



**BROADCAST  
NEWS**

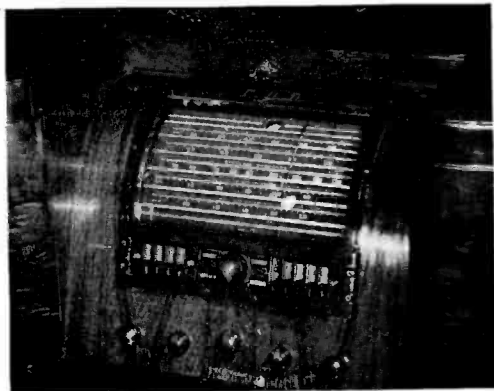
**N A B CONVENTION ISSUE**  
**JUNE 20-23**



**ANOTHER  
RCA VICTOR  
FIRST!**

# Electric Tuning!

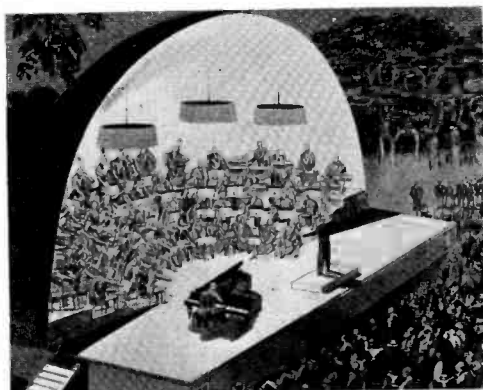
*Push a button... there's your station  
39 new 1938 models announced!*



▲ New! Overseas dial. Foreign stations once shown in 1/4 inch on dial, now given 9 inches. Easier to tune than domestic.



▲ Model 85T1... a smartly fashioned little chest model that will give you entertainment from all over the world. New type dial simplifies tuning and enhances appearance. Cabinet reveals new and modern uses of fine, rare woods. A 2-band, 5-tube superheterodyne of fine volume and tone. Dynamic speaker, automatic volume control.

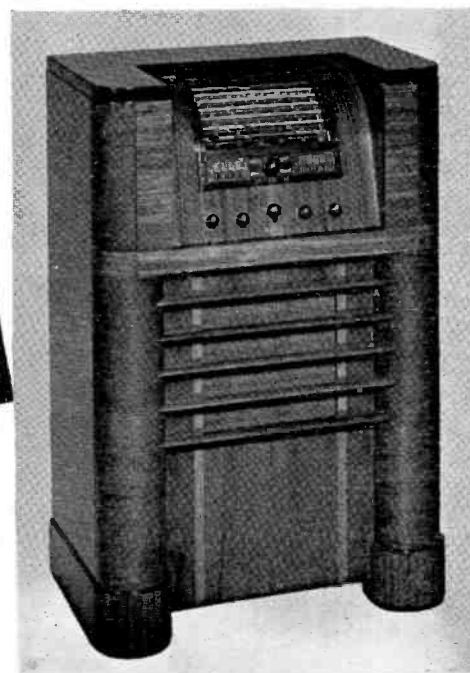


▲ New! Sonic-Arc Magic Voice! Simplified Tone Chamber uses "band shell" principle... delivers "boomless" tone-full performance.

**NEW!**  
**ELECTRIC TUNING**  
with Arm Chair Control  
Simple as Pushing an  
Electric Light Button



Model 813K—An entirely new conception of a radio set. Look ▶ at this big RCA Victor Electric Tuning model. See the sensational Overseas Dial with its five 9-inch-wide tuning bands. Note the buttons that tune your favorite stations at the touch of your finger. Study the lovely proportions and fine lines of its Beauty-Tone cabinet built to share in creating the tone-full quality of the Sonic-Arc Magic Voice. Thrilling 13-tube performance.  
Armchair Control extra.



▲ New! Beauty-Tone Cabinets by Victor. World's largest musical cabinet shop produces superb new designs in lovely, rare woods.

Millions have been asking for it! Now RCA Victor delivers it... a radio set with which you can tune to your favorite station by simply pushing a button. *Electric Tuning—truly automatic.*

The big open-faced dial is an "overseas" switchboard. You can tune foreign stations easily. Push a button, and you get your favorite local station. Another button for another station. And so on, around and among your favorite stations, as you please! No dialing! No twisting anything around! Just a button to push—the same as turning on a light in your living room. That's RCA Victor Electric Tuning!

Nor is this all! For a few dollars more you can have Electric Tuning with

Armchair Control. Then you automatically tune the SONIC-ARC Magic Voice from your easy chair, or even from another room.

### Finer Tuning at Every Price

Remember this, too! The 1938 RCA Victor Radios offer you a choice among 39 models. Whatever you pay, whichever you choose, you will get an instrument with easier, finer, more exact tuning... an instrument that will make radio entertainment more exciting, more interesting.

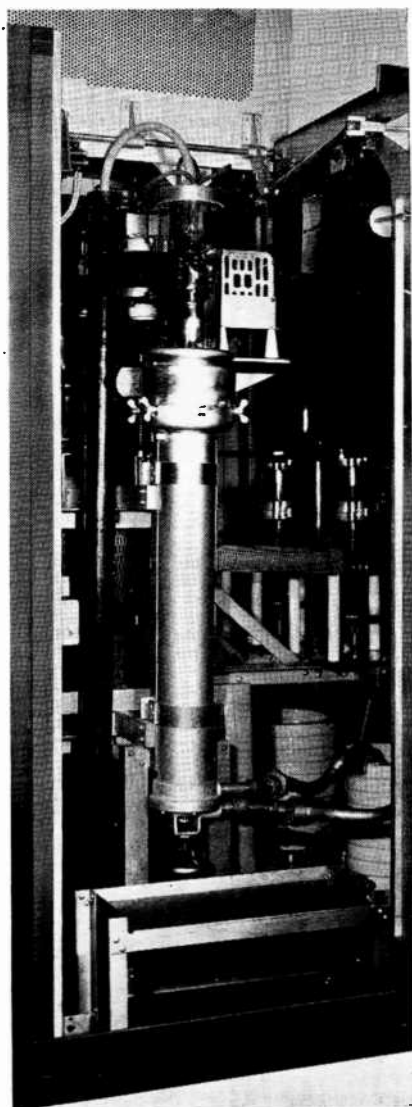
It is worth while to hear these new RCA Victors at your dealer's, and to learn about his liberal trade-in allowances. You will discover that RCA Victor experience creates *finer radio sets*, that cost no more to buy.

# BROADCAST NEWS

RCA Tube economy is no longer news to broadcasters who have found that RCA Power Tubes mean lower operating costs and more satisfactory service.

Take, for example, the RCA 100 kw. tube. Many 50 kw. stations have found that this tube, the 862, is one of the most satisfactory and economical ever built.

Whether your station is 100 watts or 50,000 watts, you will find RCA Power Tubes lower in operating cost and uniformly satisfactory.



## RCA Radiotrons

RCA MANUFACTURING COMPANY, INC.  
CAMDEN, N. J.

A Service of the Radio Corporation of America

# BROADCAST NEWS

REG. U. S. PATENT OFFICE

JUNE, 1937 No. 25

Special N.A.B. Convention Number

PAUL V. LUTZ, Editor

The cover photograph illustrates the construction of a high power tank coil.

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1 EASTERN DISTRICT—Ben Adler, Manager, 1270 Sixth Ave., New York City; R. P. May, Assistant.

2 CENTRAL DISTRICT—A. R. Hopkins, Manager, 589 E. Illinois St., Chicago, Ill; R. A. Wilson, Assistant; A. Josephson, Assistant.

3 WESTERN DISTRICT—W. H. Beltz, Manager, 170 Ninth St., San Francisco, Calif.; Edmund Frost, Assistant.

4 SOUTHWESTERN DISTRICT—W. M. Witty, Manager, 2211 Commerce St., Dallas, Texas.

5 SOUTHEASTERN DISTRICT—D. A. Reesor, Manager, 490 Peachtree St., N. E., Atlanta, Ga.

LONDON ENGLAND—B. Gardner, European Manager, Radio Corporation of America, Electra House, Victoria Embankment.

Photographs in this issue are by Alfred A. de Lardi, F.R.S.A.; Norman Newell; H. S. Attmore; J. O. Gaynor; from the National Broadcasting Co.; the Columbia Broadcasting System; from radio station WMBO as well as from other stations.

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RCA MANUFACTURING CO., Inc.  
CAMDEN, NEW JERSEY, U. S. A.

TRADEMARKS RADIOTRON AND ICONOSCOPE  
REG. U. S. PAT. OFFICE BY RCA MFG. CO., INC.

Your Logical Choice

# Finest Electrical Transcriptions

is RCA Victor... Sound  
Recording Leader!



THE RCA Victor Company, world's leader in sound recording, has always played an important part in sound reproduction. Its years of experience, great laboratory research, recording and record making facilities are all available to you. And yet this premium service costs no more than ordinary electrical transcriptions!

RCA Victor electrical transcriptions offer many exclusive advantages. The patented RCA Victor "Higher Fidelity Process" of recording enables RCA Victor to record every note—from the extremely high to the deepest bass. The entire musical range is heard in exactly its original timbre and color. RCA Victor electrical transcriptions are particularly free of record scratch . . . provide adequate volume at all times. They are made of "Victrolac," a flexible material extremely resistant to wear and warpage. Because of their light weight they may be mailed at extremely low cost.

The RCA service also offers you the benefits of RCA ALL THE WAY. For through its association with every phase of radio and sound reproduction RCA Victor not only can assist you in building shows but has experienced Victor and NBC artists at its service. For your convenience RCA Victor electrical transcription studios are located in New York, Camden, Chicago, Hollywood and Montreal, and the one nearest you will be glad to give you further information.



Electrical  
Transcriptions

RCA MANUFACTURING COMPANY, INC.  
Camden, N. J.

A Service of the Radio Corporation of America



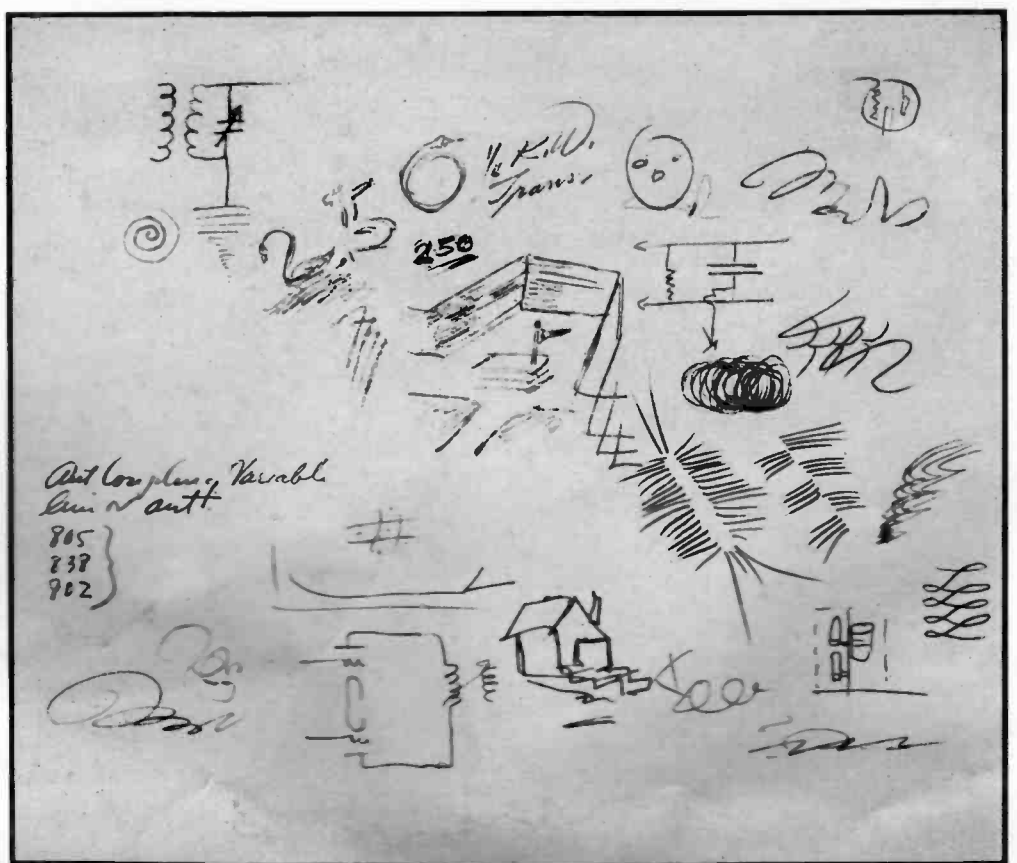
1. A Conference is the starting point for the new transmitter. Here, in the office of I. R. Baker are gathered representatives of the engineering department and the sales group to discuss what is needed and to lay out a schedule of

progress. Usually the engineers come with a number of ideas for improvements and these are gone over to see whether they will conform to the requirements of service.

## FROM SKETCHES TO FINAL TEST— A TRANSMITTER IS BUILT

"CONSTANTLY IMPROVED BUT NO YEARLY MODELS" WAS ONCE THE SLOGAN OF A MOTOR CAR MANUFACTURER. IT MIGHT WELL BE ADOPTED BY RCA MANUFACTURING'S TRANSMITTER SECTION BECAUSE, ALTHOUGH SUCCESSIVE PRODUCTIONS OF BROADCAST TRANSMITTERS CONTAIN CURRENT IMPROVEMENTS, MODELS ARE NOT OFTEN CHANGED AND PURCHASERS WORRY LESS ABOUT HAVING BEHIND-THE-TIMES EQUIPMENT.

NEVERTHELESS WHEN IMPORTANT IMPROVEMENTS CAN BE EFFECTED, A BRAND NEW MODEL TRANSMITTER IS OFFERED TO THE BROADCASTING INDUSTRY. A CASE IN POINT, THE NEW 250-D MODEL, INTENDED FOR HIGH FIDELITY 250 WATT SERVICE OR AS A BASIC EXCITER FOR HIGHER POWER TRANSMITTERS IS FOLLOWED THROUGH THE PROCESS OF DESIGN AND PRODUCTION FOR THE BENEFIT OF THOSE WHO HAVE NOT VISITED RCA'S FACTORY.



2. Doodles resulting from the meeting often reflect random thoughts as well as notes to be studied further. Famous men find doodling a help to concentration. Engineer's doodles, like these, are apt to be somewhat technical.

# SALES, ENGINEERING, STYLING, CONTRIBUTE TO THE TRANSMITTER DESIGN

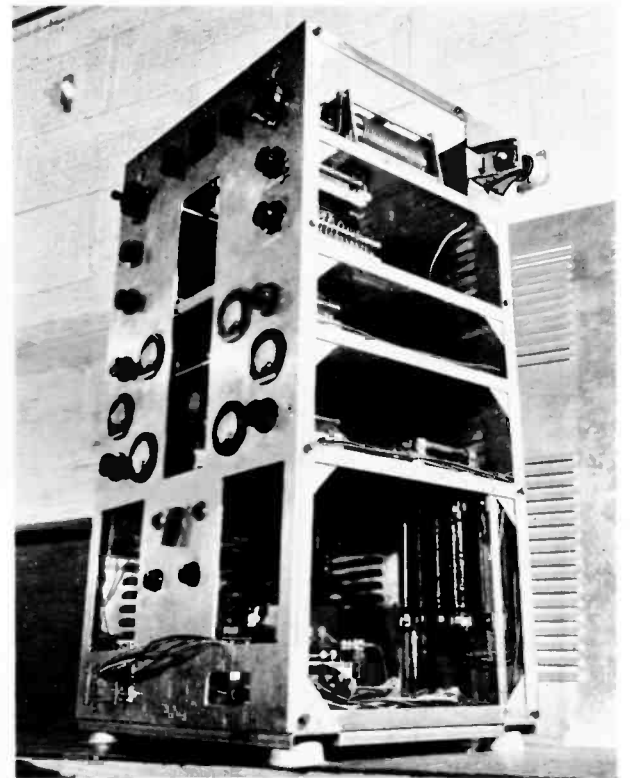


3. Letters to district offices outline the proposed design and require prompt answer for criticism and suggestions. RCA's district transmitter sales representatives are all engineers, appreciate the technical problems of broadcasting stations, are able to check the design from the standpoint of the user. From close contact with stations they ask for and get a design which the stations would approve. Here, Ben Adler in New York goes over the letter and prepares to reply.

4. John Vassos, well known industrial stylist and illustrator with Lynn Brodton go over the plans and provide an external design which will be both pleasing and functional. Styling is today recognized as important from the standpoint of usage and prestige to the buyer.

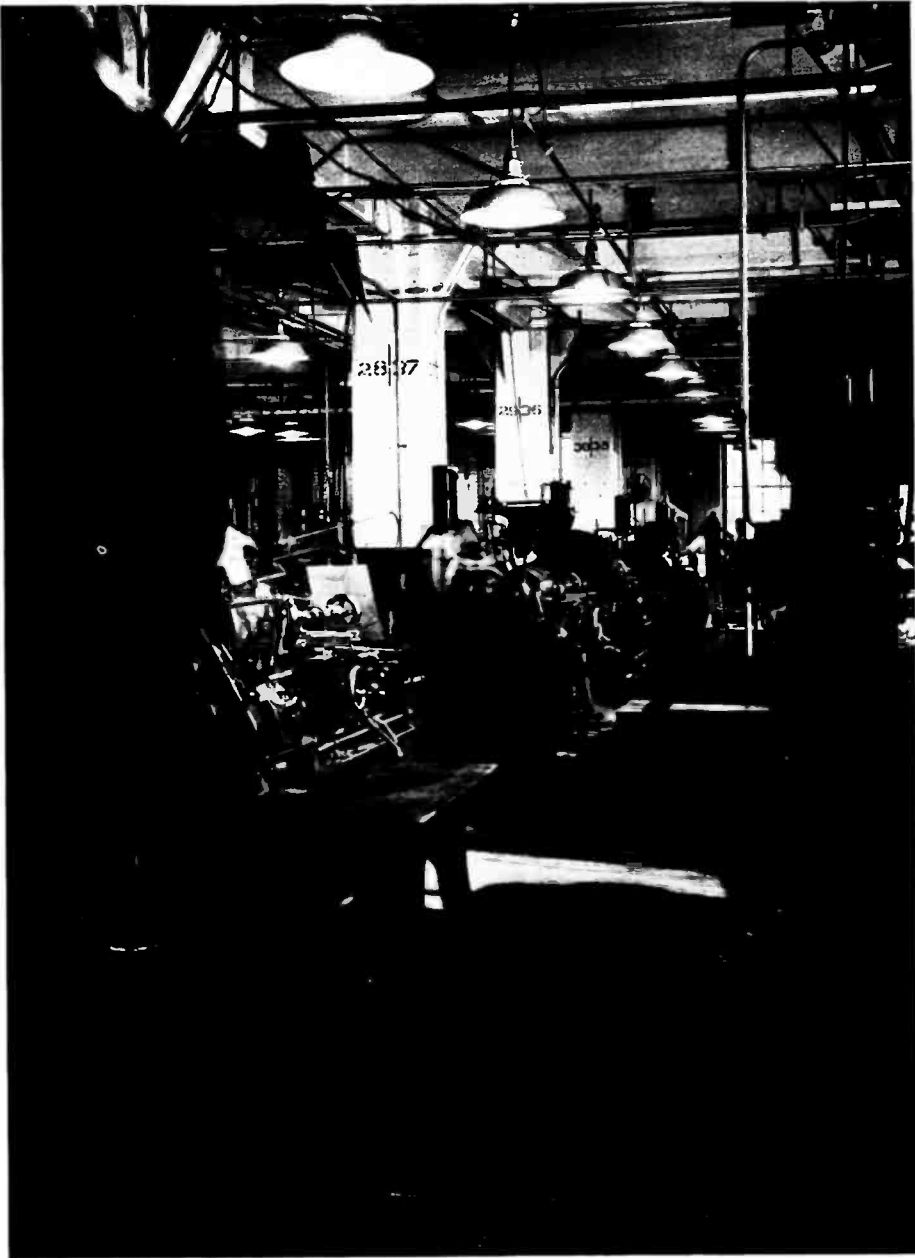


5. Engineering discussions are frequent. The man in charge of the transmitter is in constant touch with other engineers specializing in such fields as power supply equipment, mechanical design, filters, etc. Sketches of the equipment are made showing the outline and the relative placement of parts.

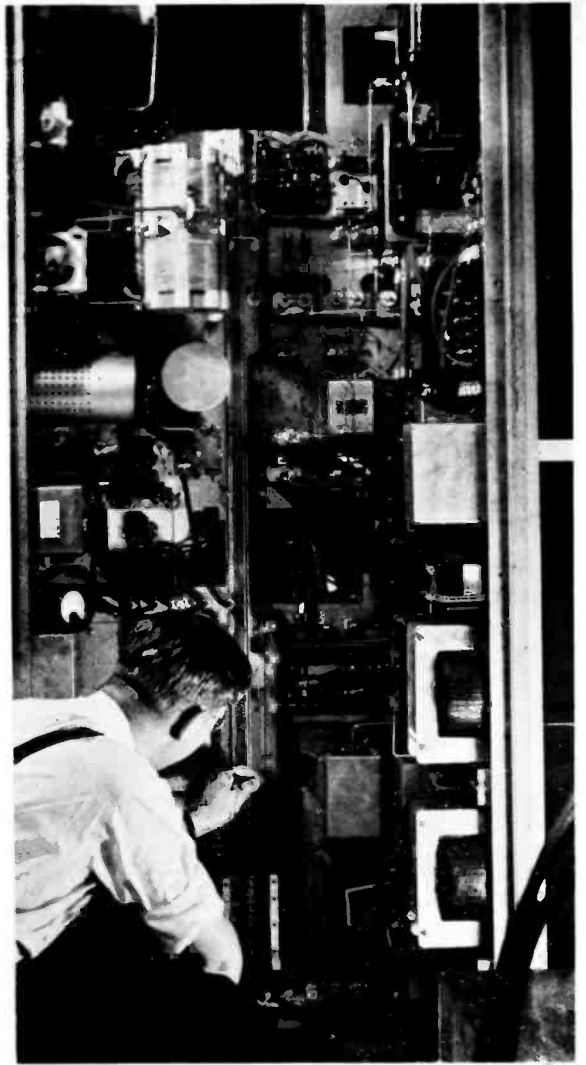


6. Laboratory models are often built to check operation of circuits and arrangement of parts. No particular attention is paid, at this time, to external appearance since the circuit model usually bears little physical resemblance to the finished equipment. Measurements on circuits provide checks on calculations and prevent possibility of errors.





7. The model shop is a factory in miniature, concentrating on doing things in a smaller and better way. Here the model of the transmitter is made, with all of the parts complete. While the components are made without production tools, production problems are studied so that manufacturing costs will be minimized. In this shop also, small quantities of special equipment are manufactured.

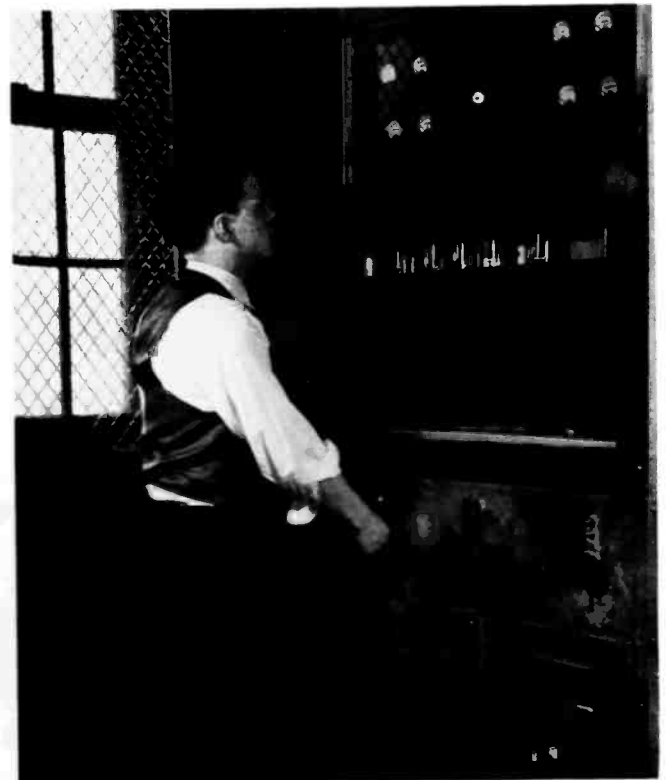


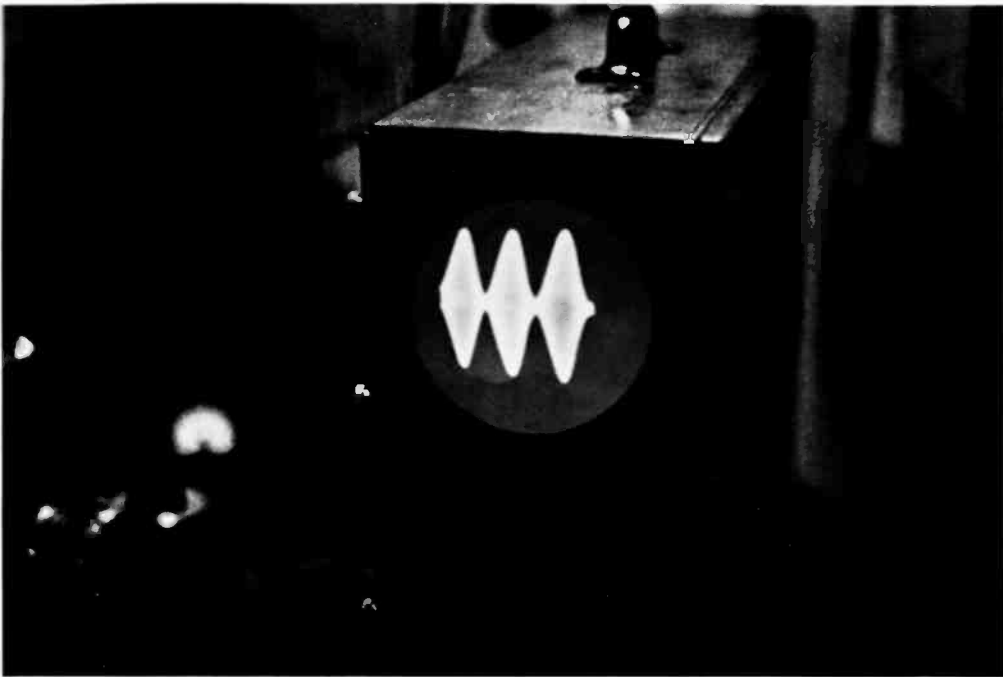
9. The model transmitter is sent to another building, removed from the rest of the plant so that its operation will not interfere with tests and measurements of a sensitive nature being made in laboratories. Power is applied and careful checks are made on the efficiency, fidelity, ease of operation and reliability. If improvements are discovered at any point of the procedure, they are incorporated in the design.

10. Appearance is not important at this time, and front panels are usually omitted, being replaced with wallboard for safety. The equipment is fed into a dummy antenna simulating an actual antenna. Tests on the model often last several weeks and after the engineer is satisfied that every detail is correct, manufacturing drawings are completed for use of the factory.



8. Handwork by skilled artisans is an essential operation in the preparation of the model.

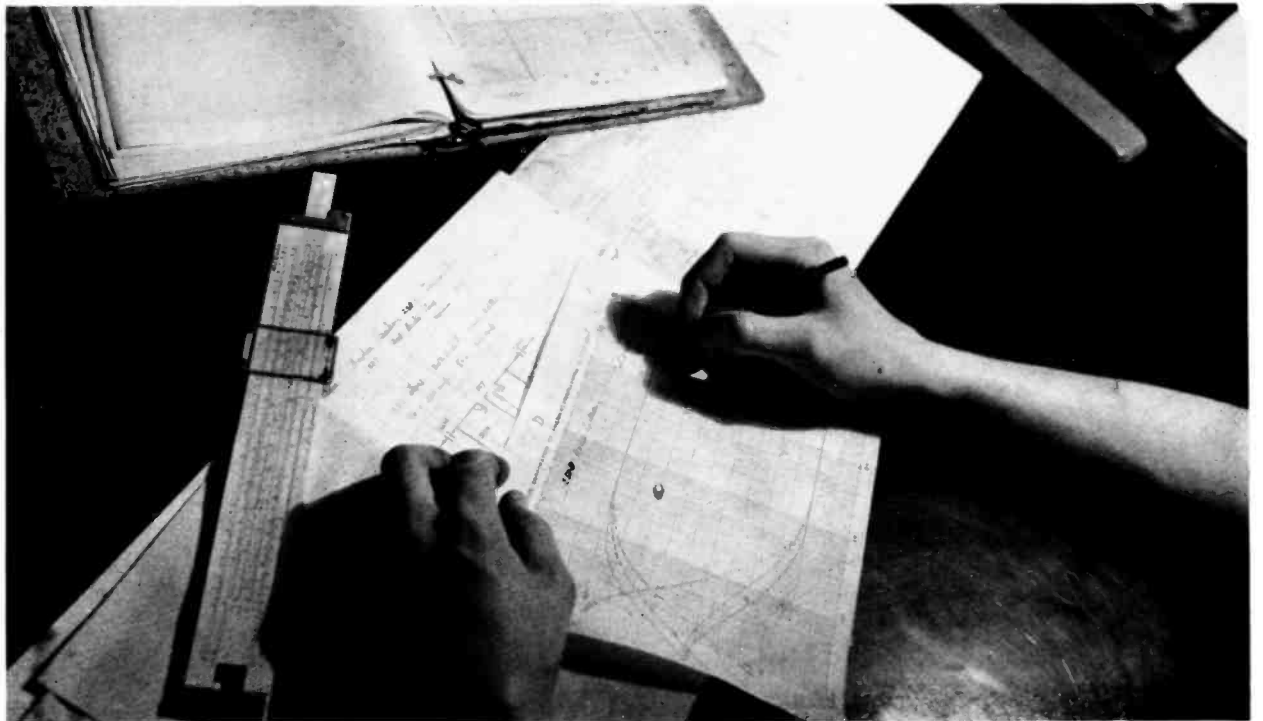




## COMPLETE DATA ON MODEL INDICATES PERFORMANCE

11. Laboratory measuring equipment including oscillographs, wave analyzers, low distortion oscillators and other apparatus provides complete operating data on the model transmitter

12. Curves and notebook data are carefully preserved for reference. The slide rule, the curve and the notebook form symbols of the work of engineering.



13. Model work completed, the draftsmen start manufacturing drawings. Drafting is often carried out in the building where the model is set up so that actual measurements can be made to supplement sketches from which the model was constructed.



# VIEWS OF THE FACTORY CAUGHT BY THE CAMERA

The factory begins work. Simultaneously in many shops, work begins on the components of the transmitter. Detailed drawings are supplied for each component and carefully planned production reduces manufacturing costs.



14. Rust protection is important. Frames, metal panels, shields, all are rust-proofed before applying final finish. Here in the copper plating shop, components are receiving a protective coating.

15. Tool work on other units progresses in RCA'S well equipped shops. Precision workmanship and engineering supervision assure proper operation of the complete transmitter.



## LIKE MEN IN ARMOR, WELDERS AND SANDERS WORK



16. In the factory workmen at machines and men encased in masks fabricate the parts. Welding of



frames produces a sturdy construction, well able to withstand transportation as well as to support the



units of the equipment. Sandblasting of frames and panels assures a clean, firm base for lacquer finishes.





17. Production lines are not used for transmitter manufacture but are limited to mass production of units such as automobiles, radio receivers or refrigerators. Most parts for the 250-D are hand fabricated by skilled machinists.



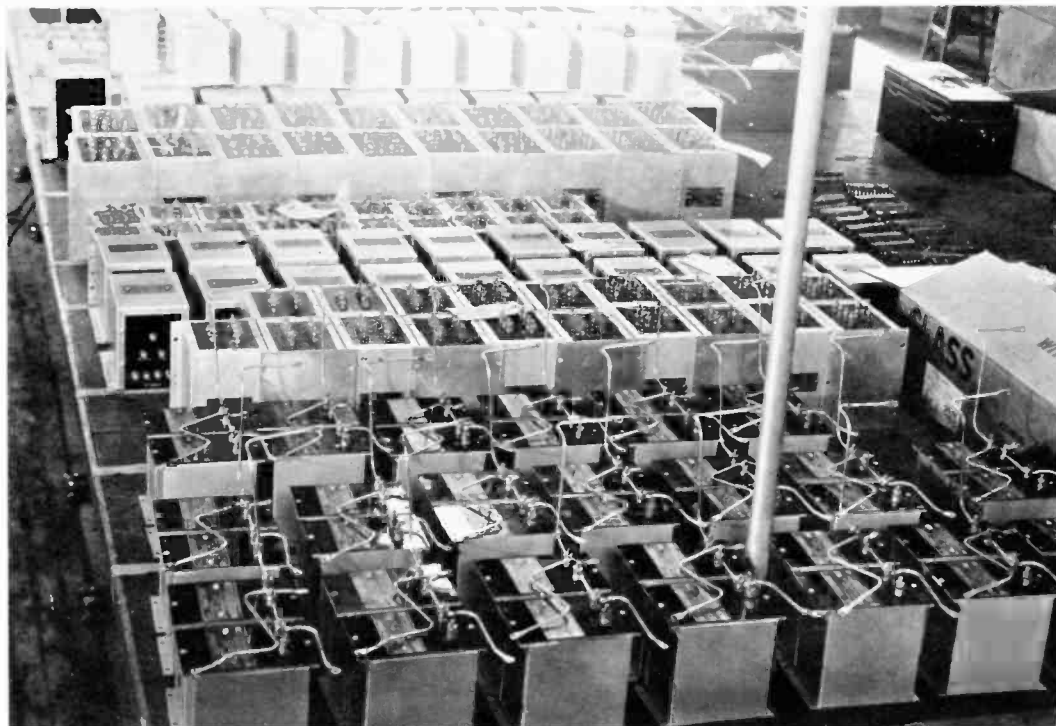
18. Other components manufactured in RCA'S plant begin to arrive in the factory awaiting assembly. Faradon condensers, built by RCA and used generally in all



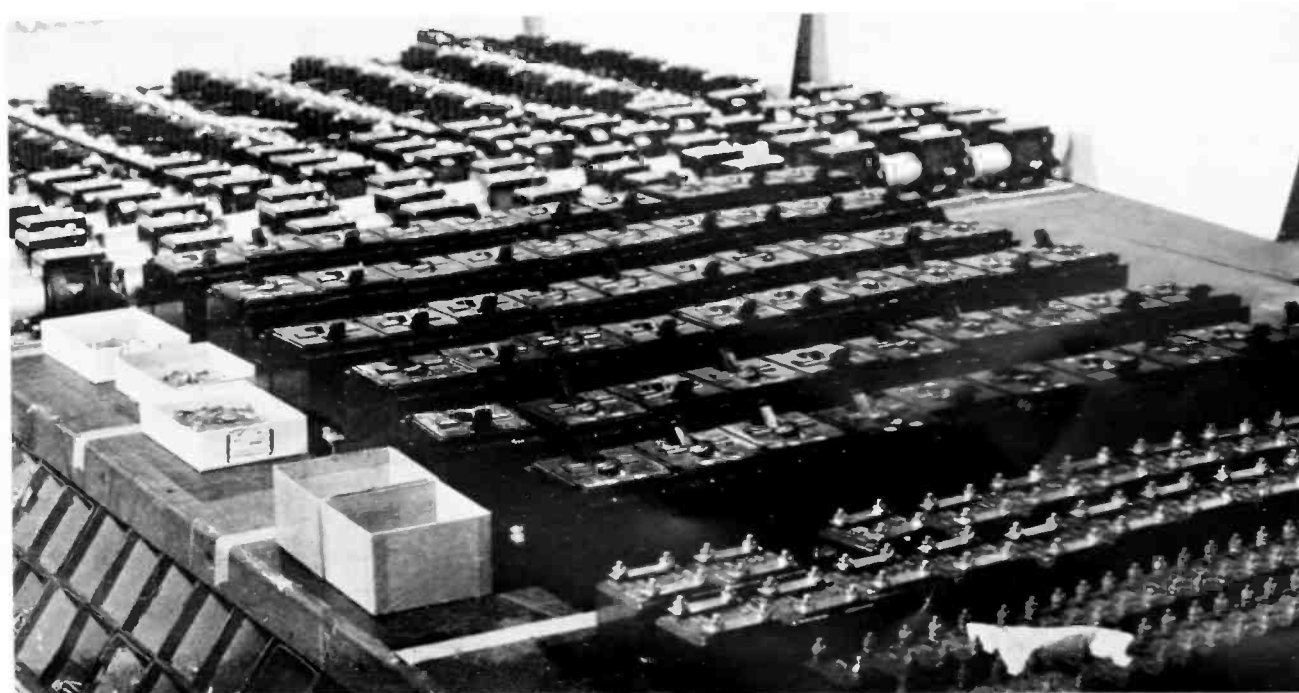
types of transmitting equipment are important circuit elements. Types of condensers like these go into the 250-D.



19. Raw materials and parts manufactured by specialists are now ordered by the purchasing department. While RCA makes most radio parts in its own factory, standard contactors, resistors, meters and similar components are ordered on rigid specification. Above, the purchasing agent goes over the parts list with a manufacturer's representative.



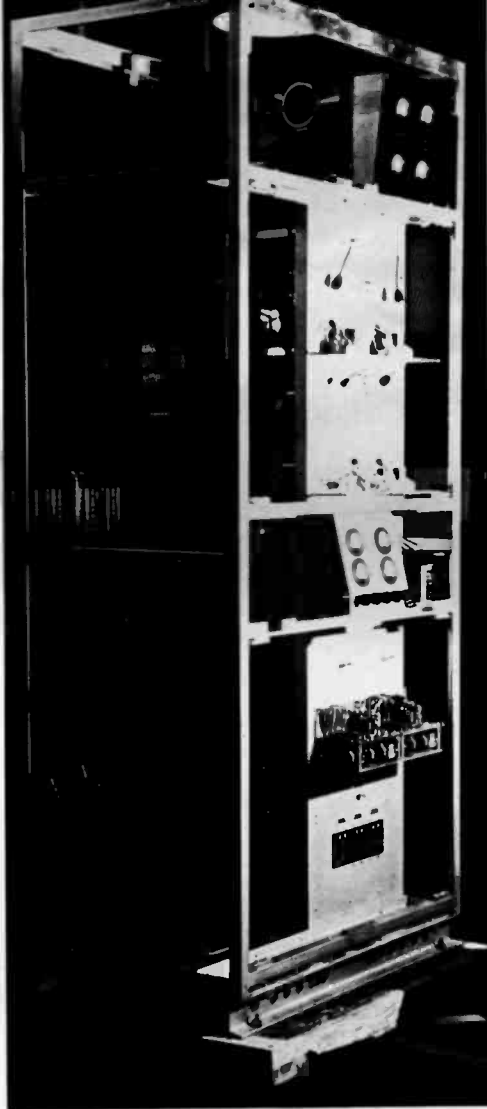
20 Before assembly can start all of the material needed must be in the factory. Thus parts made in the various shops in the RCA plant and components from outside manufacturers begin to arrive and are piled on benches for mounting in the transmitter frame.



21. Contactors, transformers, switches, relays and all of the materials have now been delivered to the factory. Parts received from the outside have been carefully inspected and tested in a special laboratory to make sure that specifications have been met.

## THE TRANSMITTER BEGINS TO TAKE SHAPE

24. After a final spray of aluminum paint on interior metal surfaces, the components are bolted in place on the chassis.

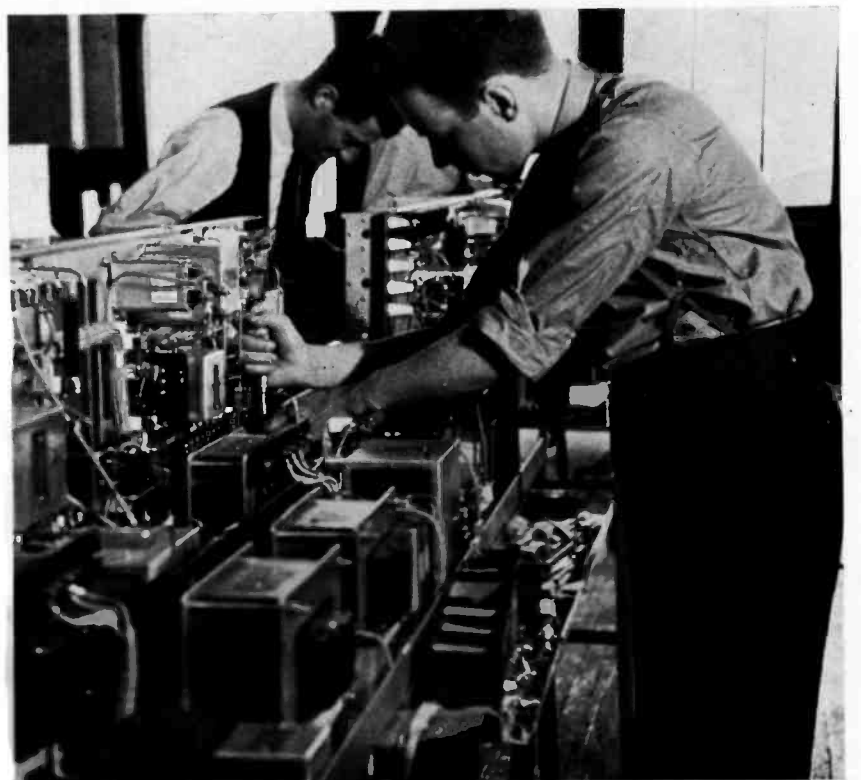


25. The vertical chassis assembly of the 250-D simplifies adjustment and maintenance by rendering every portion accessible. The two L shaped chasses, with parts assembled, are bolted together, mounted in frames, and wired. The

outer cabinet is for protective and decorative purposes only. The inner frame bears all of the stresses just as in modern skyscraper construction. At the left, the r.f. chassis is in the frame, on the right, both are in place.



22. Mechanical mountings are completed first as this view of the radio frequency chassis indicates.



23. Skilled wiremen next take over the equipment, put the cable forms in place and insert the other individual connections.



## PERFORMANCE TESTS CHECK TRANSMITTER OPERATION

26. Construction completed the transmitter, less outer shield and doors, is moved into the test cage. Here wiring is checked, and the equipment is operated with full power and with reduced power (to check 100 watt service) into a dummy antenna. Performance is checked with elaborate measuring equipment. Complete fidelity curves are made on each transmitter.



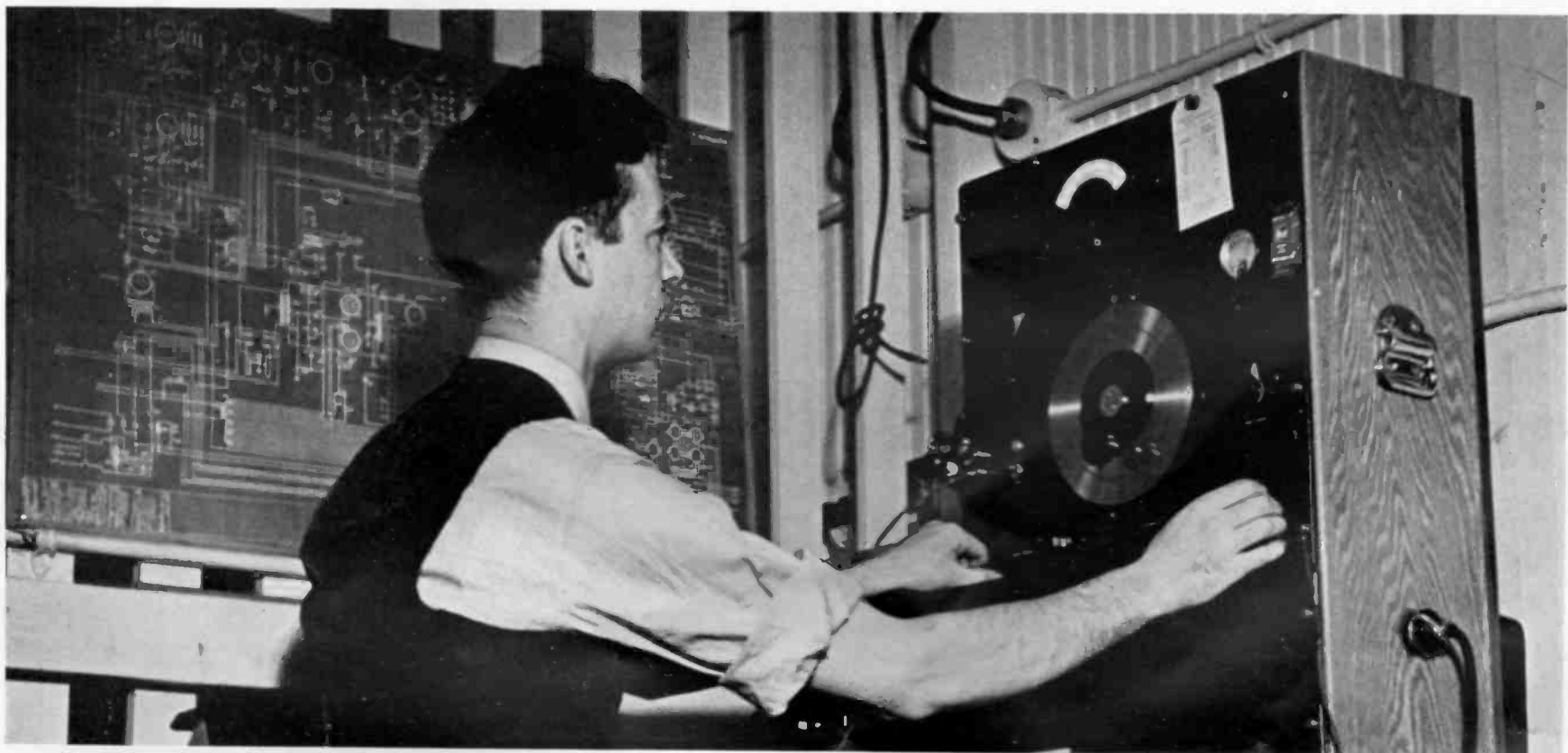
27. Individual test booths with separate measuring equipment permit several transmitters to be tested at once.



28. A power change switch is useful for changing from 250 to 100 watts for stations operating with reduced power at night. Correct functioning of each device is carefully checked.



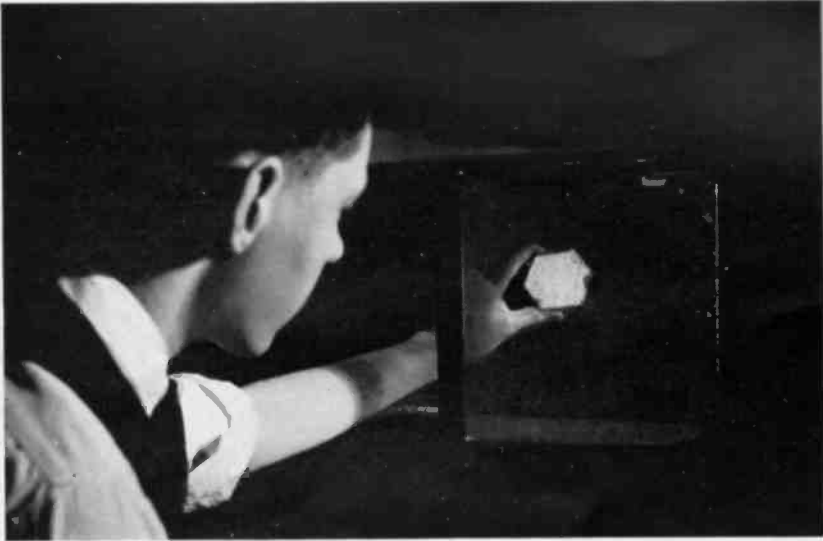
29. Transmitters are tested with actual tubes from stock, not selected tubes. Final measurements are made using the tubes sold with the transmitter.



30. Wave analyzers are employed to measure distortion and to make certain fidelity of transmission is well within the rigidly specified limits.

## "V" CUT CRYSTALS ASSURE FREQUENCY STABILITY

In the meantime, the V-Cut crystals are being made, ground to the frequency of the particular station ordering the transmitter. The natural mother crystals, received from Brazil, are carefully examined for regularity of crystal formation.



31. The polariscope aids in examining all quartz to determine whether crystal structure is suitable. "Twinning" as shown in the above illustration renders the blank unsuitable for use.



32. The mother crystal shown exhibits "needling," which makes it unsuitable to meet RCA's specifications.



33. Thickness gauges indicating ten-thousandths of an inch aid in preparation of the quartz for final lapping.



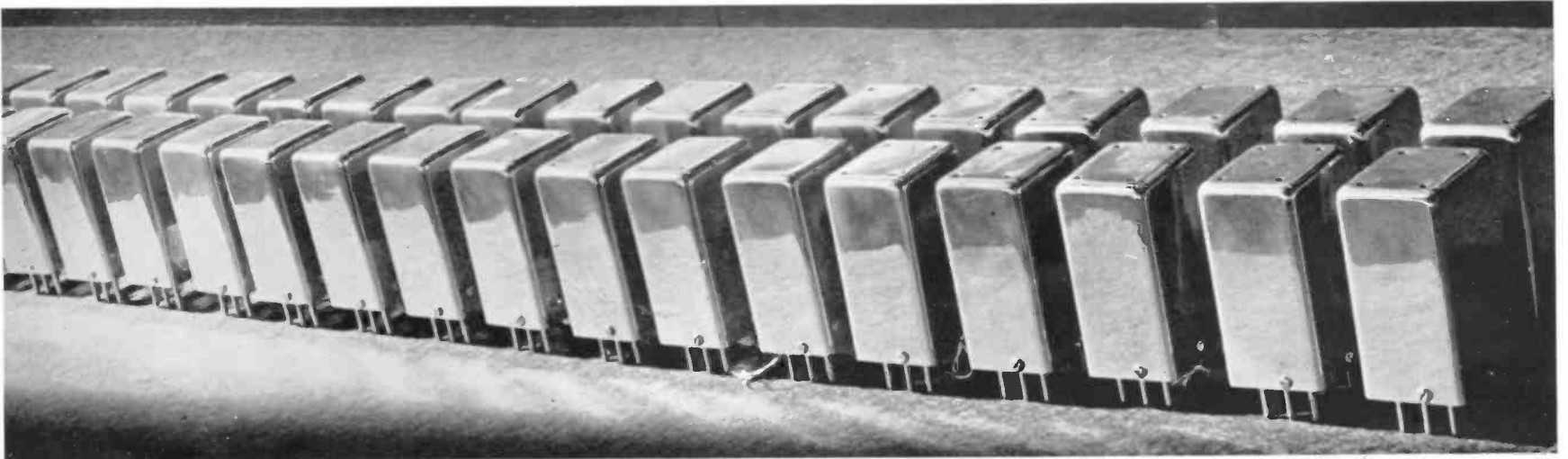
34. Grinding of blanks is carried out on special machines by trained workers.



35. The X-ray is used also for examination of crystals and study of crystal structure to insure reliable operation.



36. Holders must be carefully built. Metal electrodes are carefully lapped and polished to optically flat, uniform surfaces.



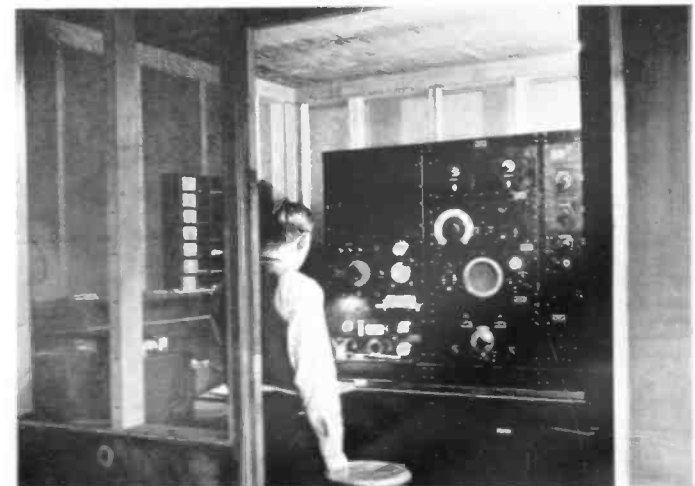
37. Crystal units contain the crystal, its holder, the heat chamber and thermostat. Two of these plug-in units are used in the 250-D transmitter. RCA V-cut (low temperature coefficient) crystals, heaters and thermostats provide stable, accurate control of carrier frequency.



40. Testing thermostats. This machine marks on a roll of paper whenever the heat is applied to the crystal oven. Eight heater units are tested simultaneously.

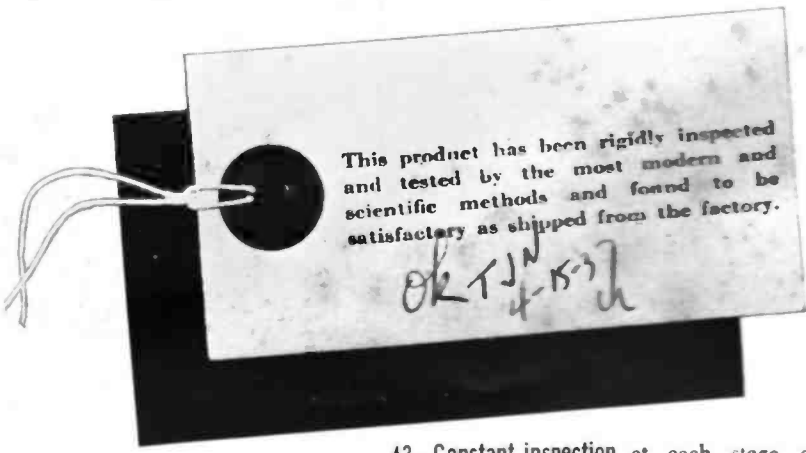


38. Interference patterns made by light falling on the lapped crystal as it rests against an optical "flat" assure flat plates.



39. Elaborate test equipment shown above in the shielded cage is necessary to check the crystal frequency as well as the electrical characteristics. Accuracy of this apparatus must be of the highest order.





43. Constant inspection at each stage of manufacture is added assurance of satisfactory performance. The final tag is fastened to the transmitter and the equipment is ready for packing.



41. Finishing side strips. Careful attention to details, hand rubbing of panels and style strips and improved lacquers assure a pleasing appearance of the equipment.



42. Completed and ready for final inspection. The 250-D is almost ready for packing.



44. Ready for shipment. Skilled workers crate the apparatus to avoid damage during transportation and to make for easy handling. The transmitter is delivered by

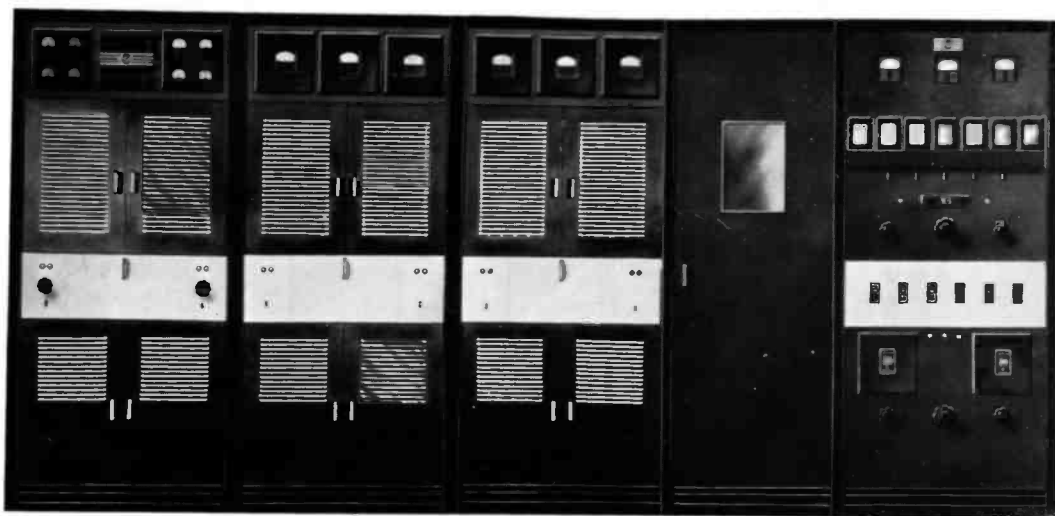
whatever method of transport the buyer desires. While careful packing is a small detail, it is important to the purchaser.



At WMBO in Auburn, New York, the 250-D is set up and connected to external wiring. RCA's Engineer, James Keachie assists Herbert J. House of WMBO in the final adjustments.



On the air and ready for a long broadcasting life. The completed transmitter is started on regular broadcasting service.



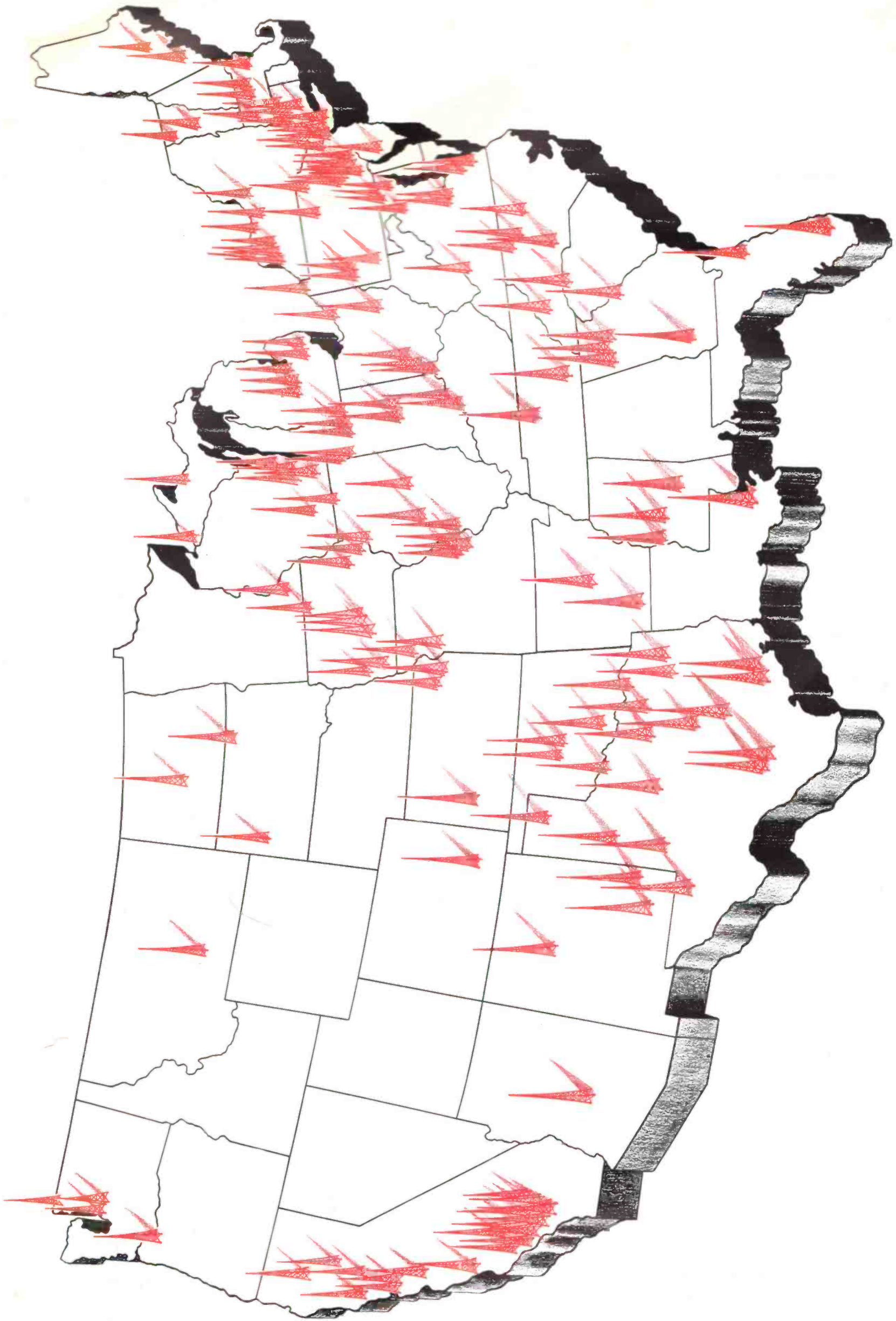
The new 5-D transmitter which also employs the 250-D as the exciter.

As shown above, the 250-D transmitter has now been completed and installed at WMBO. If the owners of this station should wish to increase power, they can add a standard 1000 watt amplifier to form the 1-D equipment shown at the right, or a 5 kw. amplifier to produce the 5-D equipment such as that illustrated above.



The 250-D may also be used as an exciter for 1 kw. equipment. Thus stations obtaining an increase in power may add to existing apparatus without discarding equipment.

From microphone to transmitter, RCA equipment is complete. Modern broadcasting stations are RCA ALL THE WAY—to assure themselves of the latest and most reliable broadcasting equipment.



Other RCA Broadcast Transmitters from 100 watts to 500,000 watts are located throughout the United States and abroad. Numbers of RCA Transmitter installations have increased rapidly, chiefly due to correct engineering design, economy in operation and satisfactory performance.





Many prisons are equipped with radio, and convicts are said to be enthusiastic listeners. Needless to say, travel programs evoke little response.



Scenes like this warm the broadcaster's heart. The number of listeners to any one set is indeterminate but every station hopes to pull groups like this.



Foreign listeners become more important. This member of the radio audience, seems to derive much enjoyment from the program.



The radio set manufacturer's idea of the radio listener is often like the above photograph.

## LISTENERS

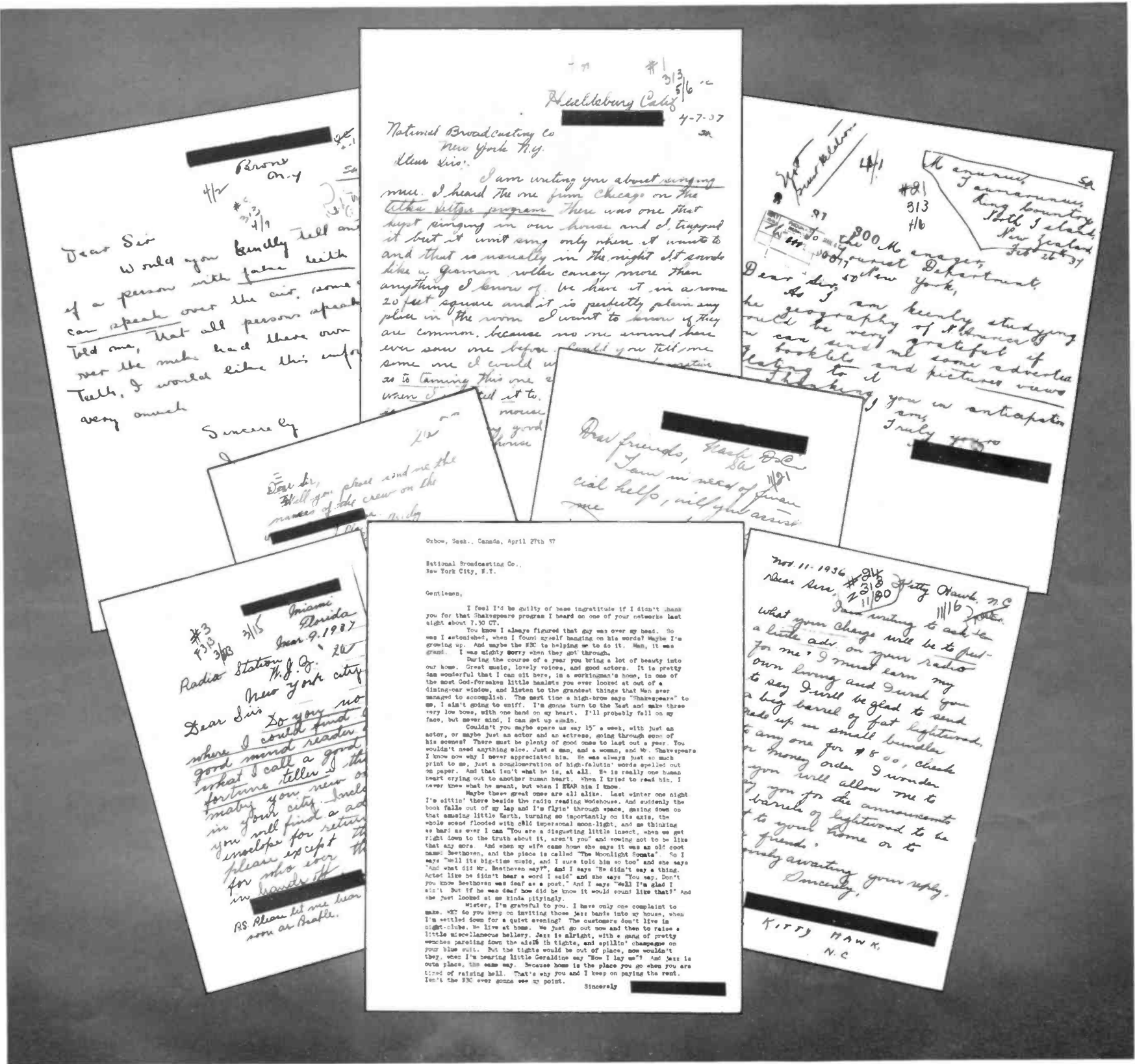
Broadcasting Stations exist primarily for the listeners. Skilled research bureaus constantly strive to classify the radio audience, study its habits, predict its likes and dislikes. *Broadcast News*, rushing in where angels fear to tread, presents views of listeners caught at the listening post.



Old as well as young enjoy radio. Broadcasters have the satisfaction of having brought pleasure and entertainment to millions. Old sets, such as the one on the right may still be found in existence occasionally.

# LETTERS FROM LISTENERS—

## A CROSS SECTION OF HUMANITY, WITH ITS TROUBLES, ITS PLEASURES AND ITS PROBLEMS



The problems of radio are not all of a technical nature. Listeners have personal problems which become radio problems through the simple method of placing the onus for their solution on the station. But among the letters received are many genuinely appreciative of the service being rendered their vast, unseen audience by the radio stations throughout the country. Above are shown a few interesting letters received by NBC.

# ALL BROADCASTING DEPENDS UPON TUBES

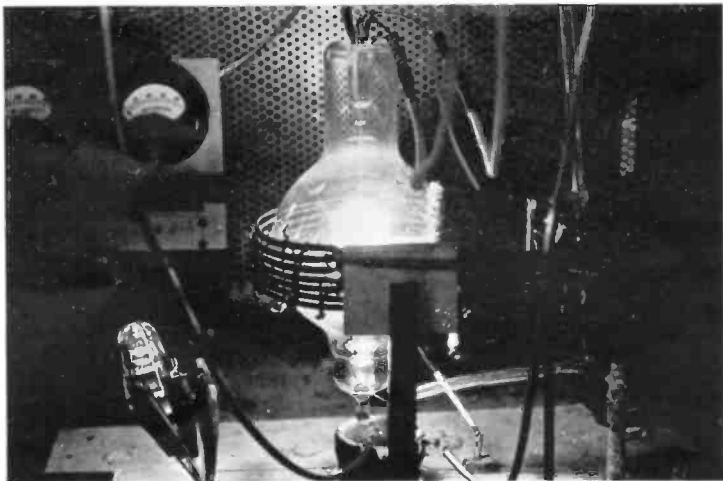
It is inconceivable that broadcasting could exist without vacuum tubes. The supplying of power tubes to broadcasting stations is one of the functions of RCA. Once tubes were non-uniform, handmade, like those shown at the lower right. Today, modern production methods and elaborate equipment enable tubes, such as the RCA-805 at the right, to be manufactured uniformly and reasonably.



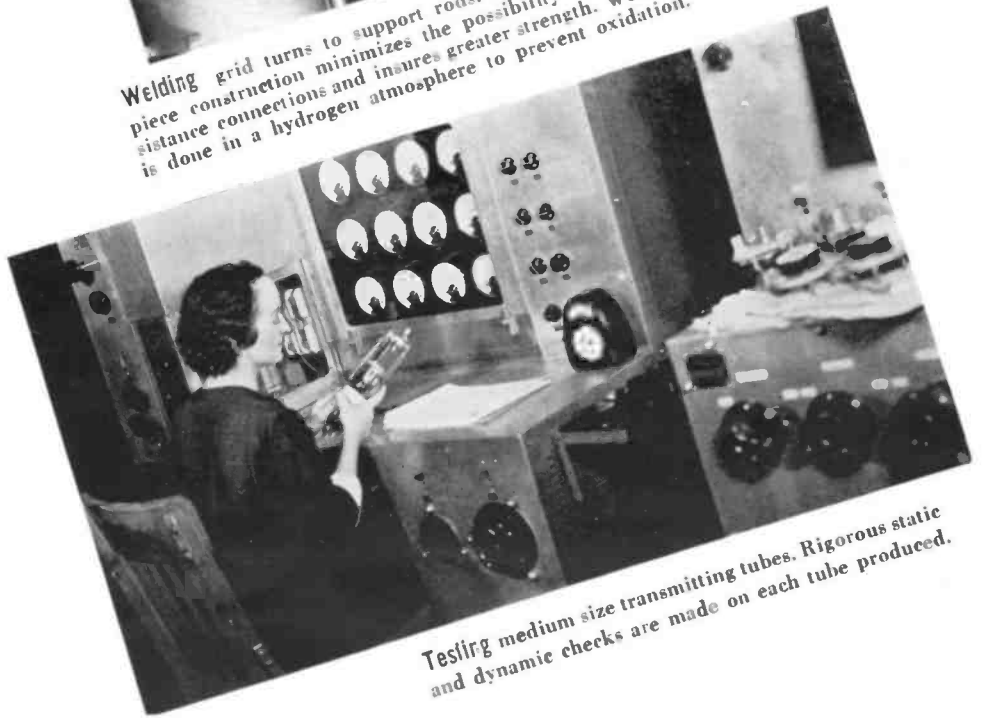
Inserting a heater cathode in the element assembly of an RCA 837. Great care is exerted in applying the active material to the cathode surface to retain exactness of the coated area and thickness.



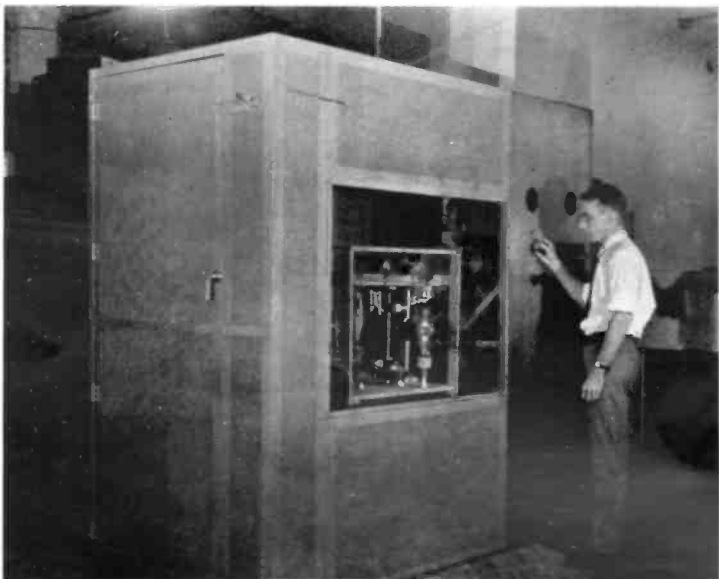
Welding grid turns to support rods. The resulting one-piece construction minimizes the possibility of high resistance connections and insures greater strength. Welding is done in a hydrogen atmosphere to prevent oxidation.



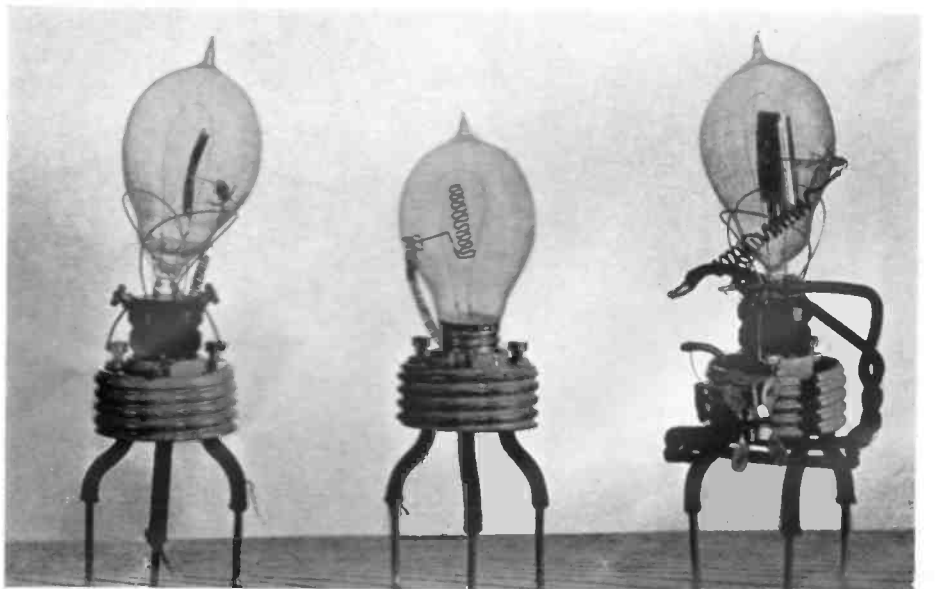
Exhausting a transmitting tube. During the process the elements are heated to release gas. In this picture the plate is operating at a temperature of about 2500° F. More than 16 kw. power is used in the heating of the metal parts.



Testing medium size transmitting tubes. Rigorous static and dynamic checks are made on each tube produced.

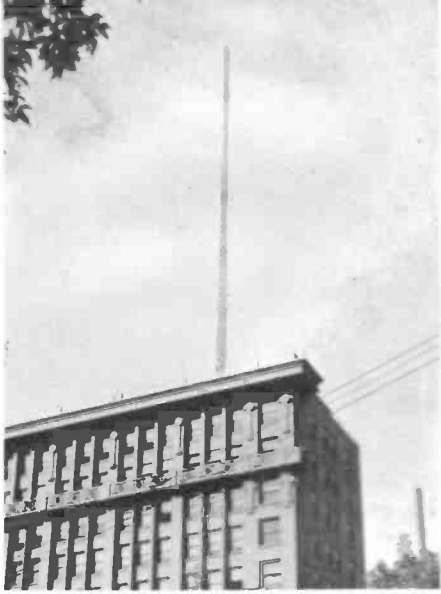


High frequency measurements on tubes provide valuable data on performance and are often the forerunners of important tube developments.



Early experimenters made tubes out of old lamps and other available parts. Such tubes were usually soft and no two had identical characteristics.





Above we find the antenna of station KTSM rising from the top of a city office building.



KARK is far removed from the city limits.



KTOK adopts a simple and pleasing design for its transmitter home.

## STATIONS HERE AND THERE

In the short span of 15 years many changes have been made in the method of housing transmitters. In earlier days any factory building or warehouse was considered quite good enough for the equipment in broadcasting. Today, throughout the country functional design is considered imperative.



Above, not alone in the buildings erected for transmitters is there a trend towards beauty but here at WKY we find landscaping which is extremely pleasing.



Above, KRBC uses a building of plain, almost severe lines as the station for its equipment.



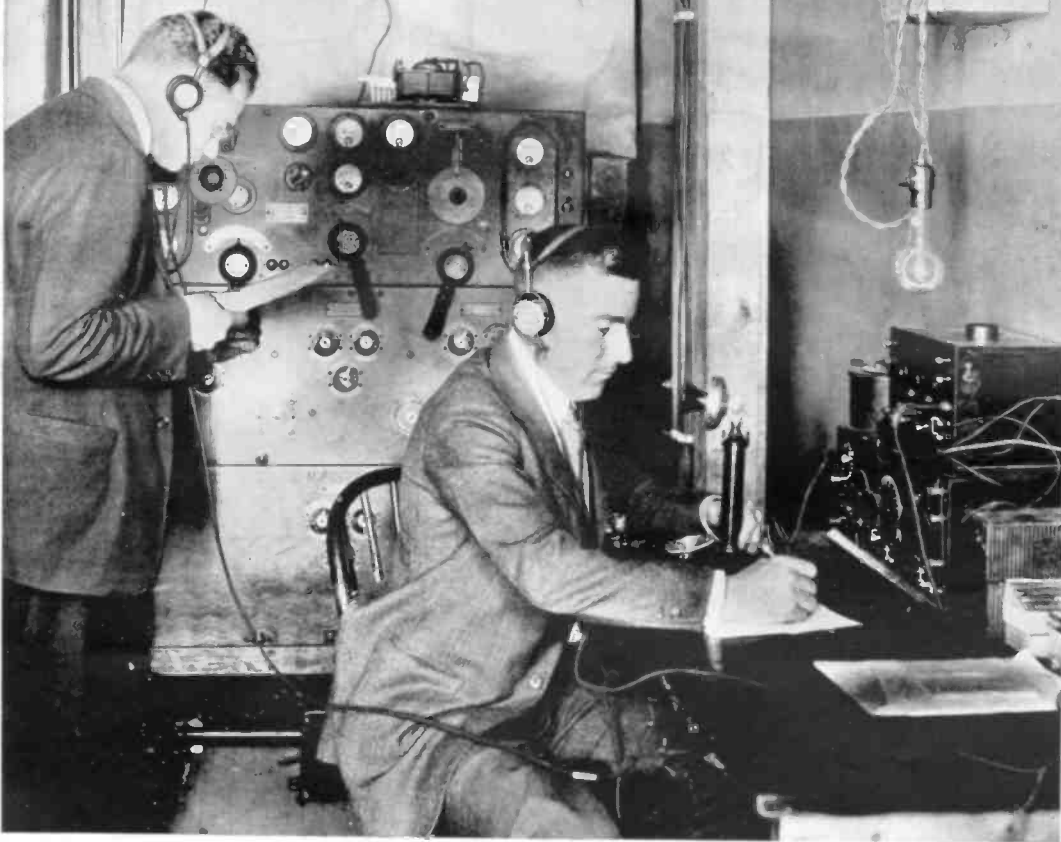
Above, WGST is decidedly modernistic in the construction of its transmitter house.



Left, WFAA with its modernistic home, beautiful grounds and antenna.

# SPEAKING

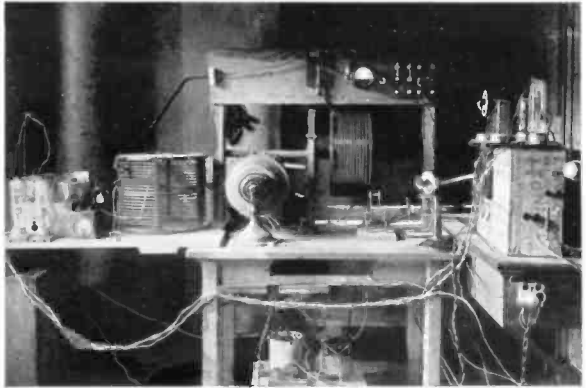
Radio communication is only about 40 years old, broadcasting, little more than 15. Photographs on this page indicate the equipment and methods used in the early days of wireless and of broadcasting.



RCA's first broadcasting station. A one-day affair used for broadcasting the Dempsey-Carpentier fight, located at Hoboken, N. J. Using an antenna tower which is still standing on the property of the Lackawanna Railroad. Station used in July, 1921.



An 1897 radio station complete with spark coil and coherer detectors.

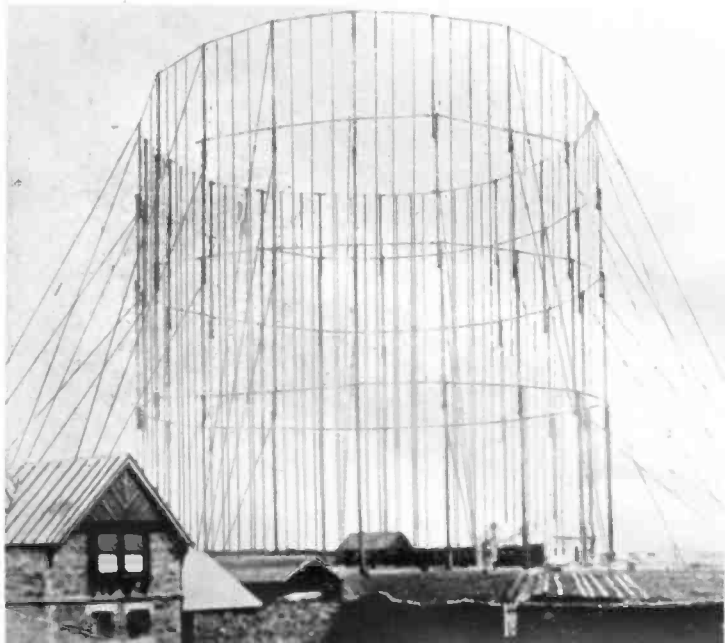


The predecessor of KDKA, Dr. Frank Conrad's transmitter located in his garage, which later became the first regular broadcasting station in the United States.



In the studios of WJZ, Newark, 1921, a reception room in the factory was converted into a studio for one of the early broadcasting stations.

An early antenna erected at Poldhu, England, for Trans-Atlantic communication in 1901. Unfortunately these towers blew down before the test, and a temporary antenna was actually used.

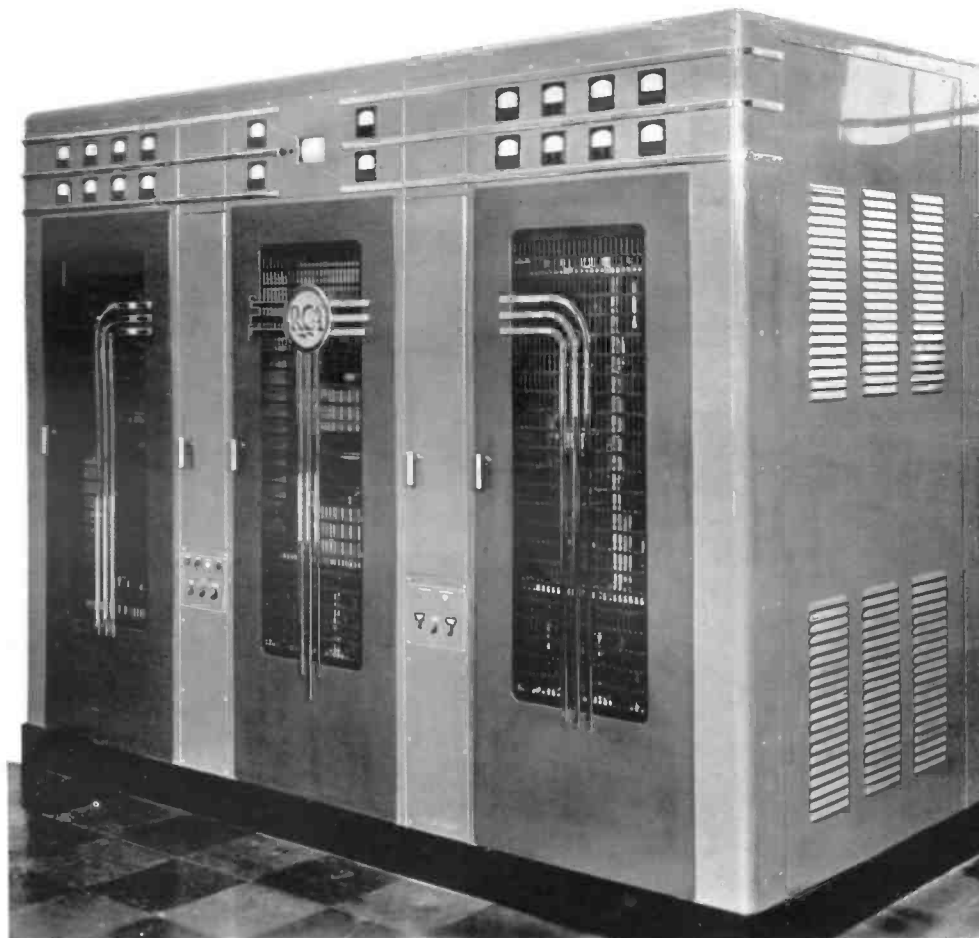


Later. Technique had developed to the point where sound effects were an important part of broadcasting. Note the varied methods of producing noise.



# OF PICTURES

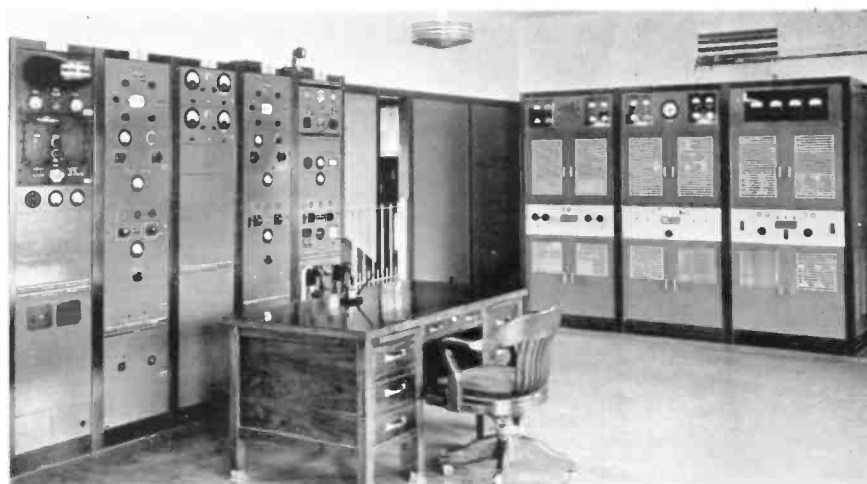
In contrast with old pictures are shown photographs of new apparatus and present methods of broadcasting. Advances during the 15 years of broadcasting have been far reaching.



A modern short wave transmitter. The 10KW RCA International Broadcast Transmitter at W2XE, Wayne, N. J. used for sending CBS programs abroad.



Two modern studio installations. Above, NBC's 8H, the largest studio in the world, in Radio City. Below, a CBS playhouse studio where invited audiences watch some of the larger programs.



A modern 5 KW transmitter installation at KOMO. Compare this with the transmitter pictures shown on the opposite page.

Sound effects the modern way. Records supplant many of the earlier devices and few of the old noise-making machines are necessary.

A modern antenna. Steel vertical radiators have improved efficiency; are used generally by broadcasting stations. The WABC antenna was one of the earliest vertical radiator installations.

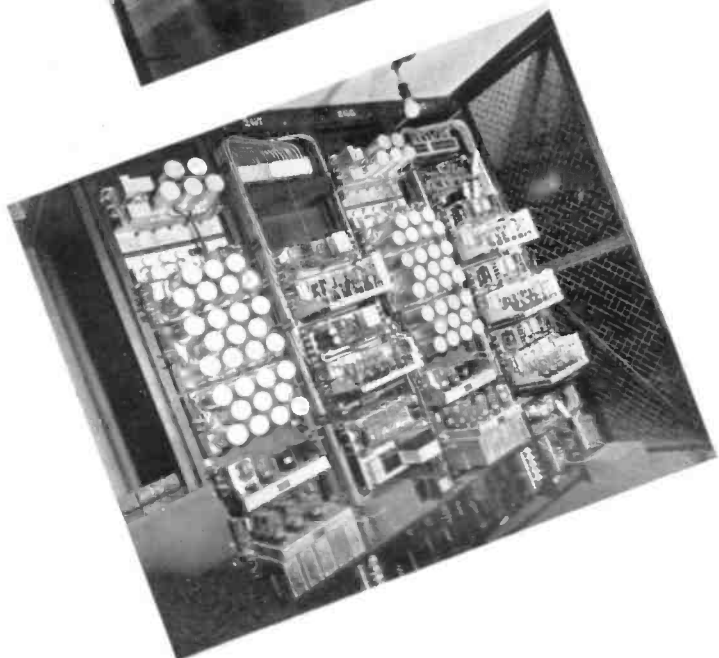
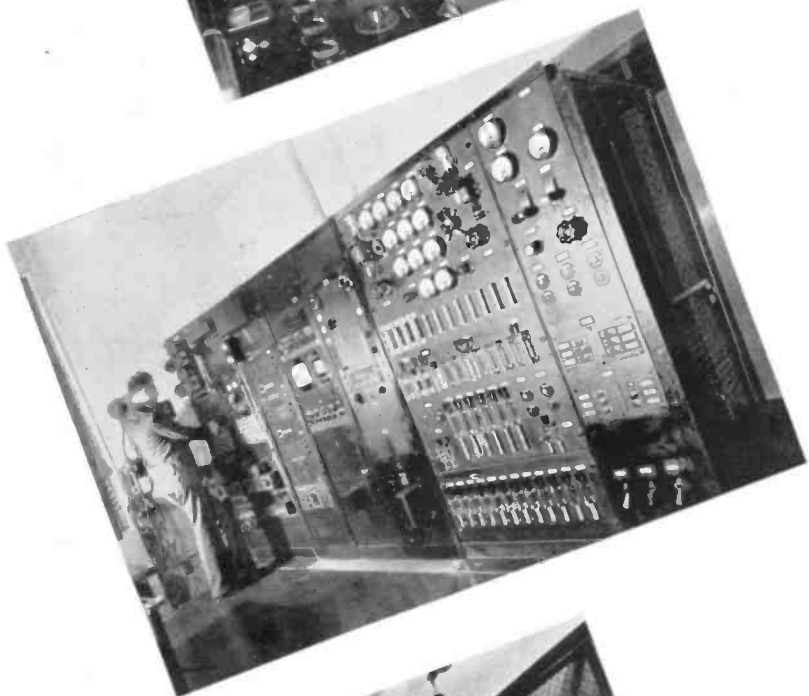




## IN THE FUTURE—

Television Broadcasting may someday be a reality. When, we do not know. Today, RCA engineers study apparatus problems at Camden while experimental programs sent from W2XBS to groups of observers enable NBC to study program and studio technique. At the left—the Iconoscope and the Microphone—symbols of television. Below, left—the television control room in Radio City; part of the Empire State transmitter control room; the rear view of a synchronizing generator panel.

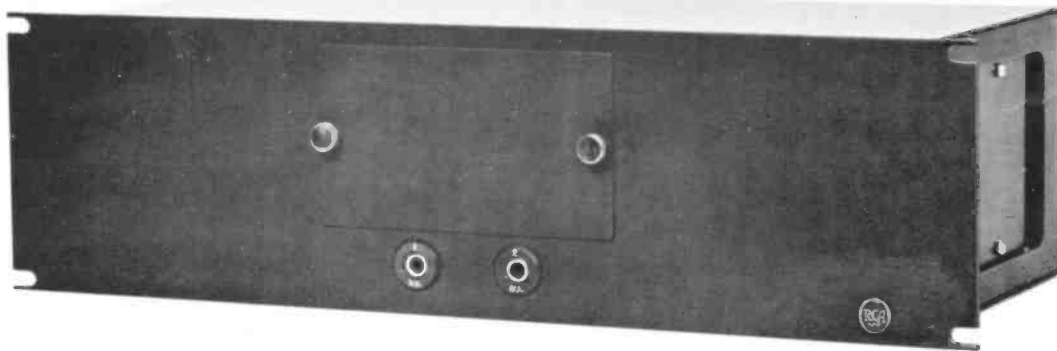
Below—transmitting a fashion show by television—the makeup man works behind the scenes in the studio.



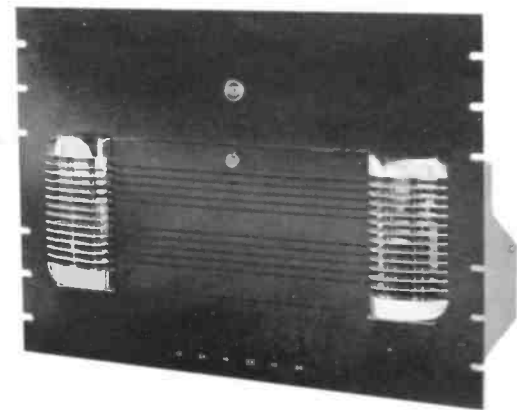
# A FEW OF THE RCA BROADCAST EQUIPMENT UNITS



**76-A** Speech input console features facilities for handling two studios, transcriptions and remotes, provisions for monitoring, selective talkback and auditioning.



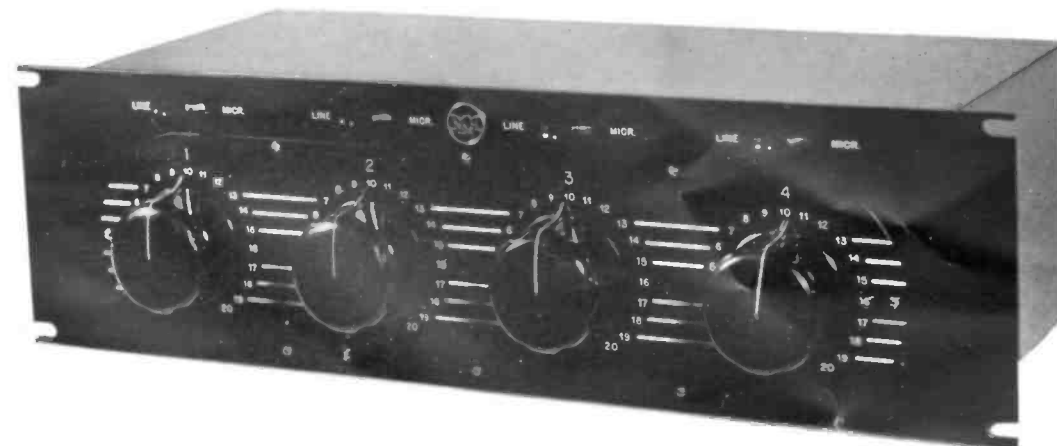
**41-B** Pre-amplifier—The link between the microphone and mixer. Used by networks and leading stations.



**41-C** 3-Channel pre-amplifier One of RCA's new deluxe units.



**40-D** Program amplifier features new peak reading volume indicator meter.



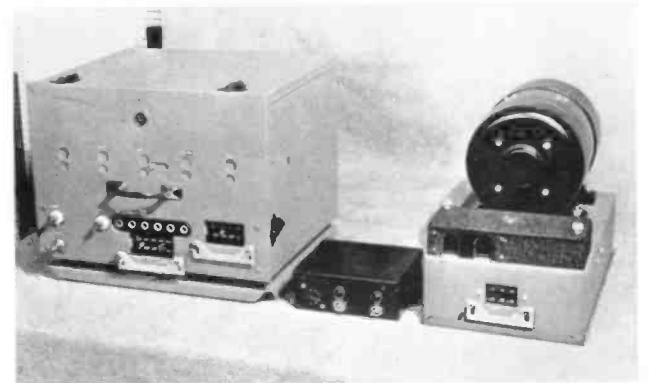
**46-B** 4-Channel balanced mixer with input keys, new, large, comfortable knobs.

RCA Broadcast equipment includes all of the apparatus necessary in the station from the microphone and studio equipment to the transmitter. Measuring apparatus of all types is available for the convenience of engineers. The only manufacturer to supply all of the apparatus used in the entire broadcasting system, RCA has adopted as an indication of its wide scope, the slogan, signifying the coordination of design.

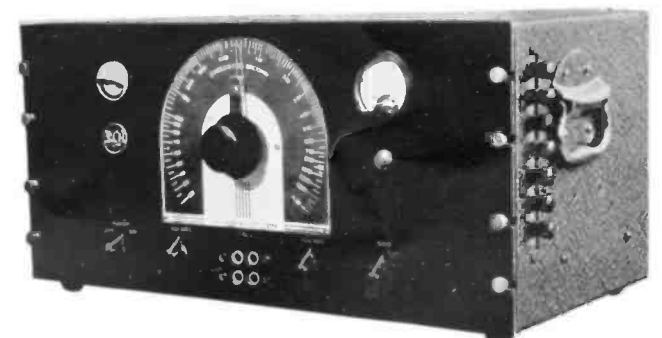
**RCA ALL THE WAY**



The **44-B** Velocity microphone—recognized by the broadcasters for its high fidelity and dependability.



A new mobile ultra high frequency transmitter of 15 watts power for broadcast pickups. High fidelity transmission, crystal control.



A new a.c. operated beat frequency oscillator with unusually low distortion for fidelity measurements. Type **68-A**.



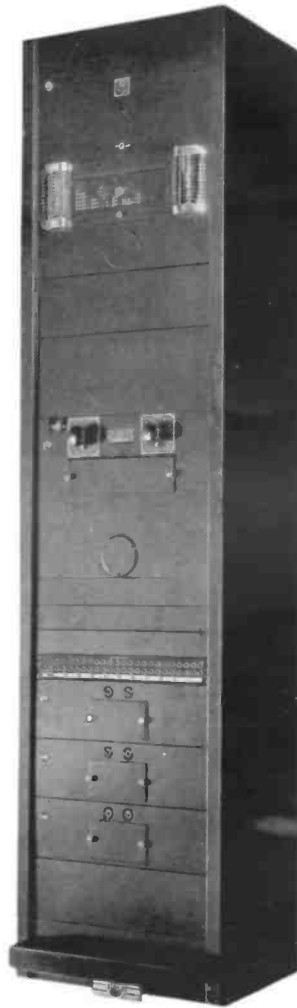
58-A Tri-amplifier An economical three-channel preamplifier complete with mixing and switching facilities.



74-B Junior Velocity Microphone —An extremely popular unit.



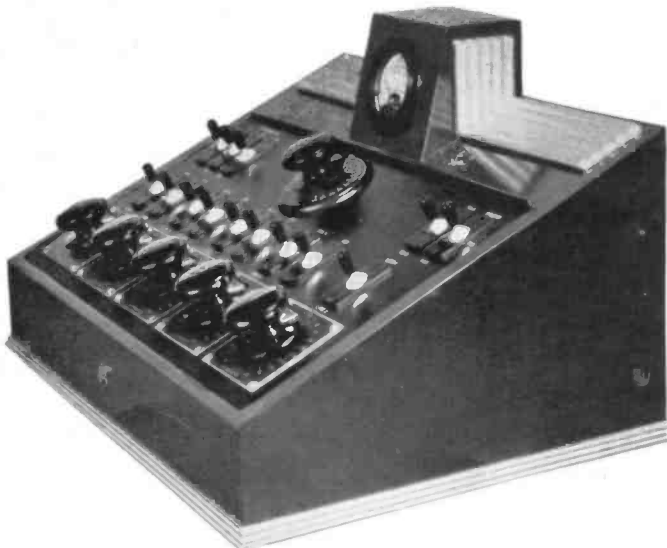
77-A Unidirectional Microphone makes any studio better.



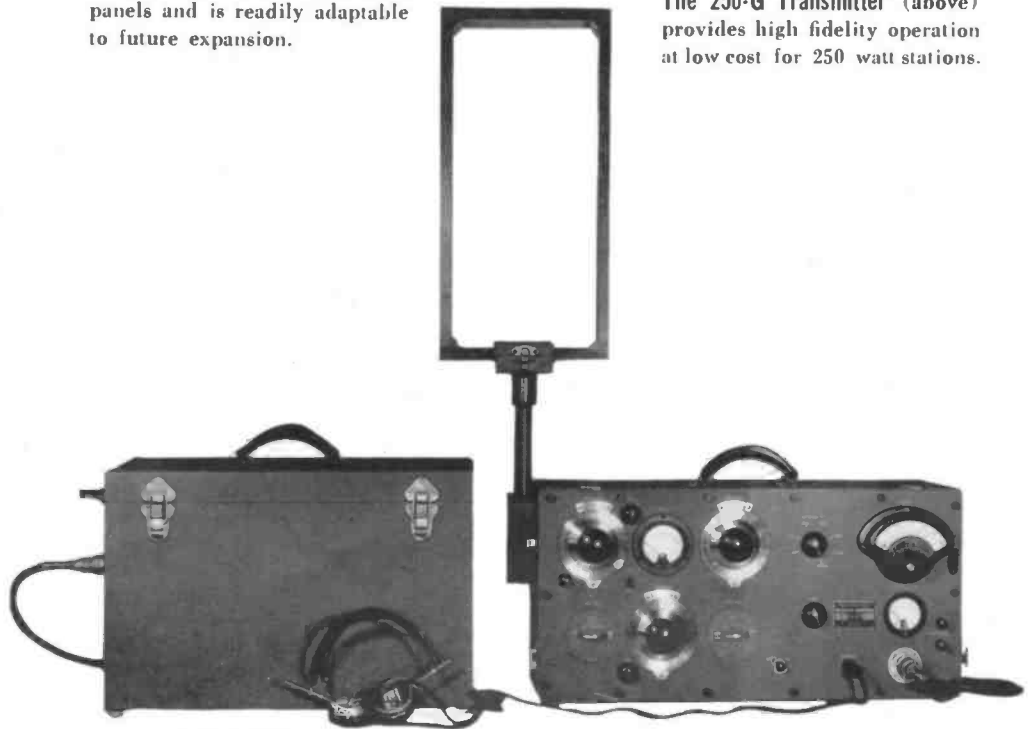
The 78- Speech Input (above) although extremely low in price employs standard broadcast panels and is readily adaptable to future expansion.



The 250-G Transmitter (above) provides high fidelity operation at low cost for 250 watt stations.



Typical operator's console This one is used with 78A Speech Input.



75-B Field Intensity Meter — Standard for the broadcasting industry.



69-A Audio distortion meter measures both hum and distortion over 50 to 7500 cycle range.



15-C Meter Panel—indirectly illuminated meters— easily replaceable lamps.





# Frequency Measuring Service



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Phone: HAnover 2-1811

Commercial Department  
San Francisco, Calif.  
28 Geary Street  
Phone: Garfield 4200

For Emergency Service Phone or Wire the Nearer Laboratory  
(Open Day and Night)

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Phone: Riverhead 2290  
W. U. Telegraph Only  
Riverhead, New York

Point Reyes, Calif.  
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High Fidelity Broadcast Transmitters, 100 watts to 500 KW

Ultra High Frequency Transmitters

Mobile transmitters and receivers

Microphones for Every Purpose

Microphone Stands

Mixers

Monitoring Amplifiers

General Purpose Amplifiers

Pre-Amplifiers

Program Amplifiers

Line Amplifiers

Portable Broadcast Amplifiers

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Transcription Turntables

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Sound Effects Equipment

Field Intensity Measuring Equipment

Beat Frequency Oscillators

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Transmitting Power Tubes for Every Purpose

