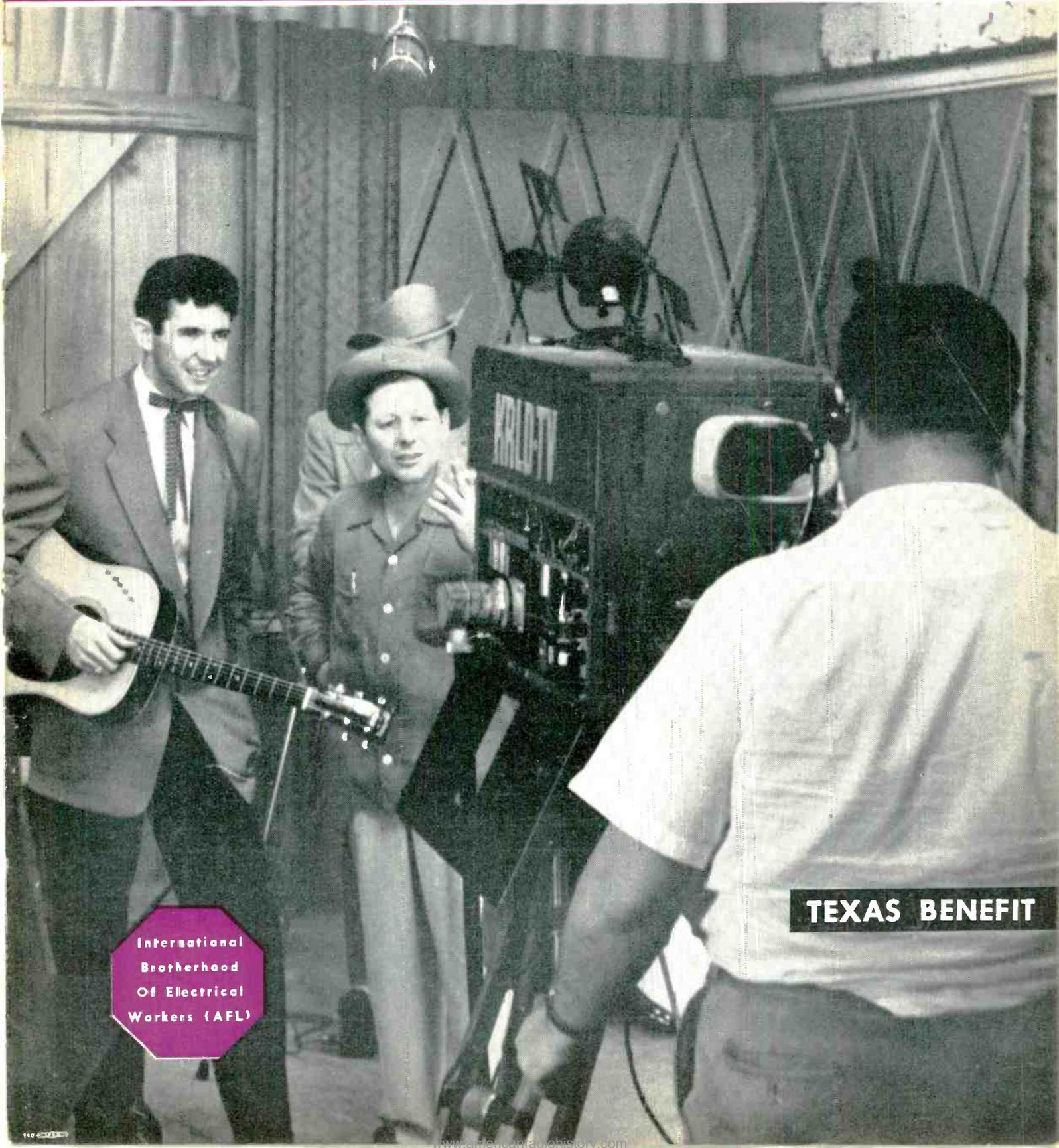


RADIO, TV and RECORDING



# TECHNICIAN-ENGINEER

JUNE, 1953



International  
Brotherhood  
Of Electrical  
Workers (AFL)

TEXAS BENEFIT



International Headquarters  
develops union label for tape

## *New Labels For Complete Recording Identification*

**T**HE November, 1952, issue of the *TECHNICIAN-ENGINEER* announced the availability of a small rectangular label for identification of IBEW-made recordings. Thousands of these labels have since been supplied to our local unions, at no cost—to be, in turn, supplied to local union contractors. This label has been satisfactory for disc identification but is not particularly convenient for use on tape recordings.

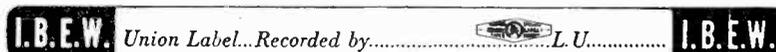
Months of searching and consultation with many sources of supply have been productive of a label made expressly for tape recordings. We are now able to furnish “Kum-Kleen” labels for use on tapes; these labels are backed by an adhesive which requires no dampening and which sticks well to paper and plastic-base tapes. Space is provided for the signature of the member and his local union number; the label being tape-width, it may be used on the leader end, with the extreme end of the label being used to “tie” the tape to the reel. Needless to say, after final use (and prior to erasure) the label should be destroyed.



Disc Label  
(Actual Size)

Both the disc and tape labels will be supplied, upon request to the International Secretary, to local unions for distribution to employers who have Union Label clauses in their working agreements or to employers who have signed supplementary Union Label clauses. The usual safeguards apply—the labels remain the actual property of the IBEW and may be used only on IBEW-produced recordings.

Tape Recording Label  
(Actual Size)



***These are YOUR Labels—Look for them on tapes and discs!***

RADIO, TV and RECORDING

# TECHNICIAN-ENGINEER

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D. W. TRACY, *President*    •    J. SCOTT MILNE, *Secretary*

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PRINTED ON UNION MADE PAPER



Big D Jamboree entertainers participate in show.

By H. E. CHAMBERLAIN  
Recording Secretary, IBEW Local 1257

Members of IBEW Local 1257, Dallas, join forces with other staffers of local station to present all-night benefit. Impromptu performances by local entertainers spark highly successful efforts for disaster victims.

## Texas Engineers Boost Tornado Benefit

**A** TORNADO swept through the sprawling city of Waco, Texas, not so long ago, leveling homes and leaving a crushed city to bury its dead.

The disaster seems far away now, and Waco is rebuilding. But warmhearted Texans are still appalled by this most devastating blast in Texas history.

With characteristic vigor and enthusiasm, hundreds of organizations throughout the Lone Star State mapped campaigns to relieve the suffering of the wrecked city. The regular relief and rehabilitation agencies were already at work—the Salvation Army, the Red Cross, the radio amateurs, and various state and local agencies. Many members of IBEW Local 1257 were also members of the Caravan Club and contributed greatly to a mobile net which was established to aid the relief program.

So many groups took part, and are still taking part, in this struggle to restore Waco and comfort the bereaved, that we cannot hope to list them here. This story will be concerned with the efforts rendered by your IBEW brothers.

### **The Idea First Suggested**

Saturday night, at KRLD, AM-FM, the Dallas CBS affiliate, is hill-billy night, and "Big D Jamboree" takes over during the late hours. Jim Crocker, Manager KRLD-AM-FM approached Gene Haddan, Local 1257 President, with the idea of a Waco Benefit, to be aired from the opening of "Big D Jamboree" to the wee hours of the morning, so long as pledges came in.

From a nebulous beginning, the plan shaped up rapidly, till by the Friday afternoon preceding the Saturday night show, enough talent, announcers, telephone girls and miscellaneous help had been volunteered that it was decided to make a simulcast, AM-FM-TV. Only six engineers had been requested, but even on such short notice, Local 1257 mustered 19 men, and the program was handled with techs to spare.

The hours were extended, so that the benefit began

at 8:30 P.M., with an AM remote from Fair Park at 11:30. It was shifted to downtown studios, and TV joined the broadcast. KRLD staff announcers and newsmen (AFTRA) gave first hand accounts of the havoc wrought at Waco and San Angelo, but most of the breaks were filled with straight pleas for donations.

As the hours passed, more technicians showed up, and talent filled Studio A. Finally, the place became so crowded, and so informal was the program, that studio doors were left opened, and even the halls were crowded with performers. Engineers shifted about according to their pleasure, and most men did stints at all positions, camera, boom, audio, mixer, projection, shading.

### **The Impromptu Entertainment**

Entertainers from Dallas night spots came in and gave impromptu performances, refreshments were served throughout the night, and it was not unusual to see an engineer, a night club performer, telephone operator, and station manager all sipping coffee and sharing jokes at the same table. The whole get-together had a party air, only dampened by the reminder of the terrible tornado which had swept across San Angelo and Waco.

A few technicians had relatives in Waco, and most had friends there. As the donated totals soared, all hearts were gladdened, and eyes that should have been heavy lidded by 2:00 A.M., were still bright with the spirit that filled the entire assemblage. The program continued till 3:30 A.M., and by that time over \$12,000.00 had been pledged via phone or wire.

Local 1257 was extremely happy to have made its contribution to this benefit, and enjoyed working the show far more than if the members had been paid for it. Such opportunities to display true fellowship and cooperation are rare, and it is to be hoped that the disaster which prompted the show will never be repeated, however, Local 1257 was glad of the opportunity to prove to all and sundry that it stands ready to lend assistance in all emergencies.

# Dallas Broadcast Engineers Work 'Round the Clock



• John Harper, KRLD-AM-FM-TV staff announcer, before the camera with Riley Crabtree, Dallas entertainer.



• Larry Marsala, Treasurer of Local 1257, riding gain on a studio audio during the busy night. In the foreground is Henry Smith, another IBEW engineer, waiting to relieve him. An empty coffee cup needs refilling.

• Hudson Hammond adjusts the focus of one of the slide projectors, as the KRLD benefit prepares for a station break. Although only six engineers were requested, Local 1257 mustered 19 for the special show.



• Front to back: T. Jack Nelson, ex-member of Local 1257, who is now working vacation relief; Gene Haddan, President of Local 1257, who was on hand to keep equipment in good working order; Henry Smith, who recently transferred from Local 1234; and Herschel Wilson, who puts an expert hand on video controls to help the cause. Many hands worked controls that night.

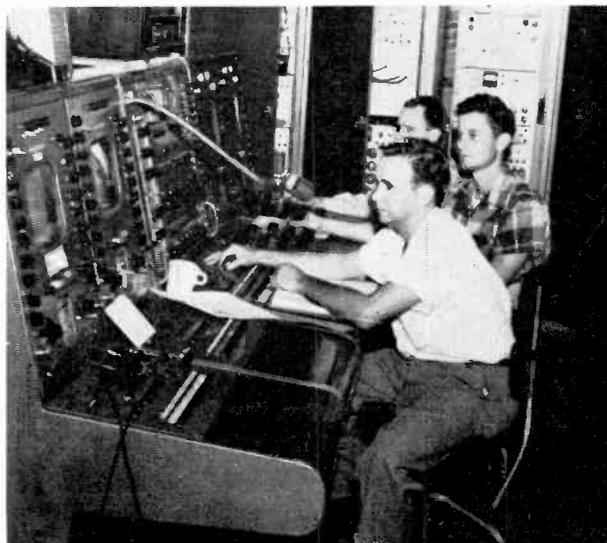


• IBEW Engineer Tom Hewlett takes a turn at the video controls during part of the all-night show from Dallas. Most IBEW men did stints at all positions—camera, boom, audio, mixer, projection, and shading.

# *In Successful Drive for Texas Wind Disaster Funds*



• Al Turner, local announcer, begins to show the results of an all-night benefit. Between cups of coffee and the jangle of a telephone—RA-6811. . .RA-6811. . .RA-6811—he helps to keep the show going.



• Front to back: Dick Bauer, Vice President of Local 1257, operates "The Blunder Board," i.e., master video control, and Warren Farrar and Ted Lincoln, operate film shading boards.

## *Television Turns the Tide In Union Negotiations*

By LES FINNEGAN  
Labor Press Associated

THE vice-president of a metal stamping firm in Chicago called in two union employes and told them they were fired. This would mean the end of their attempts to organize his plant, he told the two union men gleefully. The union men wanted to know why they were fired and were told, with great relish, that they had telephoned in "sick" the previous day but the vice-president himself—watching television—had seen them together in a grandstand seat watching the ball game.

### **An Idea Is Hatched**

The two men decided there was nothing they could do, especially because they had not yet won a union contract, and started to leave the boss's office. As they walked disconsolately through the secretary's office she looked up and snapped: "I wish you two hadn't taken so much time with the boss. The president has been phoning for the boss for 15 minutes wanting to know where he was yesterday when he was supposed to be in New York for a board of director's meeting." As if struck by a single thought the two union men wheeled around and started back into the vice-president's office, ready to threaten the boss with

a long-distance call or letters to the president if they were fired. Just as they were about to barge into the office one union man grabbed the other and whispered a few words into his ear. Then they both turned and left.

### **The Trap Is Sprung**

The next morning, exactly at 9 a.m., a union business agent tramped into the boss' office and threw a typed letter in front of the vice-president to sign. The vice-president bellowed and howled, but finally signed and sent to the president the letter—which announced that he wanted to recognize the local union and start negotiations immediately. At the next union meeting the story came out. One of the union men had remembered that the boss didn't have a television set. He told this to the president of the local bartenders' union, who promptly telephoned every bartender in the downtown area. On the next-to-last call they struck gold. The bartender disclosed that the vice-president had come into his hotel bar for a college reunion before catching his plane, but had gotten blotto while watching the baseball game on TV and had to be carried into a hotel room to sleep it off. The following Monday the vice-president meekly agreed to what was not only the plant's first union contract but one of the best in the entire metal stamping industry.



# The Whereases and the Therefore

By RAYMOND A. WOOD  
Editor, Local 1212 News

**Ever wonder how to present a proposition to the local union so that it gets proper action? This will offer you an answer.**

**I**N the April issue we started to talk about resolutions. These should be worded something like this:

"Whereas; many of our members work schedules such that their opportunities to attend meetings are drastically limited, and

"Whereas; representative attendance at regular meetings is vital to the continuance of a democratic Local Union, and

"Whereas; some means of providing opportunity for all the membership to attend meetings at least once every quarter is desirable, and

"Whereas; present selection of meeting dates and hour does not provide such opportunity,

"Therefore, be it resolved that . . . (the resolution desired by the mover) be adopted by the Local Union."

The resolution is handed to the Secretary by the member presenting it, after having obtained the floor in the usual manner. He does not give up his right to the floor by so doing, and after the reading, he must move that the resolution be adopted. This motion to adopt must be seconded, and then its mover has the right to the floor to speak in favor of the motion, after it has been stated by the Chairman, and thus thrown open for discussion.

## **Defining the Whereases**

The "Whereas-es" are called the preamble to the resolution, and can only be amended after the main body of the resolution has been amended, since amendments to the resolution may necessitate amendments to the preamble.

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*This is the second in a series of articles on parliamentary law, as they apply to local IBEW meetings.*

*The first, entitled "You've Got the Floor, Brother, SPEAK UP!," appeared in the April issue.*

The resolution may also be presented by saying, "I move the adoption of the following resolution." Then, after reading by the Secretary, it only needs a second and the statement by the Chair.

This may be as good a point as any to explain the proper method of obtaining the floor. The acceptable technique is to rise as soon as a member finishes speaking, and say, "Mr. Chairman . . . Jack Jones.—WBUG . . ." The Chairman then recognizes the speaker, and the speaker then proceeds to make his motion;—"I move that . . ." It is also quite in order for the mover of a motion to use this form by pre-arrangement with another Brother;—"I move and Brother Black will second, that . . ." This assures the mover that discussion can start without his relinquishing the floor.

## **How to Get the Floor**

Once a member has been recognized by the Chairman, he may not be interrupted by another or the Chairman, *except* by the following:

1. A motion to reconsider.
2. A point of order (which *must* concern parliamentary law).
3. An objection to the consideration of the question.
4. A call for the Orders of the day when they are not being adhered to.
5. A question of privilege.
6. A request or demand that the question be divided.
7. A parliamentary inquiry or request for information which needs immediate answer.

The speaker does not lose the floor by any of these interruptions nor does the interrupting member gain the floor. Even the above named interruptions cannot be made after the member has actually started to speak, unless there is the greatest urgency. This is a decision of the Chairman.



## Talent, Tapes, and Turntables

• A Radio Recorders technician subjects a groove to microscopic examination. Quality control must be maintained at every step.

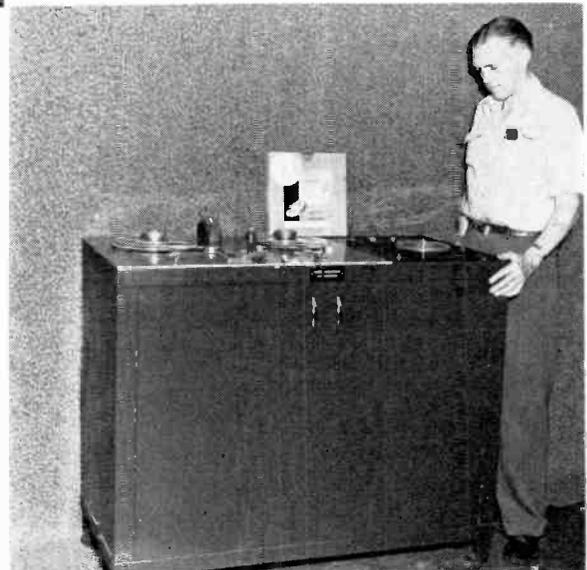
**Hollywood recording organization, which recently signed a contract with Local 45, has developed some ingenious tools of the broadcast-recordings trade.**

**I**T pays to offer engineers and technicians wide latitude in developing their ideas for new and better methods in the field of sound recording . . . that's the experience of Radio Recorders, independent recording organization, of Hollywood, California—a veteran of 16 years in the business.

From the very beginning Radio Recorders anchored its policies to these three ideas: employ the best engineering and technical talent available; give your talent the finest and most advanced types of equipment to work with; offer your men a free hand in developing improvements, new ideas, better methods in sound recording. The fact that Radio Recorders, an IBEW—contract organization (Local 45), now plays host daily to such clients as RCA-Victor, Columbia Records, MGM Records, Mercury, Aladdin, and scores of less well known independent labels; the fact that it handles recording assignments for the major radio networks, the major radio producers, Armed Forces Radio Service, and many major advertising agencies . . . drives home the importance of research and development in the sound recording field.

### **Tough Assignment Begun**

Several years ago, Radio Recorders engineers handed themselves a tough assignment of producing tape duplicates from a master tape on an economical, mass-production scale. When a radio show, to use just one example, is taped and subsequently transferred to discs, there is always an unavoidable loss of some of the



• A tape conditioner developed for Radio Recorders by Engineer Walter White. The machine electronically erases a 60-minute sound track in a few seconds, also measures and reconditions it and allows operator to check splices.



• A newly-developed locking device used by Radio Recorders, which holds the record straight and level against the turntable, eliminating "wow" and flutter from the disc.

*Information and pictures for this article were supplied by Franklin Associates of San Pedro, California.*

quality originally captured on the tape, while the freedom from hiss and surface noise unique to tape is sacrificed. But since transcriptions for radio must often be produced in considerable quantity for use at different times by radio stations in many parts of the country, the absence of an economical method of tape duplication left no choice open but transfer of the show from tape to discs. This was the problem Radio Recorders engineers set out to lick.

#### **Problem: Tape Duplicates**

Their goal was the development of equipment which would produce tape duplicates from a master tape with great speed, in any quantity, at low cost, and with complete preservation of the quality of the tape master. Many technical hurdles had to be overcome . . . particularly in the elimination of distortion and noise. With the development of special playback heads and amplifiers, and the setting up of batteries of synchronous recorders, these problems have been solved. Today, mass tape duplication at Radio Recorders works so successfully that the tone quality of the 100th duplicate cannot be distinguished from that of the original master tape.

Here's how mass tape duplication is accomplished at Radio Recorders. Several batteries of high speed recorders are synchronized to master playback machines, which can be operated at  $7\frac{1}{2}$ "",  $15$ "", or  $30$ " per second. By adjusting the ratio between playback and recording speeds, tape copies with either single or dual track are speedily reproduced at  $3\frac{3}{4}$ "",  $7\frac{1}{2}$ "", or  $15$ " per second. Both the master playback machines and the multiple recorders are equipped with full track or dual track heads. When duplicating dual track tape, both tape tracks are recording simultaneously, thus reducing time and production costs. As a result, hundreds of transcribed programs are now being aired from taped recordings, produced exclusively by Radio Recorders.

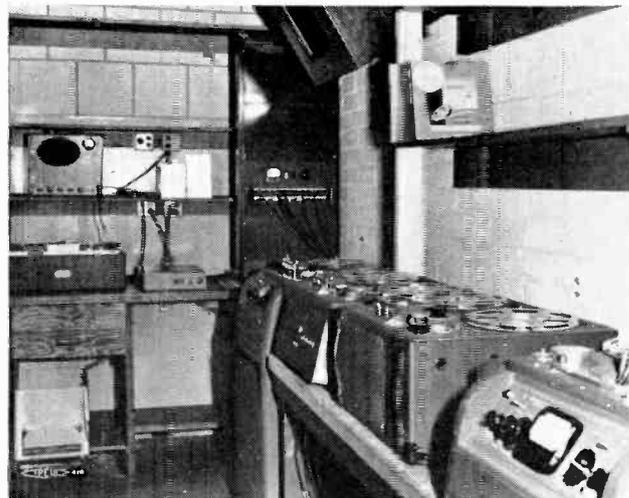
#### **Problem: Erasing Sound Track**

Haunted by the problem of erasing the sound track from thousands of feet of used or rejected tape, Walter White, Chief Mechanical Engineer at Radio Recorders, resolved to do something about it . . . and he did! Existing bulk erasers required very careful physical manipulation of the tape to prevent the subsequent recording of low-frequency impulses . . . and the job was a headache to everyone concerned.

In time, Walter White came up with a device which erases the tape automatically, entirely without physical handling, at the touch of a button. The operation is such that low-frequency thump, generally associated with bulk erasers, is entirely eliminated. Furthermore, the Tape Conditioner measures footage, allows the operator to check splices, reconditions the tape for further use. What more could anyone ask?

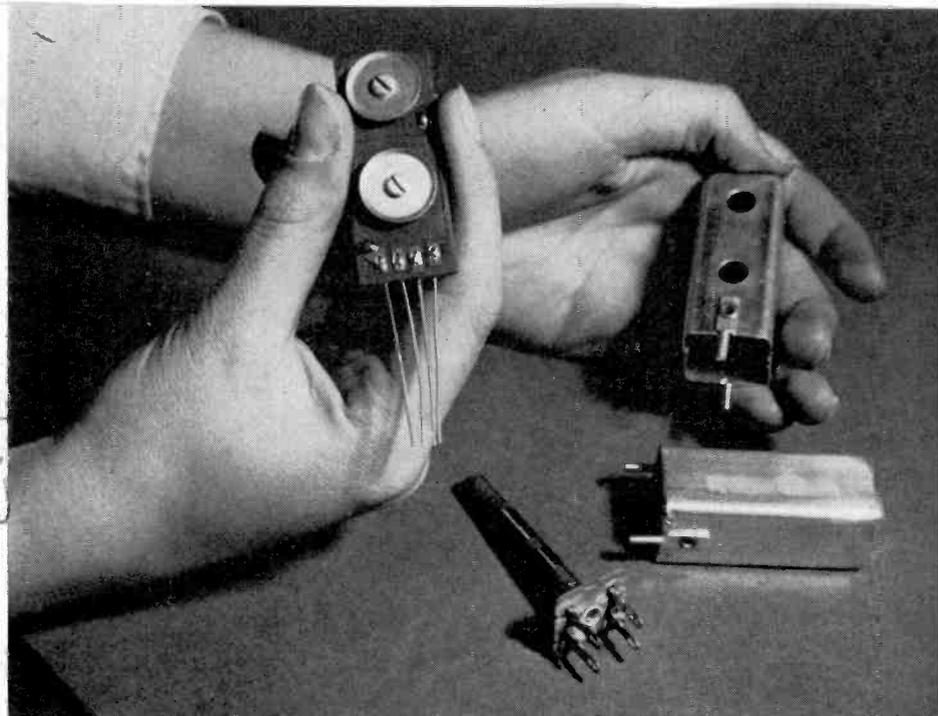


● Mass tape duplicating equipment developed and built by RR engineers. A master playback machine is synchronized with batteries of recorders. Adjusting the speed ratio between the playback machine and the recorders allows taped copies to be quickly reproduced at  $3\frac{3}{4}$ "",  $7\frac{1}{2}$ "", or  $15$ " per second, in single or dual track.



● A corner of the tape duplicating department at Radio Recorders, showing the instrumentation available to control every phase of the operation, needed for maximum preservation of tone fidelity in broadcast recordings.

The same ingenuity evidenced in the perfection of mass tape duplication, and in the development of such devices as the Tape Conditioner, can be observed in all of Radio Recorders' departments. Much of the recording equipment has been designed and built by the company's own engineering staff . . . often built to standards higher than any commercial supplier can meet. Recognizing that the fidelity of the completed recording can never exceed the sensitivity and responsiveness of the original recording equipment, Radio Recorders tolerates no compromises in equipment quality. And designing, controlling, and operating this outstanding equipment are some of the best brains in the sound recording field.



## Printed Circuit Components

### ***IF Transformers, Coils, and Traps Made by Special Photo-Etch Process Which Permits Mass Production of Identical Circuits from Single Negative***

**M**ORE compact and efficient radios, TV receivers, and communications equipment were envisioned with the announcement today of printed-circuit electronic inductors mass-produced for general use. In such components, printed circuitry replaces conventional wire windings with uniformly made printed coils, according to the Tube Department of the RCA Victor Division, Radio Corporation of America.

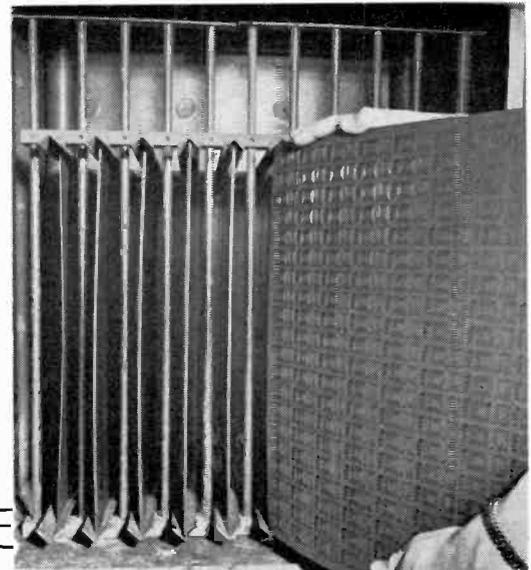
These revolutionary components—six 40-megacycle IF transformers, coils, and traps—are produced by a special photo-etching process which makes possible virtually limitless production of identical electronic circuits from a single photographic negative, according to L. S. Thees, general sales manager of the RCA Tube Department.

Conventional inductors depend upon coils of hand-wound or machine-wound copper wire to provide the desired inductance values; the exact values are largely determined by the number of turns of wire, its spacing and the diameter of the coil form. With the printed circuit method, both the copper wire and the wire-winding operations are eliminated. Inductances are provided by flat inductors having rectangular windings which are photographically printed on copper-clad plastic strips.

Although these RCA printed-circuit components are intended for application in home television receivers, the same photo-etching process can be used to print circuits for components used in a wide range of radio and communications equipment, Mr. Thees said.

The new components are intermediate-frequency types

Printed circuitry eliminates laborious wire-winding operation associated with conventional components, and produces unprecedented uniformity and efficiency. Above, model holds "Tandem" 40-megacycle printed-circuit i-f transformer for use in home TV sets. Comparable wire-wound transformer is shown on table. Hold picture close to eyes to see circuit.



**MASS PRODUCTION** of electronic circuits having unprecedented uniformity is made possible by special photo-etch process such as is carried on in RCA Victor's Camden, N. J., parts plant. Here, in one of the final production steps, a copper-clad sheet of plastic containing more than 150 identical copies of a single electronic circuit is inserted in a special bake oven. The copies were photographically printed on the sheet by a single negative, developed, then treated in an acid bath which etched away all unexposed areas, leaving circuits.

designed for television sets utilizing intercarrier-sound systems and incorporating picture IF and sound IF carriers of 45.75 megacycles and 41.25 megacycles, respectively. They include: first picture IF grid-circuit coil and trap (RCA-209K1); first picture IF plate-circuit coil (RCA-210K1); second picture IF grid-circuit coil (RCA-211K1); first and second picture IF filter traps (RCA-212K1); second picture IF transformer (RCA-213K1); and the third picture IF transformer (RCA-214K1).

A pioneer in the printed-circuit field, the RCA Tube Department has been producing printed-circuit components on a "custom order" basis for some time, Mr. Thees disclosed. The RCA photo-etching process, which closely resembles the photo-engraving technique used in the printing industry, is now being used for the mass production of printed-circuit components for general use.

So precise that it will faithfully reproduce a circuit pattern having a line width of as little as one-hundredth of an inch, the process assures the uniformity of any quantity of "copy" circuits produced by the master circuit on the photographic plate.

The photographic printing of electronic circuits presages unprecedented accuracy in the production and assembly of components and provides precision control of such vital factors as the coefficient of coupling, Mr. Thees said. Further, the printed-circuit technique points the way to more economical and streamlined production of components, makes possible circuit arrangements

impossible under conventional wire-winding techniques, indicates appreciable simplification in component design, and facilitates rapid and inexpensive circuit changes since only a new negative is required.

Printed-circuit components themselves, by nature of their radical design and high uniformity, make possible simplification of equipment design, reduction in the number of required parts, and a simplification of equipment servicing and alignment, he said.

Simplification of servicing and alignment are illustrated by the new RCA components, which are housed within tiny metal shield cans measured only seven-eighths of an inch square and two-and-one-quarter-inches high. Alignment adjustments are furnished by special screw discs accessible from one side of each component. This arrangement enables the serviceman to make all alignment adjustments from the top of the chassis.

The production of a printed-circuit component begins with a photograph of the pattern of the required circuit, Mr. Thees explained. A contact print of the negative is then made on a copper-clad plastic strip which has been coated with a light-sensitive material. Following this operation, the strip is developed and placed in an etching solution. The unexposed parts of the copper are eaten away, leaving an accurate, sharply defined reproduction of the desired copper circuit. After the strip has undergone additional processing, it is inserted in a metal case.

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## Reading Time

**Antennas: Theory and Practice**, by Sergei A. Schelkunoff and Harold T. Friis, Published by John Wiley & Sons, Inc., 440-4th Avenue, New York City 16, 639 pp. \$10.

Here is a thorough treatment of the principles necessary for understanding of antenna behavior and design by two members of the research and technical staff of Bell Laboratories. Beginning with a broad survey of the entire field and then attacking the various problems of antenna phenomena, it gives quantitative answers that are later confirmed by analysis. It presents a detailed coverage of the theory of radiation; it develops the essentials of field theory; it considers spherical waves on wires and in free space; it presents the principle of directive radiation and its application to antenna arrays; plus much else of interest to the station engineer.

**Basic Electronic Test Instruments**, by Rufus P. Turner, Rinehart Books, Inc., 232 Madison Avenue, NYC 16, 254 pp. \$4.

Basic television, radio, and electrical testing and

measuring instruments employed by the technician, the radio and TV service man, the hobbyist and engineer are discussed in this volume. The book goes into the construction, operation and uses of the instruments.

It abandons emphasis on the constructional viewpoint discussed so minutely in an earlier book, *Radio Test Instruments*, by the author, who is a registered professional engineer. The volume is illustrated with charts, diagrams and photographs.

**Uhf Converter**, Published by Howard W. Sams & Co., 2201 East 45th Street, Indianapolis, Ind., 44 pp. \$1.

This book gives a rundown on all popular converters on the market today . . . tells how they are designed and how they work.

Described by its publishers as a "must" for a thorough understanding of uhf converters, the book gives a detailed description of the operation of new uhf converters and tuners produced by the following manufacturers: Arvin, Crosley, DuMont, General Electric, Mallory, Motorola, RCA, Raytheon, Regency, Sarks Tarzian, Standard Coil, Stromberg, Sutco, and Sylvania.



# How to estimate SOCIAL SECURITY PAYMENTS to you and your family

**T**HE Social Security Administration has just published a small leaflet telling Social Security payees what their retirement benefits will be after they reach age 65 (as the law was amended last year). Also listed are the benefits which survivors will receive following the insured worker's death.

The maximum earnings which the present Social Se-

curity Law will cover is \$300 per month, as the table below shows. This is below many union scales today. (Organized Labor is working hard in Washington to have the benefits increased in line with the present high cost of living. More workers must be covered, too.)

But, for the present, if you're making more than \$300 per month, your maximum benefits will still be in the top line of the table below.

In order to get retirement benefits you must work for a certain amount of time in employment or self-employment covered by the Social Security Law. If you have your 65th birthday before July 1 of next year, you will need at least 1½ years of work under Social Security to receive benefits. If you are now 47 years old, you must pay Social Security for about 10 years to be eligible for benefits at 65. Years of payments for other ages vary along a sliding scale.

- From this table you can estimate your family's monthly benefit payment when you retire or after your death. This table does not apply until you have had at least a year and a half of covered work after 1950. In estimating your average earnings be sure to count all months after 1950, whether or not you worked all of those months.

TABLE OF SOCIAL SECURITY PAYMENTS BASED ON EARNINGS AFTER 1950  
(as increased by the 1952 Amendments to the Social Security Law effective September 1, 1952)

Average Monthly Earnings After 1950	RETIREMENT BENEFITS			SURVIVORS BENEFITS				
	Retired Worker Only	Retired Worker and Wife or Dependent Husband At 65	Retired Worker Wife and 1 Child	Widow or Dependent Widower or Dependent Parent at 65, or 1 Child Alone	Widow and 1 Child	Widow and 2 Children	Widow and 3 Children	Lump-Sum Death Payment
\$300.00	\$85.00	\$127.50	<sup>1</sup> \$168.80	\$63.80	\$127.60	<sup>1</sup> \$168.90	<sup>1</sup> \$168.90	\$255.00
280.00	82.00	123.00	164.00	61.50	123.00	164.10	<sup>1</sup> 168.90	246.00
260.00	79.00	118.50	158.00	59.30	118.60	158.10	<sup>1</sup> 168.90	237.00
240.00	76.00	114.00	152.00	57.00	114.00	152.00	<sup>1</sup> 168.90	228.00
220.00	73.00	109.50	146.00	54.80	109.60	146.20	<sup>1</sup> 168.90	219.00
200.00	70.00	105.00	140.00	52.50	105.00	140.10	<sup>1</sup> 160.20	210.00
190.00	68.50	102.80	137.10	51.40	102.80	137.20	<sup>1</sup> 152.10	205.50
180.00	67.00	100.50	134.00	50.30	100.60	134.10	<sup>1</sup> 144.00	201.00
170.00	65.50	98.30	131.10	49.20	98.40	131.20	<sup>1</sup> 136.20	196.50
160.00	64.00	96.00	128.00	48.00	96.00	128.00	<sup>1</sup> 128.10	192.00
150.00	62.50	93.80	<sup>1</sup> 120.10	46.90	93.80	<sup>1</sup> 120.00	<sup>1</sup> 120.00	187.50
140.00	61.00	91.50	<sup>1</sup> 112.00	45.80	91.60	<sup>1</sup> 112.00	<sup>1</sup> 112.20	183.00
130.00	59.50	89.30	<sup>1</sup> 104.10	44.70	89.40	<sup>1</sup> 104.00	<sup>1</sup> 104.10	178.50
120.00	58.00	87.00	<sup>1</sup> 96.00	43.50	87.00	<sup>1</sup> 96.00	<sup>1</sup> 96.00	174.00
110.00	56.50	84.80	<sup>1</sup> 88.10	42.40	84.80	<sup>1</sup> 88.00	<sup>1</sup> 88.20	169.50
100.00	55.00	<sup>1</sup> 80.00	<sup>1</sup> 80.00	41.30	<sup>1</sup> 80.00	<sup>1</sup> 80.00	<sup>1</sup> 80.10	165.00
90.00	49.50	<sup>1</sup> 72.00	<sup>1</sup> 72.10	37.20	<sup>1</sup> 72.00	<sup>1</sup> 72.00	<sup>1</sup> 72.00	148.50
80.00	44.00	<sup>1</sup> 64.00	<sup>1</sup> 64.00	33.00	<sup>1</sup> 64.00	<sup>1</sup> 64.00	<sup>1</sup> 64.20	132.00
70.00	38.50	<sup>1</sup> 56.00	<sup>1</sup> 56.10	28.90	<sup>1</sup> 56.00	<sup>1</sup> 56.00	<sup>1</sup> 56.10	115.50
60.00	33.00	<sup>1</sup> 48.00	<sup>1</sup> 48.00	24.80	<sup>1</sup> 48.00	<sup>1</sup> 48.00	<sup>1</sup> 48.00	99.00
50.00	27.50	41.30	<sup>1</sup> 45.10	20.70	41.40	<sup>1</sup> 45.10	<sup>1</sup> 45.00	82.50
Under 35.00	25.00	37.50	<sup>1</sup> 45.00	18.80	37.60	<sup>1</sup> 45.10	<sup>1</sup> 45.00	75.00

<sup>1</sup> Reduced to maximum total family benefits permitted by law.

# The Saga of the Radio Ham

**Who was the first 'ham'? How did he get his nickname? How did 'hams' get their first legal status? Herein is a tale of two Harvard students, their wireless station, and the troubles which resulted from their pastime.**

WHAT do you know about the word HAM? In radio it is the universally accepted term to describe an amateur. In other fields it generally is used to denote (and sometimes derisively) a lay or inexperienced performer.

"HAM" as applied to amateur radio may today somewhat kindly refer to an ever growing fraternity of mostly non-professional tinkerers and hobbyists contributing to the development of the electronic art—but it was not always so.

In actual fact HAM dates back to 1908 and was the call letters of one of the first amateur wireless stations operated by some members of the Harvard Wireless Club. They were Doctor Albert S. Hyman, Bob Almy and Reggie Murray. At first they called their station HYMAN-ALMY-MURRAY. Tapping out such a long name in code soon called for revision and they changed the name to HY-AL-MU, using the first two letters of each name.

Early in 1909 some confusion resulted between signals from amateur wireless HYALMU and a Mexican ship named HYALMO, so the boys decided to use only the first letter of each name and the call became HAM!

## Remember the Days?

Some of the real old-timers may remember those pioneer and unregulated days. You picked your own frequency and your own call. Then, as now, some amateurs had better signals than some commercials. The resulting QRM finally came to the attention of congressional committees in Washington and they gave much time to proposed legislation designed to critically limit amateur activity.

In 1911, Harvard student Hyman, English A, was

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*Athan Cosmas is Vice President of Local 1212 and a frequent contributor to THE TECHNICIAN-ENGINEER. The direct quote and essential facts from: "The Saga of that Original Radio Ham" By Percy Greenwood, as published in the March, 1953, issue of THE NEW YORK PHYSICIAN and AMERICAN MEDICINE.*

assigned the problem of picking some controversial subject for his thesis. He chose the Wireless Regulation Bill then before Congress. Professor Barrett Wendell selected Hyman's work as an example of powerful argument but poor writing. Although he gave Hyman a high mark, he made him rewrite and rewrite the thesis until it met with his full approval.

At this point he insisted that a copy be sent to Senator David I. Walsh, a member of one of the committees hearing the bill.

The Senator was so impressed that he invited Hyman to appear before the Committee. He went to Washington, met Senator Walsh, who put him on the stand and told him to read his thesis.

## Washington Testimony

As the good doctor tells it: "I was so nervous. I couldn't even see words much less read them. but I knew the thesis by heart; I put everything I had in that speech—everything that I had learned in the course on public speaking and from the debating society plus whatever I could think of at the time. . . . I described how our little amateur station was built and I almost cried as I told the crowded committee room that if this bill went through we would have to close it up because we could not afford the license fees and all the other requirements which were set up in the bill. Then the debate started and our station HAM became the symbol of all the little amateur stations in the country crying out to be saved from the menace and greed of the big commercial stations who didn't want us around. Finally the bill got to the floor of Congress and every speaker talked about poor little Station HAM."

That's how it all started. You can find the whole story in the Congressional Record. Nationwide publicity associated Station HAM with amateurs. From that day to this—and probably to the end of time—in radio an amateur is a HAM and vice-versa.

NB: Doctor Albert S. Hyman is today, a well known heart specialist in New York. He has long been associated with and is now a Captain in the Naval Medical Reserve.



• Attending the first meeting of Local 1216's TV Educational Program, held Saturday, April 4, in WCCO-TV Studio A, were: First Row, left to right, Ray Haag, Station WMIN; Ralph Tucci, WMIN; Roy Westberg, WLOL; and William J. McGinnis, instructor, standing by the camera. SECOND ROW, Norman Nelson, Kaybank Recording Studios; William Pappin, Schmitt Recording Studios; Lee Aro, WDGY; Ed Wedekind, WDGY; Gene Brautigam, WLOL; and Al Krieg, WCOW. THIRD ROW, Robert Wallinder, WCCO-AM; Mat Walz, WCCO-AM; Harry Zabel, WTCN; Neil B. Coil, instructor; Joe Wagner, WTCN; Harvey Headen, KEYD; John Sherman, chief engineer, WCCO-TV; and Bernard Renk, standing, Local 1216 business agent.

## Local 1216 Completes Its First Television Training Course

Until a few weeks ago, hardly any of the 117 members of IBEW Local 1216, Minneapolis, Minn., were trained in television operations. With only two of the seven TV channels allocated to the Twin Cities area in operation, a problem confronted IBEW Local 1216.

The members were skilled radio operators, but TV demanded new knowledge and training. Unless the union could train its own members in video, it appeared

that newcomers might replace the local men.

Local 1216 set to work to remedy the situation, establishing a training school, which we described in the May issue. The program has proven so successful that many members want it continued through the summer vacation months. One station manager offered to pay the \$10 registration fee for each employee of his station who attended the classes.



• Neil Coil explains the operation of microwave gear. Transmitter and receiver units are shown, with the interconnecting attenuating wave guide used to simulate an equivalent 10-mile transmission path. Lionel Wittenberg, WCCO-TV, assists with the demonstration, as Robert Wallinder watches, foreground.



• Members attending the sixth session, May 9: FIRST ROW, Brothers Walz, Wallinder, Pappin, Tucci, and Haag. SECOND ROW, Headen, Renk, Zabel, Wedekind, Krieg, Arnold Peters (WMIN), Aro, and McGinnis (instructor). THIRD ROW, Coil (instructor), Robert Muchow (WCOW), Wagner, and Westberg.

# Technical NOTES

## RCA Enters the Hi-Fi Field

At a recent electronics show in Chicago RCA introduced its first line of high-fidelity components. The components will be marketed individually "to preserve the flexibility and freedom of choice demanded by hi-fi enthusiasts", W. W. Watts, an RCA Engineering Products Department vice president, said, but characteristics will be carefully matched to insure maximum performance in any system comprised of them.

Mr. Watts said that his company's entrance into the field recognizes a marked growth of interest in high-fidelity sound reproduction. This trend, he reported, is currently changing the hi-fi audience from a relatively small group of "audiophiles" to a large cross-section of the general public.

Built around the "Olson speaker," designed by Dr. H. F. Olson, director of the acoustical research labora-

tory of RCA's David Sarnoff Research Center at Princeton, N. J., the line will include a de luxe three-speed automatic record changer, two AM-FM tuners (one a de luxe instrument with built-in pre-amplifier), four different high-fidelity amplifiers, three hi-fi speakers (8-inch, 12-inch, and 15-inch), and separate speaker and equipment enclosures.

The record changer (SRC-51) features a heavy-duty four-pole motor to insure constant speed, interchangeable spindles for standard-center-hole and 45-rpm operation, and an interchangeable plug-in type reproducer head fitted with a diamond stylus for fine-groove 45 and 33-1/3-rpm records and a sapphire point for 78-rpm.

The amplifiers are a 10-watt combination pre-amplifier and power amplifier, a de luxe pre-amplifier, a 10-watt de luxe power amplifier, and a 20-watt de luxe power amplifier.

The 15-inch speaker is the Type LC-IR RCA Duo-Cone, designed by Dr. Olson primarily for the broadcast field and now to be made available for home use for the first time. For its debut in this field, Dr. Olson has introduced a unique design feature which further enhances the fidelity of this speaker—a series of seven convex cone-like protrusions deliberately spaced in a slightly irregular ring around the inside of the large low-frequency cone. Effect of this design feature is to detour sound waves moving toward the outer rim of the speaker over paths that vary slightly in length. By thus preventing all segments of a given wave from reaching the rim at the same instant, the new design eliminates the interference normally introduced by radiation from the rim.

The new components are expected to become available through parts distributors in September.

## The Russian Bear in 3-D

The Russian news agency, Tass, said in a broadcast heard in London recently, that scientific institutions in Leningrad are working on three-dimensional television.

The Communist party organ said also that Alexander Popov, "the inventor of radio," had solved "intricate problems of electrical engineering" back in the early 1890's that "enabled him to make the first radio receiver in the world."

## One Moment Please



The height of radio giveaways occurred last year at Medford, Mass., when Station WHIL gave itself away—for one day.

First prize in a guessing contest was Station WHIL, and it was won by Mrs. Franklin R. Hart.

Mrs. Hart invited in all the neighbors to watch WHIL engineers and disc jockeys operate from her home.

## An IBEW Operation on Manhattan

Station WQXR-AM-FM is a big city operation manned by a crew of efficient IBEW Local 1212 engineers. With studios located on West 43rd Street in the heart of Manhattan, the station operates on 10 kw AM and 20 kw FM.

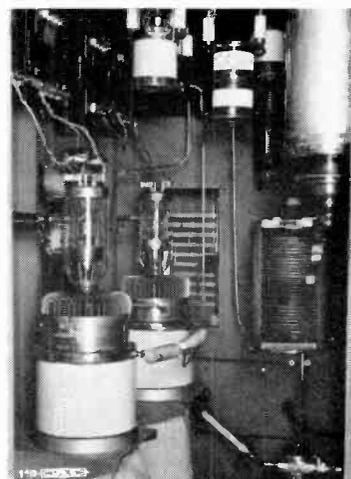
Owned and operated by Interstate Broadcasting Company, a subsidiary of the New York Times, the station was established in 1934. It features New York Times news bulletins every hour on the hour. WQXR is licensed to operate full time on clear channel.

RIGHT: The Empire State Building, taken from WQXR-FM, atop the Chanin Building in downtown New York City.

BELOW: An unusual night shot of WQXR's AM transmitter building. Weird effect of lights and shadows hardly suggests a location actually in the geographical heart of the New York metropolitan area.

BELOW RIGHT: A pair of parallel Federal 892Rs, as used in WQXR's composite 10 kw AM transmitter.

*Photos by Brother E. J. Schultz, engineer, WQXR AM, FM.*



### Putting Video Tubes Through the 'Chinese Water Torture'

Laboratory versions of the ancient "Chinese water torture" are among the tests inflicted upon RCA television picture tubes to assure quality specifications.

Some of these "tortures," used in developing and testing new TV-screen processes, were described in a technical paper delivered by an RCA engineer.

The paper described measuring techniques developed by the RCA tube department to determine the adherences of phosphor screens to the faceplates of TV picture tubes.

Such information is essential for quality control in the production of the screens of TV tubes.

One early test devised to measure the adherence of

various settling chemicals resembled the ancient torture of slowly dripping water on the bare skull of the victim. The laboratory version, according to the paper, involved drops of mercury falling from a height of 10 to 14 inches onto a dry phosphor screen placed at a 45-degree angle.

Such tests disclosed, for example, that under certain conditions as many as 1,400 mercury drops were required to produce a hole 1/16 of an inch in diameter in a screen utilizing a potassium sulfate settling agent, Mr. Lattimer said. In comparison, only 10 to 20 drops were required to make a similar hole in a screen employing barium nitrate.

# Station Breaks



## Coordination Problem

WHDH, Boston, a 50 kw. independent, has considerable trouble coordinating two baseball network programs every summer . . . Production Manager George Watson came up with this supplemental memo, trying to anticipate all possible mishaps. His permission is granted for its printing in the TE.

## PRODUCTION SUPPLEMENT

Although the production department fully realizes that, in case of any error or omission, the final responsibility for same will always . . . as in the past . . . ultimately be rationalized as belonging to it, the following format has been ordered in case of emergency. For example, the production man, on duty, might "drop dead." If such an insignificant incident takes place, it was thought that this format might facilitate the handling of operations, during a baseball game. However, it is clearly understood by the production department that "death" cannot be used as an excuse.

## DeMille Barred from 'Toast'

Cecil B. DeMille was to appear on a scheduled telecast of Ed Sullivan's "Toast of the Town," it was announced recently, but his appearance was cancelled because members of the American Federation of Radio and Television Artists, AFL, would not appear with him.

Claude McCue, west coast secretary of the AFRTA, said the show's New York producers had been notified that DeMille is "not a member in good standing." The date of the scheduled performance wasn't revealed.

DeMille was suspended from the AFRTA's predecessor, the American Federation of Radio Artists, in 1944 for refusing to pay a \$1 assessment to help the union fight a proposed "right to work" bill in California. As a result, he had to give up his \$98,200-a-year job as narrator for the Lux Radio Theater. The union's action was upheld in every court that DeMille took it to, including the California Supreme Court.

Since then DeMille has been fighting organized labor and campaigning for federal union-busting legislation through his "DeMille Political Freedom Foundation."

McCue said the "Toast of the Town" action was routine, based on the feeling that DeMille would have appeared as a performer rather than as a guest star. Union membership is not necessary for the latter. McCue said DeMille's status was "the same as any member who has been suspended for nonpayment of dues."

## An Arbitrator's Comments

From the recent arbitrator's decision, KSJO, San Jose, Calif., and Local Union No. 202, IBEW:

### ARBITRATOR'S COMMENTS ON ATTITUDE OF PARTIES IN ARBITRATION

"I compliment the spokesmen for both the Employer and the Union for their fair and frank attitude toward one another and their common problem, not only in their exchange of letters on this matter before it was referred to arbitration but also at the hearing. It is refreshing to find in labor relations an entire lack of the animosity and suspicion between parties that too often prevails."

## Highest Price for TV Station

The FCC recently approved the sale of Philadelphia Television Station WPTZ to the Westinghouse Radio Stations, Inc. for \$8,500,000.

The FCC said the price was the highest ever paid for a broadcasting property, WPTZ has been owned by the Philco Corp.

Westinghouse owns another television station at Boston and has radio stations in Boston, Pittsburgh, Portland, Oreg., Fort Wayne, Ind., and Philadelphia.

## Progress Meeting

As this issue of the TECHNICIAN-ENGINEER is being distributed, delegates to the Second Annual Progress Meeting of the Radio, TV, and Recording Division, IBEW, are convening in Kansas City. A full report on same, next issue.

## Technician-Engineer