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# RADIO AGE

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OCTOBER

1949

Color Television

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through your  
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# RCA VICTOR



DIVISION OF RADIO CORPORATION OF AMERICA

World leader in radio... first in recorded music... first in television

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OVER

Direct-view picture reducing system of RCA's electronic completely compatible color television system in which three kineoscopes are used with two chromic mirrors to provide high-definition images in natural color.



Services of RCA are:

- RCA Laboratories Division
- RCA Victor Division
- RCA Communications, Inc.
- Marine Corporation of America
- National Broadcasting Company, Inc.
- RCA Institutes, Inc.
- RCA Service Company, Inc.
- RCA International Division

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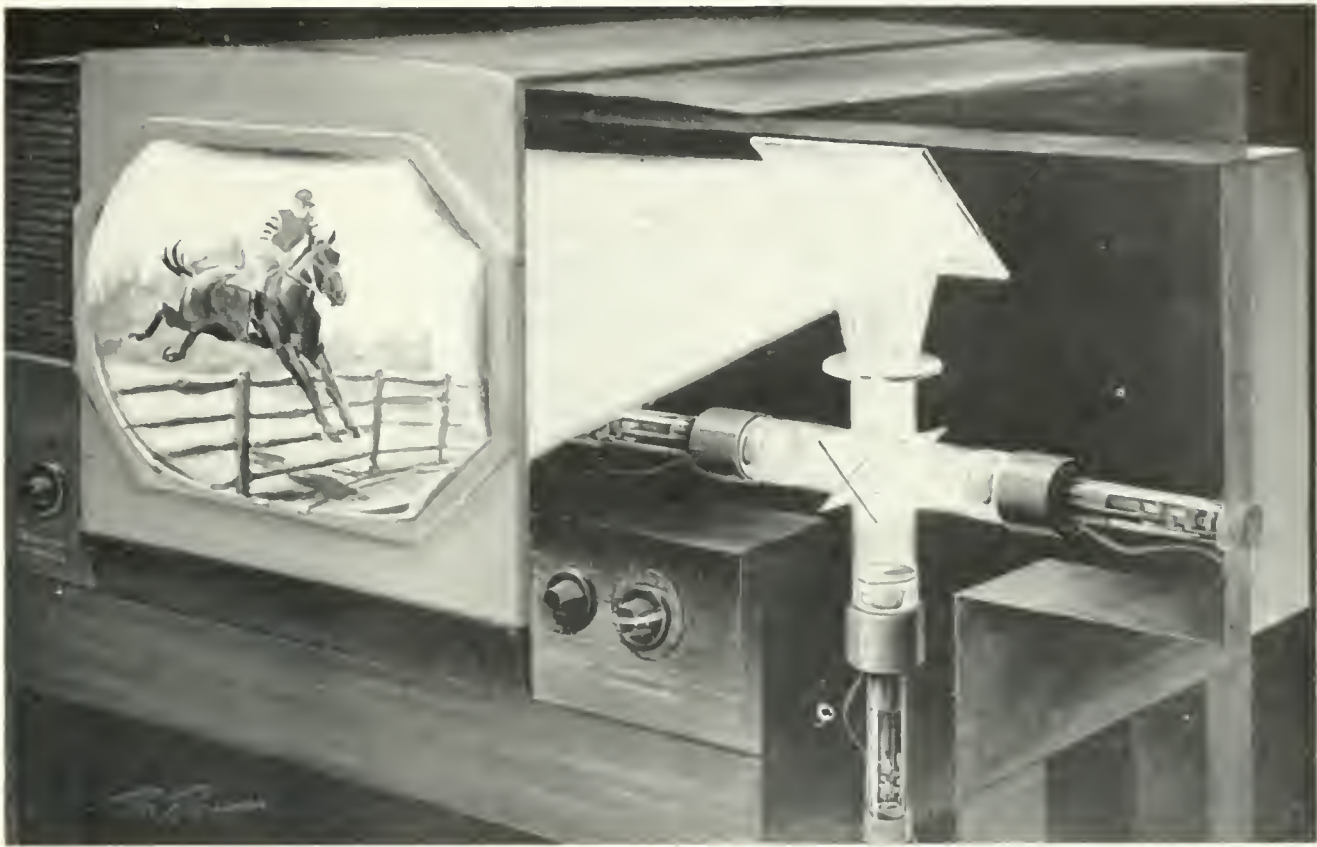
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MC ALLISTER TUG, FIRST CRAFT TO BE EQUIPPED WITH NEW RADIOMARINE SMALL, LOW-COST RADAR FOR HARBOR BOATS, FERRIES AND YACHTS, PASSES STATUE OF LIBERTY ON BEDLOES ISLAND.



COLOR CONVERTER USING SMALL PROJECTION KINESCOPIES AND REFRACTIVE OPTICS.

# New RCA Color Television System

*First Public Demonstration of Field Test Broadcast in Washington, D.C., Shows All-Electronic, High-Definition and Completely Compatible Color System Which Can Supplement Black-and-White Service Without Disturbing Present Sets.*

THE first scheduled program of color television broadcasts—a part of the Radio Corporation of America's field tests—was presented by RCA in Washington, D.C., on October 10 to demonstrate to the Federal Communications Commission and to the public the new RCA all-electronic, high-definition and completely compatible color television system.

The initial demonstration was presented for the official record of the FCC in its current hearings relating to the adoption of technical standards for color television service. This demonstration and sub-

sequent color transmissions, originating at the National Broadcasting Company's WNBW studios at the Wardman Park Hotel, provided an opportunity for representatives of the Government, the press, science, industry and the public to observe the color system which RCA believes to be the best foundation for satisfactory standards.

Continuing demonstrations are planned to show how this system can be the basis for the establishment of a color television service without obsoleting present black-and-white sets.

The demonstration program fea-

tured variety artists, radio and television stars, color motion pictures and color slides, all scanned by color cameras to demonstrate the effectiveness of the new RCA system in transmitting and receiving scenes and action in natural colors for the added enjoyment of the public.

A special entertainment program presented some of America's favorite entertainers, seen for the first time in color television, NBC television favorites Kukla, Fran and Ollie of television's top puppet show introduced other stars including Gladys Swarthout of the Metro-

[RADIO AGE 3]



LEFT: RCA COLOR CAMERAS OPERATING IN STUDIO OF WNBW, WASHINGTON, D.C. BELOW: NEW COLOR TELEVISION CAMERA WITH COVER REMOVED SHOWING DICHOIC MIRRORS (IN FRONT) AND SOME OF THE CAMERA'S ELECTRONIC CONTROLS.



politan Opera who sang the "Habanera" from Carmen, juggler Rudy Cardenas and the dance team of Fred and Susan Barry, Dickinson Eastham, understudy to the "South Pacific" star Ezio Pinza sang "Some Enchanted Evening" with Miss Swarthout. The commercial possibilities of color television were demonstrated by Sid Stone, the popular "pitch man" of Milton Berle's Texaco Star Theatre. A 19-piece NBC orchestra under Norman Cloutier provided accompaniment for the talented stars as they appeared in brightly colored costumes characteristic of their roles.

#### *Objective of RCA*

Speaking for the record, Dr. Elmer W. Engstrom, Vice President in Charge of Research, RCA Laboratories, declared: "RCA has believed from the beginning that television should progress from black-and-white to color just as soon as this was practical. Believing this, RCA has aggressively worked upon all promising systems of color

television and has earnestly directed its efforts to this end.

"RCA has believed that color television, when established, should be based upon a lasting foundation of proper standards, excellent performance, and should be developed in an orderly manner with regard to the black-and-white television service.

"RCA is pleased that its experimental work and engineering analysis provide the basis, and this we may now state with conviction, for high-definition color television with in six-megacycle VHF and UHF channels and compatible with the present black-and-white service.

"This system for the first time enables color television in 6-me to proceed upon a lasting foundation of proper standards, excellent performance and complete compatibility with existing receivers."

#### *Importance of Compatibility*

Dr. Engstrom pointed out that the RCA color television system is a compatible system. This means, he explained, that present television

receivers can receive color programs in black-and-white without any modification. Also, when a broadcaster shifts from black-and-white transmission to color transmission, the viewer of an existing black-and-white receiver is unaware of the shift. On the other hand, a viewer of a new color set, receiving programs in color, will, when the broadcaster changes from color to black-and-white transmission, see black-and-white pictures without making any changes in his receiver.

"The question of compatibility is of great importance not only to the present owner of a black-and-white receiver, but may very well be fundamental to the economics of a color television broadcasting service," said Dr. Engstrom. "In considering the public interest, it is necessary to take into account these economic factors, because the public cannot be served unless the broadcasters are able to render a commercial service.

"With a compatible system a broadcaster first starting color

schedules is automatically assured that he will retain his full potential audience on all the receivers in his service area, both black-and-white receivers and new color receivers. The economics of the television broadcasting industry appear to be such that regular color broadcasting service might be seriously delayed if the broadcaster must sacrifice circulation, and therefore revenue, in order to provide color transmissions.

"With a fully compatible system, however, the broadcaster can change at will, either from color to black-and-white or the reverse, without disturbing the viewers of either the existing receivers or color receivers, and without requiring adjustments to either type of receiver. This means no loss of audience at the start or later, which will no doubt be an important factor for some time, because it is probable that many programs will be transmitted in black-and-white even when color becomes an established service."

With appropriate production design, Dr. Engstrom declared, RCA believes that new color receivers of reasonable cost, practical to install, and simple to operate can be made available by the radio industry. He pointed out that economies and price reductions have been achieved in black-and-white sets and similarly it may be expected that economies and price reductions will be experienced in color receivers as demand and quantity production develop.

#### *Adapting Sets to Receive Color*

Existing black-and-white television receivers may be converted to receive color pictures by various methods in the RCA color system, Dr. Engstrom said. He described these methods as follows:

1. By using a separate converter unit containing appropriate electronic gear and picture tube viewing arrangement of a ten-inch diameter size.
2. By substituting a new projection unit for the cathode ray tube in the black-and-white set.
3. By adding one tube to the cathode ray tube in the black-and-white set and changing the three-color signal to a two-color signal

to be viewed on the two-cathode-ray-tube combination.

#### *Scope for Future Improvement*

"In a medium of such tremendous social and economic impact as color television," continued Dr. Engstrom, "RCA believes that it is vitally important that the system adopted be based upon such principles that its future improvement is unhampered. The RCA color television system provides this scope and flexibility.

"It is the belief of RCA that this new system provides for the first time a sound basis for bringing color television service to the public, as well as full scope for the continuing development of color as the art progresses, without involving obsolescence of present-day black-and-white receivers. RCA color is a complete departure from mechanical color and the rotating color discs and moving parts which have characterized all the mechanical color systems invented since 1925."

#### *Equipment Used in Demonstrations*

Dr. Engstrom said that the RCA color television equipment used in the demonstrations before the FCC and others was developed at RCA

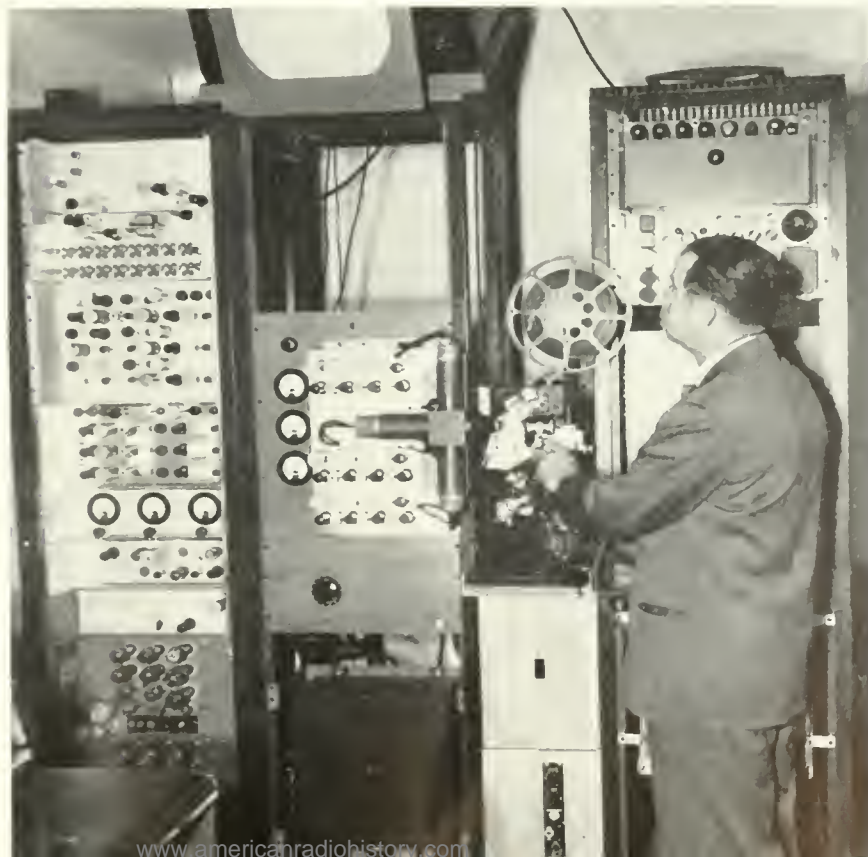
Laboratories, Princeton, New Jersey. It consisted of two cameras for live subjects in the studio, one camera for color motion picture film, and one camera for color slides. There were two color monitors and a control-room console. Color pick-ups also were viewed in the studio on a specially-built receiving unit, designed with 16-inch tubes.

This studio equipment not only provides ample flexibility for current operations, but has the necessary elements for conducting the continuing color broadcasts planned by RCA.

The WNBW transmitter used in the demonstrations operated on Channel 4 of the assigned standard black-and-white television band.

Color receivers and black-and-white receivers for the demonstrations were installed at the Washington Hotel, two miles from the transmitter. Since the RCA color system is compatible, RCA engineers pointed out that the transmissions in color did not interfere in any way with the regular black-and-white service of WNBW. In fact, any owner of a standard television receiver in Washington and surrounding areas was able to view

THE 16-MM. COLOR MOTION PICTURE PROJECTOR WHICH IS ONE OF THE UNITS OF THE RCA COLOR TELEVISION SYSTEM AND, AT LEFT, THE ELECTRON SAMPLER WHICH TAKES 3,800,000 SAMPLES OF EACH COLOR A SECOND.





STUDIO CONTROL UNITS OF NEW RCA ALL-ELECTRONIC, HIGH-DEFINITION COMPATIBLE COLOR TELEVISION SYSTEM AS INSTALLED AT NBC STATION WNBW IN WASHINGTON. RAY D. KELL, HEAD OF THE TELEVISION SECTION, RCA LABORATORIES, IS OPERATING THE MONOCHROME MONITOR.

the demonstrations in black-and-white with full detail.

#### *New Field-Type Color Camera*

An increasing number of color receivers is to be made available by RCA for field testing to obtain technical data, service experience and user comment and reaction, Dr. Engstrom reported. He also reported that RCA has started development of a field type color camera and associated apparatus. This is expected to be ready next spring and will then be added to the field test set-up. This field camera will use a new camera tube which will greatly reduce the size of the camera itself. A mock-up of this camera and an operating sample of the camera tube were displayed during the demonstration.

#### *How the RCA Color System Works*

Briefly, as Dr. Engstrom explained, this is what happens when

the RCA color television system goes into action:

The color camera in the studio is equipped with three separate tubes. Each of these pick-up tubes, equipped with an appropriate color filter, receives one—and only one—of the primary colors, which in television are *red*, *blue* and *green*. In transmitting a color picture, these colors are electronically “sampled” in rapid sequence and combined. The combination is then transmitted as a unit over a standard television transmitter.

At the receiving end, the single television signal is fed to an electronic arrangement which is the inverse of the sampler at the pick-up. The combination is separated and a signal representing each color goes to a tube in the receiver which reproduces a picture in that particular color. The three separate colors are then viewed simul-

taneously as a single, complete color picture.

One of the fundamental characteristics of the RCA system is the application of “time multiplex transmission,” which has been adopted and applied to television from the art of radio telegraphy. Other innovations are the “electronic sampler” and “picture dot interlacing.”

The electronic sampler, which is described as a new and outstanding engineering development, functions with microsecond precision in sampling the colors. From the sampler the signals, representing the three primary colors, are fed to an electronic combining device. Standard synchronizing signals from the synchronizing generator are also applied at this point, and the principle of “mixed high frequencies” is also utilized.

Each color is sampled 3,800,000 times a second—for the three colors



a total of 11,400,000 samples a second. The green signal is sampled and less than 9 hundred-millionths of a second later the red is sampled, and then the blue. This means that the signals of each color are transmitted at an approximate rate of one every four millionths of a second. When viewed on the screen of a receiver the recurrence of the signal is so rapid that the color appears to be constant—giving a high quality picture without flicker or color breakup.

The three color signals from the camera are combined in an "electronic adder" and then are passed through a band-pass filter. The output of this filter contains frequencies between 2 and 4 megacycles, with contributions from each of the three color channels. The signal at the output of the band-pass filter is known as "the mixed-highs signals." These mixed-high frequencies are fed to an "adder", which is already receiving signals from the sampler and from the synchronizing generator. The composite signal which comes out of a smoothing filter is applied to the modulator of the transmitter.

"We have demonstrated," continued Dr. Engstrom, "that the

mixed-highs procedure is successful and satisfactory in a wideband simultaneous system. In the RCA color television system the sampling process by itself is sufficient to carry high frequency components of each color signal so that when combined the resulting band width is below 4 megacycles (the sampling frequency determines the highest frequency which will be passed). However, the choice has been made to sample for the lower half of the video band (up to 2 megacycles) and to use the mixed-highs principle for the upper half of the video band, because this has technical advantages.

"The radio-frequency circuits, the picture intermediate-frequency amplifiers, the second detector, the sound intermediate-frequency amplifiers, the discriminator, and the audio circuits are identical with those of a conventional black-and-white receiver. The composite video and synchronizing signals from the second detector enter an electronic device called the 'sync separator,' which removes the video and sends the synchronizing pulses to the deflection circuits and to the sampling pulse generator. The sampling pulse generator utilizes the trailing edge of the horizontal synchronizing

pulse to actuate the receiver sampler in synchronism with the transmitter sampler.

"The signal from the second detector also enters the sampler. It is a composite signal. An electronic commutator samples the composite signal every 0.0877 microsecond, producing short pulses. The amplitude of each of these pulses is determined by the amplitude of the composite wave at that particular instant.

"The commutator feeds these pulses into three separate video amplifiers which in turn control three cathode-ray tubes or kinescopes having appropriate color-producing phosphors. This method for portraying the single color picture with three kinescopes in a projection system is similar to that which RCA has previously demonstrated to the Commission."

Dr. Engstrom summed up the characteristics of the new RCA color system as follows: (1) 6 megacycle channel; (2) Fully compatible; (3) 525 lines; (4) 60 fields per second; (5) Field interlaced; (6) Picture dot interlaced; (7) 15 color pictures per second; (8) Time multiplex transmission; (9) All-electronic.

STUDIO CONTROL CONSOLE OF THE RCA COLOR TELEVISION SYSTEM.



LEFT: TWO CONES CLAMPED TOGETHER AT THEIR OUTER EDGES FORM ONE SILENCING UNIT. BELOW: INSTALLATION OF "CONES OF SILENCE" IN THIS CARPENTER SHOP REDUCED NOISE BY SIXTY PERCENT.



## Cones of Silence

*Inexpensive Sound-Absorbers, Developed at RCA Laboratories,  
Prove Effective in Solving Extremely Difficult  
Acoustical Problems*

**N**OISE, the arch-enemy of man's well-being and efficiency, can be converted into heat and dissipated by an ingenious functional sound absorber developed at RCA Laboratories, Princeton, N. J.

These units, sometimes called "cones of silence", were developed by Dr. Harry F. Olson, director of the Acoustical Laboratory, to solve special noise problems in the Laboratories. More recently they have been made available to industry by a leading manufacturer of building materials.

Each absorbing unit consists of two 14-inch cones, made of pressed wood pulp. The cones are fastened together base-to-base by a light steel band, and suspended from wires strung over the area to be sound-proofed.

Whereas most materials used for sound absorption represent a compromise, in that they serve that purpose and also act as a wall or

ceiling covering, the sole objective of the "cones" is to soak up clatter. Since the cones are not designed to do two things at once, their absorption efficiency is twice that of conventional materials.

### *Noise Level Greatly Reduced*

Originally, the Olson devices were developed specifically to alleviate very bad noise conditions in the cabinet shop and drafting room of the Laboratories. In the former, the din created by circular saws, hand saws, hammers, and planers was excessive; in the latter, echoes and reverberations made concentration by personnel difficult. Both rooms have truss roofs, with skylighting and roof ventilation. Acoustical ceilings not only would have been extremely costly, but would have impaired the lighting and ventilation.

Installation of the absorbers reduced the noise level more than

sixty per cent in each room, with a cone suspended at a height of ten feet for every five square feet of space.

In many instances it is not advisable or possible to install sound absorbing materials on ceilings or walls because of cranes, pipes, wiring, and other necessary facilities, etc. The great flexibility of the absorbers permits their use in many such situations and at a reasonable cost. The absorbers are inexpensive and easy to install. In one instance three men, without previous experience, equipped a room having 1,500 square feet of floor space in less than two days.

The absorbers operate on a principle of acoustic resistance, in which the acoustical energy—or noise—is converted into heat energy. This conversion takes place when air is forced through very narrow passages, such as are found in the fuzzy surface of the "cones".

It is believed that functional sound absorbers may undergo considerable improvement, where a s conventional materials, under development for 20 years, appear to have reached a point where actual results approach their theoretically possible values.

# Sales of 45 RPM Records Soar

*Folsom Reports 260% Increase in Sales Within Past 90 Days — Three Shifts Work Overtime to Meet Demand for New High-Quality Disks.*

**S**ALES of 15-rpm phonograph records have increased 260 percent since the middle of July and RCA Victor plants are presently unable to keep up with the public demand, Frank M. Folsom, President of the Radio Corporation of America, announced on October 20.

"We are more than delighted with the progress made by the '45' phonograph system since its introduction to the public last April," he added. "I predict with utmost confidence that it is destined to lead the phonograph field both in record players and records. We have included the '45' system which has the simplest and quickest record changer in the world in all of our radio-phonograph consoles.

"In response to the rapidly mounting demand in all sections of the country, RCA Victor has increased its record production facilities, which now are being worked

three shifts daily, with overtime. Demand for the new '45' record players is so great that our deliveries to distributors are running a minimum of two weeks behind orders. The upward trend is certain to continue as more and more music-lovers become acquainted with the quality, as well as the simplicity and economy of the new '45' system.

"Since June, every new RCA Victor recording has been produced on 45 rpm as well as conventional 78 rpm disks. Our catalog of '45' records now numbers more than 1,000 selections and is being expanded as rapidly as possible. It encompasses a full range of recorded music, including symphonic, semi-classical, popular, children's selections, and folk tunes.

"I vigorously declare," said Mr. Folsom, "that the '45' as a system of recorded music is here to stay, and let there be no doubt about it."



YOUTHFUL MUSIC LOVERS FIND THE RCA 45 RPM PHONOGRAPH AN IDEAL ADDITION TO THEIR PLAYROOM. PARENTS ARE IMPRESSED BY THE AUTOMATIC CHANGER AND THE UNBREAKABLE RECORDS.

## NEW SHORT 16-INCH PICTURE TUBE

**A** new 16-inch metal television picture tube, five and a half inches shorter than present kinescopes for 16-inch television sets, has been announced by the Tube Department of the Radio Corporation of America.

The new kinescope, which, for the first time, will utilize an RCA "Filterglass" face plate for greater picture contrast, is expected to make possible more compact chassis and more flexible cabinet design in television receivers that will be available next year.

The new picture tube, designated the RCA-16GP1, will be supplied in very limited quantities to makers of television receivers in December. Appreciable quantities will be available early in 1950, company officials revealed.

Design engineers and television receiver manufacturers were told

of the new tube last May. Later, engineering samples were supplied to television set manufacturers who are RCA Tube Department customers, so that new receiver designs and circuits could be worked out for utilization of the new tube.

Like the first 16-inch metal kinescope, the new television receiver tube has a funnel-shaped metal cone, with a glass face plate sealed to the large end and a tubular glass neck containing the electron gun fused to the smaller end. The new tube, however, is but 17 $\frac{1}{8}$  inches long, which compares to 22 $\frac{1}{2}$  inches for the present 16-inch tube, and 18-inches for the widely used 10-inch television picture tube.

The new kinescope utilizes a wider deflection angle, 70 degrees as compared to about 55 degrees for the present tube, to make pos-

sible its shorter length. Performance characteristics remain essentially the same.

The new RCA "Filterglass" face plate has a special material incorporated in the glass, which greatly increases picture contrast. Lightening of black areas in the television picture by reflected room light is greatly reduced. Contrast is further improved by reduction of reflections within the face plate itself.

As in the present 16-inch kinescope, another outstanding feature of the new tube is the large-area vacuum-tight seal running completely around the front circumference of the tube between the face plate and the metal cone. The metal-to-glass sealing technique is also used to bond the neck section of the tube to the metal cone.

[RADIO AGE 9]



THEATRE TELEVISION FIRST CAME INTO PROMINENCE EARLY IN 1949 AT THIS BROOKLYN MOTION PICTURE HOUSE.

## Theatre TV—A New Industry

*Contract Signed by Fabian Theatres Expected to Bring RCA Television to More Than 50 Movie Houses; Pact Regarded as Forerunner of Nationwide Enterprise; Milestones in Video's New Service Recalled.*



By **W. W. Watts**  
*Vice President in Charge of  
 Engineering Products Department,  
 RCA Victor Division.*

**T**HEATRE television, a potentially tremendous new industry and a potentially powerful mass medium of entertainment, education, cultural development, and news, was born as a commercial entity this past summer with the signing of a contract between Fabian Theatres and the Radio Corporation of America for the first permanent, commercial installation of instantaneous, theatre-size TV projection equipment.

This installation, for which the first unit of commercial design is

now in production in the RCA plant at Camden, will be made in Fabian's Brooklyn Fox Theatre early in 1950. Termed by S. H. Fabian the "proving ground" of theatre television for his circuit of more than 50 theatres, the pioneer Brooklyn installation is also envisaged by leaders in the television and motion picture industries as the forerunner of a nationwide theatre-television service.

Spyros Skouras, president of the 20th Century-Fox Film Corporation has disclosed plans for the installation of instantaneous TV equipment in more than 20 West Coast theatres. He predicts that theatre television will be established on a national basis within seven years. It is recalled in this connection that it took the "talkies" only five years to displace 22,000 "silent" motion picture houses in favor of 15,000 theatres wired for sound. Computing the investment, profit, and employment opportunities in initial equipment requirements alone—on the basis of the nation's approximately 20,000 theatres and the present equipment price of \$25,000 per theatre — the immense economic

significance of the 500 million dollar development is self-evident.

Further indication of the imminence and immensity of the projected new service of theatre television is found in the statement of minimum requirements for frequency channels filed August 30 with the Federal Communications Commission by the Society of Motion Picture Engineers. The SMPE recommended that the FCC set aside approximately 60 channels in the higher part of the spectrum, where they would not interfere with the 54 channels now earmarked for home television service. This number of channels, said the SMPE, is needed to provide for a nationwide competitive system in which a large number of program-originators can operate.

### *Broadway in Every Town*

The prospect of a "Broadway in every town" is seen in such a system. Its entertainment possibilities include the telecasting of motion picture or other productions from a central theatre to subscribing suburban theatres throughout a given community or area, the use of inter-

city relays for simultaneous showings of a Hollywood premiere in all parts of the country, or, similarly, the simultaneous TV presentation of a Broadway stage hit in theatres in many metropolitan centers.

"Theatre television," it was asserted in the SMPE statement, "will endeavor to offer material paralleling in a general fashion that presented by the legitimate theatre, radio, and motion pictures, but adding the important element of immediacy."

Social values of the proposed system were also cited by the motion picture engineers. "In times of emergency," the statement pointed out, "the motion picture industry . . . has been exploited for purposes of public morale and governmental information essential to our national welfare and economy. A nationwide theatre television system will be able to render a similar service of even greater effectiveness because of its instantaneous nature.

"Theatre television . . . presents numerous educational as well as entertainment possibilities. Events of outstanding historical importance or of great social significance may be viewed in schools, public auditoriums, and theatres at the moment they occur.

"It will afford marked industrial aid to the country by providing employment and personal opportunity to many people."

Conceived during RCA research which began in 1928, theatre television made its first appearance in an experimental form in January, 1930, when the Company presented 60-line images on a 7 $\frac{1}{2}$ - by 10-foot screen at the RKO-58th Street Theatre, in New York City. The low-definition pictures were crude compared to those produced by present-day equipment, but they indicated the possibility of annihilating time in bringing important events to the motion picture screen as they happened.

#### *Substantial Progress Made*

Substantial progress was made in the next decade, and in 1940, RCA achieved 441-line screen images measuring 15 by 20 feet in demonstrations in the New Yorker Theatre, in New York.

Although World War II interrupted commercial development in that same year, RCA's research and engineering on military applications of television led to findings which facilitated speedy improvement of the theatre system when commercial work was resumed.

Much of the intensive development of the past two years was carried out by RCA under separate joint research contracts signed with 20th Century-Fox and Warner Brothers Pictures, Inc., in the summer of 1947. Pursuant to these pacts, the RCA Theatre Equipment Department, under Barton Kreuzer, developed and delivered to each of the two film producing organizations a set of three equipments, all meeting the present 525-line standard of definition. The first was an instantaneous projection system capable of presenting 6- by 8-foot screen images. Next came a similar system projecting images up to 15 by 20 feet in size, with a maximum projection throw of 40 feet. The third was an intermediate film or film storage system, providing for the filming of images from the face of the TV picture tube and subsequent projection of the film images by conventional methods.

#### *Demonstrated at Conventions*

The smaller direct-projection system was successfully demonstrated, with the cooperation of participating film companies, at conventions of the National Association of Broadcasters, in Atlantic City; the Society of Motion Picture Engineers, in New York; and the Theatre Equipment and Supply Manufacturers Association, in Washington. Enthusiastic interest in the possibilities of the project was displayed by industry leaders at each of these demonstrations.

One of the larger instantaneous systems was used by 20th Century-Fox at the Fox Theatre in Philadelphia on June 25, 1948, to present the first inter-city telecast to be viewed by a regular admission-paying theatre audience. On that date, a capacity audience in the theatre watched the Joe Louis-Joe Walcott heavyweight championship bout on a 15- by 20-foot screen as it was taking place in New York's Yankee Stadium, 90 miles away.

When the initial postwar units had been completed, tested, and delivered, RCA proceeded with its research, looking toward the engineering of a much smaller and more flexible unit — one with physical dimensions and design that would be entirely practical for theatre use. This was finally achieved less than a year ago as the outgrowth of an advance in picture tube design.

It requires 80 kilovolts to power the projection-type kinescope used to achieve theatre-size images. Up to a year ago, the smallest tube capable of operating at this high voltage was one with a 12-inch diameter face.

#### *Smaller Tube Developed*

The development of a 7-inch, 80-kilovolt kinescope by the RCA Tube Department in 1948 gave Camden engineers what they needed. Though the reduction in face diameter was only five inches, it permitted the use of a 20-inch spherical mirror and a 15 $\frac{1}{2}$ -inch correcting lens in the optical barrel of the system, in contrast to the 42-inch mirror and 20-inch lens used theretofore. Moreover, the smaller lens, it was found, could be moulded from plastic, instead of being ground slowly and expensively from glass. This in addition to savings in size and cost, achieved a dramatic reduction in the combined weight of these major optical elements from 500 pounds to only 50 pounds.

THEATRE-SIZE TELEVISION IMAGES, 15 BY 20 FEET, CAN BE PROJECTED BY THIS TYPE OF EQUIPMENT.





MOTION PICTURE ENGINEERS WATCH A DEMONSTRATION OF A TEST MODEL OF RCA'S LARGE-SCREEN TELEVISION PROJECTOR.

The smaller, lighter, and less costly system which evolved swiftly from these advances, and which also represented an improvement in image quality, was first seen outside the laboratory by an intent crowd of about 1000 exhibitors, theatre equipment manufacturers, and dealers at the St. Louis convention of the Theatre Equipment and Supply Manufacturers Association in September, 1948.

Half a year later, on April 4, 1949, members of the SMPE and leaders in the theatre and television industries, who were guests of the engineers at a special session of the society's convention in New York's Hotel Statler, saw the impressive outcome of RCA's last major step in the development of a television system for the theatre. They saw bright, steady, well-defined theatre-size images projected from an optical barrel only 30 inches in diameter and 36 inches long, with all auxiliary equipment such as power supplies, amplifiers, and controls housed in separate, relatively small cabinets which could be placed in the projection booth or any suitable remote location in the theatre.

Following this demonstration, the television committees of the SMPE and the Theatre Owners of America held their first joint meeting to consider inter-related problems of the showman and the engineer in this new field and exchange opinions and ideas. Both the TOA and the SMPE, as well as

the Motion Picture Association of America, have since given full support to the advancement of theatre television service.

June 22, 1949, brought the first public demonstration of the final experimental model—the one seen by the engineers at their New York convention—which had now been installed in Fabian's Brooklyn Fox Theatre for the Walcott-Charles championship fight. One result was a cheering audience of regular admission-paying movie-goers and boxing fans that jammed every seat and all allowable standing room an hour before the fight went on the air. Another was the decision of Fabian Theatres to place its order for the pioneer installation.

#### *First Demonstrations in West*

The past month has seen the first West Coast and Midwest demonstrations of the final experimental model, presented by RCA at the conventions of the Theatre Owners of America, in Hollywood, and the Theatre Equipment and Supply Manufacturers, in Chicago.

The remainder of the history of theatre television is as yet unwritten, but the rapid growth of this phase of the video industry seems assured and its general course fairly well defined. It possesses virtually unlimited opportunity for development as a great and unique service to the American public, with equally great potentialities for economic benefits.

## New TV Transmitting Antenna Designed

A NEW super-gain transmitting antenna, developed to meet television requirements for higher power, greater power gain, and directional effects, has been announced by the RCA Engineering Products Department. The initial equipment has been delivered to Station WBNT, Columbus, Ohio, and other units are being built for TV stations in the Midwest, South, and on the West Coast.

The new WBNT antenna consists of a combination of dipoles and screens, each unit measuring 30 by 48 inches and weighing 100 pounds.

The antenna achieves a new flexibility and other performance characteristics through the many possible arrangements of the individual units in the tower-mounted array. Each unit is capable of serving an area extending from the tower in the form of a quarter-circle. By mounting one, two, three, or four dipole and screen combinations on as many sides of the tower, the broadcaster may obtain signal coverage in any direction, or in all directions. To achieve higher power gain, the dipole-screen combinations are stacked above each other on the side of the tower facing in the desired direction. Conversely, units may be omitted or reduced in number on any side of the tower where signal interference with another station might result.

The new units can be tuned for use in both the high and low frequency portions of the VHF television channels. They are also expected to find wide utility as standby television antennas for emergency use, as well as auxiliary units for broadcast stations which wish to increase power gain or eliminate interference with other stations by greater directional control of the signal.

## 46 Stations in TV Network

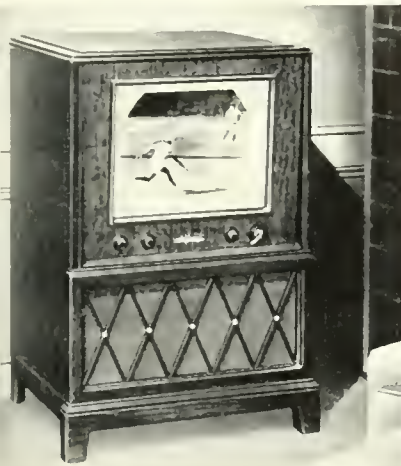
NBC's television network will number 46 affiliates with the addition of WSAZ-TV, Huntington, W. Va., which begins commercial operations on November 15.



Model 9T270 has a 16-inch picture tube and a large loudspeaker which is mounted under the cabinet top.



The "Anniversary Model" provides a 10-inch picture tube in a cabinet of simulated wood grain and maroon side panels.



Console Model 9TC272 with 16-inch picture tube and inclined front panel for comfortable viewing of television picture.



Doors in Model 9TC275 may be closed to conceal 16-inch picture tube, controls and loudspeaker.



Console Model 9TC240 is equipped with a 10-inch picture tube and is available in mahogany, walnut and bland finishes.

## 1950 Models of RCA Victor Television Receivers



12½-inch Kinescope tube features Model 9T247 which also includes the high-quality "Golden Throat" sound system.



This Chippendale-styled console has a 16-inch picture tube and facilities for AM, FM and short wave reception plus automatic changers for 78 and 45-RPM records.  
[www.americanradiohistory.com](http://www.americanradiohistory.com)



Smart, modern cabinet design provides an attractive setting for the 12½-inch picture screen of the 9TC245 console.



ANTENNA ERECTED ON THE STERN OF THE "SOUTHERN SEAS" CAN BE ROTATED TO ITS BEST RECEIVING POSITION FROM A MOTOR CONTROL BOX ATOP THE TELEVISION RECEIVER IN THE CABIN.

## Television Afloat

*Servicemen Overcome Obstacles in Installation on Private Yacht and Provide Images Equal to Best on Home Receivers*

AFTER installing almost two million television receivers in American homes, servicemen are convinced that they have encountered about every conceivable obstacle, most of which they have successfully overcome, but three technicians from RCA's service branch at Franklin Square on Long Island, New York learned recently that a TV installation on a ship presents problems never faced ashore. Yet by drawing on their ingenuity and skill they carried out the difficult assignment to the complete satisfaction of the customer.

As a result of their efforts, a 16-inch RCA Victor receiver aboard the 135-foot yacht *Southern Seas* now cruising somewhere on the coastal waters of the United States, is providing owner Clifford J. Mooers and his guests with tele-

vision programs whenever they are broadcast from cities near the yacht's route.

To the uninitiated it might seem that setting up television on a ship would present few unusual difficulties, but the three technicians—Bert Schroeder, Edward Beck and Geoffrey O'Connell—have a different opinion which they formed the hard way, by experience.

Although the receiver aboard the *Southern Seas* is standard in all respects, practically everything else in the seagoing installation had to be custom-tailored to meet the special conditions.

### *Erected New Mast for Antenna*

The most important item, next to the receiver itself, was the erection of a suitable antenna. Since it was not feasible to place the antenna in

the most obvious place—atop one of the ship's masts—the technicians decided to "step" a new mast to support the signal collector. Accordingly, a 24-foot length of aluminum pipe was fixed in position just inside the stern rail of the *Southern Seas*. Six guy-wires leading from the peak of the mast and from its midpoint to deck cleats hold the pipe rigid.

But a ship's course is changed frequently, a fact that would make the ordinary fixed antenna ineffective at times. To overcome this drawback, the Schroeder-Beck-O'Connell combination attached a motor to the antenna and placed the motor control box on top of the receiver. This permits the user of the set to rotate the antenna into its most advantageous positions while he is tuning the receiver.

### *Protected Against Moisture*

To connect the antenna to the receiver in the main salon a coaxial cable was "snaked" down through the pipe mast, into a conduit under the deck and through the steel bulkhead of the cabin. The two wires for the antenna motor followed the same course. Extreme care was exercised at all points in the run of the wiring to protect the cable and wires against spray and rain. This was done by thoroughly caulking all openings in deck and bulkhead through which the conductors passed.

Normally, this operation would have completed the installation except for plugging the socket of the receiver into a handy power outlet. But this was impossible aboard the yacht. The *Southern Seas* is equipped with a 110-volt direct-current lighting system, while the receiver was designed for alternating current of 117 volts. This meant that some means had to be devised to convert the d.c. into a.c. and increase the available voltage to 117. RCA's technicians specified the method for accomplishing this change but soon discovered that the necessary equipment was in short supply in the electrical market.



Eventually, however, they secured a device called an "inverter" which did the trick.

The inverter was placed in a cabinet directly beneath the receiver and wired into the circuit so that the movement of a single switch turned both receiver and inverter "on" and "off".

When tested on Long Island Sound near Port Washington, the installation drew the approval of television experts. Reception of the six metropolitan stations was uniformly excellent. The picture was steady and completely free from the types of interference that might be created by the craft's electrical devices. As a consequence, the yacht's owner and guests are able to obtain program quality seldom surpassed on standard installations ashore.



SERVICE TECHNICIAN BERT SCHROEDER EXPLAINS OPERATION OF 16-INCH RCA RECEIVER TO CAPTAIN HENDRICKSON OF THE "SOUTHERN SEAS".

## NBC Co-Sponsors UN Project

*Series of Six Network Programs Broadcast to Illustrate Purpose and Importance of United Nations*

SIX weekly documentary programs prepared by outstanding radio personnel from the United States, Great Britain and Canada have featured the fourth annual countrywide United Nations Project, co-sponsored by the National Broadcasting Company and the American Association for the United Nations. Norman Corwin, head of special projects for the UN, supervised the series which was designed to point up world reliance upon the United Nations for peace, welfare and security in the post-war era.

The opening program on September 11, titled "Could Be", was written, directed and produced by Corwin. This full-hour presentation marked the tenth anniversary of the Poland blitz that touched off World War II. The program, a fantasy, depicted the world of the future based on the premise that all nations had combined to blitz the problems of peace.

This offering was followed a week later by "Sometime before Morning", written and directed by Mildard Lampell, writer of many highly acclaimed programs. W. Gibson-

Parker, formerly of the British Broadcasting Corporation and now chief of productions for UN Radio, produced the show. "Sometime before Morning", demonstrated the function of the United Nations in the paramount objective of keeping peace in the world, and interpreted the history of mediation.

The third presentation, "The Biggest Show on Earth", took the radio listener on a whirlwind tour behind little-known scenes of UN activities at Lake Success. It was written, produced and directed by Jerome Lawrence and Robert E. Lee.

On October 2, NBC offered "Junction in Europe", written by Gibson-Parker and directed by Corwin. This program illustrated the accomplishments of the Economic Commission for Europe, one of the least publicized and most important of the many UN agencies.

The fifth program in the series, "Nightmare at Noon", told the story of one man's fight to persuade all nations to outlaw mass killings, starvation and the consequent depletion of entire peoples. The broadcast originated at Toronto, Ont., and was written by Len Peterson and

directed by Andrew Allen, members of the Canadian Broadcasting Corporation staff.

To conclude the project, NBC broadcast "11 Memory Street" on October 16. This half-hour program was written by Allen Sloane and produced by Gerald Kean. It outlined the work of the International Refugee Organization and embodied material recorded on the scene in Europe and broadcast here for the first time.

## NEW RELAY TUBE

A new miniature electron tube which automatically will turn an electrical current on and off an average of 45 million times during its effective life has been announced by the RCA Tube Department.

Uses of the new tube include control of the flashing of animated electrical signs and the intricate light systems of stock market quotation boards. Because the tube, which is a cold cathode, glow discharge type, consumes no standby electrical power and requires no warm-up period, it is especially suited for use in burglar alarms, remote-control devices, and complex automatic business machines. Because of its low cost, small size, and unusual features, it opens up new design possibilities for ingenious electronic toys.

[RADIO AGE 15]

Behind the scenes  
of  
NBC Television  
Programs



**1** Bob Wade (left) and Elwell of NBC's television production staff inspect model sets for a scheduled production.



**2** Workmen assemble and point scenery units according to details of the miniature stage settings.



**3** Production tests

**4** Cost members



6 Costume plays often require minute attention to the preparation of wigs and false features to effect facial changes.



5 Experts are always available to assist performers in applying make-up for roles they assume before the camera.



Performers prepare to don costumes for a dress rehearsal.



8

Giving players their cues is one of stage manager's most exciting duties.



7 Stage illumination is controlled by a network of cables operated from this lofty gallery above the studio.



Facilities manager Wade operating "title" machine.





COURTYARD OF THE MODERN RCA MANUFACTURING PLANT RECENTLY OPENED NEAR MEXICO CITY.

# Mexican Operations Extended

*Modern Production Lines in RCA's Mexico City Plant Turn Out Ten Types of Export Radios and Many Phonograph Records. Manufacture of New 45-rpm Discs and Players to Begin Soon at Factory in Colonia Cloveria.*

ON the outskirts of Mexico City, RCA's block-long ultra-modern radio and record plant typifies the streamlining of industry which is taking place under the progressive program of the Mexican government. On production lines of the new plant, opened in May, 1948, ten different types of RCA export receivers are being assembled for distribution to cities and hamlets throughout the country. Records of both popular and classical North American melodies are pressed here, and an up-to-the-minute recording studio is available for local artists.

The country's program of industrial modernization has raised the living standards and greatly changed the daily routine of its people. The sombrero-shaded peon, enjoying a leisurely siesta, is no longer the symbol of Mexico. Today, that same Mexican is much more

likely to be seen, very wide-awake, hanging on for dear life as he speeds to work in a modern bus as jam-packed as any New York subway during rush hour. He works a five and a half day week in a plant whose construction and facilities are likely to be as up-to-date as any in the United States.

### *Attractive Working Conditions*

RCA Victor Mexicana, S.A., RCA's associated company south of the border, opened its new two-story structure in Colonia Cloveria, growing industrial center on the northwestern edge of Mexico City. Surrounded by carefully landscaped grounds, the light, airy building which houses general offices, recording studios, factory and warehouse provides the best of working conditions for its 245 employees, 60 of

whom are women. Factory employees work daily from eight to four, and on Saturday from eight to twelve. Office hours are from nine to five on week days and from nine to one on Saturday. Lunch is provided in a cafeteria in the building.

For many years the Company observed the popular siesta custom by closing for two hours during the middle of the day. However, this custom was prohibited in all factories by Government order during the war, and has not been revived. Generally speaking, it is only the professional men of the country who continue the custom and cease work for two and sometimes three hours in the early afternoon.

There is little to distinguish the Mexican industrial worker from his North American counterpart. He works in a fluorescent-lighted office or on a gleaming assembly line.

Only the "reboso", or shawl, worn by some of the girls adds a touch of local color.

The home life of the RCA factory employee reflects a similar blend of North and Latin American influences. Many of the houses are built in typical Spanish style. They stand close against the street, and only when the door is open can one glimpse the attractive, flower-filled patio onto which all rooms open and which is the real center of the home. However, the newer residences have discarded the patio style and seem to vie with each other in having the greatest number of flowers in yards around the houses.

The Mexicans work hard and play hard, too. They are great sports enthusiasts. Bull-fighting is the main attraction, but they are also fond of baseball, jai alai, horse racing, golf, tennis and soccer.

Music has always been an important part of Mexican life. The old custom of giving "gallos" (serenading) to a pretty señorita is still widely practiced. After work hours, the "cantinas" and "pulquerias" are favorite gathering places for refreshment and entertainment.

Music is supplied, sometimes by a jukebox, but more often by a "mariachi". The mariachi, delight of both Mexicans and tourists, is an informal instrumental group consisting of as many as eight pieces — trumpet, bass, accordion and several guitars. Such groups may even be found singing and playing on many of the buses in and around Mexico City.

#### *Home Instruments Are Popular*

Radios and phonographs are widely used to bring both Mexican and North American music into the home. Although Mexico has a population of 24,000,000 people, only one-third of this number falls within the economically active class with earnings of a dollar a day or more. But of this segment, 70 per cent own radios or radiophonograph combinations.

Recordings by such native stars as Pedro Vargas, Jorge Negrete, Maria Luisa Landin, Luis Alaeraz, Fernando Fernandez, Avelina Landin, the Trio Calaveras, and many others, are made in the new "floating" studio of RCA Victor Mexicana, S.A., where special vibration-

free construction and the latest recording equipment combine to give facilities equal to the finest studios in Hollywood and New York. A great many of these recordings are released in the United States and in other Latin American countries. Master recordings of classical and popular music are sent from the United States to Mexicana for local pressing. In fact, American music has become so popular in Latin America that RCA Victor Mexicana recently obtained rights to record Hit Parade tunes as soon as they are announced.

To keep pace with its Northern neighbors the RCA associate company plans to make the new 45-rpm records and phonographs available to the Mexican people. Machinery for pressing and recording discs and manufacturing the record players is on its way to the Mexican capital.

#### *Plant Makes Some Components*

A recent government decree requires assemblers to manufacture at least twenty-five per cent of all parts for radios built in Mexico. As a consequence, RCA Victor Mexicana, which formerly concentrated its operations on the assembly of radio receivers, is now manufacturing some components to comply with the law.

Television eventually will be introduced in Mexico. Due to the high peso exchange rate its development south of the Rio Grande has been delayed, but there is no doubt that when video reaches Mexico it will enjoy the same popularity it now is experiencing in the United States.



SKILLED NATIVE WORKERS ASSEMBLE COMPONENTS OF RADIO RECEIVERS ON A PRODUCTION LINE IN THE MEXICO PLANT OF RCA.



AIR VIEW OF MODERN FACTORY OF RCA VICTOR MEXICANA ON THE OUTSKIRTS OF MEXICO CITY.



NILES TRAMMELL  
*Chairman of the Board of NBC*



JOSEPH H. MCCONNELL  
*President of NBC*

## Changes in NBC Executive Staff

At its regular meeting held on October 7, the Board of Directors of the National Broadcasting Company elected Niles Trammell Chairman of the Board of the National Broadcasting Company, and upon the recommendation of Mr. Trammell elected Joseph H. McConnell President of NBC.

In recommending the change, Mr. Trammell stated: "For some time it has been evident that with the rapid development of television and the changes in radio broadcasting technique, I could better serve the interests of the National Broadcasting Company by being relieved of administrative duties and be able to devote more of my time to client, talent and station relations in both radio and television. In selecting Mr. McConnell to be President of the National Broadcasting Company, I am confident he will contribute materially to the continued success of our operations in the changing era ahead. Mr. McConnell, who is forty-three years of age, has been associated with the operations of RCA for the past twelve years. He has had successful experience in finance, law and business administration. Prior to his election today as President of the National Broadcasting Company, Mr. McConnell was Executive Vice President of RCA and worked closely with NBC in dealing with its expanding business

problems. Mr. McConnell is thoroughly familiar with our operations and personnel and his election, I know, will be enthusiastically applauded within and outside the Company."

General David Sarnoff, in vacating the Chairmanship of NBC in favor of Mr. Trammell, stated: "The step was taken because we agreed with Mr. Trammell's view that expansion of the broadcasting business which the growth of television makes possible, and changing conditions in the industry, required him to be freed from administrative duties so that he can give more of his time to talent, client and station relations and to the major developments of the Company. My interest in NBC continues as heretofore and I remain a member of its Board of Directors."

Niles Trammell has been President of NBC since July, 1940, and has held important executive positions in NBC and RCA for more than twenty-six years. Mr. Trammell joined RCA in San Francisco in April, 1923, and transferred to the National Broadcasting Company in March, 1928, as a Salesman. In May, 1928, he was made Manager and Vice President of the Central Division with Headquarters in Chicago. In December, 1938, he was made Executive Vice President of the Company in New York.

## "Armed Forces" Theme of New NBC TV Programs

THE story of unification of the nation's armed forces, told from the level of the Secretary of Defense down to the lowest-ranking serviceman, will be unfolded in a weekly television series presented by the Department of Defense exclusively over NBC facilities, beginning October 30, at 5:30 p.m., EST. The programs will be titled the "Armed Forces Hour" and will be comparable to the "Army Hour" which NBC broadcast during the war years.

In commenting on the series, Secretary of Defense Louis Johnson said: "As our program for unification of the armed forces proceeds, it is important that the people of the United States understand the increased efficiency and financial economy resulting from this action. Each taxpayer should know that under unification wasteful duplication will be eliminated and he will receive full value for his defense dollar. It is therefore gratifying to me and to all of us in the Department of Defense that the National Broadcasting Company will soon present on television a series of programs called the 'Armed Forces Hour.' By means of these programs, many millions of citizens will be able to see how their defense dollars are being spent. Subjects will range from food and guns and planes to how a small businessman can sell his products to the armed forces.

"Equally important, citizens will be able to see some of our key people in the military establishment at work in their offices or in the field. Information and a sense of personal acquaintance with our defense leaders will be two important benefits. There will be others which will become apparent as unification proceeds toward the creation of a defense team which will assure our country's safety and guarantee a lasting peace.

"I commend the National Broadcasting Company for undertaking to reflect these developments which are so important to our national security."

KANSAS CITY DEALERS CROWD AN AUDITORIUM TO INSPECT LATEST TELEVISION MODELS ON "D-DAY".



## Bringing TV To New Markets

*Extensive Surveys, Planning and Industry Cooperation Important Factors in Staging Successful "T-Day" Operations*



By Henry G. Baker

*General Manager,  
Home Instrument Department,  
RCA Victor Division.*

**T**O folks living in any new television town, television's arrival seems something sudden. Overnight stores seem to blossom out with streamers and banners and electric signs proclaiming that you can now buy RCA Victor television. Articles about television crop up in newspapers. A new type of truck, with ladders and television masts on top, and carrying hundreds of pounds of cable, test equipment and

parts, becomes a familiar street sight. Rooftops sprout television antennas, first a few here and there, then, seemingly in no time at all, some regions fairly bristle with them. Television becomes an increasing part of everyone's conversation as people compare reception and program favorites. Something new has swept over a city spontaneously and captured it by storm.

Yet behind television's advent into each new television market lies many months of planning and the sort of cooperation between dealer, station, distributor, service organization and manufacturer that makes them jointly invincible and inevitably successful.

Before television can make its contribution to the home life of a community, there must be long hours of training in how to display, demonstrate and sell this new service. Before there can be crowds on the sidewalk watching a set in operation in a store window, there must be crews of men plotting the size, nature and time schedule of a market.

Through having participated in the introduction of television into 18 new market areas by mid-summer of this year, the RCA Victor Home Instrument Department has brought the introduction of television into a community to as exact a science as a constantly growing and changing new industry allows.

Surveys of a prospective television market region begin almost as soon as a station application is filed. Transmitter sales organizations, our Sales and Market Research Departments, field salesmen, station managements, our distributors, FCC reports and the trade press are constantly checked and their findings compared. In this way we learn when new stations will go on the air, when commercial broadcasting will begin, and what plans there are for programs in each region. Close and frequent contact is maintained with each station to assure accuracy in these records.

### *Every Market Surveyed*

Every market is carefully surveyed to determine the buying power and preferences of the people there, the area likely to be covered by the television signal, and other factors which will affect its television receiver requirements. Experience in earlier, somewhat comparable markets is invaluable here, frequently revealing facts which might not be known otherwise.

Not the least important of the contributions made to the success of television in a new region is in the supplying of merchandise according to the territory's desire for traditional or modern styling. Buying power, of course, varies with the potential of each locality. Some communities consist predominantly of individual homes, while others have an important percentage of their families living in apartments — situations influencing receiver size requirements. In addition to the standards of quality which are now generally accepted, knowledge

[RADIO AGE 21]

of requirements in finishes, prices, and cabinet and picture sizes is important in giving the manufacturer the competitive advantage necessary to win a given share of the market in each community.

One of RCA's first allies in establishing a fresh market area is the RCA Service Company. Even before the station goes on the air, the Service Company may survey the market, select a location for a branch office and shop, and prepare preliminary estimated contour maps of the region for use in advance planning of service zones and operations. By the time a meeting is held with the dealers of the region to acquaint them with the RCA Victor television receivers, a service branch is invariably installed, staffed with a nucleus of factory-trained technicians and some personnel from the region, equipped with the latest of installation, test and service equipment, and backed by a fleet of distinctively marked service trucks, fully equipped for professional operation.

#### *Distributor is Key Factor*

In conformance with well-established Home Instrument Department policy, the distributor is the key factor in television receiver distribution in each region. Principal efforts of the factory are to counsel and assist him in obtaining the most desirable results in his territory.

Timing of the entrance into a new television market is of primary importance. While an early start may sometimes be forced for competitive reasons, we try to defer the first meeting with dealers until shortly before the station goes on the air. Premature activity allows too much time for enthusiasm to dwindle and serves only to hamper the sale of such other services as radio.

Approximately three months before the station begins to broadcast its test pattern, field sales representatives of the Home Instrument Department meet with the distributor and Service Company representatives to map out plans for the forthcoming all-important introductory meeting. At that time, dealers will be shown the RCA Victor tele-

vision receiver line and given effective sales procedures.

The first meeting of distributors, dealers and manufacturers' representatives in a new market is called Dealer Day or "D" Day, a policy established at the very beginning of postwar television. Later, when the new station has its official opening, RCA Victor advertising in the region begins and sales efforts go into high gear. This is called Television Day or "T" Day.

#### *Sales Machinery is Complex*

The sales machinery set in motion by distributors on "T" Day is as complex as a television chassis. Advance mailing pieces, ranging from "teasers" which awaken interest to tickets of admission for the opening are printed, and mailing lists are compiled. The local distributor prepares large maps showing where he should issue RCA Victor television franchises to get adequate dealer coverage. A spacious room, usually a ballroom in one of the city's principal hotels or clubs, is reserved for the initial receiver presentation. Arrangements are made with a local store to create room settings appropriate to the various television receiver models being displayed and demonstrated.

RCA Victor distributors, in most cases, already have secured the cooperation of the local television station or the RCA Victor Promotion Department to present an actual television program, either broadcast or by direct line, with which to demonstrate the receivers.

When the machinery has been put in readiness, the dealers begin to receive attention-getting mailing

pieces. At first they merely hint that something important to their television futures will soon take place. Subsequent mailings fill in details about the date and location of the meeting, topics to be covered, demonstrations that may be given, and how to secure tickets. By the time the "last-call" invitation is issued, all key dealers of the region have been reached and attendance of their salesmen at the meeting is fairly well assured.

Merchandisers, however, are not the only ones in the community concerned with television, able to benefit from it and to contribute to its success. Many other important elements are invited to attend this first meeting and participate in television's introduction.

State and local political leaders are invited and many an introductory television meeting has been honored by the presence of the governor and the mayor. Other participants may include local bankers, whose organizations may later handle financial papers for dealers; utility executives, whose cooperation can prove invaluable; newspaper publishers and reporters, important to advertising and publicity programs; television station representatives, whose programs help create demand and who benefit from expanded audiences; radio broadcasters, trade paper representatives, and other influential people.

The introductory meeting is a fast-paced, staccato event, with speeches kept short and meaty. Here, the enthusiasm that will carry television to sweeping success is given its start.

*(Continued on page 32)*

ARTISTS COMBINE THEIR TALENTS WITH ENGINEERS TO STAGE A "LIVE" TELEVISION DEMONSTRATION IN A NEW MARKET AREA.





# Training Announcers for Roles in Radio and Television

*Emphasis in Both Media is Now Placed on Showmanship Rather than on Diction and Glibness*



By Patrick J. Kelly

*Manager, Announcing Department  
National Broadcasting Company*

THE qualifications which make a good announcer, namely, voice plus the ability to use it; background; clear thinking; and a combination of personality and showmanship, are as necessary today as they were twenty years ago. When radio was in its infancy, the announcer stood apart, primarily as a model of perfect diction, but as broadcasting formats changed and television appeared on the scene, he gradually stepped down from his pedestal and became an intimate part of the program. Today, his principal qualification is showmanship.

As is true in every profession, time and mechanical advancements have greatly lessened the duties of the "man at the mike". When I joined the NBC announcing staff, in 1929, fifteen men — among them Graham McNamee, Tiny Ruffner, Alwyn Bach, Curt Peterson and Milton Cross — ran two networks. At the time the Red and Blue networks were separated this number had increased to thirty-nine. Today, NBC alone has a staff of twenty-four announcers.

On one occasion, Ed Herlihy and I had to run both the Red and Blue networks single-handed. Five of us were scheduled for duty, but two

of the men were in auto accidents enroute to the studio. A third, Jack Costello, was almost electrocuted by touching a live studio mike with one hand and a short-circuited lamp with the other. Ed and I took Jack to the first aid room, then handled shows on both networks for an hour and a half, until we could procure replacements for the missing men.

### *When Versatility Was Essential*

I can remember the days when we had to write our own copy for sustaining shows, act as producers, and quite frequently improvise when breakdowns occurred. We were delighted if a pickup came through from London or San Francisco, even though we had to listen intently and carry on when the signal "cracked-up" in the middle of the broadcast. Now, of course, each program has its own producer, copy is written by the script department, and mechanical difficulties rarely arise.

Most good announcers have been either actors, singers, or both, before they entered the radio field. My own experience as a singer

and actor proved to be an invaluable microphone asset over the years. In fact, my knowledge of opera and music in general came to my aid the first day I set foot in the NBC offices. Tiny Ruffner, who did the interviewing, asked me to read some news reports and several pages of extremely difficult opera announcements, which I managed to rattle off with the greatest of ease — much to his surprise.

Back in the early days, the announcer had many opportunities to call upon his ability to think quickly and take command of an emergency situation. It wasn't unusual for him to be assigned to introduce a singer on a fifteen-minute broadcast and find that the artist had failed to show up. In that case the announcer usually took out his own music and sang the entire show.

Another example of quick-thinking was illustrated by Ford Bond when he interviewed Lou Gehrig many years ago on the Huskies show. Ford plied the question to Lou: "I expect you to eat a good healthy cereal every morning to keep yourself in tip-top shape?", expecting the star to reply: "Yes, I always eat Huskies." Instead, Lou blurted out: "Yes, I eat a bowl of *Wheaties* every morning." Ford turned pale, but without a pause he ad-libbed: "Yes, Lou, I know you always did, but now I understand you're eating another cereal." Lou caught on and replied once more: "Oh, yes, I made the change be-

THE AUTHOR INSTRUCTS A MEMBER OF NBC'S ANNOUNCERS' CLASS IN THE APPROVED TECHNIQUE OF ADDRESSING A MICROPHONE.





IN THE EARLY DAYS OF RADIO, AN ANNOUNCER WAS FORCED TO USE AN UNWIELDY STUDIO MICROPHONE WHEN ASSIGNED TO REMOTE BROADCASTS.

cause I felt that Huskies were the best in the world!"

Today's announcer must be as great a master of the "ad-lib" as he ever was, but not for the same reasons. In the days when planes taking off for Europe and the docking of big liners made headlines, the special-events announcer was a busy man. On-the-spot coverage was made of happenings which today would rate only a couple of newspaper lines.

At the launching ceremonies of the *S. S. America*, George Putnam, star NBC newscaster-announcer, more than justified his title. A moment after Putnam opened the half-hour broadcast a gust of wind swept his script, containing all statistics on the event, into the river. Undaunted, Putnam, subtly extracted facts, figures and "color" concerning the giant ship from attending notables. Microphone interviews completed, and the ship safely down the ways, he then treated his coast-to-coast audience to a polished ten-minute summary of the proceedings.

Perhaps the longest ad-lib job in NBC announcing history was ex-

ecuted by Charley O'Connor, who was sent out in an airplane to cover the arrival from England of the Mollison plane. When the Mollisons failed to show up O'Connor circled Long Island Sound in the dark for forty-five minutes, telling his audience anything and everything he could think of.

While incidents like these seldom, if ever, occur in the present-day pattern of perfectly-timed and well-prepared broadcasts, our announcers must have clear, level heads and be always on their toes. They never know when the unexpected will happen.

#### *Good Voice Only One Requirement*

A good voice is but one of the many prerequisites which the man who would stand behind the mike must have. His ability to use that voice, give feeling to words, and project his personality into the printed word is what really counts. This ability does not just exist in a man; it is the result of a combination of many factors. The would-be announcer must be alert and versatile; he must have initiative and, most important of all, background. This means poise, an easy, dignified

approach, knowledge of music and languages, familiarity with foreign names, places, titles, blended on a generally broad cultural base.

How background is acquired matters little. The career records of many of our most noted announcers make a colorful list, representative of nearly all walks of life. Graham McNamee was a salesman and concert baritone; Jimmy Wallington, who once aspired to be a minister, studied medicine, geology, literature, and finally sang with the Rochester American Opera Company; Ed Thorgersen tried his hand as a seaman, cowboy, journalist and organist; Alwyn Bach, concert baritone and choral conductor, spent some time in the printing business; Ford Bond, who directed choral groups, was also a newspaper reporter, and George Hicks served as a deckhand, lumberjack and member of the U. S. Diplomatic Service before he entered radio.

Most unusual of all, perhaps, is the career of Kelvin Keech who once taught the Prince of Wales to strum a ukelele. Keech studied voice, graduated as a chemical engineer, entered vaudeville, served in the Signal Corps during World War I, and later led a jazz band around the capitals of Europe. A mingled marine, engineering and stage career preceded my own entrance into broadcasting.

#### *Experience is a Requisite*

When enthusiastic young men come into my office, convinced that they are qualified to be announcers, I try to impress on them the importance of experience and background. In order to give an intelligent performance on any subject, a man must have a liberal arts education in music, art and current events, or equivalent experience. It is also difficult to convince some aspirants that many voices which are pleasing to the ear may sound entirely different coming out of a loudspeaker, since amplification affects both the pitch and timbre of a voice. Although we have had about six different women announcers over the years, their careers were short-lived for the reason that most radio listeners prefer a low speaking voice — even in men.

In my nineteen years as Chief Announcer I have auditioned thousands of men both within and outside the NBC organization. Unfortunately, vacancies in this field do not occur frequently enough to take care of all who qualify, but a substantial number of men have reached their goal on the network. Ben Grauer, Ed Herlihy, Howard Petrie, Jack Costello, Charles F. McCarthy and Peter Roberts are some of the more well-known "mike men" whom I have placed on NBC's staff. Frequently NBC affiliates as well as independent stations call on us to supply them with announcers, and many young men have started their careers in this way.

### *Annual Auditions for Employees*

We try to hear all applicants, and certainly those with a good background of announcing experience. In the fall of every year we conduct auditions for young men in the Company who express interest in announcing as a career. Each group, which numbers about sixty, includes guides, pages, mail boys and others who are willing to begin at the bottom of the ladder. Usually fifteen or sixteen of these men are picked to train through the winter in our announcing class. Students showing the most talent are recommended for positions. Some are placed with smaller stations to gain experience and others are engaged as junior announcers here in New York. Many graduates of NBC's training plan, such as Dave Garroway, Hugh James, George Ansbros and Don Gardner, are successful free-lance announcers or staff men on other networks.

In 1932, when I first started training members of the NBC staff, the announcer was expected to be a gem of English speech—a very precise type of gentleman who always wore a tuxedo after six p.m., and whose speech matched his suit. The American Academy of Arts and Letters awarded an annual diction medal to the announcer who possessed the most beautiful vocal tone and who, throughout the year, never tripped on his consonants or tightened his vowels. Showmanship was a secondary matter.

Fortunately, this period didn't

last too long. As changes took place and new shows were built, the announcer gradually was brought down to earth. He was taken from his proud pedestal of artificial articulation and absorbed into the program where he belonged. His function has remained the same—to announce the program—but now he must do this as a part of the show and not as an individual apart from all others. The announcer must work in the mood of the program, and if he does this in a pleasing natural manner, making his presence felt without being too obvious about it, he is a good announcer.

Aside from the fact that it has made advertising far more friendly and effective, this transition has given the announcer greater opportunities to make use of his acting talents and to prepare for television.

### *Television Presents New Problems*

To a large degree, television has revolutionized announcing, as it has the entire entertainment field. It requires announcers to sing, act and perform as a part of the program—feats which they accomplished in the past only in emergency situations. Since video is an extension of radio, experience gained in one field is invaluable in the other.

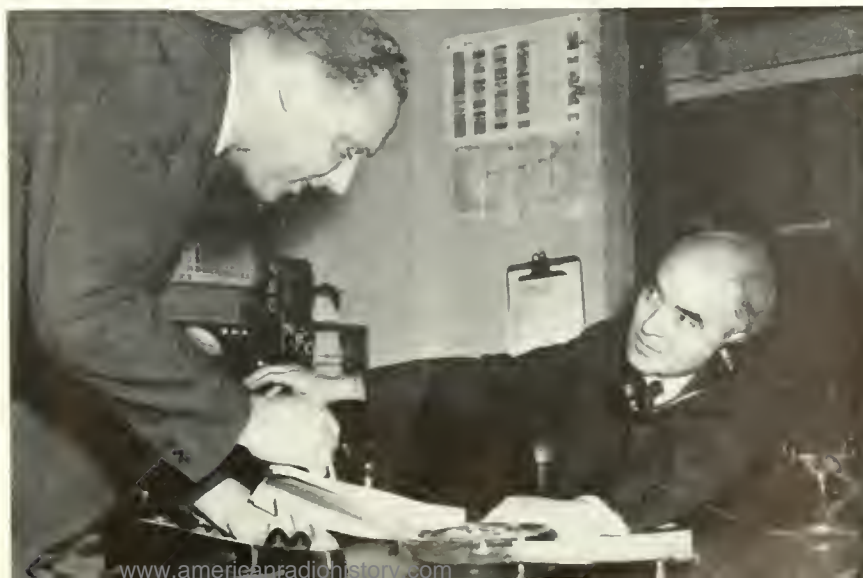
A good radio announcer, who has played large studio audiences, should be perfectly equipped to step into television. Although not all TV announcers are seen on the

screen, those who are will have to be as concerned about personal appearance as are the stars of the program. This factor undoubtedly will carry much weight with casting directors.

Whether for radio or television, we must be able to furnish the right man for the right job at the right time, in a business where seconds count. We must know where each man is and when he will report back to the Announcing Division. In shuttling the announcers' names on schedules, I sometimes feel like an intelligence officer plotting a commando raid. I never know when I may be called, on short notice, to place a man aboard a plane, an ocean liner, or even a submarine, to help carry an NBC program to the nation.

In addition to training announcers, we try to develop young men for future responsible positions throughout the Company. Promotion within the ranks is our constant aim. One young man, who came into the Announcers' Office as Night Secretary, was promoted to an Assistant Supervisor; later he was placed in complete charge of night operations, and he is now Manager of Audience Promotion. His successor became Program Manager of a Philadelphia station; and a third young man moved up the ladder to take charge of our central booking office. Such incidents confirm the value of our training, whether or not the trainees remain with NBC after the conclusion of their educational period.

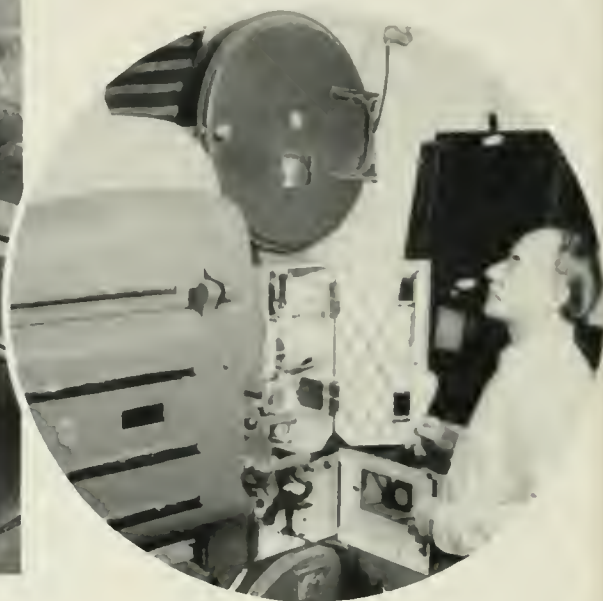
DOING SEVERAL THINGS AT ONCE IS MERE ROUTINE IN THE BUSINESS DAY OF A MANAGER OF NETWORK ANNOUNCERS.





LOUDSPEAKERS SUSPENDED ON PEDESTALS BETWEEN ROWS OF CARS ARE DRAWN THROUGH A WINDOW AND ATTACHED AT THE MOST CONVENIENT PLACE FOR THE OCCUPANTS.

RCA EQUIPMENT WAS SELECTED FOR THE PROJECTION ROOM OF WHITESTONE BRIDGE DRIVE-IN.



## Drive-in Theatres Increase

*Outdoor Screens, a Pre-war Rarity, Now Number More Than 1300 as Public Flocks to Informal Movies.*



By M. F. Bennett

*Theatre Equipment Section  
RCA Victor Division*

SOON after sundown, in more than a thousand American communities, automobiles move out into the highways and head for movieland's newest innovation in entertainment, the Drive-in Theatre. This idea of viewing the latest films from the informal comfort of your own car is, in reality, nearly twenty years old, but its greatest growth has taken place since the end of the last war. To-

day, these al fresco auditoriums are multiplying rapidly all over the country, particularly in sections where the climate is mild during most of the year.

The first drive-in theatre was built near Camden, N. J., in 1933. For nearly a decade thereafter, such ventures were considered in the novelty class. By the end of World War II, the number of outdoor screens scarcely exceeded 50. Then the tide turned and what had started as an experiment, soon became one of the wonders of the film industry.

The fundamental reason for the increased popularity of the drive-in was the development of specialized equipment for the purpose, particularly film projectors, carbon-arc lamp houses, and sound systems. One of the first firms to sense the importance of this newcomer to the film exhibition field was the Radio Corporation of America. As a result of its pioneering, the Company has installed equipment in more than 800 of the 1300 theatres now in operation.

A drive-in theatre consists essentially of a large viewing screen, a precision-built film projector, a powerful light source, a method of distributing the sound to the car-borne patrons, and a series of semi-circular ramps or ridges onto which the automobiles are driven. The average outdoor theatre accommodates 400 to 500 cars, but many larger ones are in operation in the principal cities of our country.

Patrons of a drive-in theatre reach their vantage point with a minimum of confusion and delay. They drive their cars to a ticket booth, pay their admission and are then directed to a vacant space on one of the ramps. Each ramp, being raised slightly in the direction of the screen, elevates the front end of the car so that its occupants are able to view the screen over the tops of cars parked on the forward ramps. With his car in position, the driver reaches out of the window and lifts a special weather-proof loudspeaker from a handy pedestal and attaches it to any convenient spot within the car. The speaker is connected to its pedestal by a sturdy extensible cord. If the weather is bad or the temperature uncomfortably low, the car window may be closed on the cord without damaging it.

One of the most appealing features of the drive-in theatre is its informality. If time is short, father does not have to change from his work-clothes into his party suit. If there are small children in the family, the baby-sitter ceases to be a problem. Youngsters can go along with the grown ups and get their rest in the rear seat while the parents are concentrating on the silver screen.

Owners of drive-ins are capitalizing on the county-fair atmosphere of their properties. Recalling how gas stations have attracted additional business by offering and performing extra services for their patrons, outdoor film exhibitors are following a similar pattern. Windshield wiping, car towing, tire changing, a galaxy of vending machines, playground equipment, and sometimes a nurse-in-attendance, ready with equipment for mixing formulas and heating bottles, are among the added attractions offered patrons. At one drive-in, during hot and humid weather, an attendant with an insect repellent can be hired for a small fee to keep coupes and sedans free of bothersome insects. It has been estimated that the returns from concessions now account for nearly a fourth of the gross income of outdoor theatres.

#### *Drive-ins Seek Wider Audience*

Although these theatres generally are operated only for the "carriage" trade, there are exceptions. Several which provide locations for planes, are called "Fly-in Drive-ins." At least one, adjacent to a stream, has made arrangements for canoeists to tie up at the bank and watch the show. From all this, it is evident that promoters of drive-ins do not intend to stint in adding services that will attract a broader cross-section of the amusement-seeking public.

As contributors to the progress of drive-ins, Hollywood supplied the films, exhibitors planned and constructed their theatres, but to engineers fell the task of developing suitable equipment for the installations.

Adequate screen illumination was, perhaps, the number one problem. Close behind was the demand for a sound system that would pro-

vide the film's accompanying sound to the occupants of 200 or more cars at a volume level and with the tonal quality that moviegoers expect.

To flood the outdoor theatre screen with sufficient light to ensure a bright film image to viewers on the outermost ramp, engineers were forced to develop arc lamps far more powerful than those required in indoor auditoriums. While an inside screen 30 feet wide is considered a giant, today there are many outdoor screens twice as wide. To deliver this greatly increased quantity of light demands an arc lamp and optical system operating at maximum efficiency under the special conditions imposed by outdoor usage.

#### *Sound Annoyed Nearby Homes*

In the same way and to an even greater degree, the production and distribution of sound for an outdoor auditorium kept engineers busy for many years. The first drive-ins relied upon one or more powerful loudspeakers, usually perched atop the screens. But it was impossible to keep the sound within the limits of the theatre property, and adjacent householders objected. Moreover, automobile windows had to be open throughout the film program to allow the sound to be heard at all.

After intensive experimentation, RCA scientists developed the rugged weatherproof speakers and sound distribution system which have been generally adopted. Because of their construction, these speakers can remain on their pedestals for months at a time without being affected by the elements.

As proof of the resistant qualities of the speakers, RCA engineers call attention to a drive-in theatre in upper New York State which was under flood waters for three days. When the theatre was reopened, only three of the hundreds of loudspeakers showed effects of their immersion.

To insure that these reproducing units will withstand extremes in weather conditions, the speakers are subjected at the factory to a series of "killing" tests. They are forced to undergo a salt spray for 200 continuous hours; they are submerged in water for two hours and then heated in an oven at 140 degrees for an equal period. This latter procedure is repeated four times before the units are considered acceptable.

Such precautions in manufacturing equipment have done much to popularize the drive-in theatres and to make an economic success of the business ventures. But there is still room for progress. For one thing, exhibitors would like to extend their operating time first into the early hours of dusk and eventually into daytime. Obviously, the longer hours would add materially to income, particularly in the summer months when daylight-saving means shorter programming hours.

Much attention also is being given to the possibility of in-car heating which if accomplished would make it practicable to operate drive-ins twelve months a year.

Solutions to these and other problems, authorities are convinced, would give added stimulus to an industry which already promises to become a major factor in the field of film exhibition.

CARS MOVE UP TO TICKET BOOTH OF NEW WHITESTONE BRIDGE DRIVE-IN, NEW YORK'S LATEST OUTDOOR THEATRE. SIDE OF HUGE SCREEN SHOWS IN BACKGROUND.



# Standardization of RCA Products

*Painstaking Research, Exhaustive Tests and Coordination of Data on Finishes, Materials and Components Are Among Functions of Specialized Group Set Up to Increase Production Efficiency and Assure Dependable Performance of Products.*



By D. F. Schmit  
Vice President in Charge of  
Engineering,  
RCA Victor Division.

**T**HE proudest claim of the RCA Victor Division is the dependable performance of its products in the use for which they are intended — whether a camera-size portable radio, a home television set, or huge installations of broadcast, scientific or industrial electronic equipment.

A scientific equipment may go to sub-zero Arctic cold; another RCA equipment, for military or commercial use, may go to the tropics, meeting conditions of excessive heat and humidity. Television antennas and masts, from the relatively simple ones perched atop homes to the complex installations on tall towers for broadcast transmitters, are exposed to cyclical weather changes, the corrosive effects of

atmospheric pollution, and sometimes to winds of hurricane force.

These are problems that confront every design engineer. It's his responsibility to make sure that the product he creates will stand up, that its finishes, materials and components will prove satisfactory within the range of potential use. In days gone by, this would have meant exhaustive experimentation, improvisation, and learning by bitter experience. The present-day engineer depends most often on specifications, on standardization, based on painstaking testing.

Since it is desirable to coordinate activities of this sort, and eliminate wasteful duplication of effort, RCA Victor's Engineering Administration has a specialized group on Division Standardizing. Its function is to provide within the Company a listing of the best available materials, components and finishes, and the most desirable procedures in their applications.

Higher quality, accompanied by lower costs, is the result of standardization, whose basic objective is to reduce the diversity of parts and materials fabricated or purchased for related products, and to establish uniform criteria.

Within a company, standardization develops along lines peculiar to its needs. On a broader scale,

standardization is carried on by industry-wide trade and technical organizations, and nationally, by the American Standards Association and government agencies such as the Department of Commerce and the Bureau of Standards.

## *Importance of Standardization*

The importance of standardization is readily seen, when one considers the essentially repetitive nature of modern mass production techniques. Components and assemblies of components must be interchangeable for products made on an assembly line; operations must be simplified. As effectuated by progressive industrial management, these requirements result in a constantly improved product at lower prices.

In a company like RCA Victor, whose products are the result of an unceasing flow of developments and refinements from its engineers and scientists, standards are of special importance. They are at once the tools of the laboratory and the means of communication with purchasing and manufacturing.

At this point, RCA Victor's Division Standardizing comes into

ELECTRONIC COMPONENTS MUST UNDERGO EXTREME HEAT TESTS IN THIS OVEN BEFORE BEING ACCEPTED FOR USE IN RCA PRODUCTS.

THESE INSTRUMENTS ARE USED TO TEST THE WIDE VARIETY OF CONDENSERS NEEDED IN RADIO AND TELEVISION APPARATUS.





EXPERTS COMPARE A SECTION OF METAL TUBING WITH REQUIRED SPECIFICATIONS FOR THE MASTS OF TELEVISION DIPOLE ANTENNAS.



A STANDARDIZING SPECIALIST SCRATCHES A CABINET TO DETERMINE ITS WEARING QUALITY UNDER ALL CONDITIONS OF USAGE.

service. Among its responsibilities is the publication of Company Standards. These are embodied in 13 volumes, in three categories. One covers the subject of Finishes, comprising some 500 active specifications, each supplying full information, including approved methods of application.

A second category, General, lists specifications and information on materials and mechanical and electrical components, including such data as recommended procedures in use and the hazards that are to be avoided.

The third category of RCA Standards books, Purchasing, lists specifications on the items that have been standardized and the sources of supply, greatly simplifying buying procedures.

Items are listed in the RCA Standards book mainly when used by two or more product departments. These listings are kept up to date by periodic additions and cancellations. Each category is indexed and its contents presented in a format especially engineered for maximum utility.

#### *Standards Books Widely Used*

These RCA Standards books are in use in some 200 locations at RCA Victor's ten plants and among RCA affiliated companies such as RCA Victor of Canada and the Radiomarine Corporation. They are also on file in a number of

government agencies and outside standards organizations.

In addition to the RCA Standards books, Division Standardizing has issued and maintains a widely used Drafting and Shop Manual, of which some 700 copies are in service.

Working closely with Purchasing activities, Division Standardizing seeks to coordinate standardization by each operating department. While concerned with everything that goes into RCA Victor products, the Division Standardizing unit concentrates on items that represent a large dollar volume.

#### *Miles of Wire Consumed*

This year, one of its important activities has involved plastic insulated wire. Annually, some 100-million feet of wire and cable of all types, costing several millions of dollars, are used in RCA Victor products. Objective of standardization on this item is to bring into use in all RCA Victor plants newer, better, and more economical types of wire.

Obviously when suppliers are able to concentrate on fewer items, in larger quantities than previously required, they can make them with greater efficiency.

From the consumer's point of view, there may appear to be an inconsistency between the functions of a standardizing activity and the

variety of styles in the many RCA Victor products.

#### *Cooperate in Setting Standards*

While there is a great deal of standardization in chassis of radios, phonographs and home television sets, there is no attempt to inject this factor into areas that are properly controlled by styling and merchandising considerations. But merchandise and styling people do standardize themselves within the limits of their requirements. It was found, for example, that the stylists could work with 14 colors of glass dial plates, instead of some 10. Sets of these approved colors for dial glass were made up, distributed to the styling sections, vendors, purchasing groups, and incoming material inspection, and purchasing of glass dials was put on a purely competitive basis.

The major part of RCA Victor Division Standardizing activities are conducted in the group's offices and laboratories in Camden, N. J.

In the laboratories, electrical and mechanical components, materials, and finishes are subjected to rigid testing, under extreme conditions that do not merely synthesize conditions that may be anticipated in normal use, but even exceeding those that might be encountered in abuse.

Electric ovens are used to bake parts for weeks on end. Finishes are subjected to heat, cold, and

humidity tests, then scratched and abraded with sensitive machines to record their durability. For products that might be used at sea or in the tropics, tests are made for fungus growth, resistance to rust and salt sea air. These are routine procedures utilized in determining RCA Standards. Then there are the special problems, brought to the group by the various product departments, which may require testing that makes Division Standardizing's normal "torture chamber" procedures seem pallid by comparison.

Even more dramatic is the trouble-shooting in the field for which Division Standardizing engineers are often called upon. A recent instance arose from a threat to production schedules of RCA Victor's new metal cabinet television receivers. As production lines were prepared for assembly of thousands of sets a week, it was found that the adhesive compound supplied to bond transfers of the wood-grain finish to the metal cabinets failed under heat and humidity tests. A Division Standardizing expert scoured the finishes field, found a company that could supply in quantity an adhesive solution that would do the job and stand up under heat and humidity cycling. Production schedules were not impaired, and the new sets reached dealers' stores in time for their debut.

#### *A Problem in Wire Insulation*

On another occasion, a large order of plastic insulated wire threatened to bog down production schedules because the cover slipped on the conductor. In assembly operations, it is customary to cut the wire in quantity to the precise size required, then drop it into a fixture or solder it directly to the terminals. When assemblers came to this operation, it was found that the plastic insulating coating was loose, and would slide over the wire. For each solderer to take time out to adjust the plastic coating would disorganize an assembly line, preventing the smooth flow that is an essential to low-cost, volume production.

A Division Standardizing engineer was reached on his vacation,

hurried to the supplier's plant. There he tracked down the trouble to the fact that the silk marker thread which was imbedded in the plastic coating would pick up moisture from the air. As the moisture-laden thread entered the heat of the extrusion machine, the water would vaporize, and expand the insulation. The latter, in turn, set in this semi-expanded condition, and failed to grip the wire tightly. "The Case of the Sliding Insulation" was solved by a simple expedient—drying the marker thread with infra-red lamps just before entering the extrusion machine.

"The Case of the Flying Paint" was another dramatic field problem solved by Division Standardizing. A scheduled production run of personal radios at the Bloomington, Indiana, plant had suffered two setbacks on production dates.

The supplier of the finish compounded it in his Newark, New Jersey, plant, and shipped a quantity by air express to another sup-

plier in Grand Rapids, Michigan, where the cabinets were made and finished. Applied to the first few cabinets, the finish appeared flat and unattractive, lacked luster, had poor adhesion, and was not at all in accordance with the approved RCA Standards upon which it was formulated.

It appeared that when the cans of paint were shipped by air, the plane gained an altitude of over 10,000 feet. This caused the top of the can to blow off, and the paint lost a substantial percentage of its top toners and pigments. Whoever observed this, replaced the missing top, wiped off the paint from the can, and delivered it to the consignee. But it was no longer the RCA Standard finish.

But the production schedule was met. The Home Office engineer drove in his car to another plant of the paint supplier, in Cincinnati, personally supervised the formulation of another quantity of paint.

*(Continued on page 32)*



CABINETS FOR TABLE MODELS OF TELEVISION RECEIVERS (ABOVE) MOVE IN A CONTINUOUS LINE AT RCA'S CAMDEN PLANT, WHILE COMPLETED 16-INCH TELEVISION CONSOLES (BELOW) RECEIVE FINAL ADJUSTMENTS AT THE COMPANY'S INDIANAPOLIS FACTORY.







CHARTER BOAT "TUNA III", OPERATING OFF LONG ISLAND CARRIES RADIOMARINE RADIOTELEPHONE AS A SAFETY ADJUNCT.

MRS. DOROTHY GARCIA, SKIPPER OF THE CRAFT, LIFTS THE MICROPHONE OF THE RADIOTELEPHONE UNIT TO COMMUNICATE WITH SHORE TELEPHONE SYSTEM.



## Relies on Radiotelephone

*Woman Skipper of Charter Boat Depends on RCA Unit for Safety, Convenience and Entertainment of Her Guests*

WHEN Mrs. Dorothy Garcia, only licensed woman skipper of a charter pleasure boat in the New York area, pilots the 35-foot *Tuna III* away from her home dock at Freeport, Long Island, headed for the Hempstead Bay fishing grounds, she knows that the safety of her guests, mostly women and children, as well as their entertainment and convenience is assured by the presence aboard ship of an RCA radiotelephone. To her, the radio unit is one of the most important accessories of her craft.

Installation of the radiotelephone, Mrs. Garcia contends, was not a whim. As a pioneer of her sex in conducting charter boat excursions, she realizes the responsibilities she must assume while operating the craft. Knowing that emergencies may arise at any time, she feels reassured to be able to call the Coast Guard by radiotelephone if it should become necessary. Moreover, with

the same instrument, passengers may talk to their families ashore or be reached in similar manner while they are miles away at the fishing grounds. And as a final feature, the RCA set includes a radio broadcast receiver which provides programs for the entertainment of those aboard the *Tuna III*.

### *Family Boat Was Classroom*

Mrs. Garcia's interest in boats started four years ago when her husband bought the *Tuna III*. During spring overhauls of the boat, she helped with the sanding, painting and motor repairs. Then, under the guidance of her husband, a former merchant marine radio operator, she learned how to navigate the family boat.

This initial training intensified her desire to become a licensed operator. She studied the intricacies of motor-boat equipment, the regulations applying to safety at sea,

and mastered the complicated "rules of the road". She learned how to take cross-bearings and how to ride out a storm. To complete her training, she took a 10-week course in the handling of small boats. Thus, well primed on nautical subjects, Mrs. Garcia in March of this year passed the U. S. Coast Guard examination for her skipper's license.

So few women have invaded this masculine-dominated field that the government apparently has not yet thought it necessary to provide for them in the official license form. Neatly framed and hanging in the *Tuna III's* cabin is Mrs. Garcia's certificate which reads in part as follows:

"This is to certify that Dorothy V. Garcia has given satisfactory evidence to the undersigned Officer in Charge, Marine Inspection for the District of New York, N. Y., that he (sic) can safely be intrusted with the duties of operator of motor boats . . . when carrying passengers for hire, on the navigable waters of the United States. . . ."

[RADIO AGE 31]

## New Television Markets

(Continued from page 22)

Immediately after the meeting, newspaper stories appear, helping to sell the public on television and inspire it to purchase television receivers. Publicity releases on the news event, interviews with company executives in town for the television meeting, photographs of local celebrities with the new sets, facts about the effect of the new industry on local business and entertainment, all find their way into print. In the new television market, everything about television is news. Advertising to consumers is keyed to the beginning of commercial programs in each market.

While some of the introductory procedures have become fairly well standardized, constant vigilance is maintained to prevent this standardization from creating hackneyed operations or blind spots. For example, in Miami, marine equipment dealers were given franchises. An appreciable market was found

TELEPHONE OPERATOR AT TEXAS ENGINEERING PLANT ENTERTAINS 2500 EMPLOYEES WITH RCA 45-RPM RECORDED MUSIC, DURING LUNCH AND REST PERIODS.



[32 RADIO AGE]

among yacht owners who wanted television aboard their craft.

Simultaneously with the franchising of dealers, the RCA Service Company's local branch swings into action. Antennas are mounted on the roofs of stores requesting Service Company installations and the best possible reception is obtained, in order that every set may be demonstrated properly. Almost immediately after installations of the franchised dealers have been completed, each dealer is expected to have RCA Victor sets installed in his house and in those of his salespeople. This helps them to become well acquainted with television, able to discuss it as first-hand information. Also, it generates enthusiasm among them for the product, industry and programs.

Knowledge gained from these installations is invaluable to the Service Company later, since this preliminary work represents a sampling of all sections of the market and familiarizes the organization with reception conditions over much of the surrounding terrain.

Another early type of installation made in each new market is in public places such as hotels and taverns, clubs, churches, schools and fraternal organizations, where large groups of the public can have an early opportunity to see television in action. This creates the desire for it in the homes of all who see a good demonstration in public places.

Special newspaper sections devoted to television are published. A television column may become a daily or weekly newspaper feature. Television program listings take their place on the radio page and even on sports pages.

New television areas are of vital importance to our industry. They are tributaries that swell the mainstream of television. They expand the potential market out of proportion to their actual size because they are completely unsaturated and they have tremendous momentum right from the start.

Possibly more important than any of these points is the fact that each new television market brings new opportunities for achievement. Also, we are aware that, even in the oldest of television markets,

thousands of families are only now realizing that television is not a service only for "other people," but is something they may, should, and can afford to have in their own homes.

## Standardization

(Continued from page 30)

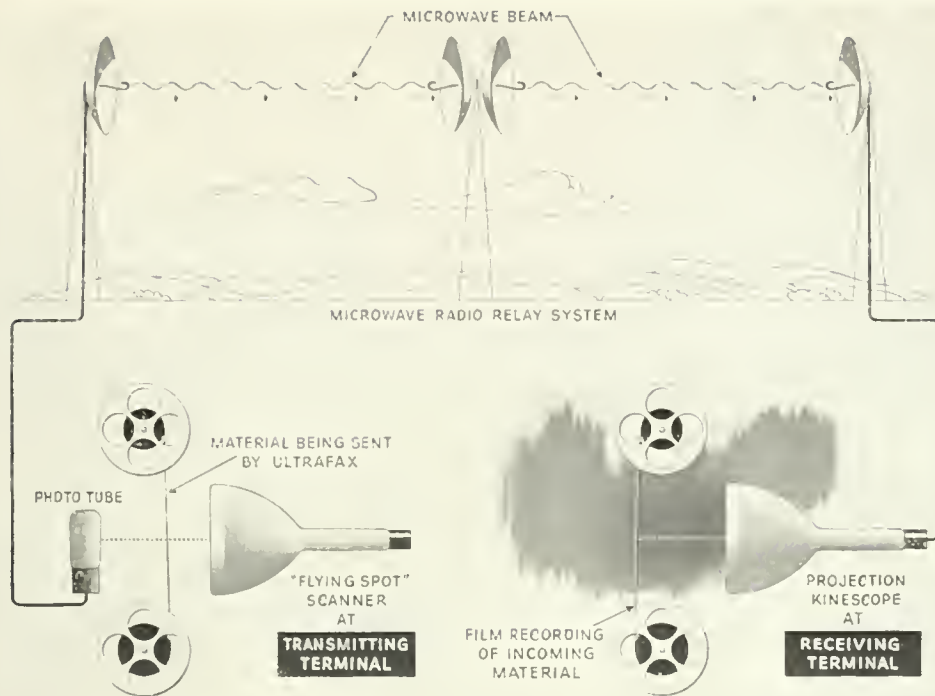
tested it for compliance with RCA Standards, put the cans of paint into the trunk of his car, and drove back to Grand Rapids.

There he supervised the finishing of the first 1,000 receiver cases, and saw them loaded on a truck and dispatched to Bloomington, where production ran as scheduled.

"The Case of the Smeared Silver" was not even a mystery—except to the supplier who failed to meet the RCA Standards specifications. This involved a silver-plated case for a piece of government equipment, which after plating, was to receive a green-tinted lacquer finish. When the first units were received from the supplier, they were dull and smudgy-looking. RCA Victor's Division Standardizing finishes specialist went to the supplier's plant in Buffalo, and spotted the trouble. The company was spraying the green pigment as it was received—cut in alcohol—without mixing it with clear lacquer, as specified in the RCA finish standards. When the alcohol evaporated, the green pigment could be rubbed off the case.

And so, another problem was solved, another threat to RCA quality standards eliminated.

The standards—the specifications and procedures—are as dynamic as the Division-wide engineering in which they are utilized, whether research, development, or product design. RCA Standards are not static. They are devoted to the best that is currently available, in each field they encompass. Tomorrow there may be something better, possibly something less costly, or more economical to use. If it offers advantages of more dependable performance, of economies that may lead to lower costs to the consumer, it will soon be listed in RCA Standards, and will hold its listing only until something better comes along.



PERIODICAL DEPT.

SIMPLIFIED DIAGRAM OF A COMPLETE ULTRAFAX SYSTEM SHOWING THE PRINCIPAL ELEMENTS WHICH MAKE POSSIBLE THE MILLION-WORDS-A-MINUTE TRANSMISSION SPEED OF THE NEWLY DEVELOPED MEDIUM OF COMMUNICATION.

# Ultrafax: Million Words a Minute

*Sarnoff Foresees Ultrafax Opening New Era in National and International Communications—He Urges Study Looking Toward the Establishment of a New National Communications Policy*

ULTRAFAX, a newly developed system of television communications capable of transmitting and receiving written or printed messages and documents at the rate of a million words a minute, was demonstrated publicly for the first time by the Radio Corporation of America at the Library of Congress, Washington, D.C., on October 21.

Brigadier General David Sarnoff, President and Chairman of the Board of RCA, declared that Ultrafax, which splits the seconds and utilizes each fraction for high-speed transmission of intelligence, is as significant a milestone in communications as was the splitting of the atom in the world of energy.

Among the possible developments which General Sarnoff foresaw were:

1. The exchange of international television programs achieved on a transoceanic basis.

2. A service of television and Ultrafax by which the same receiving set would bring various types of publications into the home, or a newspaper for that matter, without interrupting the program being viewed.

3. A system of world-wide military communications for this country, scrambled to the needs of secrecy, which with ten transmitters could carry in sixty seconds the peak load of message traffic cleared from the Pentagon Building in twenty-four hours during the height of World War II.

4. The establishment of great newspapers as national institutions, by instantaneous transmission and

reception of complete editions into every home equipped with a television set.

5. The transmission of a full-length motion picture from a single negative in the production studio simultaneously to the screens of thousands of motion picture theatres throughout the country.

6. The possibility of a new radio-mail system with the vast pickup and delivery services of the Post Office Department.

Representatives of the United States Armed Forces, Government agencies, industry and the press witnessed the introduction of this advanced communications system. RCA presented the demonstration as a "progress report" to show that the system has reached a stage of development where plans can be