly by the permanent detachment of Camp Wood and Camp Edison, on their own special insignia.

Created by authority of the Commanding General, Army Service Forces, the insignia consists of an oval crossed by flashing lightning with the symbolic torch in the center. The torch, symbolic of the ancient courier, and the lightning, symbolic of ultra-modern radio waves, are colored orange while the reminder of the device is sterling silver.

The insignia is worn by officers on the shoulder loop and on the service hat, while enlisted men display the replacement center identification on the lapels of the blouse and the left side of the field cap.

Officers Get Camouflage Training

Continuing the Officers' School at the ESCRTC, an outdoor demonstration of the "Tactics of Camouflage" was conducted by 1st Lieutenant Bernard R. Boak and 1st Lieutenant Daniel J. Loden.

The entire officer personnel were taken into a large field training area, apparently empty. After a brief orientation lecture by Lt. Loden on the basic principles of camouflage, two Infantry squads suddenly appeared from various camouflaged positions in the surrounding territory, and advanced in skirmish formation toward a wooded area. As the squads advanced, it was pointed out how one squad observed the principles of concealment, whereas, the others committed numerous errors.

Suddenly, machine guns firing blank ammunition, and mortar shells bursting overhead revealed that the area toward which the troops were advancing, concealed an entire machine gun company and one 37 mm antitank gun. The situation was then changed to indicate that the attacking forces had brought up

their rear reserves and wiped out the enemy weapons and crew. A smoke screen was laid to demonstrate withdrawal under cover of smoke.

The officer spectators advanced down a taped lane into the enemy positions. There had been installed, under the direction of Lt. Boak, all the various types of slit trenches and foxholes with men in camouflaged suits manning the installations. A sniper was so well concealed in a tree that he had to climb down from his position before he could be seen.

Illustrating Japanese tactics, a man was so concealed in a foxhole with a chicken wire cover that the officers standing in a radius of a thirty-foot circle could not detect the sniper. Further into the wooded area, command post, message center, switchboard, and radio installations were concealed. The demonstration was concluded with a review of camouflaged vehicles.

All installations were manned by Replacement Center Security Elements and the machine guns and antitank weapons by a nearby Eastern Defense Command organization.

One of the most interesting side-lights of the program occurred when an officer picked up an empty 37 mm shell lying in an open field. The shell was attached to a booby trap and was directly in line of fire of a completely concealed machine gun crew.

EASTERN SIGNAL CORPS SCHOOL

Regardless of the service, the type of warfare conducted today is dependent upon the combined action of all, working as one, towards the same goal - VICTORY.

To obtain this end, communication provides a vital link. Of prime importance is wire communication. The art of this field calls for many highly trained technicians. The Wire Division of the Enlisted School, Eastern Signal Corps School, has enlarged and made available its facilities to train these technicians, sent cadres of officers and enlisted instructors to open other signal training schools, and developed progressively its methods of instruction.

The ranks of enlisted personnel pursuing a definite course of instruction within the Wire Division at Fort Monmouth have been greatly enlarged by an influx of men from the Marine Corps, Coast Guard, and branches of the arms and services of the Army other than the Signal Corps. This follows the policy expressed by the Chief Signal Officer for "full and complete cooperation" and the "accomplishment of Signal Corps responsibilities to the armed services."

All men, regardless of arm or service, receive technical training of a highly specialized nature which is balanced in order to fulfill the more com-

prehensive mission of signal communication. The Cable Splicing Course as offered by the Wire Division at Fort Monmouth is a typical example.

The cable splicing specialty has been set up by the Enlisted School to entail full instruction in the splicing of lead-sheathed exchange cable, splicers' tests, emergency testing, which covers location of cable trouble by tone and exploring coil method and Wheatstone bridge measurements, and cable maintenance. Moreover, in order to fulfill the larger mission of signal communication, the course is augmented by the subcourses on Pole Line Construction, Field Wire Communication, and splicing rubber-covered cable. As a result, the enlisted man who completes this course, although a specialist, is adaptable for use within various types of signal units.

The enlisted student taking the cable splicing course utilizes the self-study method which is under the supervision of enlisted instructors. Lesson material is in the form of mimeographed sheets, engineering bulletins, tool equipment records, and Bell System Cable Specifications. This material is being consolidated into a training manual, Tentative TM 11-372, Telephone Cable Splicing (Exchange Cable), which will be the first of its kind on cable splicing.

Students in the cable splicing course start instruction by being introduced to the nomenclature of the material, tools, and equipment with which they will work. This phase of training serves to orient those men who have had little or no previous cable work and acts as a refresher for those with previous experience. A written quiz is given at this point to insure that the student is adequately familiar with the tools, material, and equipment before starting upon the practical applications of this work.

Immediately upon the commencement of the practical work, safety factors are emphasized to prevent accidents which can be attributed to the misuse of tools, equipment, or the high temperatures encountered in the preparation of splicing materials. Though much of the material used in splicing is expendable, special supervision and instruction is given to prevent waste. Proper care and manipulation of tools is stressed as soon as the student begins to use them.

Actual cable splicing is taught by means of bench work. At the same time the student learns to use cable testing equipment, and to conduct pressure testing. Finally he is taught the practical application of joint wiping and seam floating. In conjunction with the bench work, the soldier is taught how to climb and work on poles and in manholes. He learns to work on buried cable, to insulate joints and filled splices, run cables into buildings and terminate them on main frames, or distribution terminals.

After completing his bench work, the student proceeds to apply his learning in an actual outside job, embracing both aerial and underground cable splicing. He is observed, graded on practical performance, and tested with a final written examination. A soldier successfully completing the course presents a specialist well grounded in the technical and practical working of cable, who needs only field experience to round out his training.

Since its inception, the cable course has constantly progressed in its methods of instruction, design and usage of equipment, keeping abreast of modern cable splicing practices. Throughout the course the student is furnished with the cable splicer's tool equipment TE-56 and the cable splicer's trailer K-38.

Close cooperation between this cable course and American Telephone and Telegraph Company and the Associated Bell System Companies led to the early adoption, instruction, and use of the "victory wipe," which is a new method of wiping lead sleeve joints, to conserve lead and tin so vital under wartime economy. This type wipe has proven by test to be far more flexible at the wiped joint than the previous method of a full joint.

The other courses taught in the Wire Division of the Enlisted School, Eastern Signal Corps School, embody the same elements of procedure, directed toward the same end, which appear in the Cable Splicer's Course. Such differences as appear are the result of special needs in the other phases of Signal Corps technical specialties.

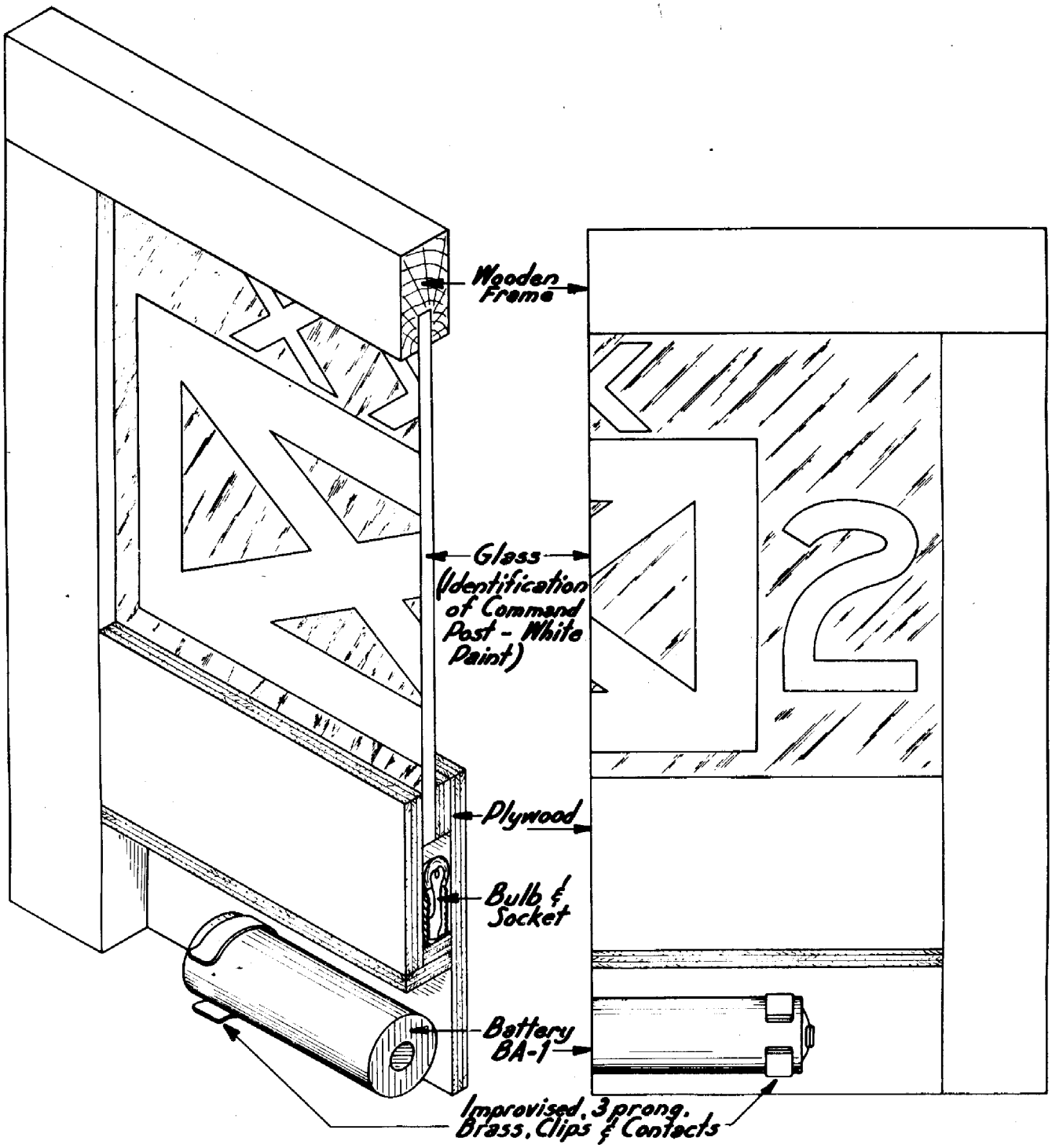
IDENTIFICATION SIGN DEVELOPED

There was a definite need for some type of identification sign by the Officers' School for use during field exercises under blackout conditions to avoid the necessity of posting guards and to assist the instructors in locating the command posts more easily.

Various types of experimental signs were tried but rejected because of impracticability, high battery drain, and unreliability. Fluorescent paint was tried, but it must be excited by ultra-violet rays and had a persistency of approximately two hours. Phosphorescent paint could be used, but it is rather scarce and it is difficult and dangerous to handle. Discarded one-gallon rectangular shaped varnish cans were punched with the identifying symbol of the unit involved, using both candles and lamps lighted by BA-30 batteries, but such a sign required constant attention and maintenance.

A novel, yet practical, type of sign was finally built. Its operation is based on the principle that when light impinges against a smooth surface of glass at a small angle of incidence, it is reflected back into the glass. Whereas when this light is intercepted by a ground surface, it is diffused and becomes visible.

The sign is constructed of salvaged $\frac{1}{4}$" plate glass and 3/8" plywood. In this particular case, the glass is about 6" x 10" and the outside dimensions of the pane is approximately 13" long and 12" high. It is important that three edges, other than the bottom edge, be painted white, in order that the light passing completely through the length and width of the glass be reflected back into the glass, thereby increasing the efficiency of the sign.



Drawing Of
Illuminated Command Post Sign
(Sign is bisected to illustrate construction features)

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The symbols and lettering on the glass are ground in with a small emery wheel. White paint could be used, but it does not reflect as much light and the symbol is barely visible from one side of the sign. The installation and removal of the battery serves as a switch.

The sign becomes visible at approximately 300 yards and the characters are discernible at approximately 50 feet. It is not visible from the air. The sign of the present design uses a BA-1 battery and a 2.7-volt lamp. Battery life is approximately 15 hours at 70° ambient temperature. This life, of course, is shortened when operating at lower temperatures. By using two BA-23 batteries, it is possible to secure approximately 150 hours of operation at 70° degrees.

The low surface brightness and minimum candlepower requirement suggests the possibility of many applications in the military service, such as truck identification in convoy during blackout, where the eye fatigue watching a relatively large area of low brightness is much less fatiguing than watching a small light of much greater intensity.

OFFICER CANDIDATE SCHOOL

The Officer Candidate School has a newly established Reference and Liaison Section whose function is to secure and supply training material and information of every type from all available sources.

The section, consisting of two officers and two enlisted men, maintains a complete library of military and technical publications and periodicals. In addition, regulations, school historical data, circulars, charts, maps and military observer's reports are maintained.

A constant exchange of material and ideas takes place through the liaison section, not only with Officer Candidate Schools of the other branches of the service, but also with officers' schools and enlisted men's schools, as well as training centers and field units.

Graduate candidates, confronted with administrative, technical, or training problems, are supplied with available information or material to aid them in solving their particular problems.

Visual aid projects are another function of the liaison section, which supervises the production of such aids, furnishes them to the academic departments, and gives instructions in their correct use.

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CAMP CROWDER

CENTRAL REPLACEMENT TRAINING CENTER

The Message Center Training Section of this Signal Corps Replacement Training Center has been overhauled to make it more effective.

Soldiers who entered the Section in the past spent the first of the two phases of which the course then consisted in classrooms.

Largely through lectures and blackboard drawings, they learned there what the Army's Signal Corps says a Message Center Clerk, a Code Clerk, or a Message Center Chief must know to get the job done in a combat zone. This was the first phase. It lasted four weeks. During the second phase, which also consumed four weeks, the soldiers spent in the field, putting into practice the theoretical knowledge they had absorbed. Necessarily, the classroom exposition of the various duties Message Center entails, the interlocking processes, and the general background of each job, was revealed gradually.

The Message Center Training Section course remains eight weeks long. The chief innovation is an indoctrination building. Within this building — with its more elaborate pictorial aids — a tangible picture of what makes up the fundamental operation of a Message Center is presented to the student before he begins the eight weeks of learning a mass of detail.

This broad picture is given the soldiers in several hours of instruction in the indoctrination building before they begin any actual study. Then four weeks of classroom instruction in the Message Center Training Section is begun. After this the men return to the indoctrination building for two weeks of work there. The last two weeks are passed in the field under simulated combat conditions.

The indoctrination building contains what amounts to a practice laboratory in which the entire field training Message Center set-up is duplicated in miniature. In their two weeks of study in this building the soldiers come to grips, on a reduced scale, with the problems they will later encounter out on the grassy slopes, the wooded hills and thick underbrush in the field. Some of the deserted farm houses that dot the reservation are utilized as command posts and Message Centers.

At one end of the indoctrination building is a small lecture amphitheater. In its center a large map is laid out on a table. This map shows the location of the First, Second and Third Divisions, I Corps, the First Army and the Message Centers of each as they are set up in the field here for training. Roads and other topographic detail are portrayed.

Close at hand on the wall are pictures to impress vividly on the soldiers' memories the various agencies of communication in modern warfare — the radio, telegraph, lamps, airplane messengers and so on. Occupying the rest of the building are booths containing the Message Centers of the different units in the field and large signs hanging from the ceiling quickly identify them from

any point within the building.

The indoctrination building — which is the original idea of Major O.G. Charles — also solves the need of a place for the simple illustration of solutions of knotty problems which occasionally confront the men after they have gone into the field. Until recently Major Charles was Chief of the Message Center Training Section and he is now on duty in Operations and Training here. Capt. T. J. Farrell is the new Chief of the School.

"Indoor" Rifle Ranges

Efficiency of the training program of the Central Signal Corps Replacement Training Center has been heightened by the addition of two "indoor" simulated rifle ranges for the use of basic soldiers in the Seventh Signal Training Regiment and the Sixth Signal Training Regiment. They are designed for use in inclement weather. Basics at the Replacement Center now receive their training in these two regiments.

The simulated range of the Seventh Regiment is located on the edge of the northeastern part of the parade ground and was completed early in March. It is 204 feet long and 20 feet wide. The floor is raised several inches from the parade field level and lined with chat to provide dry ground underfoot at all times. Further protection from the elements is afforded by a V-shaped roof of canvas tarpaulin. This roof is supported by poles salvaged from the wire school and was erected by men of this school as a part of their training program.

There are 51 targets on either side of this rifle range, enabling the use of the range by 102 men at one time. These targets are placed at 50-foot distance. They are marked for slow fire, from the standing position, and slow and rapid fire, from the kneeling and sitting positions.

This range was put up under the supervision of Major A. L. Ragle, director of training of the Seventh Signal Training Regiment, which is commanded by Col. Barndt A. Anderson.

The "indoor" range of the Sixth Regiment, which Col. George W. Daley commands, is similar, and was erected under the supervision of Lt. Col. C.E. Koeppe, director of training for this unit. It is located in the regimental area.

Saluting Campaign Gets Results

Bearing in mind that snappy saluting by enlisted men is not only one of the best indications of the swiftness with which new soldiers are absorbing training in military courtesy, but is the most conspicuous index of the morale of the men, a campaign for proper salutes was undertaken several weeks ago at Camp Crowder. It quickly bore fruit.

The effort — in which the chief aim was to convince the man himself

of the need for a proper salute — assumed three forms. There were a series of short announcements delivered daily over the Public Address system when the men were gathered at meals in the mess halls. Regular publicity was given the campaign in the Camp Crowder Message, the camp's newspaper, with the recurring phrase, "Salute with your eyes as well as your hand." In each issue a line of heavy type all the way across the front page provided a slogan that boosted the campaign. Talks were made by company commanders on saluting.

The improvement was marked and rapid. So much so that when the campaign was ended numerous visiting officers from other posts commented on the promptness and precision that characterized salutes everywhere in camp.

Time Signals Broadcast

Clocks all over the Central Signal Corps Replacement Training Center are corrected at 11 o'clock each morning when time signals sound over the camp public address system. At other times during the day signals are given over the public address system to mark the "breaks" for classes in various schools. The time signals are received here by short-wave radio from the Naval Observatory at Washington and are rebroadcast.

General Milliken Speaks

Brigadier General Charles M. Milliken, CSCRTC Commanding General, briefly addressed the 100 graduates of the Advanced Training Section before they left Camp Crowder late in February to enter Signal Corps Officer Candidate School at Fort Monmouth.

He stressed the growing importance of the Signal Corps and urged the use of initiative by the future officers. General Milliken pointed out that the number of Camp Crowder men, who have completed the Advanced Training Section courses, who fail to win their commissions at the Signal Corps Officer Candidate School is far smaller than that of any other camp.

First WAAC Teletype Instructor

The Army's first WAAC instructor in teletype communication is Mrs. Edna P. Gray, who came to Camp Crowder early in February with the 154th WAAC Post Headquarters Co., from Fort Des Moines, Iowa.

Auxiliary Gray is an instructor in the Teletypist Sub-Section of the CSCRTC Typist and Teletypist Training Section here. She left a civilian position to join the Women's Army Auxiliary Corps because she wanted "to be in the thick of things." Auxiliary Gray was for 13 years a chief operator and instructor in teletypewriter communications for the Pacific Telephone and Telegraph Company.

She was the first teletypewriter instructor on the Pacific Coast and gave instruction to Army personnel at Fort Lewis, Wash., in 1939. When teletype-

writers became a regular part of the Army communication system, Auxiliary Gray became supervisor for the telephone company of the system in all the Army posts in northern California. She worked with communications officers and enlisted personnel, instructing them in teletypewriter and private switchboard operation.

General Olmstead Visits Crowder

Major General Dawson Olmstead, Chief Signal Officer of the Army, expressed himself as being well pleased with the training activity at Camp Crowder at the conclusion of a four-day inspection trip to the reservation on March 4. Accompanying General Olmstead from Washington were Brigadier General Clarence R. Huebner, Director of Training of the Army Service Forces; Brigadier General Frank E. Stoner, Director of the Signal Operating Services; and Major P. E. Ketterer, General Olmstead's aide-de-camp.

A series of orientation talks at headquarters of the Central Signal Corps Training Center was given the day of their arrival. The remainder of their visit was given over to an inspection of the three components of the training center.

With the arrival March 3 of Major General Frederick E. Uhl, Commanding General of the Seventh Service Command, there were seven general officers on the post, the greatest number ever in camp at the same time. These included, in addition to the visiting officers, Major General Walter E. Prosser, Commanding General of the Central Signal Corps Training Center; Brigadier General Charles M. Milliken, commanding the Central Signal Corps Replacement Training Center, and Brigadier General Henry L. P. King, commanding the Central Signal Corps School.

CENTRAL SIGNAL CORPS SCHOOL

Brigadier General Henry L. P. King is now Commandant of the Central Signal Corps School at Camp Crowder, Missouri. Lieutenant Colonel Robert G. Swift, previously Director of the Enlisted Men's Department, has become Assistant Commandant. Captain Ovid H. Bell, who had been Adjutant and Director of Administration, is Executive Officer.

General King, who was Chief of the Military Personnel Branch in the Office of the Chief Signal Officer, assumed command of the Central Signal Corps School on January 18. Appointments of Colonel Swift and Captain Bell followed February 17.

Major George L. Martin, formerly Director of the Communications Division of the Eastern Signal Corps Replacement Training Center at Fort Monmouth, New Jersey, now is Director of the Radio Division of the Central Signal Corps

School. He replaced Major John P. Roane, who February 8 began training at the Command and General Staff School at Fort Leavenworth, Kansas.

Colonel Paul L. Neal, who was Assistant Commandant and Executive Officer of the CSCS, now is Director of Training of the Central Signal Corps Training Center. Lieutenant Colonel Alfred E. Larabee, formerly in charge of a Signal Corps unit of the Reserve Officers' Training Corps at the University of California at Berkeley, has become Chief of Staff of the CSCTC under Major General Walter E. Prosser, Commanding General.

Colonel Robert A. Willard on February 3 became Commanding Officer of the Central Signal Corps Unit Training Center. He succeeded Colonel James Lawrence, who has been assigned to Fort Bliss, Texas, as Post Signal Officer. Colonel Willard for several months was in command of the CSCRTC, of which Brigadier General Charles M. Milliken was made Commanding Officer.

Redesignate Regiments

The 800th and 804th Signal Training Regiments are the new names of the two organizations which take care of most of the students in the CSCS. They were known as the 800th and 804th Signal Service Regiments prior to their redesignation January 11.

Lieutenant Colonel Edward E. Cattilini, who was Post Executive Officer and Director of the Administrative Division at Fort Monmouth, New Jersey, on March 6 became Commanding Officer of the 800th Signal Training Regiment. Colonel Thomas C. Dedell, in command of the regiment since last May 21, was made inspector of the CSCS.

NOTICE OF SUSPENSION

The Signal Corps Information Letter (Unrestricted) will no longer be published by the War Department, Office of the Chief Signal Officer, Washington, D. C.

Letter No. 2, Volume II, distributed in February 1943, is the last issue that will be sent to those on the mailing list.

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CAMP KOHLER

WESTERN REPLACEMENT TRAINING CENTER

Streamlined organization and operation of the Western Signal Corps Replacement Training Center has begun to prove its efficiency, according to the consensus of staff officers and the results of newly developed training tests. With the shake-down run completed, the Training Center has turned its attention from pioneering problems to the more routine tasks of instruction, checking and supervision.

An increase in the number of specialist companies to accommodate the full thirteen weeks' cycle of communications training, has necessitated reducing the number of basic companies from eight to six. These six organizations have been unified into one Battalion. Thus under centralized control all basic trainees receive more uniform instruction. Reapportionment of basic trainees has allowed the Replacement Center to reduce the total number of battalions from four to five, thus releasing administrative overhead for essential duty elsewhere in the Center.

A Motor Transport Company has been activated to correlate the duties of all personnel in carrying out Transport functions. Its organization is similar to that of the Mess Company.

The new mobilization training program has combined all phases of study into a total of thirteen weeks. At the end of that period in each of the various schools, Signal Corps men are completely fitted for active duty unless they are scheduled to receive even more advanced instruction in the Western Signal Corps School at Davis, California. Liaison has been carefully arranged between the Replacement Training Center and the School so that students can make the transition without loss of time or energy.

In order to check the effectivencss of its instructions, the Training Division has introduced a unique system of tests and checks which are administered to all men at the end of each basic week. Highlight of the course comes the last day before trainees move on to specialist training. At that time each of four platoons compete for high grades on a G.I. quiz program.

Quiz Trainees

Adapted to the style of the radio quiz program, this testing device utilizes all the props, technique, and stage appeal of the network radio show — and still produces a reliable criterion for judging the over-all achievement of the men during their course. Carefully selected informative and performance questions are put in rotation to competing members of each platoon who are seated on the stage. Accurate individual and group scores are compiled by the judges as various men step to the mike and tackle the questions fired at them by "Sergeant Quiz."

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A more academic test is given trainees at the end of each of the first three weeks on specific material covered during the preceding seven days. Questions for these tests have been carefully phrased and scientifically apportioned to test accurately a representative cross-section of information disseminated during the week. Results of all tests are tabulated and graphed, in order that the platoon instructors, company and battalion commanders and the Training Division can check and improve their methods.

* * *

Colonel William S. Morris, called to duty with Army Service Forces Headquarters in Washington, D. C., left Camp Kohler on February 13, after having directed the training program at this Center since its activation. Prior to his leaving, the entire post passed in review before Colonel Morris, in tribute to his organizing efforts.

* * *

Fingers tapping on desks, murmured undertones of "dit dit dit dahs", and worried brows are traditional symptoms displayed by harried code students. But it is the officers of the WSCRTC these days, however, who are practicing transmitting and receiving in an effort to increase their signaling skill.

* * *

Average scores in trainee rifle marksmanship are on the upgrade too, reflecting the improved proficiency of officer instructors, who have been firing regularly each Sunday on the Kohler range. The Post trend toward improved marksmanship is exemplified by the awarding of a plaque to Company C of the 1st Battalion which qualified 75.38 percent of the members of the organization.

Specialized Training

Qualified trainees and cadremen at the WSCRTC took examinations here to determine if they were eligible for further specialized college training in the Army Specialized Training Program. Tests were supervised by the WSCRTC Personnel Division, which completed the entire testing schedule in a few days after short notice from the Ninth Service Command. Men who passed the test and who are approved by the ASTP board will be sent to colleges for engineering training for periods varying from three months to one and a half years.

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* * *

Religious life for the trainees is given special emphasis at the WSCRTC, although no compulsion is exercised. The North Chapel, second for the post, was dedicated February 7, with Brigadier General S. H. Sherrill, Commanding General, as the principal speaker. Brotherhood week was observed Sunday, February 28, at the South Chapel. Speakers included members of the clergy and laymen from the camp representing the Protestant, Catholic and Jewish faiths.

* * *

The Orientation Branch has inaugurated a series of Sunday roundups of the week's news in addition to its daily fifteen-minute newscasts over the camp public address system. Copy for these broadcasts is furnished by the Sacramento bureau of the United Press.

WESTERN SIGNAL CORPS SCHOOL

Specialist training at the Western Signal Corps School at Davis, California, is getting under way rapidly as necessary equipment is procured and officer personnel is assigned. Temporary quarters are being used for instructional purposes prior to the equipping of permanent buildings on the campus of the agriculture college for the Wire and Radio Divisions.

Seven buildings on the campus which are being used by the WSCS have been renamed for the duration in honor of former Chief Signal Officers of the United States Army. Appropriate signs will be erected in front of each building. Each will be painted blue and gold, the official colors of the University of California, and each will bear the name of the building and the crossed flags and torch of the Signal Corps. The new names are:

Myer Hall -- Administration Building; honoring Brigadier General Albert J. Myer, pioneer Army Signal expert and first Chief Signal Officer; location of WSCS Headquarters.

Hazen Hall — Agricultural Engineering Building; honoring Brigadier General William B. Hazen, Chief Signal Officer from August 24, 1880, to January 16, 1887; used by the WSCS Wire Division.

Allen Hall — Animal Science Building; honoring Brigadier General James Allen, Chief Signal Officer from February 10, 1906, to 1913; used by the WSCS Radio Division.

Saltzman Hall — Horticulture Building; honoring Major General Charles McKinley Saltzman, Chief Signal Officer from January 1, 1924, to January 8, 1928; used by the WSCS Wire Division.

Squier Hall — Chemistry Building; honoring Major General George O. Squier, Chief Signal Officer from February 1917 to December 31, 1923; location

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of War Department Theater.

Scriven Hall — Recreation Hall; honoring Brigadier General George P. Scriven, Chief Signal Officer from 1913 to February 1917; WSCS physical education center.

Greely Hall — Dairy Industry Building; honoring Major General Adolphus W. Greely, Chief Signal Officer from February 16, 1887, to February 10, 1906; WSCS Radio Division.

Physical Training

Lieutenant Colonel Edward A. Allen, WSCS Commandant, has instituted a toughening program for the men in specialist training. Swimming and gymnasium work, as well as calisthenics and drill, are in the "muscle curriculum." The intensive physical program is possible since the modern athletic plant of the college, including an outdoor heated pool and a gymnasium, has been taken over by the Signal Corps.

Boxing and perhaps judo will be part of the gym course. Everyone must swim regularly, even if he has to learn the art as a beginner. Swimmers will be trained in under water swimming, floating, how to avoid flaming oil patches, and how to inflate and use rubber life boats.

Living quarters for men and bachelor officers are being set up in the college dormitories, fraternity houses, and the University hotel formerly used by students. Eventually each of four training companies will be allotted one dormitory and one fraternity house. Headquarters Company, consisting of cadre instructors, will utilize one fraternity house and the University hotel. One fraternity house is serving as bachelor officer quarters.

Mail call has been eliminated with the establishment of a sub-unit of the Davis postoffice under the direction of a bonded enlisted Army postal clerk. Men stationed at Davis call daily at the postoffice during their off-duty hours to pick up their mail. Mail for the WSCS is sent to the sub-unit in bulk from the Davis postoffice. The only sorting necessary is done at the post. The postal clerk on duty is authorized to register and insure mail and issue money orders.

A lecture room in Squier Hall is used as a War Department theater. Two post exchanges — one the former Students' Co-op Store of the college, the other a Rathskeller in the basement of one of the dormitories — have been established for the use of men stationed there.

PURCHASES

EXCESS MACHINE TOOLS

Several hundred machine tools, declared excess by various communications manufacturers, have been put to use within the past month. Machine tools have also been transferred from manufacturers of the other services to firms making Signal Corps equipment, as well as among Signal Corps contractors.

This utilization of excess machine tools is based on a directive issued to Signal Corps contracting officers, directing them to instruct all contractors having contracts in excess of $5,000 to report surplus machine tools.

When received, this information is furnished by the Chief Signal Officer to the War Production Board, which redistributes them among manufacturers in need of machine tools. Authority has also been given Signal Corps procurement officers to declare excess machine tools, or those not used to their full capacity, surplus.

JOINT A-N SPECIFICATIONS

A joint Army-Navy specification, JAN - 1, for radio electron tubes, has been distributed to radio manufacturers and equipment manufacturers utilizing vacuum tubes. The use of this specification, or its future revisions, became mandatory after March 1, 1943, wherever applicable with respect to all vacuum tubes ordered after that date by primary contractors.

That part of the Order Control Section responsible for handling all matters pertaining to allocated and restricted items was transferred to the Requirements Branch, effective February 1.

A Timing Section to coordinate deliveries of Government furnished equipment and of components is now established in each of the Signal Corps Procurement Districts.

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CONTROL

ONE OF FIRST ESTABLISHED

Although Control Divisions are now established in all of the supply services, in accordance with the example and wishes of the Commanding General, Army Service Forces, it is believed that one of the first organizations of this character was established by the Chief Signal Officer over eighteen months ago.

Brig.Gen.C.F. Robinson, Director, Control Division, Headquarters, Army Service Forces, has since set forth the basic mission of the Control Divisions in the following words:

"To evaluate the effectiveness with which plans of the Commander are executed; to measure progress of operations under his control, and to make recommendations to him for adjustments in policies, organization, and methods. To increase such effectiveness and increase progress and to follow up the execution of approved recommendations."

In this conception, Control Division does not "control" anything, in the sense in which this word is ordinarily used. It is instead a mechanism which the Chief Signal Officer uses to do certain of those things which he would do for himself if time permitted, or if his organization were small enough. In general, it has to do with organization, procedure, and progress in the execution of his policies and directives.

Aids Chief Signal Officer

Thus Control Division exercises a staff function, acting as an aid to the Chief Signal Officer in carrying out his responsibilities. This function is usually exercised in coordination and cooperation with officers in charge of the operating divisions in the chain of command. Every effort is made to secure concurrence to a proposed action, so that those responsible for carrying out the final recommendations will do so with full confidence both in their necessity and effectiveness.

It is the constant effort of Control Division to conduct its activities in such a manner, and to make its services so effective, that they will be welcomed and sought for. For this purpose, it maintains an experienced staff, who are able to bring to the problems at hand a degree of perspective and correlation with similar activities throughout the Signal Corps not always available within the operating divisions themselves.

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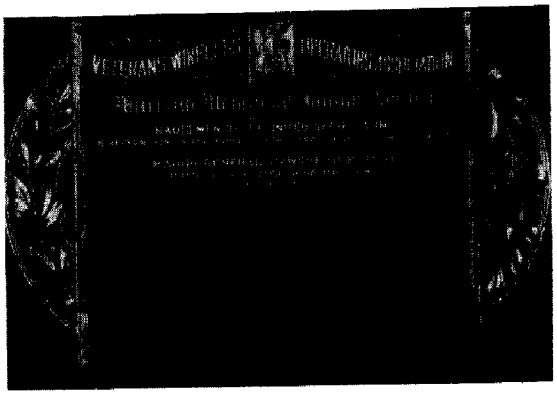
AWARD OF HONOR



On behalf of the officers and men of the Signal Corps, Major General Dawson Olmstead, Chief Signal Officer of the Army, accepted the Marconi Memorial Award of Honor from the Veteran Wireless Operators' Association, meeting February 11 in New York. The award, a handsome plaque suitably inscribed, was given in recognition of the outstanding and heroic services rendered by General Olmstead, the officers, and the men of the Army Signal Corps in the present conflict.

RADIOPHOTO SERVICE FROM NORTH AFRICA TO WASHINGTON

The establishment of a successful radiophoto circuit between Army Headquarters in Algiers and the War Department in Washington was formally announced on March 23 with the release to the press of a photograph of an American gun crew in action in Tunisia. The photograph had been transmitted in seven minutes across the ocean. This is one of a number of radiophoto circuits by which the Army Communications Service of the Signal Corps will be able to transmit photographs, tactical maps, weather charts and other suitable subjects.

The radiophoto equipment consists of a trans-ceiver, tuning fork and power supply unit, weighing a total of 104 pounds. The picture print (for transmission) or sensitized material (for reception) is placed on a drum driven by a synchronous motor at 100 r.p.m. A traveling optical unit includes a lamp and a small mirror which oscillates at 1,800 cycles, as well as a photoelectric cell and a series of light gates. The picture is scanned at 100 lines per inch. Transmission is accomplished by the varying intensity of the light reflected to the photoelectric cell. Reception is accomplished with a steady light which is reflected partially or completely through the gate and onto the sensitized material on the drum by variations in the swing of the mirror, which is controlled directly by variations in the intensity of the received signal.

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COLORED SMOKE GRENADES

Colored smoke grenades, a new type of signal device, have been developed by the Army Chemical Warfare Service.

Advantage of the grenades over signal pistols and rockets is that they are more readily seen, as they throw off a dense smoke for 2 to 3 minutes, which hangs in a cloud.

The grenades come in various brilliant colors and in black. They can be set off on the ground or dropped from a plane to explode in the air, or, through a time fuse, after they have hit the earth.

They lend themselves to numerous uses. For example, troops surrounded by the enemy can set off different colored grenades to indicate to observation planes that they need food, medicines or different types of ammunition.

On the other hand, observation planes, hunting enemy concentrations can adjust time fuses and drop grenades on ground targets, thus not only pointing out locations to following bombers, but, through the color, the type of target.

Or, again, a plane, sighting tanks of uncertain nationality, can challenge them by radio or by tossing out a grenade of a certain color. If friendly, the tanks thereupon reply by exploding grenades of a prearranged color. Orders governing movement of ground troops also can be issued through grenades of different color combinations dropped from planes.

CRYPTOGRAPHIC SECURITY

Useful information on cryptographic security is the subject of a memorandum published by the headquarters of a Port of Embarkation recently, in order to refresh overseas-bound signal troops of the extreme importance of cryptographic security in preparing, handling and classifying radio and telegraph communications containing information of possible value to the enemy.

The memorandum calls attention to AR 380-5, dated September 25, 1942. "Brevity in text and economy in transmission are provided by the cryptographic messages classified 'restricted'," the memorandum states, "but the 'restricted' classification provides little military security. It is the duty of all persons concerned to construct each message properly and to assign a sufficient classification."

Other points raised in the document stress the necessity for correct copy, prompt delivery for transmission, avoidance of stereotyped beginnings and endings, the prohibition of padding, paraphrasing, and the responsibility of the officer signing the message for its contents and its classification.

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PARALLEL TEXTS LOSE A BATTLE

"The July (1918) Champagne Drive which was turned into such a bloody defeat by the 'Gouraud Defense' is said to have been betrayed in its entirety through a ciphered wireless message. A new cipher had just been issued to all units along the German front. 'New Cipher Not Yet Received,' replied one of the German radio men in clear. 'Please Repeat Message in Old Cipher.' The message was repeated. The Allies had already broken the old cipher, and hence had parallel texts which completely destroyed the new."

— Secret and Urgent — Pratt

PARAPHRASE FOR PROTECTION

THERE'S ALWAYS ANOTHER WAY TO SAY IT ---

BY SHIFTING THE POSITION OF WORDS:

The ploughman homeward plods his weary way.
The ploughman plods homeward his weary way.
The ploughman plods his weary way homeward.
The ploughman his weary way homeward plods.
The ploughman his weary way plods homeward.
His weary way the ploughman homeward plods.
His weary way homeward the ploughman plods.
His weary way the ploughman plods homeward.
Homeward the ploughman plods his weary way.
Homeward his weary way the ploughman plods.

AND BY SUBSTITUTING SYNONYMS AND USING THE PASSIVE VOICE OF THE VERB, THERE ARE AT LEAST ***1,034,880*** WAYS!

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OFFICER PROMOTIONS

The following promotions have occurred among Signal Corps personnel during the period from March 5, 1943, to March 25, 1943, inclusive:

Promoted to Colonel (Permanent)

Huston, Hamner

Lieutenant Colonel to Colonel (Temporary)

Banks, Clyde Girard
Doud, Harold
Lutz, Robert Arnold
Maude, Raymond Coleman
Stanley, Foster Leroy

Major to Lieutenant Colonel (Temporary)

Allison, Charles Richard, Jr.
Byrne, Thomas Francis
Carter, Richard S.
Cohen, Emanuel
Dallmer, Rolf
Etz, Winton Orville
Fronk, John Martin
Griffin, Robert W.
Holland, Lyman Faith
Johnson, Ewing Chase
Jones, Matthew Grant
Kimbrough, James Mobley, Jr.
Knipp, Fred Lester
Kucera, Charles L.
Lamb, Howard Martin
Lindquist, Carl Lawrence
Litvak, Anatole Michael
Lowdermilk, Lee Otis
Lowther, Ralph LeMoine
Markson, Paul Albert
McKendry, James Joseph
Mitchell, Thompson Hampton
Pickett, George Edward
Rhyne, George William
Shultz, Emerson Arthur
Smith, Peter
Snyder, Earle Danforth
Soules, Webster Fladlien
Sudduth, Duff W.
Tetley, Wilfred Henry
Westphal, George Anthony
Whitesell, Carlin Hamlin

Captain to Major (Temporary)

Allen, Robert Frank
Baker, John Malcolm, Jr.
Bell, Olin Lee
Bierman, Philip Wilson
Braunsdorff, Aubrey Herman
Cain, Edward Otis
Clarke, Fred Mason, Jr.
Clarke, James Roe
Clay, Carmon Lavon
Coffey, Edward Hope
Curry, Pembroke Rowland
Dorris, Herbert Ellsworth
Duggan, Francis LaVerne
Ellis, Robert Frederick
Fish, Gordon Thorn
Guill, Joseph Edmond
Head, Charles Sumner, Jr.
Hurley, Edwin Paul
Jacobs, Harrison Warren
Johnston, Joseph Wilson

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Cont'd

Captain to Major (Temporary)

Junggren, Oscar Howlett
Kauffman, Christian Dale
Keller, Henry Alexander
Kirkpatrick, James Boyer
Laitman, Milton Abraham
Lamson, Perry Brown
Levins, Edward Aloysius
Mallory, Robert Rhames
Maxfield, Charles Lawrence
Millet, Ralph Turner
Oliver, Benjamin Hugher, Jr.
Paullin, Edward Milton
Redhair, George Irvin
Sheedy, John
Simonich, Louis James
Sinex, Charles Helm, Jr.
Spangler, John Robert
Stevenson, David Foster
Trundle, George Hedges
Whitham, Strayer Earle
Wood, Richard Carver

OFFICER CASUALTIES

The following casualties have been reported since January 15, 1943:

1st Lt. P. D. Barnhart - Killed in airplane crash in Paramaribo, Dutch Guiana, South America.

1st Lt. D. C. Martin - Killed in airplane crash near Paramaribo, Dutch Guiana, South America.

2nd Lt. W. W. Debenham - Died at Fort Monmouth, January 28, 1943.

Capt. T. J. Fulton - Died at Station Hospital, Fort Monmouth, N. J., of coronary occlusion.

Capt. A. C. Seemans - Killed in airplane crash near Paramaribo, Dutch Guiana, South America.

Lt. Col. W. H. Bache - Missing in action in Southwest Pacific, February 7, 1943.

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April 3, 1943.

Lieut. General B. B. Somervell, U.S.Army,
Commanding General, Army Service Forces,
Pentagon Building,
Washington, D.C.

Dear General Somervell:

Army Day is not being celebrated this year, but it is nevertheless an occasion, and I take the opportunity to transmit to you my sincere appreciation of the accomplishments of the Army during the past year.

It is my hope - and belief - that we shall, as the war progresses, make the most effective use of what we believe now to be a winning combination, no small part of which is due to your able leadership of the Army Service Forces.

Sincerely yours,

/s/ E. J. KING
Admiral, U.S. Navy.

April 3, 1943.

Admiral E. J. King,
United States Fleet,
U. S. Navy,
Washington, D. C.

Dear Admiral King:

I certainly appreciate your note of April 3rd in reference to Army Day. I fully share your belief that we shall, as the war progresses, make the most effective use of what we believe now to be a winning combination and that that combination will bring us victory.

We are very grateful to you for the kind things which you said about the Army Service Forces and you may be assured of our enthusiastic cooperation in the solution of any of our common problems.

Sincerely,

/s/ BREHON SOMERVELL
Lieutenant General,
Commanding.

24-22549