

RESTRICTED

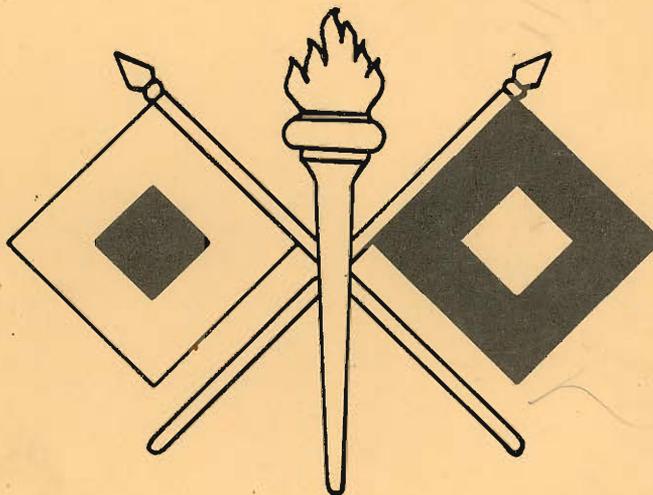
Reported by  
DOD DIF 5200-9

POST LIBRARY  
FORT MONMOUTH, N. J.

# WAR DEPARTMENT

OFFICE OF THE CHIEF SIGNAL OFFICER

## INFORMATION LETTER



NO. 12

WASHINGTON, D. C.

NOVEMBER 1, 1942

WAR DEPARTMENT  
HEADQUARTERS, SERVICES OF SUPPLY  
OFFICE OF THE CHIEF SIGNAL OFFICER  
SPECIAL ACTIVITIES BRANCH  
WASHINGTON, D. C.

November 1, 1942

SIGNAL CORPS TECHNICAL INFORMATION LETTER NO. 12 -

TABLE OF CONTENTS

	Page
I. NEW ORGANIZATION CHART. . . . .	3
II. CHANGES IN ORGANIZATION . . . . .	4
III. INTERNATIONAL AID BRANCH. . . . .	7
IV. STORAGE AND ISSUE IN PHILADELPHIA . . . . .	8
V. THE EASTERN SIGNAL CORPS SCHOOL . . . . .	9
VI. CAMP KOHLER . . . . .	11
VII. TRAINING IN CANADA. . . . .	14
VIII. TRAINING FILMS. . . . .	15
IX. SPECIAL ACTIVITIES. . . . .	17
X. MILITARY PERSONNEL. . . . .	19
XI. WAR PLANS . . . . .	29
XII. RADIO INTERFERENCE. . . . .	32
XIII. SIGNAL CORPS BOARD CASES. . . . .	34
XIV. SIGNAL CORPS TECHNICAL COMMITTEE. . . . .	39
XV. GENERAL DEVELOPMENT . . . . .	51
XVI. PRODUCTION EXPEDITING . . . . .	52
XVII. FACILITIES AND MATERIALS. . . . .	53
XVIII. EQUIPMENT COORDINATION. . . . .	56

THE SIGNAL CORPS TECHNICAL INFORMATION LETTER -

1. The Signal Corps Technical Information Letter (SCTIL) is issued monthly in this form. Its purpose is to keep officers in charge of field activities informed of matters of interest, such as new developments in Signal Corps equipment, changes in methods, progress in procurement of major Signal Corps items of equipment, etc.
2. The letter is compiled largely from information regularly available in the Office of the Chief Signal Officer. However, all Signal Corps agencies are invited to submit items of general interest. Such items should reach the Special Activities Branch, Office of the Chief Signal Officer, not later than the 20th of each month for inclusion in the letter of the first of the succeeding month.
3. Distribution of the letter will be made to army, corps, and division signal officers; commanding officers of signal companies and battalions; service command and department signal officers; post, camp, depot and Procurement District signal officers; the signal officers of bases and task forces; the signal officers of the Armored Force; signal officers on the staffs of major headquarters of the Army Air Forces and Army Ground Forces.
4. Requisitions for new types of equipment will not be submitted on the basis of information contained in this letter.
5. Restricted -- A document will be classified and marked "Restricted" when the information it contains is for official use only or of such nature that its disclosure should be limited for reasons of administrative privacy or should be denied the general public. The "Restricted" mark will be placed on a document only by authority of a commissioned officer.
6. An unrestricted Signal Corps Information Letter in printed form is being issued by the Special Activities Branch this month with a wider distribution. To avoid confusion, the restricted letter, previously issued as "The Signal Corps Information Letter (Restricted)", will henceforth be called "The Signal Corps Technical Information Letter."

HENRY L. STIMSON  
**THE SECRETARY OF WAR**

GEN. GEORGE G. MARSHALL THE CHIEF OF STAFF  
JOHN J. McCLOY THE ASSISTANT SECRETARY OF WAR  
ROBERT P. PATTERSON THE UNDER SECRETARY OF WAR

LT. GEN. BRENON B. SOMERVELL  
**COMMANDING GENERAL SERVICES OF SUPPLY**

MAJ. GEN. DAWSON OLNSTEAD THE CHIEF SIGNAL OFFICER  
SIGNAL CORPS ADVISORY COUNCIL  
COL. C. G. BICKELHAUPT

BRIG. GEN. J. A. COOK, JR. DEPUTY CHIEF SIGNAL OFFICER  
RM. 3403M X. 8070

**EXECUTIVE STAFF**  
DIRECTORATE OF PLANNING  
EXECUTIVE OFFICE  
OFFICE OF FISCAL CONTROL  
COL. F. C. MEADE RM. 3414M X. 8934  
LT. COL. W. D. HAMLIN RM. 3404M X. 8901  
COL. J. T. WATSON RM. 4E287 X. 8087

COL. C. G. BICKELHAUPT CONTROL DIVISION  
DIRECTOR OF CONTROL DIV.  
RM. 4E288 X. 4878

PROGRESS & STATISTICS BRANCH  
EVALUATION BRANCH  
ADMINISTRATIVE MANAGEMENT BRANCH  
LT. COL. J. R. TODD RM. 4D361 X. 4581  
LT. COL. J. K. PATRICK RM. 4E272 X. 7837  
CAPT. H. V. O'NEAL RM. 4E283 X. 7274

COL. D. M. CRAWFORD COMMUNICATION COORDINATION DIVISION  
DIRECTOR OF COMM. COORD. DIV.  
RM. 4C343 X. 71875  
RM. 3321M X. 73288  
SIGNAL CORPS TECHNICAL COMMITTEE  
ARMY COMMUNICATIONS AND EQUIPMENT COORDINATION BOARD  
EQUIPMENT COORDINATION BRANCH  
MILITARY INTELLIGENCE BRANCH  
PROCEDURES COORDINATION BRANCH  
COMMUNICATION LIAISON BRANCH  
LT. COL. F. J. MARSEE RM. 4C380 X. 71840  
LT. COL. S. F. WARDNER RM. 4D348 X. 72044  
MAJ. A. A. MCGARRY RM. 4C323 X. 6448  
LT. COL. A. R. SIMSON RM. 33505 X. 3490

MAJ. GEN. R. B. COLTON CHIEF - SIGNAL SUPPLY SERVICES  
RM. 5E30 X. 5960

BRIG. GEN. J. A. COOK, JR. CHIEF - SIGNAL OPERATING SERVICES  
RM. 3403M X. 8070

COL. E. W. ELDER MATERIEL DIVISION  
DIRECTOR OF MATERIEL DIV.  
RM. 2E322 X. 5350  
COL. C. H. SIMPSON SCHEDULING BRANCH  
RM. 2E276 X. 5293  
COL. J. D. O'CONNELL FACILITIES & MATERIALS BRANCH  
RM. 2D340 X. 6037  
LT. COL. P. E. HANSEN PROCUREMENT BRANCH  
RM. 2E324 X. 2052  
LT. COL. A. E. BRUNDAGE INTERNATIONAL AID BRANCH  
RM. 2C285 X. 2574  
COL. S. P. BURM ARMY-NAVY COMM. PROD. EXPD. AGENCY  
RM. 2D316 X. 6898

COL. T. G. RIVER RESEARCH AND DEVELOPMENT DIVISION  
DIRECTOR OF RES. & DEV. DIV.  
RM. 30348 X. 3523  
LT. COL. F. F. LORSHINE GENERAL DEVELOPMENT BRANCH  
LT. COL. G. S. METCALF RADAR BRANCH  
RM. 3A260 X. 4780  
COL. J. K. DEARMOND AIRCRAFT RADIO BRANCH  
RM. 3D205 X. 72054  
LT. COL. A. J. ENGBELSON PROCUREMENT-LIAISON BRANCH  
RM. 3B249 X. 6828  
LT. COL. J. B. BEARDON INSTALLATION & MAINTENANCE BRANCH  
RM. 3A346 X. 72461  
MAJ. J. A. FORT, JR. STORAGE & ISSUE LIAISON BRANCH  
RM. 2B202 X. 3009

COL. F. S. MILLER ADMINISTRATIVE DIVISION  
DIRECTOR OF ADMIN. DIV.  
RM. 1004M X. 6824  
LT. COL. R. B. RINKENBACH CIVILIAN PERSONNEL BRANCH  
RM. 1028M X. 4479  
MAJ. A. W. ADAMS CIVILIAN TRAINING BRANCH  
RM. 1027M X. 73738  
MAJ. A. S. SWADE SERVICE BRANCH  
RM. 3C650 X. 8744  
LT. COL. G. & M. INTYBY SPECIAL ACTIVITIES BRANCH  
RM. 1301M X. 6421  
COL. C. E. SNOW LEGAL BRANCH  
RM. 4E349 X. 2461

COL. K. S. LADYTON ARMY PICTORIAL DIVISION  
DIRECTOR OF ARMY PIC. DIV.  
RM. 4A246 X. 73322  
COL. R. T. BOLLENGER MOTION PICTURE PRODUCTION BRANCH  
RM. 4A240 X. 5291  
LT. COL. F. M. DEVIS PICTORIAL ADMINISTRATIVE BRANCH  
RM. 4A324 X. 6908  
MAJ. L. LEHAN FIELD ACTIVITIES BRANCH  
RM. 4A324 X. 3078

BRIG. GEN. F. E. STONER ARMY COMMUNICATIONS DIVISION  
DIRECTOR OF ARMY COMM. DIV.  
RM. 3415M X. 5786  
COL. W. V. BAUER PLANT BRANCH  
RM. 4017M X. 2788  
COL. E. F. FRANCH TRAFFIC BRANCH  
RM. 3A354 X. 4820  
COL. FRANK W. BULLOCK SIGNAL SECURITY BRANCH  
X. 8189

BRIG. GEN. G. H. HILSHNER SIGNAL TROOPS DIVISION  
DIRECTOR OF SIG TROOPS DIV.  
RM. 2E340 X. 71863  
COL. V. A. CONRAD WAR PLANS BRANCH  
RM. 3C340 X. 73100  
COL. H. L. HIND MILITARY PERSONNEL BRANCH  
RM. 3E340 X. 71875  
COL. J. S. WELLS MILITARY TRAINING BRANCH  
RM. 3E319 X. 71878

FIELD INSTALLATIONS

FIELD INSTALLATIONS

APPROVED: *Dawson Olmstead*  
DAWSON OLNSTEAD  
MAJOR GENERAL,  
CHIEF SIGNAL OFFICER OF THE ARMY

III

CHANGES IN ORGANIZATION

During the last month, the Office of the Chief Signal Officer has been reorganized with a reduction in the number of divisions and branches. The new arrangement differentiates the supply functions from the operating functions of the Chief Signal Officer by grouping the corresponding activities under Chiefs of Services. Within each group other changes have been made to place branches within divisions according to their functional purposes for serving the Army.

The outline of the new organization is shown on the chart of the previous page. The three following pages provide a key to the new organizational titles in terms of those previously in use.

October 12, 1942.

OFFICE MEMORANDUM NO. 254.

FOR ALL SERVICES, DIVISIONS, AND BRANCHES.

Subject: Organization of the Office of the Chief Signal Officer.

1. Effective this date, in conformity with the standardization directed by Headquarters, Services of Supply, and in conformity with Office Memorandum No. 249, OCSigO dated September 30, 1942, the following organization of the Office of the Chief Signal Officer is announced:

a. Titles of heads of activities in the OCSigO will be as follows:

- (1) Chief.....Services
- (2) Director.....Division
- (3) Chief.....Branch
- (4) Officer in Charge.....Section

b. The following agencies are redesignated.

<u>Iden.</u> <u>Symbols</u>	<u>New Organization</u>	<u>Old Organization</u>
SPSIG	Chief Signal Officer	
SPSEO	Deputy Chief Signal Officer	
SPSEO	Executive Staff	
SPSEO-2	Directorate of Planning	
SPSEO-1	Executive Office	Directorate of Administration
SPSFD	Office of Fiscal Director	Fiscal Division
SPSCC	Communication Coordination Division	
	Signal Corps Technical Committee	
	Army Comms. & Equip. Coord. Board	
SPSCE	Equipment Coordination Branch	
SPSIN	Military Intelligence Branch	
SPSCO	Procedures Coordination Branch	

<u>Iden.</u> <u>Symbols</u>	<u>New Organization</u>	<u>Old Organization</u>
SPSCL	Communication Liaison Branch	
SPSEC	Control Division	Executive Control Division
SPSEC	Progress & Statistics Branch	
SPSEC	Evaluation Branch	
SPSEC	Administrative Management Branch	
SPSUP	SIGNAL SUPPLY SERVICES	SIGNAL SUPPLY SERVICE
SPSMD	Matériel Division	
SPSCH	Scheduling Branch	
SPSFM	Facilities & Materials Branch	
SPSRP	Procurement Branch	
SPSIA	International Aid Branch	
SPSRD	Research and Development Division	
SPSGD	General Development Branch	
SPSRB	Radar Branch	
SPSAR	Aircraft Radio Branch	
SPSRL	Procurement-Liaison Branch	
SPSMA	Installation & Maintenance Branch	
SPSAN	Army-Navy Communications Production Expediting Agency	
SPSAI	Storage & Issue Liaison Branch	
SPSOS	SIGNAL OPERATING SERVICES	
SPSAS	Army Pictorial Division	ARMY PICTORIAL SERVICE
SPSHP	Motion Picture Production Branch	Motion Picture Production Division
SPSAA	Pictorial Administrative Branch	Pictorial Administrative Division
SPSFA	Field Activities Branch	Field Activities Division
SPSAC	Army Communications Division	ARMY COMMUNICATIONS SERVICE
SPSLP	Plant Branch	Plant Division
SPSTD	Traffic Branch	Traffic Division
SPSIS	Signal Security Branch	Signal Security Division
SPSTP	Signal Troops Division	SIGNAL OPERATIONS SERVICE
SPSWD	War Plans Branch	War Plans Division
SPSMP	Military Personnel Branch	Military Personnel Division
SPSMT	Military Training Branch	Military Training Division

<u>Iden.</u> <u>Symbols</u>	<u>New Organization</u>	<u>Old Organization</u>
SPSAD	Administrative Division	
SPSCP	Civilian Personnel Branch	
SPSCT	Civilian Training Branch	
SPSER	Service Branch	
SPSAY	Special Activities Branch	
SPSLG	Legal Branch	

c. A dash and numeral will be added to the five-letter symbols of Branches to designate sections, thus enabling more expeditious assignment of mail.

d. The newly designated Army Pictorial Division, Army Communications Division, and Signal Troops Division will be grouped to constitute the Signal Operating Services.

e. Present personnel assignments to the activities named in paragraph b. above will in no way be affected by the amendments herein. The former Directors of the Services named will continue as Directors of their newly designated Divisions; Chiefs of the Divisions will continue as Chiefs of their newly designated Branches; and Officers in Charge of Branches will continue as Officers in Charge of their newly designated Sections.

2. Office Memorandum No. 142, OCSigO, June 19, 1942, and amendments thereto are rescinded.

By order of the Chief Signal Officer:

/s/ WM. D. HAMLIN  
Wm. D. Hamlin,  
Lt. Col., Signal Corps,  
Executive.

### III

#### INTERNATIONAL AID BRANCH

The International Aid Branch was activated on October 1, 1942, with Lt. Col. A. E. Brundage as Chief of the Branch. Officers and civilian personnel formerly in the Foreign Aid Section of the Scheduling Branch have been transferred to the new Branch. The personnel at that time consisted of eight officers and eighty-two civilians.

The functions of the International Aid Branch are:

(a) Furnishes technical advice to foreign governments on all Signal Corps matters;

(b) Initiates procurement and follows progress of foreign government requisitions for signal materiel;

(c) Supervises the transfer and export of signal materiel to foreign governments;

(d) Furnishes necessary reports of signal materiel transferred to foreign governments;

(e) Furnishes information and acts in an advisory capacity on Signal Corps International Aid matters to various interested committees, boards and agencies;

(f) Handles all reverse Lend-Lease requisitions for signal materiel.

The International Aid Branch is organized as part of the Materiel Division of Signal Supply Services. It corresponds with similar International Aid Branches in other Supply Services of the Services of Supply, such as Quartermaster, Ordnance, Engineers, etc. All these International Aid Branches operate in close coordination with the International Supply Committee, International Division, Services of Supply. Through the appropriate agencies of the SOS and in coordination with sub-committees of the Munitions Assignments Committee and other interested organizations, the International Aid Branch follows every item of international supply of signal equipment from the first preliminary request to the moment when the materiel is actually floated on board a ship.

STORAGE AND ISSUE IN PHILADELPHIA

A major step in decentralization was accomplished during October with the movement of the Storage and Issue Branch to Philadelphia. Although the Branch will be housed at the Philadelphia Signal Corps Depot, it remains a part of the Office of the Chief Signal Officer. A Storage and Issue Liaison Branch, headed by Major J. A. Fort, Jr., retained offices in the Pentagon Building and will function, under the new organization, directly under the Chief, Signal Supply Services.

The Storage and Issue Branch, with Colonel Raymond C. Hildreth as chief, occupies about 46,000 square feet of space in Philadelphia, approximately the same as was available to it in its Washington quarters. The first group of employees left on October 9, and the move was completed by October 12. About 900 of the 1,200 employees of the Branch made the move, and the vacancies were filled by transfers from other activities of the Signal Corps under Services of Supply. A special office was set up in Philadelphia to help transferred employees in finding living accommodations.

The newly organized Task Force Section of General Development Branch also was sent to Philadelphia to work as part of the Storage and Issue Branch. This was done in order to expedite issuance of equipment to Task Forces.

The movement of these activities augmented the already large scope of Signal Corps activities in Philadelphia, which are conducted by the Philadelphia depot and the Philadelphia Signal Corps Procurement District, all conveniently located with respect to a major portion of the communications manufacturing industry.

## THE EASTERN SIGNAL CORPS SCHOOL

All departments of the Eastern Signal Corps School and the Replacement Training Center were functioning at peak capacities during October. The Replacement Training Center completed its removal from the main post and its former area is occupied by the enlarged Officer Candidate Department. The 15th Signal Service Regiment is occupying the buildings which were used by the Officer Candidate Department. Common subcourses for student officers in the Officers' Department are being presented at Asbury Park.

Officer Candidate Department:

A class of approximately 1,600 students, largest in the history of the school, received commissions as 2d lieutenants in the Army of the United States at outdoor graduation exercises October 16. The principal address was delivered by Brigadier General G. L. Van Deusen, Commanding General, Eastern Signal Corps Training Center.

The capacity of the school is 6,000 students. A group of 1,000 students entered October 19. A similar number will enter November 3, and every two weeks thereafter.

Officers' Department:

Approximately 140 student officers completed six-week specialist training in the Officers' Department on October 10. Of this number, 54 officers are now receiving cadre training and the balance were sent to duty with tactical organizations. At the same time approximately 220 student officers completed the entire 12-week course, which included the common subcourses, and they received diplomas at graduation exercises on October 13. The majority of this group were assigned to tactical units.

Graduation of 380 student officers who are now receiving specialist training on the main post is scheduled tentatively for November 10.

Approximately 600 student officers are taking common courses in the Asbury Park area. This figure includes 35 officers in the advanced course for air force and ground force officers of field grade. New classes for officers taking the common subcourses are being started every two weeks. The enrollment in these courses

is being sustained by a number of Electronics Training Group student officers, "affiliated" officers, and air-base post signal officers.

With 285 graduates of the October officer candidate class assigned to the department for specialist training, the enrollment for the various specialist courses reached a new high. This specialist group was divided as follows: Long lines outside, 40; long lines inside, 20; radio, 80; wire, 75; supply and motor transport, 70. Seventy student officers will receive cadre training after completion of the specialist instruction.

Graduation exercises of the Officers' Department are tentatively scheduled for November 10, December 15, and December 28.

#### Enlisted Men's Department:

With the removal of the cryptographic school to the vicinity of Washington, D. C., at the beginning of the month, enrollment of the Enlisted Men's Department declined to 4,021 students. Of this number, 2,314 were in the radio division and 1,707 in the wire division.

Approximately 3,500 students recently received promotions to private 1st class and technician 5th grade under a recent Adjutant General's Department memorandum ordering the promotion of all students in the school who did not hold a rating. The majority received the technician 5th grade rating since all courses, with the exception of cable splicer, installer-repairman, and powerman were considered advanced courses, according to the memorandum, and were entitled to the higher rating. The promotion is terminated if the student fails to successfully complete the course.

#### Replacement Training Center:

Headquarters of the Signal Corps Replacement Training Center was moved on October 11 to Camp Charles Wood. This sub-post, two miles from Fort Monmouth, is rapidly approaching completion, several months ahead of schedule. A descriptive article on the new STC facilities and training methods will appear in a forthcoming issue of the unrestricted Information Letter.

## CAMP KOHLER

The Signal Corps Replacement Training Center at Camp Kohler, located about 12 miles northeast of Sacramento, California, was activated September 1, 1942, with Brigadier General Stephen H. Sherrill as Commanding General.

Under the supervision of Colonel William S. Morris as Director of Training, the training program began for the first group of enlisted men on September 21, 1942.

For the present, while the post is still in construction and expansion stage, only basic military training is being conducted. Present plans contemplate four specialist branches of training -- clerks, signal communication, mess, and motor transport.

Key personnel -- both officers and enlisted cadre men -- from Fort Monmouth, New Jersey, and Camp Crowder, Missouri, were assigned to Camp Kohler and are rapidly shaping the training program so that, as soon as construction permits, Camp Kohler will be supplying hundreds of Signal Corps specialists to our fast-growing Army.

A large construction program, under the direction of the Corps of Engineers, will soon convert Camp Kohler into a complete, self-contained post for the training of Signal Corps experts. The camp was formerly a temporary internment station for Japanese aliens in the West Coast area.

The construction program includes a station hospital, theater, school buildings, officers' quarters, a new headquarters building, several new streets, a target range, and a tough pear-shaped obstacle course, as well as other necessary buildings.

A total of 1,298 men were received at the Replacement Training Center from four Service Commands during the month of September. A break-down of trainees from Reception Centers follows:

## VI Service Command :

Fort Custer. . . . .	86
Camp Grant . . . . .	75
Scott Field. . . . .	38
Fort Sheridan. . . . .	<u>49</u>

Total	248
-------	-----

VII Service Command

Fort Dodge . . . . .	47
Fort Leavenworth . . . . .	95
Fort Logan . . . . .	54
Jefferson Barracks . . . . .	<u>3</u>

Total 199

VIII Service Command

Camp Beauregard . . . . .	29
Fort Bliss . . . . .	47
Camp Robinson . . . . .	23
Fort Sam Houston . . . . .	<u>102</u>

Total 201

IX Service Command

Fort Douglas . . . . .	182
Fort Lewis . . . . .	131
Fort McArthur . . . . .	141
Presidio of Monterey . . . . .	<u>196</u>

Total 650

Grand Total 1,298

Percentages of men in each of the five groups under the Army General Classification Test follow:

Group 1 . . . . .	7.1 percent
Group 2 . . . . .	27.6 percent
Group 3 . . . . .	32.8 percent
Group 4 . . . . .	26.0 percent
Group 5 . . . . .	6.5 percent

Below is the breakdown of assignments for the 1,298 men received after they have completed their basic training. Further training will be given at Camp Kohler in those specialties in which schools are operating, but the majority of the men will receive further specialist training at Fort Monmouth, Camp Crowder, the Signal Corps Photographic Center, or Camp Murphy. Assignments of men who entered Camp Kohler during September are:

<u>School</u>	<u>Total</u>	<u>Percent</u>
Auto Mechanic	31	2.4
Aircraft Warning	16	1.2
Code Clerk	37	2.9
Chauffeur	189	14.5
Cook	46	3.5
Personnel Clerk	20	1.5
Cryptanalyst	3	.2
Supply Clerk	63	4.8
Cable Splicer	16	1.2
Company Clerk	28	2.2
Electrical Draftsman	4	.3
Frameman	1	.1
Fixed Station Operator	64	4.9
Insideman	1	.1
Installer repairman, common battery	15	1.2
Installer repairman, local battery	26	2.0
Installer repairman, plotting board	1	.1
Lineman, field	98	7.6
Lineman, pole	143	11.0
Message Center Clerk	41	3.2
Messenger	9	.7
Powerman	1	.1
Radio Operator	199	15.3
Repeaterman	1	.1
Radio Repairman	116	8.9
Switchboard installer	18	1.4
Switchboard operator, common battery	21	1.6
Switchboard operator, local battery	23	1.8
Special Training Unit	38	2.9
Telegraph Printer, maintenance man	4	.3
Telegraph Printer, operator	8	.6
Volunteer Officer Candidate		
Wire School	5	.4
Radio School	6	.5
Wire Chief, common battery	4	.3
Wire Chief, local battery	2	.2
TOTAL	<u>1,298</u>	<u>100.0</u>

VII

TRAINING IN CANADA

Research Enterprises Limited, Leaside, Ontario, Canada, has reported that 8 officers, 75 enlisted men, and 72 civilians of the United States Army Signal Corps have been given instruction by them on radar equipment.

The report is another example of the practical interchange of technical information which supplements the program of international equipment supply among the United Nations. Appreciation for this Canadian contribution was expressed in the following letter:

October 3, 1942

Mr. R. A. Hackbusch  
Vice-President in charge of Radio  
Research Enterprises Limited  
Leaside, Ontario  
Canada

Dear Mr. Hackbusch:

Your report of September 12 to Colonel R. V. D. Corput, Jr., Director of Camp Evans, concerning the number of United States Army Signal Corps personnel trained by Research Enterprises, has been brought to the attention of this office. The figures are highly gratifying.

The Chief Signal Officer desires me to express his appreciation for your fine cooperation in training our personnel in a highly important field of activity. Research Enterprises Limited has a definite right to feel proud of their contribution to the war effort of the United Nations.

Very truly yours,

/s/ JAMES A. CODE, Jr.

James A. Code, Jr.,  
Brigadier General, U. S. Army,  
Deputy Chief Signal Officer.

## VIII

### TRAINING FILMS

#### Review of New Training Films Pertaining to Signal Corps:

- TF 1-470 Vacuum Tubes - Part I - Electron Theory and the Diode Tube.
- TF 1-471 Vacuum Tubes - Part II - The Triode and the Multi-Purpose Tube.
- TF 1-472 Radio Receivers - Part I - Principles and Typical Circuits.
- TF 1-475 Radio Antennas - Fundamentals of the Antenna.
- TF 1-476 Radio Transmitters - Part I - Principles and Typical Circuits.

Here is a new series of films which should serve as a valuable aid in training radio technicians for the Signal Corps. This sequence of films makes liberal use of animated diagrams to explain the electron theory of vacuum tubes and the circuits associated with them in both receivers and transmitters.

The first of the series, "Electron Theory and the Diode Tube," covers, in 16 minutes of running time, the basic theory of electric charge, conductors and insulators, and how this theory is applied in the diode for half-wave and full-wave rectification.

The theory is displayed throughout in terms of electrons, represented by dots in the animation. An early view shows these dots in random motion in a conductor and illustrates how the speed of that motion is increased by the application of heat until the conductor becomes a cathode capable of liberating electrons in a vacuum. The effect of space charge is visualized, followed by a graphic portrayal of the flow of electrons to the positive plate.

From this point on the film demonstrates very clearly the conversion of alternating current into a pulsating direct current in a diode and the advantages of full-wave rectification in a duo diode.

TF 1-471 expands this treatment to the triode and multi-element tubes, again with the full use of animation.

In TF 1-472 the operation of these different types of tubes in a radio receiver is demonstrated, with animated drawings of carrier and audio frequency waves showing just how amplifica-

tion and rectification are accomplished at the various stages. Similar treatment is applied to radio transmitters in TF 1-476.

The training film on the radio antenna, TF 1-475, will be of particular interest to more advanced students. It visualizes the equations for standing waves on antennas of various fractional lengths in the form of animated drawings. This type of visualization permits a grasp of the fundamentals of antenna design to be attained much more rapidly than by the usual method of studying static diagrams and equations.

The Film Utilization and Distribution Section of Army Pictorial Division has issued an outline and an associated set of questions for instruction with TF 1-470, and similar material is being prepared for the other films of this series.

#### Atoms and Electrons Visualized:

TF 11-622 - Electricity and Magnetism - Part I - Elements of Electricity - 2 reels:

This film was produced with the close collaboration of the physics laboratories of Columbia University. Its approach is more fundamental and more theoretical than that of TF 1-470, and it might profitably be used as an introduction to the latter. In this film the meaning of the infinitesimal dimensions of the electron is vividly shown by the device of splitting a drop of water again and again and again (much as physics textbooks usually prescribe in theory) until the tiniest drops take the form of molecules of  $H_2O$ . The molecule is shown according to the latest scientific theories with "shared electrons" forming orbits around the oxygen and hydrogen atoms. This film dramatizes the introductory discussion of atoms and electrons in courses on Elements of Electricity, such as the text for subcourse Number 25, "Principles of Electricity," of the Eastern Signal Corps School. The well-conceived pictures of electron orbits will also be of interest to many senior Signal Corps officers, since they demonstrate the newer theories of atomic structure which were not generally taught in engineering schools 15 or 20 years ago.

#### Film Distribution:

The above-mentioned films should be available to Signal Corps training officers at the nearest film sub-library. If they have not yet arrived there, they may be obtained from the Service Command Film Library. If the accompanying outlines and question material are not available in local or service command libraries, they may be obtained by writing to Film Distribution and Utilization Section, Army Pictorial Division, OCSigO.

## SPECIAL ACTIVITIES

Annual SOS Report:

The first annual report of the Services of Supply, covering the fiscal year ended June 30, 1942, has been issued as a restricted document. In submitting the report to the Under-Secretary of War, Lt. Gen. Brehon Somervell said:

"The Services of Supply has set itself goals beyond the possibilities of achievement and must achieve them. As an organization, it is seeking every possible method of bringing performance abreast of the demands of these critical times."

A chapter in this report is devoted to the Signal Corps. Stressing the role of the Signal Corps in coordinating the communications activities of the Army, the report states that "highly important equipment which was hardly out of the design stage a year ago has been produced and issued to troops." The report presents a favorable picture of both the supply and operational activities of the Signal Corps during the last fiscal year.

Recruiting Literature:

The first printing of 500,000 copies of the recruiting pamphlet "Men Wanted to 'Get the Message Through'" has been used up completely through distribution at the Army War Show, Service Commands, Army Recruiting offices, Signal Corps installations, schools and colleges, and by direct-mail reply to inquiries reaching the Office of the Chief Signal Officer. A second printing is now under way. This edition has been slightly revised to incorporate new illustrations and up-to-date instruction on where to apply for enlistment. When ready, quantities of this booklet -- preferably in units of 500 -- may be requested from Special Activities Branch, OCSigO.

Two recruiting folders prepared for the Signal Corps by the Adjutant General's Office in connection with the current recruiting drive are also available. Small quantities can be obtained upon request to Special Activities Branch, OCSigO. Larger quantities should be requisitioned directly from the Army Recruiting and Induction Service, Office of the Adjutant General, Washington, D. C.

Public Relations:

The recruiting campaign conducted on behalf of the Signal Corps is greatly aided by the dissemination of information about the vital role of signal communication in modern warfare. Current issues of national magazines give considerable representation to the Signal Corps.

The November issue of Radio News is a special edition devoted entirely to the Signal Corps. It contains numerous articles by Signal Corps officers and a large collection of photographs.

The National Geographic Magazine in its November issue features an article entitled, "Winged Words - Weapons of Defense," a considerable portion of which is devoted to the role of the Signal Corps in maintaining the Army's communications.

The cover for the September issue of EM (Radio-Electronic-Engineering and Design) displays a portrait of Major General Dawson Olmstead, the Chief Signal Officer. The same issue also includes a full page news photograph of Brigadier General A. A. Farmer, Commanding Officer of the Philadelphia Signal Corps Depot.

The new Signal Corps poster was featured on the cover of the October 17 issue of the Liberty magazine. Copies of this poster can be obtained from the Army Recruiting and Induction Service, AGO.

MILITARY PERSONNELApplicants for Army Specialist Corps:

Arrangements were made with Lt. Colonel Peacock, Army Specialist Corps Headquarters, for representatives of Military Personnel Branch, Office of the Chief Signal Officer, to review a selected list of Army Specialist Corps applicants possessing Signal Corps qualifications. As a result of this agreement with ASC Headquarters, 4,200 applications have been reviewed to date. Approximately 500 of the applications had Signal Corps qualifications and were withdrawn from Army Specialist Corps files for further consideration. These applications which present qualifications necessary for Signal Corps Army Specialists are being forwarded to Classification Section, Military Personnel Branch, Office of the Chief Signal Officer, where they are being coordinated with job specifications and, in due course, will be recommended for appointment as Army Specialist Corps officers in the Signal Corps.

Signal Corps Replacement Training Center Capacity:

Military Personnel Branch has prepared a detailed study for the Commanding General, Services of Supply, showing the urgent need for increased Signal Corps Replacement Training Center capacity. Anticipated requirements of replacement training center and school trained enlisted personnel for the Signal Corps for the remainder of 1942 and for 1943 were compared with the estimated replacement training center and school output for the same period. The result of the comparison revealed a definite shortage in Replacement Training Center capacity.

To overcome this shortage in capacity, Military Personnel Branch recommended to the Commanding General, SOS, that action be initiated as soon as possible to increase the RTC capacity and thus continue on present training schedules, or, as an alternative, that action be taken to transfer present RTC special training courses to Signal Corps and civilian schools. It was pointed out that, by eliminating all specialist training in the replacement training centers, approximately nine training cycles of six weeks' duration would be completed each year instead of the present four training cycles based upon thirteen weeks. Such a schedule would increase the output of basically trained enlisted men to approximately 60,000 more per year. Military Personnel Branch requested that recognition

of the shortage of replacement training center and school trained enlisted personnel be given by the Commanding General, SOS, and that the Chief Signal Officer be authorized to take steps to increase the replacement training center capacity.

#### Activation of Training Regiments:

Final approval has been given by the Commanding General, Services of Supply, to the request initiated by Military Personnel Branch, Office of the Chief Signal Officer, to constitute and activate the First Signal Training Regiment at Camp Charles Wood, Fort Monmouth, New Jersey, and the Second Signal Training Regiment at Camp Edison, Sea Girt, New Jersey. The change was desired primarily for administrative purposes. Due to the fact that the two camps are separated by fifteen miles, training units at each of the posts can be better administered by a regimental set-up.

The new training regiments will be a result of consolidating the First to the Sixth Training Battalions of the Signal Corps Replacement Training Center, Fort Monmouth, New Jersey. The replacement of the training battalions by training regiments will not constitute an increased allotment of personnel. The existing allotment to the Signal Corps Replacement Training Center will be retained and authority continued for sub-allotment to the new units by the Chief Signal Officer as best suits their needs.

#### Relative Rank List:

A Relative Rank List has been published, showing relative rank as of July 1, 1942, of approximately 10,000 officers assigned to Signal Corps duty. Records Section, Military Personnel Branch, Office of the Chief Signal Officer, reports that 1,000 copies of this 336-page compilation are being made ready for distribution.

#### Signal Corps ROTC Instructors:

Military Personnel Branch has received approval from The Adjutant General to assign ROTC instructors during the current school term on the same basis of allotment as other Arms and Services. Acceptance of Signal Corps instructors on this basis has resulted in a general increase in the number of instructors and has in all cases allotted at least two instructors to each school having a Signal Corps ROTC unit.

Promotions:

The following promotions have occurred among Signal Corps personnel during the period from September 18, 1942, to October 15, 1942, inclusive:

Col. (Temp) to Col. (Perm):

Stanford, Leland H.

Lt.Col. (Temp) to Col. (Temp):

Barker, Wayne Latta  
Beckley, Stuart Alfred  
Burns, Robert Emmett  
Dorsey, William Virgil  
Hayden, Gilbert  
King, Cary Judson, Jr.  
Lenzner, Emil  
Maier, Oscar Carl  
McBride, Dana Gray  
Platt, John Cheney, Jr.

Major (Temp) to Lt.Col. (Temp):

Bishop, Errett  
Braunwarth, William Walter  
Byrne, Thomas Francis  
Cunningham, Edmund Daniel, Jr.  
Dunn, George Garrett, Jr.  
Evans, George Grimes  
Harris, Murray Duncan  
Hatch, Carl Hendon  
Klaproth, Norman Thomas  
Little, William  
Lucke, Charles Bahan  
Maylon, Charles  
Monahan, John Clement  
Moorman, Frank Willoughby  
Morrell, Samuel Charles  
Newlin, Dale Allen  
Perkins, Ray  
Pitcher, Thomas Ambrose  
Rockwell, Robert Beverly Habersham  
Ryder, Edward Ambrose  
Saar, Otto Theodore  
Shaffer, Lee Jay  
Sturries, Carl Herman  
Tucker, Grover Guy

Major (Temp) to Lt.Col. (Temp):

Turpin, William Potter, III  
Wilson, Cato  
Winter, Norman Leon  
Zermuehlen, Herman William

Captain (Temp) to Major (Temp):

Abbott, Thomas William  
Atkinson, Robert Morris  
Ball, John Standen  
Bauer, Richard Marvin  
Bower, Murray M.  
Brombach, Charles Urban  
Buck, Harold Albert  
Bungay, Robert Henry, Jr.  
Burrell, Matthew John  
Buser, Oscar Charles  
Caldwell, Hazlitt B.  
Collins, Tate Benton, Jr.  
Cooper, Philip Grant  
Devine, Daniel Joseph  
Doctor, Ira Paul  
Flashman, James Derwent  
Follett, Leslie Chase  
Franzoni, Fred Royce, Jr.  
Freeman, Robert Haskell  
Fulton, James Hensley  
Gibney, John Thomas  
Greene, James Allums, Jr.  
Grose, David Louis  
Hicock, Russell  
Honnell, Pierre Marcel  
Janes, Clinton William  
Joyce, Walter Farrell  
Keller, Herbert Bradley  
Kelly, Major LeRoy  
Knecht, Walter Grote  
Kobylarz, Albert George  
Lotz, Walter Edward, Jr.  
Lowther, Ralph LeMoine  
McDavid, John Arthur

Captain (Temp) to Major (Temp):

McDonald, William John  
Miller, Francis Nicholas  
Montgomery, William L.  
Penney, David Emory, Jr.  
Phillips, Edward Cuyler  
Pollock, Charles McGinnes  
Radsch, Rex William  
Rice, Horace Gerald  
Riggert, Marvin Clemans  
Riordan, Forrest Heth, Jr.  
Scoffield, Herbert Lucian  
Sheffield, Clarence Douglass  
Simmons, George Millard  
Smale, John Hale  
Southworth, Earl Edward  
Storbraaten, Sidney Norman  
Tallman, Samuel Vose  
Thomas, James Kieling  
Toft, Douglas Osborne  
Walsh, Frank Joseph  
Yates, Charles Potter  
Yates, Thomas Frederick  
Zak, Frederick Joseph

1st Lt. (Temp) to Capt. (Temp):

Abbitt, Williams Henry  
Allen, James Nathaniel  
Amason, Warren Hubert  
Anton, Wellington Baird  
Armstrong, Donald Edgar  
Askins, Harold William  
Badgett, Edward Douglas  
Bailey, Kermit A.  
Bain, Beecher Teal  
Balas, Paul Stefan  
Baldwin, Newland, Jr.  
Barber, George Herbert  
Barnet, George Russell  
Bassett, John Jewett  
Bauman, Clem Charles  
Becker, Rollin Francis  
Benincosa, William Albert  
Bogart, Ellsworth Francis  
Bright, William Daniel  
Bullock, John Forrest  
Burdick, Frank Eugene

1st Lt. (Temp) to Capt. (Temp):

Caron, Bruce Wendell  
Carlisle, Gerald  
Carson, Joseph Reed  
Case, Stanley Rae  
Cayce, Frank Ward  
Chandler, Edward Vernon  
Chapman, Frederick Robinson  
Chaput, Clayton Lawrence  
Clark, Maurice Elbridge  
Clarke, James Roe  
Clarke, Stanley  
Coburn, Clarence Otho  
Cockey, Edward Augustus, III  
Cook, John Ransom  
Cotton, Reardon Stewart, Jr.  
Cottrell, Alfred  
Coulson, Walter Horace  
Cross, Robert Douglas  
Crouch, Alexander Charles  
Dales, Bertram Burdell, Jr.  
David, John Murray  
Davis, Duane David  
Davis, Griffin Leon  
Davis, Paul Clendenen  
DeCristoforo, Walter Hugo  
Denlinger, Earle Bertz  
DeVoe, Jay Jonothan  
Driscoll, Joseph Aloysius  
Eberle, Robert Hamilton  
Ehrenburg, Otto  
Ellis, Ernest Raiford  
Endsley, Charles Denton  
Engel, Wilbur William  
Evenson, Harold Emanuel  
Faraone, Themistocles Hamilcar  
Farmer, Richard John  
Farrell, Thomas Joseph, Jr.  
Farrow, Claudius Golder, Jr.  
Fessenden, Bradley Merton  
Field, Eugene Lincoln  
Fischer, Frank Ernest  
Foley, William John  
Foos, Harry Miller, Jr.  
Freedman, Harry Leo  
Freeland, Herbert Augustus Thornton  
Freeman, John Thomas  
Friborg, John Robert

1st Lt. (Temp) to Capt. (Temp):

Garmany, John Bonds  
Garrett, George Scott  
Geoffrey, Eugene Edward, Jr.  
Giles, John Edwin, Jr.  
Gilson, Wesley John, Jr.  
Gray, William Austin  
Green, Austin Herbert  
Green, Stafford Freemont  
Greene, Bernard Beryl  
Gum, William Arthur  
Guy, David Roger  
Gwillim, Theodore Rees  
Hahn, Clarence William  
Hall, Robert Rhodes  
Harper, James Clayton  
Harrington, Arthur William, Jr.  
Hartman, William Thomas  
Hartwell, Gardner Chase  
Hatfield, Edward Joseph, Jr.  
Hawkins, John Edward  
Heinen, Edward Joseph  
Heinz, James Isadore  
Henson, Howard William  
Herbig, Edwin Turner, Jr.  
Higgins, Walter Alonzo  
Hinchliff, Homes Townsend  
Hinkle, Wilbur Ernest  
Holt, Harry Franklin  
Hopkins, John Stuart  
Hopkins, Roy Cloud  
Jewett, Raymond Bryce  
Johnson, Roy Donald  
King, Tommy E.  
Lawrence, Clarence David  
Lehnert, Frank Herman  
Leigh, John Maxwell  
Leighty, Max  
Lidoff, Herbert James  
Lightburn, James Benjamin  
Lindberg, David Nathaniel  
Lines, Charles William  
Lipman, Abraham Irvin  
Livingston, Donald Benjamin  
Longino, Henry Alvan, IV  
Lovelady, James Calhoun  
Lovgren, Clarence LeRoy  
Mackin, Hugh Fuller

1st Lt. (Temp) to Capt. (Temp):

Mann, Bernard Watson  
Marberry, Joe Dan  
Marston, Everette Dale  
Martin, Edward William  
Mathison, Lester Ferdinand  
Mauzy, Royall Richardson  
Maximoff, Boris Semion  
McAllister, Cecil Michael  
McDonald, Hurley Morrison  
McDonald, Walter Franklin  
McGalliard, Alexander, Jr.  
McKenzie, James Beecher  
McKenzie, Timothy Howard  
McMillan, John White  
McNerney, David Boyd  
Miller, Dudley Douglas  
Mitchell, Earle Fillmore  
Morea, Vincent James  
Morin, Arsene Walter  
Mullen, Charles Herbert  
Nelson, Carl Willard  
Neufeld, Elwood Eugene  
Neufeld, Ivan Charles  
Newsome, Richard Norwood  
Newton, Floyd Childs, Jr.  
Nisbet, Don Frank  
Ostrom, Herbert Nelson  
Palmer, Lamar Neal  
Pennington, John Andrew  
Perkinson, John James  
Picklow, Andrew Thomas  
Pomeroy, Philip Sargent, Jr.  
Pouzar, Emil James  
Pride, Edward Walter  
Pritchard, Carlyle Jedd  
Quashnock, Emro Joseph  
Rahaeuser, Charles John  
Ramsay, Robert Allshouse  
Randle, Robert Bernhard  
Reading, Lyle Milton  
Redhair, George Irvin  
Rein, William Peter  
Renz, John Emerson  
Reynolds, Morris Sheppard  
Rhame, Robert Lowry  
Rose, Allen Marsh  
Rousselot, Harold Anthony

1st Lt. (Temp) to Capt. (Temp):

Ryon, Alton Hoyt  
Sawyer, Henry Philip  
Scace, William Buell  
Scheppach, Maximilian  
Schiller, Horace G.  
Schram, Stuart Murray, Jr.  
Schweitzer, William Peter  
Scott, Sidney Law  
Seager, Charles William  
Seaman, John Norman  
Seay, Homer Houston, Jr.  
Shehane, Barney Arthur  
Shelley, Sidney  
Sheridan, Edward Walter  
Shivers, Gerald Woodrow  
Shockley, Thomas Rupert  
Simmons, Gerald Fremont  
Simpson, Arthur Lorenzo  
Sims, Clyde Benjamin  
Sitnek, William Grauer  
Slagle, Halbert Jennings  
Smith, Charles Estelle  
Smith, John Lloyd  
Snowden, Robert Fort  
Spaulding, William Elmore  
Spears, Joseph Faulconer  
Spiegel, Louis Henry  
Steele, Gerald Howard  
Stephenson, Orlando Worth, Jr.  
Stevens, John Herbert  
Stockett, Richard Carrington  
Stokely, Murray Marvin  
Stone, Paul Milliard  
Stradleigh, Norman Farrington  
Tenney, Frank Lee  
Thomas, Dale Edgar  
Thompson, Homer Virgil  
Tuttle, John Caleb  
Tuxworth, Frank Edward, Jr.  
Vanko, Joseph August  
Vincent, Wilbur Dale  
Wallender, Kenneth Clark  
Washburn, Lester Lycan  
Weatherby, Edward Pace, Jr.  
Wehlitz, Hubert Frank  
Welfly, Harold Abraham  
Welsch, Glenn Albert

1st Lt. (Temp) to Capt. (Temp):

West, Frank Thornton, IV  
Windham, James Radford  
Wood, Gilbert Fitzgerald  
Woodard, Harry Moore  
Yasbec, Stanley Henry  
Yates, Douglas Thomas  
Zapponi, William Lawrence

2nd Lt. (Temp) to 1st Lt. (Temp):

Akers, Norman Ernest  
Alexander, Nelson Sidney Barnard  
Algarotti, Robert Anthony  
Allen, Arthur Pomeroy  
Allen, Howard William  
Anstine, LeRoy Tilden  
Ardrey, William Herbert, Jr.  
Arnett, Walter Eugene  
Atwood, John Warmington  
Bagnall, Joseph Carlton, Jr.  
Bailey, Wilburn R.  
Bair, John Howard  
Baldwin, John Homer  
Ballard, Roy William  
Ballengee, Carl Benton  
Balog, Frank  
Barbour, Morton Minard  
Bardwell, John Stoddard  
Behn, Sosthenes, II  
Beisswenger, Robert Harry  
Berard, Marshall Arthur  
Berg, Robert Quentin  
Best, James Frank, Jr.  
Black, Chester C.  
Black, James Campbell  
Blackledge, Robert Caldwell  
Blackmer, Walter Steele, III  
Blakeman, Ralph Everett  
Blanchard, Jerred Gurley  
Blumenfeld, Adrian  
Blythe, Hassel Winfred  
Boedecker, Harry W.  
Bohannon, Jack Hal  
Bond, Harold William  
Bower, George Lee  
Bowers, Harry Huffman  
Brandmarker, Boaz Leon

2nd Lt. (Temp) to 1st Lt. (Temp):

Brandstrom, Alfred Raymond  
Brezan, Larry Tharon  
Brodie, Eli Leonard  
Brockman, John Joseph  
Brooks, Herman W.  
Brott, William Fout  
Brown, Maskell Edward  
Bullers, Richard Walton  
Bundy, William P.  
Butcher, Carlton Hall  
Cane, Donald Butler  
Cappelletti, Joseph Michael  
Casey, Jack Stanley  
Caswell, Ralph Alexander  
Challenger, William Deakyne  
Churchill, Robert Busey  
Cilley, Roger Howard  
Clark, Charles Edwin  
Coburn, Herbert William  
Connolly, Joseph Edward  
Conte, Joseph R.  
Cooperhouse, Jacob Baer  
Cooperrider, Luke King  
Copeland, Maurice Eli  
Creel, Edward Milton  
Croskey, Jack Earl  
Cross, Leo John  
Crumplar, John Rufus, Jr.  
Cupples, Reuben Drexel  
Curtin, Joseph Nicholas  
Curtis, John Burroughs  
Datres, Eugene Bernard  
Dennis, William Frank  
Denison, Howard  
Dibos, Richard Ashton  
Donnelly, John Earl  
Deolittle, Robert Burrous  
Dougherty, Edward Joseph  
Douglas, James Homer  
Doyle, Pierce Anthony, Jr.  
Drillot, Marcus Wilson  
Duncan, Thomas Allen  
Dunwell, Stephen W.  
Eisenschmidt, Clyde Raymond, Jr.  
Eke, Reginald  
Erickson, Lloyd Martin  
Essig, Christian Henry, Jr.

2nd Lt. (Temp) to 1st Lt. (Temp):

Etchison, Gibson Orr  
Fahrnkopf, Charles Donald  
Farrelly, Matthew Joseph  
Fenner, John Ellsworth  
Ferguson, Charles Benner  
Ferguson, James Allen  
Ferrey, Russell Harrison  
Fezell, George Howard  
Flashman, Joseph Joshua  
Fleming, Edward Lee, Jr.  
Fogarty, Frederick James, Jr.  
Forus, Edward Milford  
Franklin, Robert F.  
Fraser, Harrison David, Jr.  
Friesen, Pete Abraham  
Frisby, Carl Evan  
Gampher, Gene Lantz  
Ganslen, Richard Victor  
Glenny, Lyman Albert  
Goebel, Robert James  
Gold, Andrew Leonard  
Gordon, Cyrus Herzl  
Grant, Marshall  
Gray, Gordon Dare  
Green, Richard Alan  
Griffith, Joseph  
Guiles, Richard Charles  
Gunn, Arthur Clarke  
Guthrie, Guy Richard  
Guy, James Douglas Carmichael  
Harkey, Marion Lesley  
Harrison, Rodger Scott  
Hart, John Taylor, Jr.  
Haskins, Arnold Edward  
Haugeland, John Christian  
Hawley, Lee Sinclair  
Hayes, Edward Kenneth  
Head, Bert Lester  
Heath, Lester Milton  
Hedlund, John Paul  
Helfat, Bernard Alvin  
Henderson, Robert Stuart  
Henline, Clair Gillespie  
Hennenan, Carl Daniel  
Henyan, Woodrow Wilson  
Herrera, Raymond Mix  
Herrick, Elliott Dillon

2nd Lt. (Temp) to 1st Lt. (Temp):

Herrick, Frederick Ellis  
Herzberg, Donald Herman  
Hess, Walter Wollman, Jr.  
Hiebel, George Jacob  
Hill, Donald Robinson  
Hill, Yates Michel  
Hirt, Charles Richard  
Hodgkiss, John Thomas  
Holtby, Bert E.  
Hosken, Robert Thomas  
Hostetler, Wayne Leroy  
House, Joseph Phillip, Jr.  
Howard, Lee Perot  
Howell, Bisco Redmond, Jr.  
Hoyt, Richard Lorraine  
Hubbard, James Begg  
Hubbard, Robert Ree  
Huck, Lewis Francis Joseph  
Hucker, Robert Edward  
Huffcutt, Gordon Lynn  
Hughes, William Edmund  
Humphreville, William Woode  
Hunter, Kenneth Edward  
Huntzinger, Gerald Orville  
Innes, William Henry  
Jacobs, Samuel  
Janowski, Theodore Raymond  
Jauchen, John Herbert  
Jay, John Clarkson  
Jenkins, John Franklyn  
Jensen, Samuel Wesley  
Jensen, William Warren  
Jesso, Edward Francis  
Judkins, William Francis, Jr.  
Jung, Werner Fred  
Keane, Melvin Peter  
Keeler, Edwin Stewart  
Keep, Harry Augustus  
Kellerman, William Leslie  
Kerch, Charles Giddings  
Kieft, Warren Edward  
King, Rollin Wharton  
Klein, Jerome Herbert  
Klepper, Irving Comstock, Jr.  
Kolodziej, Peter Richard  
Koss, Irving  
Krienke, Arthur Gustav

2nd Lt. (Temp) to 1st Lt. (Temp):

Lake, Charles Herbert  
Larson, Lawrence Peter  
Laskey, Jesse Louis, Jr.  
Law, Lewis Harvie  
Lawrence, Walter Trail  
Leavitt, Willard Henry  
Leidersdorf, William Herman  
Lewis, Robert Long  
Libera, John Joseph  
Lilienfeld, Jacob  
Lindsay, Alexander Heilman  
Lindsay, Andrew Thomson  
Lord, Elton Powell  
MacCurdy, Raymond R., Jr.  
Macek, Joseph Charles  
Magee, James Graham  
Magoon, Donald Whitsey  
Mahan, Millard  
Mahler, Eric  
Maisel, Daniel S.  
Manley, Lawrence James  
Markland, Robert Lorraine  
Martin, Loonis Edwards  
McCord, Claude Manley, Jr.  
McCown, Kenneth Jones  
McCoy, Thomas Frederick  
McDonnell, Bernard Patrick  
McIntosh, Malcolm  
McKay, James Harvey  
McMahon, Edward Maurice, Jr.  
McNitt, Clifford Dedrick  
McTurnan, James Lathan  
Mederos, Thomas Sergio, Jr.  
Meisinger, Richard John  
Melvin, George Herbert, Jr.  
Michalowski, Heliodor Alcysius  
Miller, Donald Cecil  
Miller, Willis Colson  
Mills, Ervin Rice  
Mitchell, William Boone-  
Richardson, Jr.  
Moak, James Gordon  
Mollan, Richard Melvin  
Mondrillo, George  
Monteleone, Maurice Domic  
Mortimer, Harvey Ward  
Moskowitz, Irving Leonard

2nd Lt. (Temp) to 1st Lt. (Temp):

Mullen, Charles Howard, Jr.  
Munich, Paul  
Munson, Nicholas Sayre  
Murray, Waverly Cameron  
Nabors, Wilbur Rexford  
Nester, Gilbert Charles  
Niosi, Jerome Joseph  
Nolan, Daniel C., III  
Norris, George Todd  
Nowlin, Dale Wilson  
Nutt, John Francis  
Obenchain, Irving Rock, Jr.  
Obenchain, Richard  
O'Donnell, James William  
O'Neal, George Raybourn  
Orr, Ernest Neal, Jr.  
Osborne, Robert Earl  
Ottinger, Lowell Theodore  
Overton, Douglas William  
Packard, Lyle Dean  
Palmlad, Frederic Harold  
Palmer, Elwood Marshall  
Parker, Delbert  
Parry, Thomas Henry  
Pasciak, Leonard John  
Patterson, Everett Trenchard  
Pelak, Paul  
Percy, Richard Perry  
Peterson, Alan Algot  
Peterson, Earl Thomas  
Phinney, Jack Thomas  
Phoebus, John Wesley  
Pike, Winthrop Seeley  
Pitts, Roy Ben  
Piuck, Daniel  
Poirier, Gerard France  
Polcari, Louis  
Polena, Jordan Rafail  
Pollard, Frank Slack  
Pooley, Edgar  
Post, John Wesley, Jr.  
Postlethwaite, Kenneth Eugene  
Prater, Winton Tracy  
Prohaska, Joseph Matthew  
Puckett, Ray Herbert  
Quick, John Temple  
Radford, Russell Roy

2nd Lt. (Temp) to 1st Lt. (Temp):

Raffensperger, William Alan  
Ragland, Charles Emerson  
Ray, George Alexander, Jr.  
Ready, Ernest Woodrow  
Reed, Robert Woodin  
Reed, Shelton  
Renaud, William Elliott  
Rice, Harold Windsor  
Richardson, Robert Vulosco, Jr.  
Richmond, William Pinyard, Jr.  
Rienzi, Thomas Matthew  
Rips, Ervine Milton  
Rose, Thomas Gaylord  
Rosenblum, Edward  
Roth, Gerhard Otto  
Roth, Herrick Smith  
Rouse, Milford Ellis  
Runkle, Scott Frederick  
Sanders, Howard Carson  
Sanders, Paul Fredric  
Sauers, Doran Allen, Jr.  
Scanlon, William Joseph, Jr.  
Schafer, Delwyn Clarence  
Scheftel, Herbert  
Schissler, Paul Frederick  
Schrader, Albert Theodore  
Schwartz, Benjamin  
Seibert, Morris  
Sемmelman, Charles Louis  
Sheriff, Fletcher Anderson, Jr.  
Shireling, Robert Albert  
Shmishkiss, Stanley  
Shutrump, Charles Fred, 2d  
Siegel, Ralph  
Siepman, Richard D.  
Silverstein, Maurice  
Sinelnikoff, Abe  
Skinner, Eugene Elam  
Skogstrom, Darving Ellsworth  
Smith, Aley Leonard  
Smith, Eugene Fredrick  
Smith, Everett Charles  
Smith, George Hanford  
Smith, John Franklin  
Smith, Joe Franklin  
Smithers, Charles Owen  
Snyder, Richard LaCount

2nd Lt. (Temp) to 1st Lt. (Temp):

Sommer, Felix Maximillian  
Soule, Robert Messinger  
Steele, John Nelson  
Steinbach, George Christian  
Stevens, Ercell Robert  
Strickling, Jerry B.  
Strock, Howard Eugene  
Strohm, James Thomas  
Sullivan, Alden Patrick  
Sullivan, Theodore Francis, Jr.  
Sundstrom, Lee M.  
Suter, Wayne Virgil  
Swears, Clayton Cole  
Taylor, Carlisle Copeland  
Taylor, Herbert Samuel  
Taylor, John Edward  
Terry, Robert Davis  
Terry, Woodrow  
Thomas, John William  
Thompson, Francis Grover  
Thompson, Hal Candler  
Thompson, Ira Welch  
Thompson, James Russell  
Thompson, Wilbur Levern  
Thornburg, Harold Clayton  
Tichenor, Lawrence William  
Timmerman, Henry Carl  
Toomer, Fred Sanders  
Torrey, Don Richard  
Toth, Edward Stephen  
Treash, Richard B.

2nd Lt. (Temp) to 1st Lt. (Temp):

Treece, Lawrence Grant  
Trulock, Richard Wesley  
Turner, Sherman Nutting  
Upp, Earl Ephriam  
Van Dan, John Henry  
Van Sloun, Paul William  
Vineyard, Hodge Jackson  
Wall, Frederick Brooks  
Waller, Marshall  
Webber, Martin William  
Weeks, Eugene Leland  
Weeks, Milton Dell  
Westphal, Maurice  
Wickern, Donald Joseph  
Wiest, Richard David  
Wiles, Clarence Elwood  
Wilson, James William  
Wilson, Nelson Davis  
Wolf, Nelson Burnett  
Wolfe, Victor  
Wood, Kenneth Henry  
Woolston, Stacey Jay  
Wright, Charles Lynn  
Wurdemann, William Herman, Jr.  
Wythe, Evan Howard  
Yarbrough, Roy Oliver  
Yost, William Edward, Jr.  
Young, Malcolm Dow  
Young, Victor Stanley  
Youngblut, Emille Eugene  
Zirkle, Samuel Edgar

WAR PLANS

New Signal Units:

The 842d Signal Service Company is constituted and will be activated by the Commanding General, Ninth Service Command, at Camp Beale, California, on October 15, 1942, with an authorized strength of twelve officers and two hundred twenty-five enlisted men. The unit is in excess of the current troop basis. Upon activation and prior to movement, the unit will be attached to the Ninth Service Command for administration and to the Chief Signal Officer for training only. The unit will be prepared for movement by November 15, 1942.

On September 20, 1942, the Headquarters, Army Ground Forces, issued a directive that the Commanding General, Second Army, will activate a Company C for each of the following units:

- 93rd Signal Battalion;
- 94th Signal Battalion;
- 96th Signal Battalion;
- 98th Signal Battalion.

These units will be activated at the earliest practicable date when housing becomes available at Camp Crowder, Missouri.

The 845th Signal Service Battalion was constituted on October 7, 1942. The affiliation of this unit with the Illinois Bell Telephone Company was announced as of October 10, 1942. This unit will be ordered into the active military service of the United States upon instructions of the Chief Signal Officer as early in November, 1942, as practicable, and will be organized with an authorized strength of twenty-four officers and seven hundred fifteen enlisted men for station at Camp Crowder, Missouri. The unit will be prepared for functional operation by January 5, 1943.

The 16th Signal Operation Battalion and the 127th Signal Radio Intelligence Company will be activated by the Commanding General, Third Army, at Fort Sam Houston, Texas, at the earliest practicable date in October, 1942.

The 59th Signal Battalion and the 282nd Signal Pigeon Company, both affiliated units, will be activated in October at

Camp Crowder, Missouri.

On September 17, 1942, the Chief Signal Officer ordered the 834th Signal Photographic Detachment, Special Services, into the active military service of the United States, with temporary station at Fort MacArthur, California, effective as of September 15, 1942.

On October 14, 1942, the Chief Signal Officer ordered the 241st Signal Operation Company, affiliated with the Bell Telephone Company of Pennsylvania, into the active military service of the United States, at Camp Beale, California, on October 26, 1942. The Commanding General, VII Corps, will organize this unit at an authorized strength of nine officers, one warrant officer and two hundred eighty-seven enlisted men. Upon entry into the active military service, the 241st Signal Operation Company is relieved from assignment to the Chief Signal Officer and is attached to the VII Corps.

On October 7, 1942, the Signal Fixed Radio Station Company, 15th Signal Service Regiment, is redesignated as the 822nd Signal Fixed Radio Station Company without change in strength and grades and assignment.

#### Equipment Lists:

Equipment lists are being prepared by the Military Organization Section for every Signal Corps organization. These equipment lists include all equipment, supplies, expendable parts, etc., that are authorized the various organizations in the Signal Corps. They are not to be used as a basis for requisitioning but merely to inform the commanding officers and signal officers of the various organizations concerned as to what equipment their commands are authorized. To date the following equipment lists have been mimeographed and distributed:

- Signal Company, Infantry Division
- Signal Company, Motorized Division
- Signal Company, Engineer Amphibian Brigade
- Headquarters and Headquarters Company, Signal Battalion
- Signal Wire Operation Company
- Medical Detachment, Signal Battalion
- Signal Company, Aviation
- Signal Company, Army Air Forces
- Signal Depot Company, Aviation
- Signal Light Construction Company, Aviation
- Signal Heavy Construction Company, Aviation
- Signal Company, Service Group
- Signal Company, Wing

Battalion Headquarters, Signal Battalion, Construction,  
Aviation  
Medical Detachment, Signal Battalion, Construction,  
Aviation  
Battalion Headquarters, Ground-Air Support Command  
Medical Detachment, Signal Battalion, Ground-Air Support  
Command  
Signal Radio Intelligence Company  
Headquarters and Headquarters Company, Signal Construc-  
tion Battalion  
Signal Photographic Company

Tables of Organization:

The Table of Organization for a Signal Company, Mountain Division, 11-317, has been revised and submitted to Army Ground Forces for their concurrence.

Revised tables of organization for the Signal Photographic Company and Signal Photographic Laboratory are under consideration.

The Armored Signal Battalion tables have been approved by the Army Ground Forces and Services of Supply and forwarded to The Adjutant General for printing.

The following Signal Corps tables have been published and distributed:

11-185 227th Signal Company (Composite)  
11-225 Signal Construction Battalion, Aviation  
11-227 Signal Heavy Construction Company, Aviation  
11-237 Signal Company, Service Group  
11-247 Signal Company, Wing  
11-517S Signal Company, Special  
11-557 Airborne Signal Company

## RADIO INTERFERENCE

The following statement in connection with radio interference complaints has been drawn up for the information of all concerned by the Communication Liaison Branch of Communication Coordination Division, OCSigO:

The character of many of the interference complaints received in the Office of the Chief Signal Officer indicates an apparent assumption by some of the field personnel that radio communication should be free of interference. Of course the unavoidable duplications of assignments make such an objective impossible. Moreover, in most instances, particularly in training operations, practice in working through heavy interference is a necessary part of the program since communications in combat areas are subject to enemy "jamming." The ability to work through interference requires a high degree of concentration and the development of technique which can only be gained through experience. To train operators in an interference free atmosphere is to neglect an important phase of necessary preparation for duty under combat conditions. The Signal Officer who achieves a callousness to interference complaints is likely to develop better all around operators than one who strives for unnaturally interference-free circuits. In many instances, an interference complaint is a confession of operator weakness. Certainly, complaints should not be considered unless interference is of a character as seriously to jeopardize life and property or completely to interrupt the flow of traffic for extended periods.

In addition to the training aspects of interference, it is obvious that the correspondence regarding unnecessary interference complaints creates an unjustifiable burden on personnel engaged in carrying out the serious business of war and is especially objectionable if the complaint necessitates correspondence with units in the theatres of operation.

Reports of destructive interference should include the call letters of the station causing the interference; the station receiving the interference; the date and time the interference began and stopped; the frequency involved; the type of emission; an intercept of the traffic involved, if possible, and radio "fixes" if possible. This information is desirable to assist in identifying the interfering station, as frequently the call letters are misunderstood or the call used is unauthorized.

Before reporting interference, the responsible officer should thoroughly check to ascertain that the alleged interference is actually disrupting important traffic and not - as is frequently the case - a report of signals heard at about the receiver setting that is used for a correspondent station.

Reports of the Signal Corps Board on the following cases have been approved by the Chief Signal Officer during the month ended October 15, 1923.

Signal Corps Board Case No. 100

Arctic Radio and Telephone Helmet - Approved September

15, 1923.

The Signal Corps Board was directed to prepare military recommendations for a suitable cold weather helmet for use with telephones and radio helsets. The Board was directed to make recommendations as to whether it is considered practicable to develop these helmets concurrently with the development of helmets and receivers, as recommended in the approved Signal Corps Board Case No. 407, Helmet, New Type Helmet.

Reference is made to Restricted Information Letter No. 7, dated June 1, 1923, for a description of the helmet HB-30.

The Signal Corps Board concluded that the helmet HB-30 of the present design was not entirely satisfactory for use with steel helmet H-1 and its unsatisfactory features were standardized cold weather helmet, including helmet type B-2 (Air Corps).

The approved recommendations are:

Twenty-four helmets HB-30 be modified and submitted to the Army Air Forces and Army Ground Forces for examination and report.

Development be continued to improve the means of fastening the helmet HB-30 under winter headgear and the steel helmet H-1 and to provide a means of preventing any blow on the receiver from being transmitted to the inside of the ear.

When a suitable solution to these problems has been found, several test models be made available for distribution to units and services prior to service test.

Production continue on the present helmet HB-30 until a suitable modification is developed and is under production.

## SIGNAL CORPS BOARD CASES

Reports of the Signal Corps Board on the following cases have been approved by the Chief Signal Officer during the month ended October 15, 1942.

Signal Corps Board Case No. 436:

Arctic Radio and Telephone Helmet - Approved September 15, 1942.

The Signal Corps Board was directed to prepare Military Characteristics for a suitable cold weather helmet for use with telephone and radio headsets. The Board was also directed to make recommendations as to whether it is considered practicable to develop these helmets concurrently with the development of headsets and receivers, as recommended in the approved Signal Corps Board Case No. 407, Headgear, New Type Helmet.

Reference is made to Restricted Information Letter No. 7, dated June 1, 1942, for a description of the Headset HS-30.

The Signal Corps Board concluded that the Headband HB-30, of the present HS-30, was not entirely satisfactory for use with steel Helmet M-1 and is unsatisfactory for use with standardized cold weather headgear, including Helmet Type B-5 (Air Corps).

The approved recommendations are that:

Twenty-four Headsets HS-30 be modified and submitted to the Army Air Forces and Army Ground Forces for examination and test;

Development be continued to improve the means of fastening Headset HS-30 under winter headgear and the steel Helmet M-1 and to provide a means of preventing any blow on the receiver from being transmitted to the inside of the ear;

When a suitable solution to these problems has been found, several test models be made available for demonstration to using arms and services prior to service test;

Production continue on the present Headset HS-30 until a suitable modification is developed and is under production.

Signal Corps Board Case No. 484, Part B:

Service Test of Repeater TG-9-T1 (Telegraph) and Bell Telephone Laboratories 128 Type Telegraph Apparatus on Wire W-110-B. Approved September 18, 1942.

The Signal Corps Board tested Repeater TG-9-T1 (Telegraph) on a field wire line 80 miles long, constructed of Wire W-110. This repeater was compared with Bell Telephone Laboratories Type 128 Telegraph Apparatus, tested on the same line.

Due to cumulative effect, it was found that it was not practical to use more than one repeater on the line.

The approved recommendations are that:

The Repeater TG-9 (Telegraph) not be standardized at this time and work on its development be discontinued;

A regenerative repeater of the electronic type (Repeater TG-29) be developed. As this will be a long-term job, the Repeater TG-28 (Motor) be developed from the commercial model for field use until the TG-29 is available;

The Bell Telephone Laboratories 128 Type Telegraph Apparatus be modified and then standardized as Required Type, Adopted Type, Substitute Standard Article;

The Signal Corps General Development Laboratory investigate grounds for wire equipment, both untreated and chemically treated, and prepare information to be included in training literature on this subject, so that field forces will know where to look for good electrical grounds and how to improve those obtainable in the field;

The Laboratory continue its investigation of telegraph repeaters in order that telegraph transmission below, above, or within the voice band (as used by the British) may be considered.

Signal Corps Board Case No. 451:

Field Wire Construction Truck - Approved September 19, 1942.

The Signal Corps Board considered the military requirements for a field wire construction truck for use by division signal companies.

The Board concluded that a military need does not exist for a specialized vehicle and that the standard Q-Truck, 2 $\frac{1}{2}$ -Ton,

Cargo, fitted with removable racks, frames and chests for construction equipment, should be adopted for this purpose.

The approved recommendations are that:

Military Characteristics be adopted for the assembly of Chest, Frame and Accessory Equipment TE- (for Field Wire Construction Truck);

The Signal Corps General Development Laboratory develop this equipment and submit models to the Board for service test;

Military Training Division issue instructions to the field to enable interested communication troops to improvise along standard lines until development and issue of this equipment are accomplished.

Signal Corps Board Case No. 472, Part B:

Blackout Flashlight Invented by Charles Nehrke - Approved September 24, 1942.

The Signal Corps Board investigated a blackout flashlight and blackout adapter invented by Charles Nehrke.

The flashlight incorporated the following features: screw-base flashlight bulb; parabolic reflector; metal hood with a plane reflecting surface; two filters (red and green), either or both of which may be moved into position to produce a red or green light; two Batteries BA-30; leather belt straps; spring switch - operated by opening the hood to light the lamp; case of steel in rectangular shape.

The Nehrke Blackout Adapter consists of a housing with an attached snap-clip for fastening to the lens ring of a Flashlight TL-122-A, a hinged white filter of plastic material, a hinged red filter of plastic material, and a cover. The housing and cover are of .025 inch thick pressed steel. The mechanical construction of the adapter is extremely weak both with respect to materials and hinging of filters and cover.

No further consideration is to be given to these two items.

Signal Corps Board Case No. 497:

Replacement of Telephone Central Office Equipment TC-4 by one or more Telephone Central Office Equipments TC-12. Approved September 29, 1942.

The principal components of TC-4 are Switchboard BD-96 and Panel BD-97; the only major component of TC-12 is Switchboard BD-91. This case was to consider the elimination of the TC-4 by the use of one or more TC-12 equipments. The Chief Signal Officer disapproved the Board's recommendation against this substitution of the TC-12 for the TC-4, since the majority of the conclusions arrived at by the Board were invalid or could be easily overcome.

The approved recommendations are that:

The Telephone Central Office Equipment TC-12 be substituted for the Telephone Central Office Equipment TC-4 on a basis of issue to be determined by War Plans Branch;

The TC-4 be reclassified as "limited standard";

Action be taken to determine what tools or equipment, essential to the maintenance of field wire circuits, are available in Maintenance Equipment ME-11 and are not available in Maintenance Equipment ME-30;

Action be taken to make these tools or equipment available to troops issued the ME-30.

Signal Corps Board Case No. 434:

Military and Technical Characteristics for Sound Recording Equipment - Approved October 6, 1942.

The Board was directed to formulate technical and military characteristics for not more than three types of recorders, capable together of fulfilling requirements of all military applications, including either combined recorder and transcriber facilities or separate facilities therefor.

The Board commented that the possible military applications of sound recording equipment are so many and varied that it is not practicable to cover all of them with three designs. However, it is considered practicable to cover the large majority of them with three designs.

The approved recommendations are that:

Military Characteristics, as revised, for General Purpose Sound Recording Equipments, Radio Intercept Sound Recording Equipment and High Fidelity Radio Intercept Sound Recording Equipment, be adopted;

The Signal Corps General Development Laboratory prepare

specifications for each of these three types of recorders and procure production samples for service test purposes;

When uniform high quality master recordings for purposes of general instruction, music, or aptitude tests are required, they are to be obtained from commercial agencies in the form of pressings derived from studio wax recordings.

Signal Corps Board Case No. 399, Revised:

Blackout Adapter for Flashlight TL-122-A - Approved  
October 6, 1942.

In this case Military Characteristics were prepared to provide a blackout adapter for use with Flashlight TL-122-A. This blackout adapter consists of a screw-on filter holder with suitable filters. To prevent loss, this adapter will screw onto the base of the flashlight as well as on the head.

The approved recommendations are that:

The Military Characteristics prepared be adopted;

All Flashlights TL-122-( ) to be procured in the future, and to be made of plastics or other substitute materials, be procured under a specification which provides for the interchangeability of parts by requiring the same thread pitch and diameter for the lens end and body end as now used on the metal form of Flashlight TL-122-A.

XIV

SIGNAL CORPS TECHNICAL COMMITTEE

Recommendations to S. O. S.:

During the month ended October 15, 1942, the Signal Corps Technical Committee made the following recommendations to the Commanding General, Services of Supply.

1. That Military Characteristics be adopted as follows:

Radio Set SCR-557:

A portable radio direction finder for use by Division Signal Companies to locate enemy transmitters within the frequency range of 3 to 18 megacycles at distances over which the ground wave predominates.

Telephone Central Office Set TC-20:

Telephone Central Office Set TC-20 will be designed to replace the Telephone Central Office Sets TC-10 and TC-1. The maximum weight of any unit, except the power equipment, is to be 750 pounds compared with 880 pounds for the BD-110 and 1350 pounds for the BD-80. The switchboard unit is to have 30 common battery circuits, 30 magneto line circuits and 8 dial or common battery trunk circuits.

Boom Equipment LC-60-( ):

A movable arm or boom for attachment to a wire laying vehicle and used to guide the wire out of the traveled portions of highways and for circumventing obstacles along the route. It is also capable of being used in the recovery of field wire when used in conjunction with Reel Unit RL-26.

Repeater TG-28 (Motor-driven, Regenerative):

Repeater TG-29 (Electronic, Regenerative):

In the transmission of telegraph signals for appreciable distances over wire lines, the current strength of the signal pulse is weakened, and the timing of the pulses is modified. Both of these effects may result in the improper operation or the non-operation of teletypewriter equipment over long lines. Renewal of current strength can be accomplished by the conventional telegraph

repeaters of the polar or neutral type. Correction of pulse distortion can be accomplished by a repeating device which retimes the pulse. A satisfactory repeater will allow the use of teletypewriter equipment over greater distances than otherwise, and will reduce the number of operating adjustments required when used over shorter distances. It is proposed to modify the commercial motor-driven equipment so that it will be available for military use in a short time and to initiate the development of the electronic type so that it will be available for military use at a later date if it proves to be more satisfactory than the motor-driven equipment.

Telegraph Printer Set TC-16-( ):

This consists in general of a typing reperforator unit with standard communication keyboard and a transmitter distribution unit. It can produce a perforated and printed tape from received line signals and retransmit simultaneously or later as desired. It can also transmit a perforated and printed tape simultaneously for home copy or later retransmission. This set can also be used with the standard Signal Corps Telegraph Printer Set EE-98 to produce printed page copy. It will be used at points where relaying between different circuits is required and at message centers using teletypewriter equipment. Telegraph Printer Set TC-16-( ) is arranged to operate on 115 or 230 volt, 50 or 60 cycle supply, or 110 volt DC supply. Provision for 25 cycle, 115 or 230 volt operation can be made on a special basis when required by furnishing Rectifier RA-7 instead of Rectifier RA-87. For transportation the equipment will be placed in suitable packing cases, the main case to be arranged for a table when desired.

Converter Set TC-33-( ) (Carrier, 2-Wire, 4-Wire):

This set is portable and will be used at a terminal to convert the frequencies used on one pair of the four-wire system of the Telephone Terminal CF-1 for transmission on a single pair open wire line and vice versa. This equipment which includes Converter CF-4-( ) (Carrier, 2-Wire, 4-Wire) as a major component, is for use on a single pair open wire line and will utilize a range up to 29,000 cycles per second to furnish four two-way voice channels.

Repeater Set TC-37-( ) (Carrier, 2-Wire):

This portable Repeater set is a two-wire device and will amplify the high frequency band used for transmission in one direction and the low frequency band used for transmission in the other direction of the open wire carrier system produced from the spiral-four carrier system by Converter Set TC-33-( ). The set has as a

major component Repeater CF-5-( ) (Carrier, 2-Wire). It will be arranged to operate as an intermediate repeater between line sections consisting of approximately 150 miles of single pair 104 mil copper wire and also to operate on the type of wire adopted for the Signal Corps rapid pole line construction.

Interphone Equipment RC-99:

This equipment, for use in vehicles in conjunction with Radio Sets SCR-510 and SCR-610, consists of components of standard interphone equipment with the exception of one new control item, Control Box BC-739. The only difference in the installation of Interphone Equipment RC-99 in different type vehicles is in the number of Control Boxes BC-606-A used. This equipment can be used in either 12 volt or 24 volt vehicles by using the proper interphone amplifier.

Telephone Repeater Set TC-29-( ) (Voice Frequency, 4-Wire):

Consists of Telephone Repeater EE-99 which is a four-wire, voice frequency device, and necessary auxiliary equipment for its operation in the field. It is powered either from dry cells or from a 12 volt storage battery through a power pack. The dry cells or the power pack without the storage battery may be housed within the portable wooden case in which the set is assembled.

Repeater Set TC-18 (Terminal):

This set, the major component of which is Repeater TG-30 (Terminal) will provide teletypewriter or manual telegraph transmission over long field wire lines or open wire lines. This unit will operate between neutral type terminal instruments and either a two-way path polar system (British) or a type B polarization system. The repeater is capable of transmitting and receiving 60 speed teletypewriter signals over line sections made up of about 40 miles of field Wire W-110-B under wet weather conditions, or approximately 150 miles of 104 mil copper open-wire line.

Repeater Set TC-19 (Intermediate):

This item is to be located at an intermediate point on a field wire or open wire line which is equipped with Repeaters TC-18 (Terminal). It will operate on a line using either two path polar system (British) or type B polarization system. Only one intermediate repeater is to be used between a pair of terminals, and it is anticipated that such an arrangement will provide satisfactory telegraph service over 80 to 100 miles of Wire W-110-B under wet weather conditions.

2. That Military Characteristics be revised on items as follows:

Radio Sonde ML-128 (Balloon):

This item consists principally of a meteorological assembly, a radio transmitter and associate equipment for the purpose of weather analysis. The radio sonde will transmit to ground equipment by means of radio signals the air pressure, temperature and relative humidity at upper air levels through which the instrument passes. Transmitter signals will then be available for immediate interpretation in terms of pressure, temperature, and relative humidity. This action is taken to meet new requirements as given by the Army Air Forces and the Army Ground Forces.

Radio Set SCR-299:

A standard complete mobile radio station with all equipment necessary for maintenance and communication when in the field between important but widely separated tactical units under conditions in which this radio set is the only available means of communication. This action is taken to allow transportation for the set by means of standard 2½-ton, 6 x 6, long wheel base, 144-inch body cargo truck or half-track truck with body size identical to the cargo truck. The truck is not to be issued with the set. It further provides shelter for the set, with the exception of the power unit, by installation in a slip-in-body, the dimensions of which will permit transportation in either of the two above-mentioned trucks. Special characteristics added provide that all components and interwiring are to be arranged to permit removal and packaging for transportation by air, other trucks, boat or any other mode of motorized transportation and to be capable of being reassembled in trucks or buildings at destination in the minimum length of time.

Radio Set SCR-601:

A high frequency radio with sufficient power to work an effective range of 100 miles at 10,000 feet or higher. It will be portable either by military aircraft of the bombardment type or by truck and is to be used by aircraft in returning to landing fields. This action is taken to provide that the equipment shall be of the aural type capable of being used with a standard high frequency command set receiver.

Radio Set SCR-503:

This item is to be composed of 3 units, each of which will be independent in operation. Two of these units, which cover

the frequency ranges of 100 kilocycles to 1000 kilocycles and 1000 kilocycles to 3 megacycles, have been completely developed and are standard equipment for issue to Radio Intelligence Companies. A third unit is being developed to cover the frequency range up to 18 megacycles. This action is taken to increase the number of units from 2 to 3, thereby increasing the upper frequency limit from 3 megacycles to 18 megacycles.

3. That items be standardized as follows:

Generator ML-185 (Hydrogen):

A portable generator consisting of a cylinder with necessary accessories for the production of hydrogen gas from the interaction of ferrosilicon, caustic soda and water, to be used to fill balloons for meteorological purposes. The use of this generator will eliminate the necessity of having several storage cylinders at each station and will also eliminate transportation of such cylinders to distant points for refilling.

Processing Equipment PH-406:

This is a combination processing equipment outfit for processing negatives and prints from 35-mm to 4" x 5" prints. The item consists of one Omega Enlarger, Model D-11, with modified base consisting of an iron disk. This enlarger can be operated on either 110 volts AC or on 6 to 8 volts DC. All items comprising this equipment will be packed in two trunks of identical outside dimensions. This action is taken in order that Signal Photographic Companies may be issued the minimum amount of equipment necessary for the job intended.

Processing Equipment PH-395:

This item comprises a processing equipment which will be used with Identification Equipment PH-385. Items which are now standard in the Signal Corps and are being regularly issued to Photographic Companies will make up this equipment. All items are securely and safely packed in a trunk which has a small case permanently installed therein for holding some of the smaller items.

Boom Equipment LC-60-( ): As above described.

Telegraph Printer Set TC-16-( ): As above described.

Interphone Equipment RC-99: As above described.

Telephone Repeater Set TC-29-( ): As above described.

4. That the following item be reclassified from Limited Standard to Substitute Standard:

Theodolite ML-47-( ):

This instrument furnished in a hardwood carrying case, is used for sighting meteorological balloons to determine angular elevation and azimuth. It has a right angle prism at the center of the telescope tube whereby an observer is able to look constantly in a horizontal plane while sighting objects in space. The magnifying power is approximately 25 diameters. Small electric lights for night work are included in the equipment. This section is taken so that manufacture and procurement may continue on the item until development of Theodolite ML-247 is completed.

5. That the following items be classified as Substitute Standard:

Teletypewriter Set TG-19:

This set consists of a commercial page printing unit with standard keyboard, a perforating unit and a transmitter unit together with commercial steel table and commercial rectifier. The page printing teletypewriter unit is capable of transmitting or receiving electrical teletypewriter signals and at the same time making a page copy. The tape perforating unit, when operated by the keyboard either locally or at the same time signals are being transmitted to a line, makes a perforated tape. When supplied with perforated tape, the transmitter unit transmits electrical teletypewriter signals to a line or local circuit. The equipment is arranged for operation on 115 volt, 50 or 60 cycle supply. This action is taken so that this set, Perforator Transmitter TG-23 and Reperforator Set TG-25 may be used as stop-gap equipment until Telegraph Printer Set TC-16-( ) is available for use.

Perforator Transmitter Set TG-23-( ):

This set includes a commercial standard keyboard perforator, a transmitter unit, a commercial steel table and a commercial rectifier. When the keyboard is operated manually, a perforated tape is produced and when it is fed perforated tape, the transmitter unit transmits electrical teletypewriter signals to a line or local circuit. The equipment is arranged for operation on 115 volt, 50 or 60 cycle supply. This action is taken so that this set, Teletypewriter Set TG-19 and Reperforator Set TG-25, may be used as stop-gap equipment until Telegraph Printer Set TC-16-( ) is available for use.

6. That the following item be reclassified from Standard to Limited Standard:

Power Unit PE-53:

A portable gasoline engine driven alternator with single phase output of 115 volts, 3 kva at 25 cycles. This action is taken because a military requirement for the item no longer exists.

7. That the following items be classified as Limited Standard:

Sounder EE-11:

A 4-ohm telegraph instrument and a component part of Telegraph Set EE-76. This action is taken because Sounder EE-11 has no basis of issue. Telegraph Set EE-76, of which it is a component part, has been classified as Limited Standard since May, 1932.

Perforator Set TG-11:

This set is similar to Perforator Set TG-23-( ) described above, except that no transmitter unit is included. This action is taken as the item is no longer required.

Reperforator Set TG-13:

The typing reperforator unit used to make perforated tape from received electrical signals in Reperforator Set TG-13 is similar to the one provided as part of Reperforator Transmitter Set TG-23-( ), described above. This action is taken because Reperforator Set TG-13 is no longer required.

8. That the following item be reclassified from Standard to Obsolete:

Radio Set SCR-250-( ) (Airdrome Locating and Control Transmitter):

Consisted of a Radio Transmitter with gasoline driven alternator, a trailer and an antenna mast. Only one of these sets was procured. This action is taken because there is no general need for this equipment.

Approvals by S.O.S.:

The Commanding General, Services of Supply, approved recommended actions as follows:

1. That Military Characteristics be adopted for items as follows:

Radio Sets SCR-808-( ), SCR-828-( ):

These items are vehicular sets for FM operation by non-radio specialists and are similar to corresponding sets in 600 series except that the 600 series radio sets are crystal controlled and have 10 instant available channels while the 800 series are crystal calibrated and have four instant available channels. The 600 series radio sets require 120 crystals per set while the 800 series will require only one crystal per receiver.

Shelter HC-17-( ) (Mobile):

A relatively light weight portable slip-in body for a standard  $2\frac{1}{2}$  ton 6 x 6 cargo truck or half track trucks of the same size. It is capable of being transported by the vehicle, transferred from one vehicle to another or from vehicle to level ground surface, also of being used while stationary or in motion when installed in the vehicle or while stationary on the ground. The use of a body of this type will eliminate requirements for other special types of trucks in the Signal Corps. It will provide shelter and housing for powerful mobile and vehicular radio sets, telephone centrals for divisions and higher units, mobile radio intercept and direction finding equipment, signal repair and maintenance establishments, message centers, meteorological installations and other uses in substitution for Trucks K-51, K-53 and Trailers K-35, K-55 and similar vehicles.

Cable Assembly CC-368-( ):

Consists of 100-foot section of Spiral-Four Cable WC-548 equipped with a four pole, universal locking type molded terminal at each end. Loading coils or balancing capacitors are not required. The use of this assembly will avoid the wasteful use of quarter-mile cable assemblies when an extension considerably less than that distance is needed.

Radio Compass SCR-599-( ) (Automatic):

This item combines an automatic radio compass with a stabilized remote indicating compass. The two units are coupled to a common indicator. Magnetic radio bearings may be obtained

directly from the common indicator for any heading of the aircraft which eliminates the necessity of holding a predetermined aircraft heading for position fixes. This item may also be used for flying an infinite number of radial courses toward or away from a single radio station.

Telephone Terminal Set TC-21-( ) (Carrier):

Used on spiral-four Cable Assembly CC-358, or other facility of suitable transmission characteristics, to provide a carrier telephone system for voice channels in each direction. The set includes one Telephone Terminal CF-1-( ) (Carrier) for converting voice bands to carrier bands and vice versa; stand-by battery; emergency primary power source; testing equipment; Telephone EE-8-A; spare vacuum tubes and auxiliary equipment and material necessary to connect and ground the equipment and a battery carrying case.

Telegraph Terminal Set TC-22-( ) (Carrier):

Used to convert four telegraph channels into one voice frequency channel, which can be fed into Telephone Terminal CF-1-( ) (Carrier), for telegraph transmission in lieu of one of the four telephone channels in the carrier system. The set includes one Telegraph Terminal CF-2-( ) (Carrier) for providing the transmission of four two-way telegraph circuits over a single two-way telephone circuit; spare vacuum tubes and auxiliary equipment and material necessary to connect and ground the equipment.

Repeater Set TC-23-( ) (Carrier):

Consists of amplifiers with associated equipment for use along the line of a four wire carrier telephone system using Telephone CF-1-( ) (Carrier) and related equipment. The Repeater Set TC-23-( ) includes: one Repeater CF-3-( ) (Carrier), for amplifying the four carrier channels to obtain telephone circuits of considerable length; stand-by battery; emergency primary power source, provision for charging stand-by battery; spare vacuum tubes; auxiliary equipment and material necessary to ground and connect the equipment and a battery carrying case.

Ringer Set TC-24-( ) (Double Circuit):

Used for ringing and signalling purposes in the carrier telephone system using Telephone Terminal CF-1-( ) (Carrier) or other systems in which repeaters are used. The ringer set includes: one Ringing Equipment EE-101-( ) (Voice Frequency), portable unit with double ringing circuit having a common power pack for converting low frequency ringing impulses to 1000 cycle impulses or vice versa, for use over telephone lines where low

frequency ringing is not feasible; stand-by battery; spare vacuum tubes and auxiliary equipment and material necessary to connect and ground the equipment, and battery carrying case.

Plow LC-61 (Cable):

A plow which can be pulled by a 2½-ton 6 x 6 truck, a tractor or winch line and capable of burying cable up to one inch in diameter or insulated wire in one operation to a depth from 6 inches to 18 inches. Burying is to be done either directly from reels or after facilities are on the ground in service.

Interphone Equipment RC-146-( ):

Tank crew members will receive instructions from the commander through loud speakers and will talk to the commander through any of the speaker microphones permanently mounted in the vehicle. If communication between crew members is required it will be handled through relay by the commander. This arrangement will eliminate the wearing of headsets, microphones or connecting cords by the crew members.

Telephone Central Office Set TC-20: As above described.

Boom Equipment LC-60-( ): As above described.

Repeater TG-28 (Motor driven, Regenerative):

As above described.

Repeater TG-29 (Electronic, Regenerative):

As above described.

Converter Set TC-33-( ) (Carrier, 2-Wire, 4-Wire):

As above described.

Repeater Set TC-37-( ) (Carrier, 2-Wire):

As above described.

2. That Military Characteristics be revised on:

Cage PG-50 (Pigeon, 15-Bird, Transportation):

A cage, 36" x 14" x 12" used to transport pigeons from their loft to various points short distances away for training flights. This action is taken to increase the weight limit from

20 pounds to 30 pounds so that the cage may be mechanically strengthened.

Radio Sonde ML-128 (Balloon): As above described.

Radio Set SCR-299: As above described.

Radio Set SCR-601: As above described.

3. That items be Standardized as follows:

Cable Assembly CC-368-( ): As above described.

Telephone Terminal Set TC-21-( ) (Carrier):

As above described.

Telegraph Terminal Set TC-22-( ) (Carrier):

As above described.

Repeater Set TC-23-( ) (Carrier): As above described.

Ringer Set TC-24-( ) (Double Circuit): As above described.

Generator ML-185 (Hydrogen): As above described.

Boom Equipment LC-60-( ): As above described.

4. That the following item be reclassified from Standard to Limited Standard:

Ringling Equipment EE-100-A (Voice Frequency):

This 1000-cycle equipment is for ringing and signaling purposes in the carrier telephone system which uses Telephone Terminal CF-1. It also may be used with other systems in which repeaters are used. One unit is required for each voice frequency channel used in the system, or eight units for each carrier system. This action is taken as it is considered that Ringling Equipment EE-101 (Voice Frequency) is a suitable substitute for two of the EE-100's.

5. That the following item be classified as Limited Standard:

Sounder EE-11: As above described.

6. That the following item be reclassified from Standard to Obsolete:

Radio Set SCR-250-( ) (Airdrome Locating and Control Transmitter):

As above described.

The Commanding General, Services of Supply, disapproved the recommended military characteristics as follows:

Radio Set SCR-557.

GENERAL DEVELOPMENTStandardization of Radio Installation:

A conference was held at Fort Monmouth, New Jersey, September 23 through September 25, with representatives from the Armored Force and Tank Destroyer Command and the representatives from Washington and Signal Corps General Development Laboratory to promote standardization of radio installations in ordnance vehicles. Drawings are now being prepared by Signal Corps General Development Laboratory for approval by the Chiefs of the using arms concerned and by OCSigO covering the proper location for the placement of radio sets in armored vehicles. This standardization will result in uniformity of radio installation in vehicles throughout the Army, thus simplifying maintenance of these sets and training in their operation. Due to a lack of knowledge as to what was standard and approved, many field Commanders often managed to install certain radio sets in as many as five different ways in the same vehicle. The program adopted makes one installation standard for all uses.

Test Board for Army Headquarters:

Development models of a test board for Army Headquarters have been completed and sent to the field for service tests. Such a test board will provide needed equipment for determining and locating various kinds of trouble on the wire and cable circuits connecting the Army Headquarters with Corps Headquarters and various Army establishments.

Rapid Pole Line Construction:

In connection with the development of methods for rapid construction of pole lines in tactical areas, representatives of the Office of the Chief Signal Officer visited Canada to witness a demonstration by the Canadian Signal Training Center of their system known as "Multiairline."

Radio Link:

Development is progressing on a radio link to be used in wire or cable circuits at locations where natural obstacles such as large streams or excessively rugged country make it almost impossible to locate and maintain pole lines or cable circuits.

PRODUCTION EXPEDITING

A joint conference of Army, Navy, and War Production Board officials and representatives of manufacturers of communications equipment from all sections of the country was held in Philadelphia, Pennsylvania, on October 7 to 9, inclusive, with an attendance of over 400.

The principal subject of discussion was the Precedence List. The list establishes new schedules of production with regard to military urgency in view of the available supplies of critical component parts and material. The meeting also featured a review of bottleneck items and the methods being utilized to eliminate or to alleviate the difficulties hampering production.

One example cited, which illustrated the possibility of substituting materials, was that of a company that had been seriously handicapped in its production of crystals due to the scarcity of beryllium copper. This form of copper is used in the banana plug in the Crystal Holder FT-171. It was anticipated that production would have to be stopped in the near future unless the problem of supplying this form of copper was solved or a favorable substitute was found. In view of this, the field expeditor from the New York Army-Navy Communications Production Expediting Regional Office was summoned.

After a series of consultations, the field expeditor recommended an experiment. He suggested that the company build banana plugs made of phosphor bronze instead of beryllium copper. These plugs passed all the tests and the substitution was approved.

Procurement:

The Purchase Section estimates that the practice of Bid Analysis, which is the clearing of bids and the assisting of the Contracting Officers in their negotiation of the price of these bids, has resulted in savings to the Signal Corps through September 30, 1942, of more than \$80,000,000.

Recent conferences with the General Cable Corporation brought about a verbal agreement for the return of \$4,090,000 to the government. Approximately 25 percent of this will be realized through price reductions in the last three months of this year.

## FACILITIES AND MATERIALS

The following is a report on one of a series of studies conducted on the raw material of signal equipment.

Steatite Talc:

Steatite talc as it is known to the insulator manufacturer is the pure mineral variety of magnesium silicate having the type formula  $3 \text{MgO} \cdot 4 \text{SiO}_2 \cdot \text{H}_2\text{O}$ . This formula corresponds to an average composition of 63.5% silicate, 31.7% magnesium, and 4.8% water.

This grade of talc has in the past been widely used in the manufacture of cosmetics and foot powder, for medicinal purposes, and for rice polishing. In the present production of steatite insulation, most of the steatite talc comes from deposits in certain West Coast areas, although talcs from other deposits are also used in small quantities.

The Signal Corps initiated an expansion project for the industry in April of 1941 to overcome the impending shortage of ceramic insulation, radio grade. This production includes steatite standoff insulators, tube sockets, coil forms, and other special types.

The long range expansion program for the steatite industry, assisted in part by a full utilization of alternate materials, has resulted in a constantly increasing production of radio-grade insulation. The increased production of steatite parts has caused a corresponding increased demand for steatite talc.

Among the difficulties encountered in mining steatite talc is the increasing transportation problem of bringing the talc to the processors. This has resulted in several "tight" situations such as shortage of operating inventories. Consideration of the problem must include the possibility of enemy action against the mines.

The situation has been under study and observation by both the Signal Corps and the Joint Steatite Committee, ANMB, for over 6 months. At the request of the Joint Steatite Committee, the Non-Metals Section, Misc. Minerals Branch, WPB, has completed

a study of possible Eastern sources of steatite talc. Comprehensive and exhaustive studies have been made by the steatite manufacturers at the request of the WPB on various samples of talc submitted to them, with the resulting decision that the only Eastern sources available would require beneficiation, a process described below, to remove excessive iron and lime.

Talc suitable for radio-grade insulation must be low in iron content for a high insulation factor and to prevent the finished piece from having a dark or discolored appearance. The shrinkage of a ceramic insulator, when fired, is largely determined by the lime content. It is necessary, therefore, that this impurity have a low but constant value in order that standard molds and dies can be utilized to make an acceptable product. The limits established by general usage have been 1% CaO or lime and 1.46% Fe<sub>2</sub>O<sub>3</sub> or iron oxide.

The talc deposits recommended after completion of the WPB Survey by both the Joint Steatite Committee and the Non-Metals Section, WPB, are those located in the Gulf States area, and under lease to one of the larger mineral processing companies. Utilization of this talc is made possible by means of beneficiation. The beneficiation methods which have proved most applicable were froth flotation and acid leaching.

Briefly the beneficiation process consists of crushing the ore to a fine consistency by means of a grinding mill and hydro-classifier, then feeding the crushed talc into flotation cells, ferro-filters, surge tanks, acid leaching tanks, wash tanks, filter presses and steam pipe dryers to obtain the fine grade of talc suitable for the manufacture of radio-grade ceramics.

The Corporation having the proprietary interest estimates its reserve of talc suitable for beneficiation at approximately 250,000 tons. The beneficiation is not intended to supplant the Western talc as a source of material for the insulator manufacturers but rather as a supplementary and second source to insure adequate supplies when needed.

Another type of material termed "massive" talc has been imported in the past, principally from Italy and India. Although at present small shipments of "massive" talc are still getting through to this country, no dependence may be placed upon the continuance of this supply. Domestic sources of this type have been located in two separate areas in the western part of the United States, but to date extensive use has not been made of them. The principal usage of this material is in the manufacture of ceramic spacers for the transmitting class of electronic tubes. The parts are machined out of the "block" talc and then fired. The shrink-

age of the material is quite low, in the order of 1 or 2 percent.

In summation it may be said that while talc is an exceedingly critical and essential contributory material, the problem of its procurement is being continuously studied and it is not contemplated that any serious shortage will occur in the supply necessary to maintain the desired peak production of ceramic insulators.

## XVIII

### EQUIPMENT COORDINATION

#### 1. Wire Communication Equipment:

##### Regenerative Telegraph Repeaters:

Coordination of Military Characteristics for regenerative telegraph repeaters as submitted by the Signal Corps Board has been completed. Approval of the Army Air Forces and branches in the Office of the Chief Signal Officer has been obtained. Military Characteristics have been submitted to SCTC for processing.

##### Two-Path Polar Operation of Teletypewriter Telegraph Systems:

General Development Branch has been requested to investigate the provision of an optional arrangement for two-path polar operation in the proposed terminal telegraph repeater. Provision of this same feature in Carrier Telegraph Terminal CF-2 is also being considered. From preliminary information received from General Development Branch, it is believed that this can be easily done, resulting in technical advantage and uniformity with British practice. Military Characteristics will be revised accordingly.

##### Substitution of Telephone Central Office Set TC-12 for TC-4:

Action has been initiated to replace TC-4 by one or two TC-12. This will eliminate one unnecessary item of Signal Corps equipment.

##### Rapid Pole Line Construction:

A demonstration was observed of "Rapid Pole Line Construction" by the Royal Canadian Corps of Signals at the Canadian Signal Training Center, Kingston, Ontario, Canada.

##### Use of Ground-Return Telephone Circuits:

As the result of a study of this matter, the Commanding General, Army Ground Forces, has recommended that the use of ground return telephone circuits be not included in training literature.

#### Telephone Repeaters:

An investigation was made of the desirability of adopting IT & RM Company Telephone Repeater 103-A, as manufactured for the British, instead of Telephone Repeater EE-99-( ). A conference was held, attended by representatives of various branches in the Office of the Chief Signal Officer, Army Ground Forces, Army Air Forces, Signal Corps General Development Laboratory and IT & RM Company. It was found that the Repeater 103-A could not be adapted to operation on Wire W-110-B without extensive development work which would involve delay. It would not be feasible to have the same repeater operate on W-110-B and meet the British requirements for which Repeater 103-A was designed. The manufacturing situation also favors production of Repeater EE-99 rather than Repeater 103-A for the Signal Corps. As a result of this conference, the standardization proceedings of Telephone Repeater EE-99 will be completed.

#### Stopping Procurement of Wire Thrower RL-37:

Action has been taken to stop future procurement of Wire Thrower RL-37. It is not desired to procure any additional wire throwers now on order until it can be determined by extended field tests that it is desirable to continue this item. It is intended that the Wire Throwers RL-37 now on order will be issued until the supply is exhausted in accordance with the present basis of issue, with the exception that this item not be issued to organizations scheduled to go overseas.

#### Improved Field Wire:

Action has been taken to award to Bell Telephone Laboratories a development contract for service test samples of field wire superior in attenuation characteristics under wet and dry weather conditions to the present wire W-110-B. This wire will provide increased transmission range with or without repeater or carrier equipment.

#### Teletypewriter Standardization Program:

After extensive coordination, a program for reducing the number of types of Signal Corps teletypewriter equipment has been completed and the necessary steps taken to standardize the essential items of equipment.

#### Reel Cart RL-16 and RL-35:

The Army Ground Forces have commented that the purpose of Reel Cart RL-35 is to replace RL-16, and in view of its superiority over the latter in weight and performance, procurement of

Reel Cart RL-16 should cease and all future requirements for Reel Carts be met by procurement of the present standard Reel Cart RL-35. This recommendation has been approved by the Commanding General, Services of Supply, and action is being taken to set a basis of issue for Reel Cart RL-35 and to reclassify RL-16 from 'standard' to 'Limited standard'.

#### Plow for Burying Field Wire:

Details and photographs of a plow designed and made by Master Sergeant John C. Metcalf of the 99th Signal Battalion for burying field wire directly from a reel at speeds from three to five miles per hour have been submitted to the Signal Corps General Development Laboratory for consideration in connection with the plow development project now under way.

#### Teletypewriter Power Unit:

An investigation is being made of the possibility of using power unit PE-201 for operating groups of teletypewriter equipment in lieu of using more than one power unit PE-77.

#### Teletypewriter Equipment Power Supply:

It is understood that a universal power unit for voltages of 95 to 250 volts and for frequencies of 25 cycles each is being supplied with some teletypewriter equipment now furnished on a commercial basis. Equipment Coordination Branch has recommended that this practice be discontinued as wasteful of strategic materials and not in accord with the present program for power supply voltages and frequencies. It has been recommended that where commercial equipment is required to operate on 230 volt, 25 cycle supply, that Rectifier RA-87 or RA-89 or the commercial equivalent be furnished.

## 2. Radio Communication Equipment:

#### Interphone Equipment RC-99:

The Signal Corps General Development Laboratory has developed Interphone Equipment RC-99 that will satisfactorily operate in conjunction with Radio Sets SCR-510 and SCR-610 and other sets and can be used in either 12-volt or 24-volt vehicles by using the proper interphone amplifier. Standardization of this equipment was held up because of the lack of an unsatisfactory basis of issue. The basis of issue was secured for this equipment and the item was recommended for standardization at the Signal Corps Technical Committee, October 11, 1942. Procurement is expected to be initiated in the very near future.

### Radio and Telegraph Keys:

A study is being conducted with the objective of reducing the number of the types of standard Signal Corps radio and telegraph keys. In this study it has been revealed that there are approximately twenty-five different types of radio and telegraph keys listed in the Signal Corps General Catalog. It is believed that this number can be reduced to fourteen without eliminating essential types. It is also believed that future special requirements should be made by providing supplemental equipment on the radio set rather than by devising a new type of key with special features. Adherence to this policy will eventually make it possible to reduce further the number of types of essential keys.

### Radio Sets SCR-612, SCR-613, and SCR-614:

The Military Characteristics of Radio Sets SCR-612, SCR-613 and SCR-614 have been revised and presented to Signal Corps Technical Committee for necessary action. These revised military characteristics provide for:

- a. The use of a power supply that is common to all three sets;
- b. Change the frequency band of the SCR-614 from 15 - 600 kc to 15 - 150 kc.

### Radio Set SCR-300:

Radio Set SCR-300 has been presented to Signal Corps Technical Committee for standardization and revision of military characteristics. Radio Set SCR-300 is a small FM transceiver portable by one man for use by various units of the Field Artillery and the Infantry.

### Power Unit PE-194:

Acting on instructions received by the Army Communication and Equipment Coordination Board from the Army Ground Forces, shipping instructions were furnished to General Development Branch for the shipment of one each Power Unit PE-194 to: A.A.A. Board, Camp Davis; Infantry Board, Fort Benning; Cavalry Board, Fort Riley, and Mountain and Winter Warfare Board, Camp Carson, for service tests.

### 3. Air Force Equipment:

#### Radio Direction Finder for the Army Air Forces:

In connection with request of the Air Forces for a radio direction finder for navigational purposes, demonstrations of Radio Set SCR-501 and SCR-502 were arranged for representatives of the Army Air Forces and Services of Supply. Agreement on use of the SCR-502 was reached by all concerned.

#### Additional Use of Radio SCR-610:

Approval was obtained from Services of Supply of the use of the standard Radio Set SCR-610 for communications between control tower and instrument landing equipments. This action eliminates the necessity for the use of non-standard radio equipment for this purpose.

#### Remote Bearing Indicator:

Statements were obtained from all interested agencies regarding the necessity for remote bearing indicators for use with radio direction finders. As a result, the Signal Corps General Development Laboratory has been directed to discontinue the development of such indicators.

### 4. Special Signal Equipment:

#### Jungle Flashlight:

Several models of a small jungle type flashlight now under procurement by the Quartermaster General have been secured for examination by the Signal Corps General Development Laboratory with a view to standardization. When the flashlight has been standardized, future procurement, storage and issue will be made by the Signal Corps.

#### Keyers TG-10:

Consideration is being given to a large quantity of Keyers TG-10 for use with Code Practice Equipments EE-94, 95 and 96 in the near future. Equipment Coordination Branch is arranging for an examination and test of a small portable commercial keyer with a view to substituting the item for Keyer TG-10, and it is anticipated that the results of this test will be known by November 15, 1942.

Air Raid Warning Alarm:

Service test instructions have been furnished the Signal Officer, Bolling Field, D. C., for service test of Air Raid Warning Alarm Device RC-71-T1. The device is a modified commercial item furnished by the Signal Corps General Development Laboratory for test to determine its suitability for use at Army installations as an air raid warning signal.

Stakes for Panel Set AP-50:

Upon recommendation of the Commanding General, Army Ground Forces, the parts list for Panel Sets AP-50 have been amended to delete the 10 metal ground stakes normally issued with Panel Sets AP-50. Several of the new type panels now under procurement are to be furnished the Infantry Board for use in determining operating procedures.

Flashlight TL-122-A:

Equipment Coordination Branch recommended to General Development Branch that the specifications for Flashlight TL-122-A be amended so as to permit the use of iron, steel, plastic or other suitable substitute materials for the manufacture of the subject flashlight.