DRIVE WITH CARE

WATCH OUT FOR SCHOOL CHILDREN !

The SIGNALEER

SIGNAL CORPS ENGINEERING LABORATORIES

HOLD YOUR BONDS

FOR YOUR FUTURE SECURITY

VOL. I NO. 36 BRADLEY BEACH, N. J. 20 SEPTEMBER 1945

WEMS GRADUATES 102 GIs

In the largest and final graduation class exercises of the Weather Equipment Methods School, diplomas were presented to 102 enlisted Signal Corps and Air Corps men by Major Harold G. Price, OC, Specialized Training Section, SCEL.

The exercises, which were held at the school, located at Sea Girt Inn, Sea Girt, N. J., on 31 August, culminate the school's meteorological instruction activities at this location. It is expected that this area will be released by 30 September with the transfer of WEMS, and its functions, to the Dormitory Area, ESL.

Colonel Victor A. Conrad, Commanding Officer of the Laboratories, was introduced by Major C. N. Chamberlain, Officer in Charge of the School, and delivered a short address to the group in which he stressed the importance of their particular type of training and congratulated them on their achievements. Following Colonel Conrad, Lt. Colonel F. N. Spoerl, Deputy Director, Administrative Division, SCEL, outlined the history of the School since its inception on 1 April 1943, for the purpose of insuring qualified instruction to selected officers and enlisted men of the Signal Corps, Air Corps, and other vitally concerned Arms, involving installation and maintenance of all types of meteorological equipment in use by the Army, and particularly the newly developed electronic equipment. Fifty classes, totaling 1558 students, have been graduated from the School, of which number, 25 were Signal Corps officers; 370 Signal Corps enlisted men; 220 Air Corps officers, 882 Air Corps enlisted men; and 61 Navy, Field Artillery, or civilian personnel.

McGee Heads Class. & Wage

Mr. Thomas C. McGee (Personnel Br.) has been appointed civilian chief, Classification & Wage Administration Sub-Section, for SCEL. The appointment, which became effective on 6 September 1945, culminates an interesting record of achievements in the

Continued on page 4

TUBES SHOW THE WAY

WORLD WAR II TUBES

TOP: 5FP7

BOTTOM: 434A, 715B, 2C40, 7F8, 1N21.

SOME WORLD WAR I TUBE TYPES

L to R: UT4, UT1, UT2.
Total Types, about 6.

Back in those hectic days of 1942 when proceedings are best veiled by the term "somewhat chaotic," a small group of forward looking officers and civilians, including Lieut. Col. (then Doctor) Sahl, SCEL; Major Wm. Perkins, OCSigO; Comm. Blaylock, BuShips, and Mr. J. W. Greer, BuShips, began to "view with alarm" the growing complexity of a vastly expanding radio tube program. Tubes were being procured without specifications, often without inspection, and where the two did exist, duplicate production lines and inspection were often required due to small differences between Signal Corps and Bureau of Ships specifications.

On the first anniversary of Pearl Harbor, (appropriately enough) 7 December 1942, representatives of the concerned organizations met in Washington to formulate plans for joint electron tube standardization and procedure between Army and Navy. From this evolved the first Joint Army-Navy specification, the now well known JAN-1A for Electron Tubes.

Plans had already been laid for standardization between Army and Navy in common ordnance, quartermaster, engineering, and other signal items, but electron tubes became the guinea pig. Questions of administration, procedures, distribution, and many others arose which had to be settled for the first time. History was truly in the making! Never had the Army and Navy operated in such cooperation before. Questions of precedent and organization were soon ironed out, however, as evidenced by the more than 200 JAN specifications now in existence.

It is interesting to note that in the course of the work it became necessary to standardize on the standards! That is, it became desirable to standardize on form, print, and size of the specifications. And now, JAN-1A enjoys the unique position of being the "non-standard" JAN Tubes had so thoroughly led the way that by the time such "standards" were evolved, distribution in final form had been completed.

At the present time the JAN-1A is administered and controlled by the JAN Electron Tube Committee with representation from the Army Electronics Standards Agency (Secretariet), the Air Technical Service Command, the Bureau of Ships, and the Signal Corps Engineering Laboratories. Specifications on individual types are constantly being added from the some 2300 total types to the 825 now in JAN-1A. New and better test methods are constantly being evolved.

At ESL the Thermionics Branch has pioneered in electron tube standardization activity. More than half of the Branch manpower is given over to the conduction of Type Approval, the preparation and revision of specifications, and to the devising of new and better test methods and limits. Calibration of test equipment and the affording of engineering assistance to suppliers is provided, particularly where new tube types are concerned is a

Continued on page 4

THIS IS OFFICIAL!

FINAL RETENTION ROSTER NOT YET COMPLETED

With the staff of specially trained Personnel Branch clerks working full time in the compilation of the vital statistics and last minute changes in status information, the final Retention Roster is in the throes of completion. This much-talked-about personnel seniority list, based upon vet preference, years of service, efficiency rating and classification is a magnoscopic effort, soon to be ready for perusal - soon to disclose the much sought "where I stand" information.

In the meantime, the grapevine has been working overtime, whispered "I'm in the know" tipoffs have been circulated, rays of sunshine have been obscured by clouds of despair and the wheel of fate spins merrily.

QST! QST!

All you OMs, OWs, and YXLs, tune your palpitatin' vehicles to 2½ auto cycles, beam your transmission to the Vail Homes recreation hall Tuesday nite, 25 September, and set your schedule for 8 PM for a rendezvous with embryo and experienced "hams".

Yes, it has happened at last! A real live wire ham radio group has been organized, now boasts of approximately 30 members, and had its first bang-up meeting Tuesday nite, 11 September, with, as its charter members, many familiar faces from the various SCEL areas.

The first meeting included discussions on future policy, contemplated program and organization. Open discussions were held

Continued on page 4

Legion Of Merit Medal Awarded to Col. Oscar Maier

For outstanding work in the development of radar and communication equipment during the period of February, 1942, to June, 1944, Col. Oscar C. Maier, Commanding Officer of the Watson Laboratories at Eatontown, was awarded the Legion of Merit Medal by Maj. Gen. Roger B. Colton at a special ceremony Tuesday, 4 September, attended by members of the Colonel's family and the

Continued on page 4

The SIGNALEER

Published under authority "APN-Sig. C-17-C"

DISTRIBUTED FREE TO MILITARY AND CIVILIAN PERSONNEL EACH THURSDAY.

Col Victor A. Conrad, Commanding Officer, SCEL

STAFF: Jay Berger..... Editor
1st Lt. T.P. Morgan.....Morale Officer
1st Lt. W.W. Wilkins.....Reproduction Officer

Address all communications to the Signaleer, SCEL. The Signaleer receives CNS material. Republication of credited matter prohibited without permission of CNS, WD, 205 E. 42nd St., N. Y. C.

ECONOMY

This is a word which has been gathering dust on the back shelf for the duration. Throughout the war, military necessity governed our actions - no price could be put on the value of human lives. Anything which would end the war sooner or save lives, regardless of the monetary cost, was money well spent.

Now, we are once again able to evaluate things in their true perspective. With reduced military appropriations it will be necessary to run our organization on a much smaller budget. As taxpayers, it behooves all of us to do our job in the most economical manner possible.

Victor A Conrad

VICTOR A. CONRAD
Colonel, Signal Corps,
Commanding.

★

The Inquiring Fotographer

by Alexander Preede

THE QUESTION - How do you feel about a 40 hour work week?

THE PLACE - Shark River Hotel

William L. Kehoe, Procedural Analyst

Personally, I think it's wonderful. Though we all have smaller paychecks, comments from others seem to show that Uncle Sam showed wisdom in giving us the additional free time. In fact after these past few weeks this time is now essential in the weekly routine. It provides the necessary time to shop, fix around, complete errands and for recreation, and for one, I certainly appreciate it.

Anita M. Hafter, Clerk, Statistical

S'wonderful! So much more time to spend with my youngster and to do "little necessaries." The salary? Oh, well!

Edward M. Cooney, Control Analyst

It is very acceptable to me personally and also to most of the people I have talked with. It gives one time to accomplish many things that the forty-eight hour week prohibited.

★

Atomized Heat Near

Schenectady (CNS)—The most probable use of atomic energy, which is presently the basis of the atomic bomb, will be as a source of heat, General Electric scientists state.

KNOW YOUR OFFICERS

Major J.L.Wildermuth,Jr., Executive Officer,DSL, is a native of Columbus, Ohio. Graduated from Ohio State University in 1934 where he majored in communication and obtained a BS Degree in Electrical Engineering. Entered active Army service as a Second Lieutenant in January 1941; became a Captain in February 1942; received his Majority in December of that year. When the Major first came to SCEL it was known as Signal Corps Laboratories; was assigned as Asst OC, Fiscal and Accounting Section.

In 1942, he became Fiscal and Payroll Officer for the Signal Corps Radar Laboratory, and in January 1943, when the SCGSA was activated, was appointed as Payroll Officer for the entire SCGSS.

In January 1944,was transferred to the Coles Signal Laboratory where he was later assigned as OC, Radio Br., a position he held until his present capacity in January 1945.

Prior to coming on active Army duty,he was a radio engineer in a Columbus, Ohio broadcasting station, WBNS.

Major Wildermuth, his wife, Dorothy, and two sons, John and Ronald, reside in suburban Detroit. Favorite hobbies are photography, rifle shooting and singing. While at college was active in basketball and track. Pet post-war ambition is to own or manage a radio broadcasting station.

★

That Peace May Reign

Now that Victory is ours and the war is won
And each red-blooded Yank has laid down his gun,
A far greater problem faces the nation -
The problem of peace and its preservation.

How then may we shake the plague of war
From the face of the world forevermore?
Search for the cause and your answer is plain
As to why countries suffered destruction and pain.

Intolerance, prejudice, born of hate
Were encouraged by killers to instigate
A war to abolish all lands of the free
And destroy by force all democracy.

Fanatics' insatiable lust for power
Plunged the world into its darkest hour,
Aiming poison darts at each race and creed
That distrust and hatred might thrive and breed.

Are we to be victims of war again
Through intolerance for our fellow-men?
Placing ourselves far above all others?
Forgetting that God has made us all brothers?

Reach out and clasp your neighbor's hand
Be he of different race, creed or land.
Speak not against him. Let no blows fall.
Remember we're Americans - one and all.

Let us cleanse our minds and our souls of hate
Let us never be said to discriminate.
For those white crosses stand in the cause of the free.
That all peoples might live in harmony.

Rita Jonas
Medical Sec., SSL

PROJECTED BOOKS BRING NEW LIFE TO HELPLESS GI'S

Projected books for bed-ridden GIs may not be the most impressive triumph in therapeutic medicine, but to the helpless veteran it is as vital as Braille is to the blind, according to an article in the September issue of Coronet magazine. For the first time in medical history, it is possible for an almost totally immobilized man to read unassisted.

They call it Projected Books. It's a good name, but a little misleading. It isn't a book. It's a machine, a simple kind of lantern slide affair. The nurse inserts a roll of microfilm into the machine, then places a small panel under the soldier's hand. First, there's a button to turn it on. A square space of light appears on the ceiling directly above the patient's head. Then he presses the next button and into the square of light moves the first page of "Superman Comics" or whatever he chooses to read. And from his bed, flat on his back, moving nothing but the fingers of his hand he can read, stop or re-read any passages he wants.

Projected Books is the idea of a man named Eugene B. Power. Power dreamed up Projected Books partly because he once spent weeks in a hospital bed himself, and partly because his business is microfilms. He remembered what a tough job it had been for him to hold a book when he was prone, and how slowly long hours passed when he couldn't read. The whole project is just starting, and there are only a handful of machines in use. But six more are in work, and there are plans for making 1,500 of them just as fast as production facilities permit.

In the Percy Jones General and Convalescent Hospital in Battle Creek there is a man who was wounded in France. For ten months he had been unable to look at anything but the ceiling. They didn't tell him about Projected Books beforehand, but simply put the machine on the floor beside his bed. They asked him how he would like to read a book. He frowned, "How would I like to get out of here?" After a few experimental moments of pressing buttons he decided that it wasn't a gag, and turned to the first page and started to read with tears in his eyes.

There is a nurse in the University Hospital. She lies in an iron lung, a victim of infantile paralysis. She has only slight movement in her hands; the rest of her body has surrendered to polio. When they brought the Projected Book machine in to her and explained it, she too began to cry. The thing that delighted her more than anything else was the fact that she could work the machine herself.

After the war, when the casualties stop coming in, Projected Books makes possible a new life for all shut-ins, whether military or civilian. Of the tens of thousands of paralytics in the United States, there are many who lie permanently on their backs. This discovery that lights the ceiling will bring them pictures and news and adventure. The thousands of children who lie in the braces and casts in the infantile clinics will be able to see the children's books in full color. And to all immobilized it will mean a new world of simple comforts.

- *CORONET*

★

"Experience is simply the name men give to their mistakes."—*Benjamin Franklin.*

LBSL Had Important War Role

CRYSTALS KEY COMMUNICATIONS COMPONENT

Although radio is one of the most important forms of military communication, not many people realize that most combat radios depend upon quartz crystals for the selection of the proper frequency for communication. Quartz crystals are used for this purpose because of their extreme accuracy and because they avoid the necessity for twirling of dials in bouncing jeeps, and lumbering tanks.

The accuracy of performance of quartz crystal units compares with that of the most accurate precision instruments. Most combat radios and radar and other equipment depend upon quartz crystals for the selection and control of their proper frequencies. This vital military characteristic is translated through research and development for the entire Army Signal Corps at Long Branch Signal Laboratory.

The use of quartz crystals for radio purposes has been largely developed since the last war. The performance of quartz crystals is so precise that they compare with the most accurate precision instruments which we know. Precision of one part in a million is almost commonplace. This extreme accuracy indicates that the behavior of the tiny quartz plate is most intricate and sensitive and any changes in it may produce serious results. Technical discussions immediately become complicated.

Before the war, quartz crystals were made by hand, and only a few thousand a year in quantity. How the industry was built up to producing tens of millions a year is another story of industrial - army cooperation of which Americans may well be proud.

The Long Branch Signal Laboratory is concerned with the study of quartz crystal units. The behavior of the quartz plate and the effect on it of its physical surroundings, such as its holder and even the atmosphere, are investigated; crystal behavior under different electrical conditions is studied, as for example in various types of radio circuits. Another phase of the Laboratory work is assisting manufacturers (many of whom never produced quartz crystals before the war) with their problems; check their designs and test their product.

The Laboratory furnishes engineering services, such as testing and technical field advisers, and maintains the controlling quartz crystal testing standards used by the Signal Corps Inspection Agency in accepting crystals purchased by the Signal Corps.

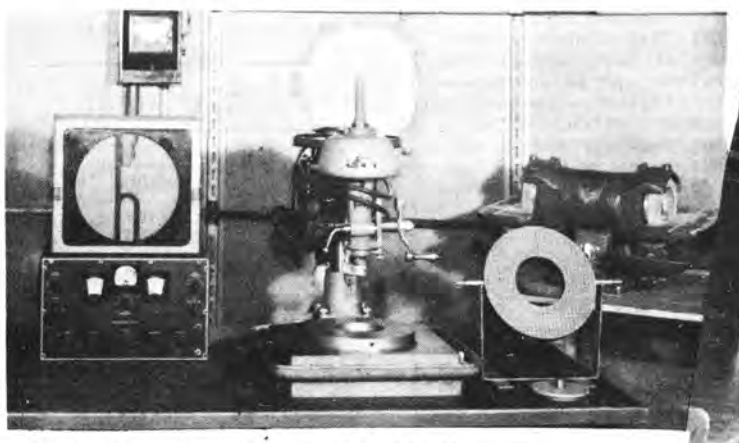
LBSL serves as a consultant group for other laboratories of SCEL on quartz crystals and related frequency control problems.

Continued on page 4

THE SITE OF THE OLD CIVILIAN TRAINING CENTER.

MAJ. ALLYN C. SWINNERTON
DIRECTOR, LBSL

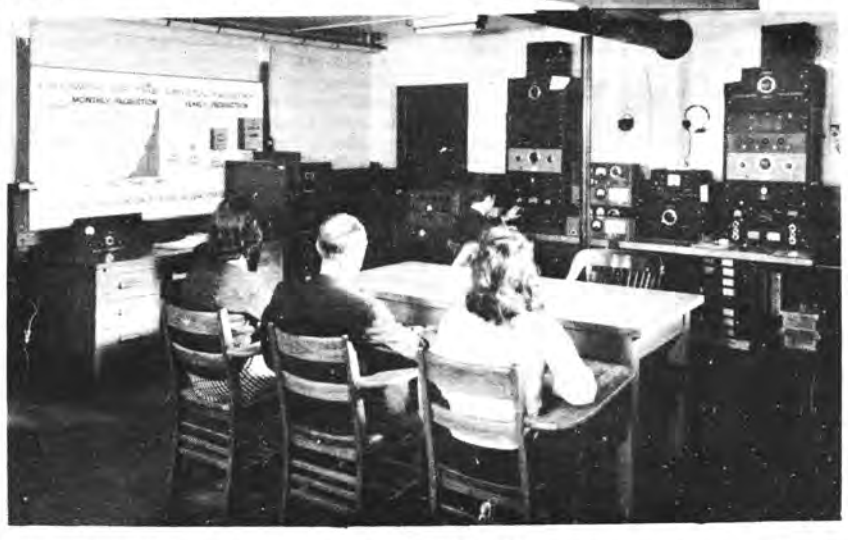
TESTING PRE-PRODUCTION SAMPLES OF CRYSTALS PRODUCED FOR SIGNAL CORPS.



LAPPING MACHINE USED FOR CRYSTAL GRINDING.

AT WORK ON FREQUENCY MEASURING EQUIPMENT.

TESTING FREQUENCY METERS.



TRAINING PILOT RUN ENGINEERS IN THE LABORATORIES. EQUIPMENT SHOWN IS THAT USED BY TROOPS OVERSEAS TO REPAIR AND CHANGE FREQUENCY IN CRYSTALS.

CRYSTALS

Continued from page 3

It standardizes crystal units for the Agency and prescribes their use in research and development projects. The Laboratory provides standard testing service to Quality Control Division. It also works on improvement of equipment, particularly the field assemblages for grinding crystals. New specifications, revisions and procurement data are initiated both for crystal units, for testing equipment, and for field crystal grinding assemblages.

The most significant contribution of the Laboratory was solving the problem of aging of crystals and the demonstration that crystals can be made which will not change significantly because of time and atmospheric effects.

In addition, most of the theaters of military operation have been provided with crystal grinding teams which can repair crystals and can provide crystals of new frequencies on short order for special missions. Equipment for these teams was developed at the Laboratory and some of the early teams were trained by Laboratory personnel.

The work of the Long Branch Signal Laboratory has helped to produce one small part of the Army's communications machinery but it is a part vital to the success of the whole set-up.

The development of new and improved designs of quartz crystal units brings with it the possibility of closer frequency control of communications and this in turn will permit closer channel spacing and a greater opportunity for use of the present frequency spectrum. Applications of piezoelectric devices outside of the communications field may be expected to assume greater importance in the post-war world, in the homogenizing processes of industrial chemistry, metallurgical testing and other technological use, ranging from supersonics to the very high frequencies.

Nine questions. Get 6 right and you just pass, 7 right and you're good, 8 right and you're wonderful, all right and you're --- !!! Answers elsewhere on this page.

1. Suppose the thermometer is hovering around zero, the clock is about to strike twelve, and you're about to jump into bed--- which would keep you warmer - one heavy blanket or several light ones that weighed all together the same as the heavy one ?

2. There are various kinds of redheads - auburn, carrot, titian. Can you name three kinds of blondes?

3. Give within three the number of years a patent is good for.

4. Does the average American eat more beef, pork or lamb?

5. What is the usual shape of a natural grain of table salt?

6. Would a titmouse feel more at home underground, in the walls of a house or in a tree?

7. Is a man who is the object of your disdain contemptuous or contemptible?

8. How would your olfactory sense help you to tell you that you were near wet paint?

9. Would sound travel faster through glass, silver or wood?

LEGION OF MERIT MEDAL

Continued from page 1

entire personnel of the Laboratory.

The citation which accompanied the medal read as follows: "Col. Oscar C. Maier, as Director of the Signal Corps General Development Laboratory and Chief of the Engineering Division, Signal Corps Ground Signal Agency, from February, 1942, to June, 1944, rendered technical and administrative service of great importance in connection with the development and production of new and improved communications equipment. He

secured the services of highly qualified personnel for work in the Laboratory, and enlisted the assistance and interest of industry in the development of combat communications. He was directly responsible for putting into production signal equipment that had been pioneered during years prior to 1942. He pursued a vigorous development program resulting in many new improved items of communications equipment being made available to the troops. As Chief of the Engineering Division for the Signal Corps Ground Signal Agency, Col. Maier advanced the development of Radar and general communications, and, in co-ordination with industry, standardized their component parts. As an outstanding engineer and as an able executive organizer, Col. Maier has materially contributed to the successful prosecution of the war."

Col. Maier graduated from the United States Military Academy with the class of 1925. He assumed command of the Watson Laboratories, a part of the Air Technical Service Command, in February of this year.

QST

Continued from page 1

after which the enthusiastic OMs and YLs retired to nearby refreshment dispensaries for "coffee and ---." Very definite plans for conducting code classes for aspiring brass-pounders were discussed. Clarence Holritz, W9RRN, was appointed chairman of the organization committee, whose responsibility will be the preliminary planning of the basic organization. Guest speakers and motion picturer on technical and ham subjects will be scheduled at forthcoming meetings. Sid Berg, W2IID, was elected temporary chairman.

Any male or female, civilian, GI or officer, who is a ham, or has aspirations, will be more than welcome in the new organization, and is invited to attend the next meeting. Dust off your "rigs", gang, and meet us on the air.

ROMEOS, BEWARE!

Seen in Collins Street the other day, a wedding limousine all white-ribboned and bearing the inscription in chalk on the back: RESULT OF CARELESS TALK.

McGEE HEADS CLASS. & WAGE

Continued from page 1

service of the War Department, and was strengthened by his completion of the WD course in classification and wage administration which he attended in Washington, D. C.

Instrumental in re-assigning personnel for the utilization of their highest skills, Mr. McGee has successfully reduced the list of over-allocations.

McGee came to the War Department in February 1942, with an assignment as Chief of the Task Force Shipments Branch, Signal Section, Atlanta General Depot, and was transferred to SCGDL in July of that year, in the capacity of Administrative Aide to the Officer in Charge of RDF Branch, Eatontown Signal Laboratory.

RDF, with a T/O of 200 persons at the time of McGee's affiliation, ultimately became the largest development branch in SCGDL, with a T/O of 464.

McGee installed several unique systems to increase the efficiency of the branch, and with the responsibility for organizing and managing administrative functions, even at that time demonstrated his ability in manpower utilization through condensing a steno and typist force of 77 by more than 50% in the face of an ever increasing work load, at the same time greatly increasing its efficiency.

No stranger to personnel functions, Mr. McGee has served on the SCGSA Grievance Committee, was chairman of the Eatontown Signal Laboratory Grievance Committee. He also served as a member of the promotion board of that laboratory, and was attached to the SCGSS Reduction-in-Force Committee in 1943.

In July 1944, McGee was transferred to Headquarters to serve as assistant to the Chief, QCD Technical Staff, which duties he performed until February 1945, the date of his appointment as Director of Utilization.

QUERYSPHERE ANSWERS:

1. The lightweight ones would keep you warmer because they provide more air space.
2. Golden, silver, ash, honey, drab, platinum, pink, strawberry, peroxide, milk, taffy.
3. Seventeen years.
4. Pork 72.5.
5. A cube.
6. In a tree.
7. Contemptible. (A contemptible person is the object of your contempt. A contemptuous person shows contempt for something or someone.)
8. Your olfactory sense is your sense of smell.
9. Through glass -- 16,410 feet per second. Silver -- 8,658 feet per second. Wood (oak) - 12,620 feet per second.

LITTLE PUZZLES FOR LITTLE MINDS

By Lt. Col. R. H. Noyes

Solution to No. 34

SOLDIERS ON THE MARCH

Let the length of the column be S, the time required for the runner to reach the head be a, the time to return be b, and the speed of the runner be V. Then,

$$S = 2(a+b)$$

and $$Va - Vb = S$$

Also, $$2a+S = Va$$

Eliminating a and b from these three equations, S will disappear, and

$$V = 2(1+\sqrt{2})$$ or 4.28 miles per hour.

An unidentified contributor sent in this one:

No. 35

GUILTY YET FREE

A young woman was brought to court charged with murdering her husband. Her sister, who saw the murder committed, appeared as a witness for the State. The jury found the defendant guilty, yet the Judge was forced to let her go free. WHY?

TUBES SHOW THE WAY

Continued from page 1

large item. The work load is shared equally with the Naval Research Laboratory and by prior agreements and close cooperation duplicate efforts are avoided thereby attaining maximum efficiency.

The present Tests and Standardization Sections of the Thermionics Branch are now fully equipped, and test any of the 2300 known tube types with the exception of extremely high power tubes which are used in small quantities only. There are working groups on magnetrons, klystrons, TR and ATR tubes, crystal rectifiers, lighthouse tubes, photo-tubes, cathode ray tubes, receiving tubes, thyratrons, rectifiers, and power tubes. Service includes life test, vibration and shock meter calibration, chemical analysis, salt spray, etc.

A by-product of standardization has resulted in a calibration service for crystal rectifiers, TR tubes, and microwave measurements which now extends throughout the industry. Hardly a day passes but an armed guard waits at the front gate to transport a finely calibrated bit of complicated test gear used as a base standard in a tube plant in Massachusetts, Pennsylvania, New York, or other tube centers to control tubes so new that no other method is known to maintain the preciseness required for *absolute interchangeability* in the Army and Navy's newest equipments.

Present designs utilize the 224 types listed on the Preferred List almost exclusively. This action during the past three years has resulted in increased efficiency in production, stocking, and distribution. During the last quarter of 1944, 54.4% of the total tubes produced were preferred tubes 224 types in 1,219 total types.

Copies and distribution information on JAN-1A, Preferred List of Electron Tubes, Electron Tube Cross Index, Electron Tube Security List, and other joint standard publications may be obtained from Capt. W. H. Lichtenberger, Standards Liaison, Squier Lab, Ext. 1376. Technical problems may be referred to Lt. E. A. Anderson, Thermionics Br., ESL.