

# RADIO AGE

RESEARCH • MANUFACTURING • COMMUNICATIONS • BROADCASTING • TELEVISION



OCTOBER 1954



MILITARY TELEVISION



**Oil well in the Colombian sky!**

*Another of the international communications projects successfully engineered by RCA International Division*

## How a radio-directed engineering marvel provided “happy motoring” for the citizens of Bogotá, Colombia . . . 8,600 feet up in the Andes

In spite of government and industry efforts to make gasoline available in Bogotá, Colombia, often it was scarce. Deliveries by road and railway were often interrupted by flash floods along the rugged routes climbing to the mile-and-a-half-high capital.

The Department of Cundinamarca, the State in which the City of Bogotá is located, had an idea—a direct 150-kilometer pipeline from the oil tank farm, across jungle and stream, up the great Andean walls to Bogotá. A magnificent engineering concept, it presented great obstacles. But it was done—through co-operation of petroleum, construction and radio organizations.

RCA radio is the nerve system of

this engineering triumph. The VHF-FM radio relay system provides instant 2-way voice and Teletype communication between the tank farm and Bogotá, and intermediate points.

RCA International Division's worldwide organization functioned here as it does on similar assignments. RCA engineers, working with Williams Brothers Corp., international builders, designed and supervised the radio installations for “oil well in the sky.”

It's happy motoring now in Bogotá. Oil, gasoline and kerosene flow swiftly,

economically, and surely up the ridges, dispatched by dependable RCA radio . . . the aid of industry and government, the friend of the family everywhere.

*RCA products and services are available in all world markets open to trade, through RCA distributors and associated companies. The new book “Communications, Key to Progress” tells the inspiring story of radio at work in many countries. Simply write to RCA International Division, 30 Rockefeller Plaza, N. Y., U.S.A.*

*World leader in radio, first in recorded music, first in television*



**RCA INTERNATIONAL DIVISION**

**RADIO CORPORATION of AMERICA**

**RCA BUILDING**

**30 ROCKEFELLER PLAZA, NEW YORK, N.Y., U.S.A.**

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## COVER

Gen. Matthew B. Ridgway, Army Chief of Staff, tries out RCA combat TV camera in "command post of future" with Brig. Gen. David Sarnoff, Chairman of the Board of RCA (left) and Maj. Gen. George I. Back, Chief Signal Officer. (Story on p. 15)

## NOTICE

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Radio Age is published quarterly by the Department of Information, Radio Corporation of America, 30 Rockefeller Plaza, New York 20, N. Y.

Printed in U.S.A.

VOLUME 13 NUMBER 4

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**RADIO CORPORATION OF AMERICA**  
RCA Building, New York 20, N. Y.

DAVID SARNOFF, *Chairman of the Board*  
JOHN Q. CANNON, *Secretary*

FRANK M. FOLSOM, *President*  
ERNEST B. GORIN, *Treasurer*



The new RCA 21-inch simplified color TV receiver.

# RCA Demonstrates Three Major Advances in Color TV

THREE new major developments in color television were demonstrated by the Radio Corporation of America on September 15 at Princeton, N. J., opening the way to early mass production of color television sets at costs within the reach of the consuming public.

Described as milestones in the march toward commercial color television, the three new developments were:

1. A new 21-inch RCA color picture tube with 250 square inches of viewing area — 22% more than any other color tube yet produced;

2. A magnetic field equalizer called the "Color Equalizer." This is a significant new RCA invention, not previously announced, which guarantees improved color set performance and makes possible a reduction in manufacturing costs;

3. A new, simplified color television receiver, which reduces circuitry by one-third and permits a substantial reduction in production costs.

Each of these developments represents "years of scientific and engineering endeavor telescoped into a memorable few months," according to E. C. Anderson, Executive Vice-President, RCA Commercial Department, in remarks at the demonstration, held at the David Sarnoff Research Center of RCA.

## *RCA Timetable for Production of Tubes and Sets*

"The RCA timetable," Mr. Anderson continued, "calls for industry sampling of the 21-inch color tube starting November 1, and for the appearance in the market of our first 21-inch color sets before the end of this year, with production in quantity by early 1955.

"While we have not yet established a suggested retail price for our 21-inch color set, I can tell you, today, that it will be between \$800 and \$900."

At a special press showing, which preceded demonstrations for representatives of virtually the entire television manufacturing industry, Dr. Elmer W. Engstrom, Executive Vice-President, RCA Research and Engineering, said:

"Again, RCA is following the policy of sharing with its competitors its advances in color television so as to encourage early production of improved equipment on the widest scale."

Reporting on plans for color broadcasting, Robert W. Sarnoff, Executive Vice-President of the National

Broadcasting Company, said that "provision of color programming in volume, on a national basis . . . will create audience excitement beyond anything else available on the air. NBC's contributions to color development during this past year have established for it a position of leadership in the field. Our color operation during the coming year will advance that position further, and the entire industry will benefit from it."

Mr. Anderson, in reviewing RCA progress in color television, said:

"When RCA first tackled color television, we were aware of the importance of creating an entire system, not just isolated elements of one. A color service, as we saw it, required every part to mesh smoothly with the others. As a result, we moved ahead simultaneously in the broadcasting, the picture tube, the receiving set, and the circuitry fields. Now, we are ready to demonstrate, as well as to discuss, these advances.

## *The 21-Inch Color Tube*

"The 21-inch tube, which holds the spotlight today, was — only 8 short months ago — in our development laboratories. But the progress we had made with it was so good, that we determined not to go ahead with our 19-inch tube. We concentrated our efforts on a 21-inch color tube — the preferred size — without introducing any intermediate smaller sizes.

"This advance, from the first commercial color tube of the 15-inch size to the preferred tube of the 21-inch size, required only a few months; but they have been months crowded with sustained effort and achievement. In black-and-white television, a similar evolution took several years.

"It is our opinion that the 21-inch color tube you are seeing today is a practical large-screen color television tube that enables immediate commercial production. This is the tube upon which RCA is planning its own commercial program, and we are going forward with full confidence. We expect to produce and sell this tube at a price that should advance the sale of color receivers to the public.

## *Receiver Circuitry Is Simplified*

"We have also given much attention to reducing the cost and increasing the stability of color receiver cir-



RCA's new 21-inch color TV tube is shown here in comparison with the earlier 15-inch color tube introduced by RCA in its first commercially-produced color television sets.

cuitry and components. Approximately a one-third reduction in receiver circuitry has been achieved, without any loss of performance. Substantial cost savings are inherent in the results of this work.

"This simplified circuitry has been used to construct two of the receivers demonstrated to you today. The other two receivers contain the 19-inch chassis previously described to you and modified to work with the 21-inch tube.

"While the simplified circuit receiver uses 11 tubes less than the modified receiver, nevertheless, their performance is the same."

Dr. Engstrom said that RCA's three new developments — the 21-inch color tube, the "Color Equalizer," and the new simplified receiver — have advanced large-screen color television to the practical stage of quantity production.

#### *New RCA "Color Equalizer"*

Regarding RCA's new "Color Equalizer," Dr. Engstrom pointed out that, previously, the performance of color tubes was affected by magnetic fields such as the earth's field or local sources.

"To minimize such disturbances," Dr. Engstrom said, "tubes have been protected up to now with a conical magnetic shield which was effective in shielding the small end of the tube cone, but relatively less effective near the tube face. We have also used a rim coil

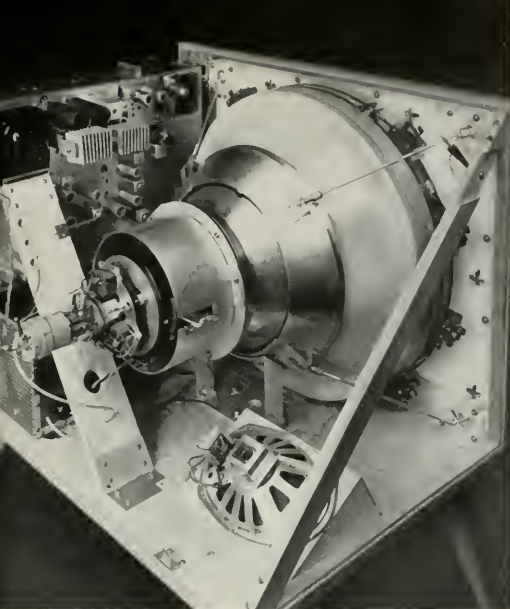
in the form of a loop placed near the plane of the phosphor plate, in addition to the magnetic shield.

"Our new 'Color Equalizer' performs the function of the rim coil, but unlike the rim coil, its effects may be controlled at various points around the circumference of the color tube face. It makes unnecessary either a magnetic shield or the rim coil. The net result is a better, more positive effect and a reduction in cost of the receiver.

#### *Will Save Consumer At Least \$20*

"The magnetic shield has been an item of relatively high cost in a color receiver even though we have carried on an active cost reduction development. We now propose to use the new RCA 'Color Equalizer' in place of the magnetic shield and the rim coil formerly used. By doing so a saving will be effected in the cost of manufacturing our new 21-inch color receiver. In indicating this saving we are comparing the use of the lowest cost magnetic shield we have been able to develop for our 19-inch glass envelope color tube together with a rim coil, and the 'Color Equalizer' for use with our 21-inch metal envelope color tube. The saving *on this item alone* represents a saving to the consumer of at least \$20."

In commenting on RCA's new 21-inch color picture tube, Dr. Engstrom said that it "provides excellent



Rear view of the new RCA 21-inch simplified color TV set shows how circuitry has been reduced.

color; with size, picture brightness, picture quality and contrast comparable to present popular black-and-white tubes. There are several important new features embodied in this tube which contribute to high performance, lower cost and ease of production."

Among the features of the new tube listed by Dr. Engstrom were: 1) considerably lighter weight; 2) a new and shorter electron gun and a wider deflection angle, making for more compact color sets; and 3) an improved shadow mask and mounting system that ensure an excellent picture out to the edges of the tube and a brightness comparable to black-and-white.

"We believe that the simplified construction of this 21-inch tube," Dr. Engstrom continued, "will allow it to be manufactured at reasonable cost in large quantities."

#### *New RCA Color Receiver Has 28 Tubes*

In describing the development of RCA's new, simplified color receiver, Dr. Engstrom said:

"This new receiver is the result of our experience with the 15-inch RCA color set, and of lengthy trial by our engineers of many forms of simplified circuitry. This receiver has reduced by one-third the circuitry required for color television sets. It employs 28 tubes counting the picture tube and draws less than 300 watts from the power line. It is interesting to note that RCA's original model 650TS — the first large-scale

black-and-white production receiver produced by RCA — used 30 tubes and drew about 300 watts.

"Our simplified receiver covers all TV channels — both UHF and VHF — and there is more than ample reserve capacity in all circuits to accommodate low limit tubes and low line voltage."

#### *NBC's Color Program Plans*

Mr. Sarnoff, in reviewing NBC's color program plans, said that "nobody can doubt" that color television will be the major broadcast medium of the future.

"At NBC, we have just concluded our Introductory Year of color broadcasting," Mr. Sarnoff continued. "During this past year, we have produced and broadcast over 50 different programs in color. About 90% of our production staff has had on-the-job color training in connection with these shows. As a result, we are now opening the commercial phase of color broadcasting. Color has become an integrated part of our regular operation.

"A number of individual stations throughout the country have already equipped themselves to originate color programs locally and several more are about to do so. Local origination of color programming will add a further stimulus to the growth of color circulation in the areas served by these stations.

"By January 1, we expect that at least 82 stations on the NBC network will be color inter-connected and equipped to transmit network programs in color. At that time, about 87% of all television families in the country will be within range of the NBC color service.

"With a national color circulation potential covering 87% of the present television sets, with high appeal NBC color programs scheduled on a regular basis — plus the color programming of other organizations and with 21-inch color sets on the way — with all these new developments — the stage is set for rapid growth in the color medium during the coming year — and for accelerated growth in the following years.

"I believe that a year from now, we will be looking back on a record of progress that will surpass present predictions. That has been the experience of our industry in the past — and we believe it holds true for the future."

The 15-minute color program seen during the demonstration was transmitted via microwave relay to the David Sarnoff Research Center from NBC's Colonial Theatre color studio in New York.

Produced by Barry Wood, NBC Executive Producer in Charge of Color Coordination, the telecast featured André Eglevsky and Diane Adams in a ballet selection, singer Connie Russell in two vocal numbers, and an excerpt from the color film "The African Queen."

# Aspects of Broadcasting, Present and Future

## Sarnoff, at NBC TV Affiliates Meeting, Discusses Color TV, Radio Networks, Future TV Sets, and Editorializing by Networks

*Brig. General David Sarnoff, Chairman of the Boards of RCA and the National Broadcasting Company, addressed the NBC Television Affiliates Meeting in Chicago on August 31. Following are excerpts from his remarks:*

### Color Television

At the present time we are passing through a very interesting and important transition. It is the transition that marks the difference between publicity and performance. As we are now entering the area of performance, I think you need no advice from me on how to evaluate claims and predictions made by almost everyone in this business. And if you want to include us, that is all right, too. Just keep your eye on performance, and don't pay too much attention to publicity.

Over the past two years we have all heard of color tubes that were being produced at such a rapid rate that the facilities were just inadequate to catch up with the orders. Yet, in some instances those claims, repeated frequently, have been so unfounded that we were not able to get even a sample of such tubes.

Again, we have heard of startling developments that were just around the corner. They would be out tomorrow; but tomorrow has come and gone, without a sign of such developments.

It is not necessary to argue one's case if one has a color tube, a color set, and a color program. All you have to do — all anybody has to do from here on — is just watch the performance of the tube. Watch the performance of the set. Watch the quality of the program. Then you will know as much as anybody in the manufacturing or broadcasting business knows — and I suspect a little bit more than some of the top executives in the broadcasting and manufacturing business know. . . .

### Radio Networks

I have had the thought for some time that there was only one direction, incomewise, for radio networks to go, and that is down instead of up. I was challenged in that view, and I had hoped right along that I might be wrong. I would rather be proved wrong than right in that one.

But what are the facts today? Every now and again you hear about some national advertiser canceling his programs on radio networks, daytime as well as night-

time. If a business keeps going down, it is very difficult to arrest the decline. And it is not so easy to readjust your appetite to the dwindling victuals on your plate.

We do have this advantage in the NBC. We have been dieting for the last few years on the radio network, and we have slenderized. Our figures are trimmed in that branch of the business. While some of our radio network competitors have been more fortunate in the last two or three years, they have still to learn how to get along on the reduced rations of a radio network diet. I hope that the rate of their radio decline will not be so violent or rapid as to interfere with the health of their remaining organisms.

### Doing Well Through Local Business

While radio network revenue declines, some independent radio stations as well as affiliated stations have been doing very well. They have been doing well through local business, through spot business, through all the names that you gentlemen invent from day to day that even I can't keep up with — station breaks and other kinds of breaks. But that hasn't helped the radio network to grow and remain healthy. It may be that in radio, perhaps you can get along fairly well without a network because of the recorded programs and revenue you derive from local and other sources.

If this be so, and if the radio network declines to a point where it no longer has sufficient energy to sustain its body, you know what happens under those conditions. If you think that a radio station, particularly an important radio station in an important center, can remain prosperous regardless of whether it has a national network or not, if you believe that, then, of course, you will have no interest in the continued life of a radio network.

On the other hand, if present radio networks should cease to exist, I believe you would find that the importance of a radio network as an instrument of national service and national defense, would demand such a service in one form or another. In times of national emergency or national disaster, it is of the utmost importance to our national defense and national security that we be able to make instantaneous contact with all of the people of our nation, wherever they may be, in millions of automobiles or elsewhere. This is especially vital in the atomic age in which we live.



I don't say that radio networks must die. Every effort is being made and will continue to be made to find new patterns, new selling arrangements and new types of programs that may arrest the declining revenues. It may yet be possible to eke out a poor existence for radio networks — but I don't know.

### *New Forms of Competition*

Let me also raise a word of caution about the future of TV networks. Here too, new forms of competition are under way and anything that adversely affects the healthy and profitable development of a TV network, will also affect the welfare of a TV station affiliated with it. The magnetic tape recorder is on the way. I expect by the end of this year the National Broadcasting Company will be in a position to experiment with it in actual service. This new development is coming along and reaching the commercial stage. The TV tape recorder will furnish a type of network competition that may prove to be of great importance.

I recognize the difference between TV networks and radio networks, the difference in complexity and in programming. I recognize the difference between live programming and recorded programming, but in this fast moving art and industry, complacency is dangerous.

It may be true that some live programs simply cannot be substituted by recordings. But this is a question of percentages. The revenue remaining to the TV network must be sufficient to support an organization that must make heavy capital and other commitments of a long term nature. All these benefit the affiliated stations as well as the network. Their future is interdependent.

Those are problems, gentlemen, that I suggest for your own earnest and serious consideration. . . .

### *Tubeless Television Sets*

I believe that at some time in the future — I will hazard a guess and say five years from now — no tubes will be needed in a television set — not even the picture tube. Then all the debates about one-gun and three-gun tubes, rectangular and round, glass and metal, shadow-mask and focus-mask, and other kinds of masks, will belong to the language of the past.

By Electro-Luminescence we shall have a screen on the wall of whatever size you wish to make it — small or large — and that screen will be connected directly by a small cable, with a little television box — about the size of an average cigar box that can be placed anywhere in the room. No cabinet will be required; and if desired, screens can be placed in every room of the house.

The television box will contain the tuning and volume controls, and the station selector. It will also have a remote control knob enabling one to make the

picture of any desired size; to have it either in black-and-white or in color; and to make it brighter or dimmer. All these features will be easily adjustable by the viewer, to suit his individual taste.

Transistors will replace the present small tubes, and an electro-luminescent screen will take the place of the present cathode-ray tube. . . .

### *Editorializing by Networks*

I believe that radio and television should have the same rights as the press. But when that request for permission is confused with the broader subject of editorializing by networks, when that proper request in a specific case is merged with a general principle, and is labeled "editorial," it creates unnecessary confusion and raises many questions to which there are no clear answers at this time.

What is a network editorial? Is an editorial only an editorial when it talks about the interest of the network, or is an editorial an editorial when it talks about any public question that may be controversial and vital? If it be the latter — and I assume it must be included in the definition — then I want to distinguish between the right of a network to editorialize, which I think it should have, and the execution of that right, which is a matter of policy, of wisdom, of importance and circumstances at a particular time. A policeman should certainly have the right to carry a loaded pistol, but the execution, the firing of that pistol, is quite another matter as distinguished from his right to carry it.

### *Special Circumstances Must be Considered*

If a network is to editorialize only when its own interests are involved, then I think the special circumstances of the case must be considered. It is not speaking in its own interests only when it raises its voice in protection of the freedom of broadcasting. It is serving the public's interest as well. But if it is editorializing on other public questions or on partisan or political subjects, it is quite a different matter.

It is not enough to say that it will give "the other side" an opportunity to answer because the question is: what is the other side? How many sides are there to an important controversy? When I have an argument with my wife, I think there can be only one side to that argument. But when she answers me, she seems to have many sides to her reply, and some I never thought about before! There isn't any such thing as just one side or one answer to a controversy.

And who is to select the exponent of the other side? And how often will that right to editorialize be exercised by a network? Will it be a daily editorial as in a newspaper? And if so, is it practical to give "the other

*(Continued on page 32)*



Mayor Robert F. Wagner of New York cuts the tape to open NBC's new color TV studio in Brooklyn. Assisting are Betty Hutton and, at right, NBC President Sylvester L. Weaver, Jr., and Robert W. Sarnoff, Executive Vice President.

## World's Largest TV Studio Opened by NBC for Color

A ONE-TIME motion picture studio in Brooklyn, N.Y., has reopened for business as the world's largest and most modern television studio, completely equipped for programming for the new era of color.

The studio is the National Broadcasting Company's new color production center, acquired from Warner Brothers and converted at a cost of \$3,500,000 to handle NBC's unprecedented series of thirty-three "spectaculars" — ninety-minute color programs of a scope never before presented on a regular basis.

Formal dedication of the vast studio took place on September 9, when Mayor Robert F. Wagner of New York cut the ceremonial ribbon and described the new center as "a fine new showcase for the best New York has to offer in the theatre arts." Participating with Mayor Wagner in the ceremony were Sylvester L. Weaver, Jr., President of NBC, Robert W. Sarnoff, NBC's Executive Vice-President, and actress Betty Hutton, who starred on September 12 in the first of the new "spectaculars."

The opening of the Brooklyn production center widens further the margin of NBC leadership in color programming facilities. These already include the Colonial Theatre in New York, the world's first fully-equipped studio for compatible color; Studio 3-H in

Radio City, used for smaller productions, commercials, and research in staging, lighting, costuming and make-up; a mobile color unit, the only one of its kind in existence, used for outdoor coverage of special events remote from studios, and RCA three Vidicon multiple film projectors capable of handling 35- and 16-millimeter color film and slides. By the end of the year, the present facilities will be augmented by another large studio being equipped by NBC in Burbank, Calif., to tap the reservoir of Hollywood talent for "spectaculars" and other color programs.

### *Number of Unique Features*

Several unique features have been built by NBC into the huge Brooklyn center, among them the most elaborate lighting system in the industry — 900 circuits with a capacity of 960,000 watts, or enough to light a community of 3,000 homes.

The lighting is arranged in a grid system whose components can be raised or lowered by electric hoists controlled remotely from a lighting "bridge." There are 126 such hoists, capable of handling 75,000 pounds of lighting equipment. This push-button hoist arrangement was developed by NBC engineers. It permits individual height adjustment of 63 groups of lights and the pre-setting of heights for 10 scenes.

At the heart of the system is a newly-perfected "Lumi-Tron" lighting board, a complex arrangement of some 2,000 controls — twice the maximum of any lighting board previously used in television programming.

To convert the lighting system for color, the light capacity had to be increased seven and one-half times, which in turn meant a heavy reinforcement of the overhead girders to handle the substantially greater weight.

### *Large-Screen Projector*

For the studio audience of 360, the center has been equipped with a large-screen color projector, newly developed by RCA, which permits viewing of the performance on a movie-size 15-by-20-foot screen. The audience is accommodated in a new type of demountable seating arrangement.

In addition to the main studio, 178 feet long and 88 feet wide, a smaller studio will be built in what is now a rehearsal hall to one side. The smaller studio, full-sized by usual standards, will be used for commercials, and it will be able to handle products as large as automobiles, which can be wheeled in through large doors leading in from the street.

The center also includes a carpentry shop that can build complete sets for any major production. Other facilities include an artists' lounge, remodelled dressing rooms, makeup rooms and storage space for props and equipment. A Quonset hut measuring 40 by 60 feet also is being built as additional storage space.

### *RCA Color Caravan*

As NBC opened its new home for color programming in Brooklyn, RCA started a nation-wide tour with

a new "color television caravan" equipped to produce on-the-spot programs to introduce color TV to audiences at fairs, expositions and other large public gatherings.

The unit made its public debut on September 25 at the Mid-South Fair in Memphis, Tennessee. After its Memphis stand, it prepared for an extensive tour that will involve appearances at other expositions and at special showings for conventions, department stores, and business and service organizations.

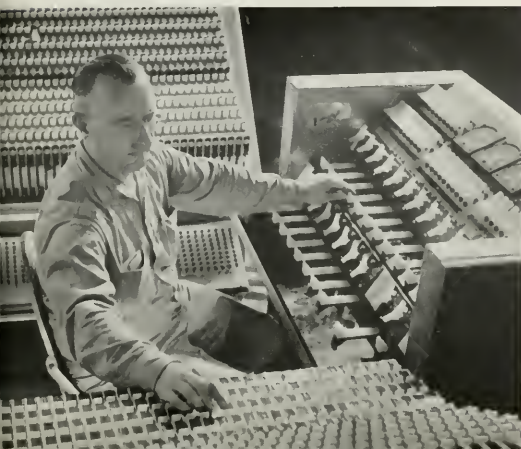
In employing a mobile unit to promote the nationwide introduction of color, RCA is following the precedent set in 1947, when another RCA caravan toured more than 50,000 miles over the country introducing black-and-white television.

The heart of the RCA color caravan is a specially-designed 32-foot trailer containing a complete control room and technical equipment to originate any type of program, either "live" or film. The equipment includes a number of RCA Victor color TV receivers, two RCA color cameras, a color film-scanner and microwave apparatus. Like the new NBC studio in Brooklyn, the unit has been equipped also with the new RCA color TV projector capable of showing color programs on a 15-by-20-foot screen.

For the most part, the caravan will originate programs to be carried over a closed circuit to its receivers via cable. However, its equipment permits the feeding of programs to commercial television broadcasting stations or to a network whenever the occasion may require it.

A complete staff of engineers, technicians and program production experts has been assigned to the unit, which is under the supervision of Richard H. Hooper, Manager of RCA Shows and Exhibits, with headquarters in Camden, N. J.

At the "Lumi-Tron" lighting board, 2,000 lighting controls are within reach of the technician.



TV's most elaborate lighting system hangs over the vast studio, formerly a film sound stage.



# Folsom Predicts...

## \$12 Billion Electronic Sales in '55

**S**ALES approaching twelve billion dollars annually for the electronics industry by 1957 were forecast by Frank M. Folsom, President of RCA, in a talk on September 23 in Chicago discussing the outlook of color television and other promising components of what he described as an "utterly amazing industry."

Mr. Folsom, addressing a meeting of the Investment Analysts Society of Chicago, reported on the results of a survey covering sales and estimated sales of electronic products over a twelve-year period beginning in the postwar year of 1946.

"Total annual sales of the electronics industry," he said, "grew from \$1.6 billion in 1946 to \$8.4 billion in 1953. Further growth is projected, as follows—1954, \$8.8 billion; 1955, \$9.5 billion; 1956, \$10.9 billion; 1957, \$11.8 billion."

The domain of electronics is so vast and so rapid is its rate of development that it seems hard to believe that eight years ago the industry was only one-fifth its present size, Mr. Folsom declared, adding:

"In those eight years, electronics has assumed a stature that commands high respect in all branches of finance, trade and industry. It is the vital factor in all forms of modern communications; all modern means of mass entertainment depend upon it—radio, television, talking movies, tape sound systems, and phonograph recording and reproduction; modern transportation must have its controls and communications; the military uses it in myriad ways; and even atomic devices depend on it."

### *Study Covers Principal Components*

Mr. Folsom said that the study of the industry took into consideration the principal components, as follows:

**Home and Portable Radios**—This field once represented the chief source of revenue in our business. Today, because of television and changing habits of the people, sales are declining gradually—from a postwar peak of \$600 million in 1947 to an estimated \$109 million in 1956.

**Auto Radios**—Relatively stable sales somewhat in excess of \$100 million annually.



Frank M. Folsom, center, President of RCA, chats with Fred J. Stock, President of the New York Board of Trade, and Henry L. Lambert, Chairman of the Mercantile Section of the board, at meeting addressed by Mr. Folsom in New York last month.

**Black-and-White Television**—Postwar growth was spectacular, with sales increasing from \$1 million in 1946 to \$1.4 billion in 1950. Sales in 1953 totaled \$1.2 billion, and nearly \$1 billion is expected in 1954. A drop to \$388 million is projected by 1957, due to the shifting of the mass market from black-and-white TV to color.

**Color Television**—Following commercial introduction in 1954, increased volume is expected to more than offset reduced sales of black-and-white television, reaching \$264 million in 1955, \$767 million in 1956, and \$952 million in 1957. This would mean a total of nearly \$2 billion (at factory prices) during color television's first three years.

**Repair Parts (chiefly renewal tubes)**—Steady growth is expected to continue in support of increased receivers in service. Volume amounted to \$217 million in 1953, and is estimated at \$454 million by 1957.

**Servicing and Installation**—This important element has grown from \$145 million to 1946 to

\$1.4 billion in 1953. Continued growth to \$2.7 billion by 1957 is indicated.

**Industrial and Commercial Equipment**—Steady growth is also indicated here, from \$50 million in 1946 to \$267 million in 1953, and a projection of \$520 million by 1957.

**Government Electronics Expenditures**—Volume totaled \$2.5 billion in 1953 (30% of total electronics industry sales). During the four years 1954-1957, government electronics expenditures are estimated at \$2.7 to \$2.8 billion annually.

**Electricity**—Total electricity costs to operate TV and radio instruments are estimated at \$49 million in 1946, \$354 million in 1953 and \$634 million in 1957.

**Broadcasting and Communications**—Total revenues in 1946 were \$404 million, or 25% of the total sales by the electronics industry. Revenues increased to \$1.1 billion in 1953. By 1957, total revenues of \$1.5 billion are estimated. Nearly all of this growth is due to TV broadcasting revenue, with radio and communications revenues showing only modest gains.

### *Prospects for Color TV Growth*

Mr. Folsom said that he looked upon color television both as a technical marvel and one of the most significant advances in the history of electronics, and added:

"Its prospects are brighter than the prospects of black-and-white television were eight years ago. We will see a day when virtually every American home will have a color TV set.

"During the rest of this year and next year, it is estimated that more than 350,000 color sets will be produced and sold by the industry.

"During 1956, unit sales should reach 1,780,000; during 1957, 3,000,000; in 1958, about 5,000,000.

"These annual sales add up to the very satisfactory estimate of more than 10,000,000 color sets in American homes by 1959."

Commenting on RCA's expansion and improvement of its manufacturing facilities, Mr. Folsom told the Chicago group:

"With the advent of color television — to say nothing of a long list of other new electronic products and services, including industrial television, microwave radio relay systems, theatre television, new types of radar, electronic computers and transistors — RCA plant facilities are undergoing the required expansion and modifications.

"Our expenditure on facilities this year alone is expected to be in excess of \$30 million. This will bring RCA's outlay on plant expansion and improvement to more than \$200 million since 1946."

History will record 1954 as a good year for the radio-television and electronics industry, according to Mr. Folsom. He declared:

"Business has been much better during the first 9 months than was generally anticipated earlier in the year.

"As you know, sales of products and services of the Radio Corporation of America and subsidiaries attained an all-time record volume of \$444,369,000 during the first six months of 1954. After Federal Taxes, our net profit for the half year amounted to \$19,268,000, an increase of \$1,083,000, or 6% over the 1953 period. During July and August our business volume has been better than 5% over the same months of 1953. We foresee excellent sales prospects for RCA and the industry as a whole during the remainder of the year.

"Beyond this period, as I have stated, the outlook is equally bright for the electronics business. We are far from realizing the full potentialities of this remarkable industry, and RCA is well equipped to meet the challenges and the opportunities ahead. RCA can be counted upon to continue its pioneering and leadership, in research and engineering, manufacturing and broadcasting. We have complete confidence in the future of electronics as a science, art and industry."

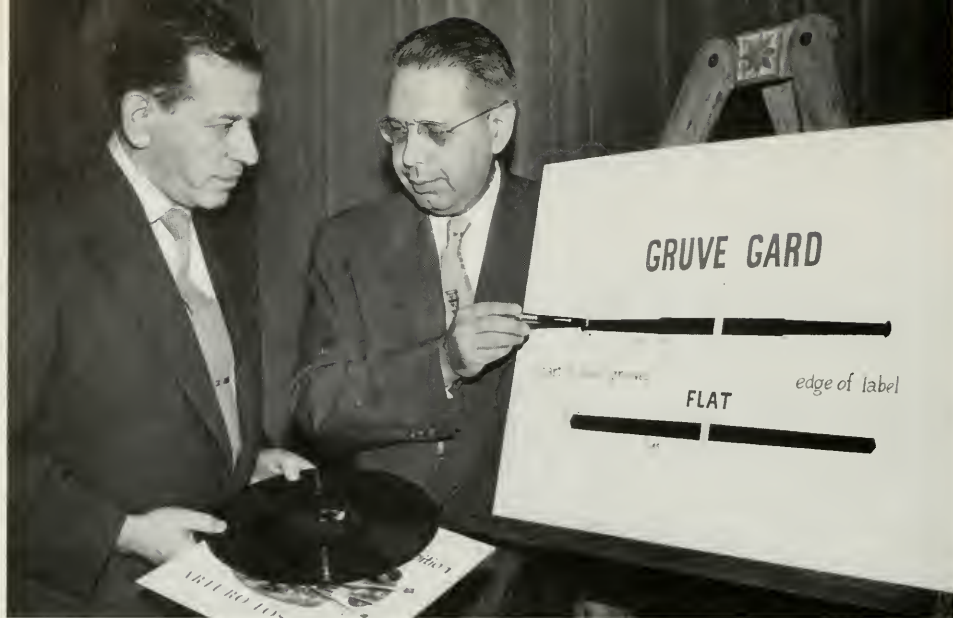
### *Talks to New York Group*

In a talk given earlier before the Mercantile Section of the New York Board of Trade in New York, Mr. Folsom pointed out that from the standpoint of economic gain, the production of color receivers will require "a mountain of raw materials."

"Our experts in such matters have informed me," he said, "that 10,000,000 color sets would use more than 350,000 tons of wood, 175,000 tons of steel, 5,000 tons of brass, 3,500 tons of solder, 3,000 tons of copper, 2,500 tons of zinc, and enough glass, plastics and miscellaneous materials to bring the total well over 1,000,000 tons — or two billion pounds."

### **NBC Announces Promotions**

The election of three new vice-presidents of the National Broadcasting Company was recently announced by Sylvester L. Weaver, Jr., President of NBC. Kenneth W. Bilby was named Vice-President for Public Relations; Davidson Taylor was named Vice-President in Charge of Public Affairs, and Richard A. R. Pinkham was named Vice-President in Charge of Participating Programs Department.



Hill Reiskind, right, manager of the engineering division at the RCA Victor Indianapolis plant, points out the features of the new RCA Victor "Gruve-Gard" record to Emanuel Sacks, Vice-President and General Manager, RCA Victor Records. Revolutionary design of "Gruve-Gard" protects playing surfaces of long-playing discs.

## Advances In High Fidelity Recording

by Emanuel Sacks  
*Vice President and General Manager,  
 RCA Victor Records*

**R**ISING public interest in high fidelity recordings is expected to provide the greatest impetus to the sale of records and "Victrola" phonographs since the introduction of the 45-rpm speed in 1949.

Record sales alone should jump from an annual \$225 million to more than \$300 million because of the concentrated attention being given to high fidelity. A corresponding increase in instrument sales also is expected, especially since addition to the RCA line of the new 45 high fidelity record player to be marketed at \$69.95.

Anticipating the potentialities of high fidelity, RCA engineers and scientists for many years have been working in sound laboratories to capture sound and reproduce it faithfully on all RCA Victor records and "Victrola" phonographs. And the man in the street who once was puzzled by such hi-fi jargon as "woofers," "tweeters" and "frequency response" will soon find these terms as familiar as the most enthusiastic high fidelity "bug."

The far-reaching effects of the new hi-fi trend will be felt in several important areas.

These will include:

- (a) A new standard of listening enjoyment for the American home.
- (b) The placement of high fidelity equipment in twice as many American homes.
- (c) Classical works which previously have had limited appeal, finding new audiences because of their high fidelity reproduction.
- (d) The development of additional hi-fi improvements such as the new "Gruve-Gard" protective device which will give even greater listening perfection to long-playing discs.

High fidelity has been defined as the nearest possible approach to perfect fidelity. It leaves with the listener an impression of being present at a live musical performance.

### *Delicate Balance Required*

RCA Victor's "New Orthophonic" sound techniques require a delicate balance between engineer and musi-

cian, between musician and microphone and instrument placement. The technique of recording within the studio, as well as the process of manufacture, has changed tremendously within the past few seasons. New studios, new equipment and new innovations in recording, as well as a greater awareness of the importance of high fidelity sound on the part of the artist, all have contributed to the uptrend in audio listening.

Until recently, high fidelity was the special property of the broadcast industry, great musical artists and the electronics technician who made an expensive hobby of seeking perfection in recorded sound by "assembling" various component parts. Now, however, "hi-fi" is being packaged for the average American home and it means a new era of recorded music pleasure for the family.

Because of high fidelity, more and more of America's "middle-brow" families soon will be listening to — and liking — all types of music. Music tastes will broaden because the greater listening range of records and phonographs are offering the average American, young or old, an entirely new concept of quality in recorded music.

### *"Hearing Is Believing"*

In order to illustrate vividly what high fidelity means to the average listener, RCA Victor has just released an unusual demonstration disc called "Hearing Is Believing." One side of the record is a dramatic demonstration of the difference between old sound and "New Orthophonic" High Fidelity illustrated by old and new recordings.

The coupling contains selections from new classical, pop and jazz records which illustrate the finest in the new sound. The record sells for only \$1.00 as a long-playing record and thirty-five cents as an EP 45-rpm recording. Anyone who still wonders what high fidelity is will certainly understand after listening to the "old" and the "new." In order to get as many of these records as possible into consumers' homes, this record is being offered as a special consumer service without profit to RCA, dealers, distributors or artists.

For the more advanced audiophile, RCA Victor also has released a definitive treatise in both sound and text on the subject with the new album titled "Adventure in High Fidelity." Robert Russell Bennett, renowned Broadway arranger and composer, whose album of the "Victory at Sea" score was widely acclaimed for its remarkable sound, was commissioned to write a special symphonic work for this album. Notes by Robert D. Darrell, noted authority on phonograph records, outline in a booklet enclosed with the album the meaning of the many hi-fi technical terms and what may be expected from high fidelity as a listening experience. Charts graphically illustrate the range of common instrumental

and vocal fundamentals and the audible frequency range for music, speech and noise; there is a musical test for one's own high fidelity or average phonograph equipment, and illustrations of how the human voice sounds in high fidelity as well as examples of the unusual sound in new pop recordings.

"An Adventure in High Fidelity" is an impressive tribute to the growth and importance of "hi-fi" sound.

### *Special Recording Techniques*

High fidelity records, as evidenced in RCA Victor's "New Orthophonic" release of the Berlioz "Damnation of Faust," not only have wide frequency range but involve special recording techniques which sharpen the identity of the separate instruments and seem to project vocalists in front of the accompaniment.

But high fidelity should not mean sound for sound's sake alone. We refer to the cult of "hi-fi-natics" who concentrate on moments of spectacular isolated sounds at the expense of musical content. True high fidelity is the complete fulfillment of the musical content without exaggerated emphasis on the more sensational possibilities.

The latest advance in high fidelity is the multiple track recording, in which two separate sound tracks are recorded to reproduce music binaurally. This has been successfully accomplished on many new recordings which now await only further developments to make binaural or stereophonic sound practical for home use.

In line with its forward-looking policy in research and the advancement of recording techniques, RCA Victor has pioneered in the pre-recorded tape field. A library of high fidelity tape recordings was marketed on 17 reels this June, offering more than 11 hours of recorded music. Each of these reels provides approximately the same amount of music as is offered on a 12-inch long-playing record. Introduction of pre-recorded tape is in line with RCA's policy of continuing research, looking toward development of the finest recording and reproducing systems and techniques.

With these new technological developments and the brilliant sound captured in such current RCA Victor releases as the "Damnation of Faust" performed by Charles Munch and the Boston Symphony, or the interpretation by Fritz Reiner and the Chicago Symphony of "Richard Strauss in High Fidelity," the prophetic words of Leopold Stokowski quoted recently in an interview on his vast experience in the realm of sound reproduction, rings prophetically true.

"I am convinced," stated Stokowski, "that in days to come, recorded music will have further developments than those I have just mentioned. We cannot foresee those yet. The potentialities are infinite; so is the inventive power of the human mind."

# RADAR for Canada's Navy

By Bruce Lanskaill

Manager, Government Contracts Division  
Engineering Products Dept.

RCA Victor Company, Ltd.

**D**URING World War II, Canadians took to the water as they had taken to the air in the first World War and a great Canadian naval tradition was born.

Since the war, the Royal Canadian Navy has become an important part of the nation's defense force and to step up its defense efficiency the Navy recently purchased from RCA Victor Company, Ltd., Montreal, the largest and most powerful air search radar equipment ever produced in Canada.

The new equipment was demonstrated to top Navy officers, Department of Defense Production officials and the Canadian press at RCA Victor headquarters. Two Sea Fury fighter aircraft served as aerial targets for the test demonstration and were picked up on the radar screen as they approached Montreal. Simultaneously, the movements of the 90-foot antenna, mounted on top of one of the RCA Victor buildings, were shown on a television screen so that naval officers, production officials and the press had a complete picture of all the equipment in action throughout the test.

Set up in an enclosed section of the company's engineering products department, the equipment was oper-

Examining the screen of Canada's newest and most powerful radar at the RCA Victor plant in Montreal are, left to right, Commodore H. N. Lay, Assistant Chief Naval Staff (Warfare); Commodore W. L. M. Brown, Assistant Chief Naval Staff (Air) and Commodore (L) W. H. G. Riger, Electrical Engineer-in-Chief.



ated by a naval operator under conditions simulating those which would be found on shipboard. The demonstration was completely successful with the results exceeding the expectations of naval officers, Commodore H. N. Lay, OBE, CD, RCN, Assistant Chief Naval Staff (Warfare), declared following the final day's tests.

Designed to detect enemy aircraft at long ranges, the new radar equipment will greatly strengthen the defense effectiveness of Canada's Atlantic and Pacific fleets. Sets are being installed in destroyer escorts and in the aircraft carrier now being built for the Royal Canadian Navy.

Weighing more than two tons, the complete equipment includes a stainless steel antenna which will be mounted high on the warships' superstructures, a transmitter, a modulator and several smaller parts. The antenna rotates continuously, sweeping the sky with a radio beam shaped like a fan on edge. The bearing and distance of an aircraft more than 100 miles distant are revealed at the instant it intercepts the radio beam. This information is then displayed instantaneously on the television-like screen of the plan position indicator unit.

The equipment's output is several hundred thousand watts and can be increased to several million watts, making it one of the most powerful naval aircraft search radars in the world.

Commenting on the success of the Montreal demonstration, Commodore Lay emphasized that the new radar could be of tremendous value to Canada in an emergency. He pointed out that the equipment was being manufactured in Canada so that the navy could be assured of production in that country. RCA Victor Company, he said, was to be congratulated for the efficiency with which it had produced the first set to be delivered and for the manner in which the demonstration had been so successfully staged.

Commodore (L) W. H. G. Riger, OBS, CD, RCN, electrical engineer in chief, declared that the harmony of engineering entailed in its construction was obvious when it was realized that it had to be both highly sensitive and extremely rugged. The equipment has been designed to withstand Arctic and equatorial temperatures and also to be shock-proof at all times.

The naval contract, a vitally important one in the Canadian defense program, amounted to \$3,500,000. RCA Victor Company, Ltd. was selected for the work because of its extensive research and production facilities and its long record in supplying communication and detection equipment to Canada's armed forces.



# Combat Television



In the "command post of the future" at Fort Meade, Md., the briefing officer explains maneuver to be covered by TV on the battlefield.

On August 11, 1954, an attacking force of United States Army soldiers swarmed ashore in amphibious personnel carriers after a lake crossing at Fort George G. Meade, Maryland, to assault a simulated enemy stronghold. With the first wave of troops rode the herald of a new era in battlefield communications — a combat soldier equipped with a hand-carried Vidicon television camera that flashed back to regimental headquarters an instantaneous picture of the critical beach-head action.

The regimental commander, at his command post in the field, used the eyes of television to direct the action, swiftly adapting his original battle plan to new circumstances conveyed to him by Vidicon cameras in the battle area and by larger television cameras mounted in a reconnaissance plane circling over the enemy's supply and assembly points.

This was combat television, demonstrated publicly

for the first time on the twentieth anniversary of the concept of television for military use, first proposed to the Armed Services by Brig. General David Sarnoff, Chairman of the Board of RCA. It was in 1934, when the art of television itself was in its infancy, that General Sarnoff initiated discussions with representatives of the services in Washington on applying the extended and instantaneous electronic sight of television to warfare. From those early discussions stemmed the subsequent development of television equipment and techniques for combat use in air and at sea — and now on land.

An audience of top-ranking military and industrial leaders and representatives of the nation's press watched the Fort Meade demonstration in a "command post of the future." Observing the demonstration, and participating in a national network color telecast of portions of the event, were General Matthew B. Ridgway, Army



Before the "eye" of a combat TV camera, troops assault a position after the lake crossing at Fort Meade.

Chief of Staff; Major General George W. Smythe, Deputy Commander of the United States Second Army; Major General George I. Back, Chief Signal Officer, and General Sarnoff.

#### *Commander Sees and Controls the Battle Action*

In the simulated command post, the role of television in ground combat took dramatic shape in an exercise presented jointly by the United States Second Army, the Signal Corps, and RCA.

The regimental commander and his staff, facing a large television screen, called for instantaneous pictures from cameras in the field and in an observation plane over the battle area as the action progressed.

A new type of enemy tank was shown on the screen

Airborne TV cameras in a reconnaissance plane provided air view of enemy territory for the commander.



and its details rapidly noted by the staff intelligence officer. An enemy prisoner, interviewed before a Vidicon camera immediately after his capture at the front, disclosed the nature of the enemy forces opposing the assault. A map found on the prisoner and held up to the camera divulged an enemy scheme of counterattack; the plan was confirmed by the airborne television unit, which located an assembly of hostile forces, and the commander rapidly altered his plans to break up the counterattack before it could be mounted. With the help of another Vidicon camera close to the front, helicopters were directed for speedy evacuation of the wounded.

Through the entire action, the commander was able, through the eyes of television, to see and control his battle situation.

The nationwide color telecast, covered by the color television cameras of RCA and the National Broadcasting Company and broadcast over the NBC television network, emphasized the future role of color in conveying more complete information for the commander and his staff, such as the color distinction between different types of terrain and foliage, natural and camouflaged objects, and the variety of colored markings and smoke signals used by friendly and enemy forces.

Viewed on color receivers in the Pentagon, at the White House, and at military headquarters across the country, the color network program demonstrated another role of television as a future means of communication between a theatre of operations and headquarters in Washington or elsewhere.

#### *Future Importance of Combat TV*

In their comments on the demonstration, Generals Ridgway, Back and Sarnoff were unanimous in emphasizing

An "enemy" prisoner, captured at the front, is examined before a combat TV camera for rapid intelligence study.



ing the important part that television is destined to play in future operations on the battlefield.

"Television has a great military potential, and it seems to me that our nation is making fine progress in developing this potential," General Ridgway said. "After its possibilities are thoroughly tested, television, as a means of military communication, can take its place beside the atomic cannon, the Skysweeper antiaircraft gun, the NIKE and Corporal guided missiles, and the Honest John rocket as part of our modern Army."

General Ridgway also paid tribute to General Sarnoff for his role in encouraging the development of television for military use, saying:

"I doubt that any individual man has contributed more in this vitally important field than you, General Sarnoff, through your vision, your energy and your persistent patriotism."

General Back said:

"The further development of these electronic eyes you have just seen will provide the battlefield commander of the future with a visual means of observing and controlling his own troops as well as providing him with a vigilant eye against surprise enemy attacks. Increased combat effectiveness and a substantial saving of soldiers' lives will be the result of this added visual facility."

General Sarnoff called the demonstration "concrete evidence that a new era in tactical communications has opened," and he pointed to the future development of combat television by saying:

"The demonstration we are witnessing today indicates that combat television units consisting of miniature color cameras and transmitters can be carried in action by one man, or fixed in positions that will enable a constant eye to be kept on critical areas."

Mounted on an amphibious vehicle, a color camera focusses on troops in action for the colorcast.



An elevated platform helps an NBC color camera to cover the battlefield during the nationwide colorcast.

He added:

"I foresee the extensive use of military television not only as a tactical system for use in combat, but also for communications between the center of command in Washington or elsewhere, and theatres of operation across the seas."

### *"Operation Threshold"*

The Fort Meade television maneuver, executed by troops of the famed 3d Armored Cavalry Regiment, was divided into two segments: 1) a demonstration of the Army Signal Corps Interim Tactical Television System, on a black-and-white closed-circuit system feeding to monitors and the commander's TV screen in the command post tent, and 2) an assault carried out before the color cameras for broadcast over the NBC network, and

Signal Corps combat TV cameraman, in a foxhole, flashes back a picture of frontline action.





Above, TV combined with the Army's new long-range lens may give instantaneous view of distant objectives. At right, combat TV camera mounted on amphibious vehicle covers start of mock assault across lake at Fort Meade.



viewed in the command post on RCA color television sets.

The Signal Corps television unit, attached to the regiment for the exercise, comprised three rugged, compact RCA Vidicon cameras carried by combat cameramen with the troops, and two larger RCA cameras mounted in an L-20 reconnaissance plane. The ground cameras were linked by cable to truck-borne transmitters which relayed the pictures by microwave to a receiving unit and small preview monitors in the command post. From the airborne cameras, signals were sent directly to headquarters by microwave relay and appeared on a fourth monitor.

The closed-circuit demonstration showed the ability of today's experimental battlefield equipment to accomplish these tasks:

- 1) Location, evaluation and designation of artillery targets; 2) adjustment and control of artillery fire; 3) transmission of data from the combat area to headquarters; 4) reconnaissance of enemy territory to detect supply points, assembly areas and movement of forces; 5) intelligence reporting, such as examination of captured personnel and equipment; 6) briefing of tactical commanders before an action; 7) observation and control of friendly troops in action and behind the lines.

The color demonstration provided a glimpse of the ultimate goal—a combat TV system that will give the commander a continuous view of the situation and terrain as they actually appear.

#### *Predicted in 1927*

While 1954 marks the twentieth year of active cooperation between RCA and the services in developing

television for military use, the concept itself originated at an even earlier date, in a statement by General Sarnoff in 1927. Speaking that year before the Army War College in Washington, General Sarnoff said:

"Perhaps it would be too fantastic to consider the part that may be played by direct television in the war of the future, but it is not too early to consider the direction which laboratory research should take in its application to military uses. It is conceivable that a radio-television transmitter installed in an airplane might be useful in transmitting a direct image of the enemy's terrain, thus enabling greater accuracy in gunfire."

General Sarnoff's vision of the future began to take concrete form in 1934 when Dr. V. K. Zworykin of RCA Laboratories suggested the specific application of television in aerial bombs—pilotless missiles with electronic eyes—as an American alternative to the use of suicide pilots even then being discussed by the Japanese. General Sarnoff immediately approved the suggestion and initiated discussions with the Armed Services in Washington. Encouraged by the reaction of the military leaders, he established a research program under which RCA scientists and engineers were assigned to pioneer and build suitable equipment.

Initially, the development work was concentrated in the field of airborne TV equipment, with the result that Army and Navy Air Forces were able to carry out experimental attacks during World War II with the now-famous RCA BLOCK equipment. This equipment was demonstrated publicly in 1946 at the Anacostia Naval Air Station and was later used by the services at the Bikini atom bomb tests in drone aircraft flown through the atomic mushroom.

# RCA Elects Director, Promotes 4 Executives

**E**lection of a new director and the promotion of four key executives has been announced by RCA.

Dr. Elmer W. Engstrom, Executive Vice-President, RCA Research and Engineering, was elected a member of the RCA Board of Directors on October 1, filling a vacancy caused by retirement from the Board of Walter A. Buck.

The executive promotions included election of Robert A. Seidel as Executive Vice-President, RCA Consumer Products; Paul A. Barkmeier as President of RCA Estate Appliance Corporation; Douglas Y. Smith as Vice-President and General Manager, RCA Tube Division, and Albert F. Watters as Vice-President and Operating Manager, RCA International Division.

Dr. Engstrom, who became Executive Vice-President, Research and Engineering, on June 4, 1954, has broad responsibility for all research and engineering activities of RCA. In addition, he is head of RCA Laboratories and a member of the Board of Directors of RCA Victor Company, Ltd., Canada.

## *Associated with Industry Since 1923*

Associated with the electronics industry since his graduation from the University of Minnesota in 1923, Dr. Engstrom joined RCA in 1930. First as an engineer and then as a research administrator, he has had a pioneering role in the development of radio, sound motion picture apparatus, the general science of electronics, and both black-and-white and color television.

Mr. Seidel joined RCA in 1949 and served until recently as Vice-President of RCA's Sales and Services subsidiaries. Prior to his association with RCA, he had been Vice-President and Controller of the W. T. Grant Company.

Mr. Barkmeier, who joined RCA in 1948, has been Vice-President, Distribution, of RCA. Previously he had been Vice-President and General Manager of the RCA Victor Record Division.

Mr. Smith, who joined RCA in 1930, had been General Marketing Manager of the Tube Division. Previously, he had served as manager of RCA tube plants in Harrison, N. J., and Lancaster, Pa., and as Tube Merchandise Manager and Manager of Tube Sales Operations. In 1951, he received the Company's highest employee honor, the RCA Victor Award of Merit.

Mr. Watters, previously the Director of Associated Company Operations for the RCA International Division, joined RCA in 1935 and has served in various administrative posts in personnel and manufacturing.



Dr. Elmer W. Engstrom



Robert A. Seidel



Paul A. Barkmeier



Douglas Y. Smith



Albert F. Watters

## RCA in Africa



By B. F. Moore, Jr.

*Manager, Off Shore Procurement  
RCA International Division*

**A**N impression of tremendous growth and progress greets the visitor in present-day Africa. Its world of witchcraft, forbidding jungles and tribal drums is giving way to vast industrial development and modernization.

Everywhere there are signs that the great continent has been undergoing remarkable changes. Modern communications systems now connect African cities; metropolitan offices are air-conditioned, and police cars are radio-equipped. Ships, plying between ports, have the latest navigational aids; natives are forsaking canoes for modern passenger planes. Behind much of the change is the electronic technician who is helping the "land of the lion" to telescope 50 years of Western technology into a single decade.

Playing an important role in the building of a new Africa is the Radio Corporation of America. RCA is bringing to Africa some of the skilled technical aid which is so essential if the area's incredible potential is ever to be realized. Vital to its development are vast communications projects, electronic aids to conquer desert and jungle, lofty broadcasting towers to speak, not only to Africa, but to the world.

### *Equipment in Belgian Congo*

Typical examples of the work being done by RCA in Africa may be found in Elizabethville, capital of Katanga in the Belgian Congo. This is a fabulously wealthy section where copper and other important minerals are mined and where RCA equipment is doing a variety of jobs. A case in point is a mobile communica-

tions unit which keeps the local headquarters of the Union Minière du Haut Katanga in constant touch with the foreman and working crews seven miles away and over a hill.

The efficient policing of the area is another task done by RCA Mobile Radio units. With the assistance of radio-equipped cars, the central station at Elizabethville found that a large area could be guarded with only a handful of men whose patrol cars are always in communication with the central station.

The BCK railroad in Katanga is using RCA mobile radio equipment to control all locomotive switching operations. Ninety miles away, at Jadotville, this same railroad has put RCA 16mm projectors on day and night shifts. During the day, training films are shown, while at night the projectors are utilized for recreational films for the railroad employees.

Leopoldville, the capital of Belgian Congo, recently celebrated the completion of ten years of shortwave broadcasting. Two RCA short-wave transmitters, one

An RCA customer makes her selection of a radio in Leopoldville, Belgian Congo — one of many African centers served by RCA International Division.





Radars on the Congo — the antenna of an RCA radar set installed on one of the steamers plying the great river between Leopoldville and other centers.

50 kw and one 7½ kw, have enabled the local station to fulfill day and night broadcasting schedules for the last decade.

Just across the river in French Equatorial Africa, Brazzaville has also been broadcasting for 10 years with an RCA 50 kw transmitter. In addition, Brazzaville is equipped with RCA Transmitter-Receiver units, and RCA Telephone and Telegraph Transmitters and Receivers.

### *Helps to Guide Planes*

In the city of Usumbura, commercial center of Ruanda-Urundi, a United Nations Trust Territory administered by Belgium, an RCA Telephone and Telegraph Transmitter and Receiver helps to guide planes into the city's airport. For over a year this unit has been providing essential communication with incoming planes and neighboring airports. The city has no regular theater, but movies are shown at the two leading hotels with RCA 16mm units, whose performance has been unaffected by the difficult climatic conditions of high temperatures and humidity.

Because the Belgian Congo encompasses a tremendous area, and because it is so important to world commerce, two of its greatest problems have been transportation and communication. Electronics is now helping to solve the problems. Navigation of the Congo River has been speeded up by the addition of RCA Marine Radar equipment on river steamers. Prior to the addition of this equipment, it was necessary to tie up the boats every night because of the difficulties of navigating in a constantly changing channel.

RCA Radar equipment has also been installed on many lake steamers, helping them to provide faster service. In addition, RCA Diversity Receivers and Com-



RCA Strato-World portable radio provided only source of outside news on African safari for Barney Berlinger, Pennsylvania gear manufacturer, and his son, Barney, Jr.

munication Receivers are rendering dependable service on most of the international communication circuits that come into Leopoldville.

Both RCA home radios and air conditioners have won high praise from residents of the Belgian Congo for their trouble-free performances despite climatic obstacles.

### *In the Sahara Desert*

Another area in which RCA equipment is rendering invaluable service is in the Sahara Desert, an area of some 3,000,000 square miles. The Dakar-Niger Railroad runs between Dakar and Bamako and represents a tiny beachhead of progress in this hitherto unmechanized world of sand and searing sun. Installed at both ends of the 800-mile line and at a point near the center are RCA Transmitters and Fixed Receivers. They not only furnish communication between the two offices, but safeguard the operation of the line.

In Liberia, RCA helps in the efficient operation of the government. When President Tubman tours the interior of the country, an RCA Transmitter-Receiver goes along so that he can keep in touch with his government offices in Monrovia. The Liberian Posts and Telegraphs Administration utilizes the services of RCA Transmitters and Receivers which enable Liberia to communicate with the outside world.

The RCA International Division entered Africa many years ago and has built up strong distributing organizations for the sale of RCA products. These organizations, in all regions of Africa, from Tangier to Cape Town, are part of the new Africa. RCA forms an electronic bridge that links Africa to the rest of the world — a bridge that will enable this productive continent to prosper and grow.

# UHF *Booster Station*

## *Tested at Vicksburg*

RCA scientists and engineers have helped television to climb over a range of hills into Vicksburg, Miss., in a successful test of the world's first "booster" station designed for ultra high frequency (UHF) TV operation.

For six weeks during the summer, TV viewers in a major part of Vicksburg were able for the first time to receive clearly the programs telecast by station WJTV, Channel 25, in Jackson, Miss. Although Jackson is only some 35 miles east of Vicksburg, most of Vicksburg is shielded from the station by a ridge of hills which has interfered with UHF reception.

The problem made Vicksburg a suitable test area for RCA scientists, who have been engaged for some time in a program to find methods of increasing the strength of UHF signals under these conditions. Geography has created similar difficulties for UHF broadcasters and viewers in a number of areas throughout the country, and the Vicksburg test, on which a report has now been filed with the Federal Communications Commission, indicates that a feasible solution has been found.

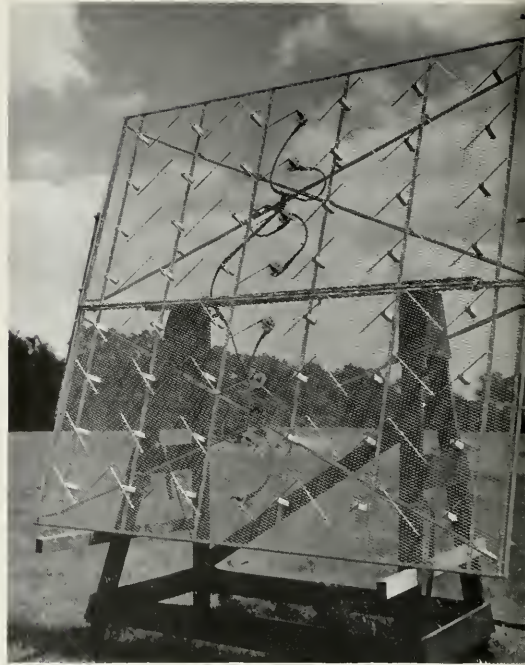
The project was carried out during June and July by a special RCA research team under the supervision of Dr. George H. Brown, director of the Systems Research Laboratory, RCA Laboratories, at the David Sarnoff Research Center in Princeton, N. J.

Operating under temporary authorization from the FCC, the RCA team conducted the tests after surveying the area to determine the most suitable location for the specially-designed UHF booster equipment. The booster operates by picking up the signal from the broadcasting station on a receiving antenna, amplifying the signal, and retransmitting it on the same channel by means of an antenna directed toward the required area. The concept is not new, but it has not been done previously with equipment capable of handling UHF signals.

The field tests, made under actual operating conditions, showed:

1. That station WJTV received an effective increase in its power by 200 times in the "shadowed" area of Vicksburg through the coverage provided by the booster system;

2. That the experimental RCA UHF booster transmitter, with power of only about 10 watts, provided acceptable service in an area partially shadowed by intervening terrain;



Receiving antenna of the RCA experimental UHF booster station, shown at Princeton before shipment to Vicksburg for the successful six-weeks trial.

3. That a good engineering estimate of the effective radiated power needed to establish a given grade of UHF service can be made once the topography of a specific television service area is known.

The Vicksburg test area, the RCA scientists found, needed an effective radiated power of 1000 watts for adequate coverage. The required power was obtained by use of a special transmitting antenna with a gain of 100 and a booster power of 10 watts.

The RCA UHF booster system is built around a low-power auxiliary transmitter, a highly directional receiving antenna system, and amplifying equipment. The equipment used in the test was constructed at Princeton, where it was operated experimentally before its shipment to Vicksburg. At the test location, the receiving antenna was mounted on a water tower about 110 feet above the ground, and the transmitting antenna, directed into the shielded area of the city, was set on a wooden tower 100 feet away.



# Historic Radio Tower Razed at Chatham...

**A**REKNOWN American landmark vanished from the scene on August 27 at 11:37 a.m., leaving behind memories of the great pioneering days of radio. After 40 years of service, the lofty 365-foot radio tower of marine coastal station WCC at Chatham, Massachusetts, was razed.

The structure, part of the network of marine coastal stations operated by the Radiomarine Corporation of America, a subsidiary of RCA, had served throughout an entire epoch of radio communication. The position of the tower atop of a hill placed it a 447 feet above sea level and its flashing lights had been seen by captains 40 miles at sea. Originally erected for receiving signals from Europe, it was later used to support antennas which received messages from ships afloat on all waters of the world.

The leveling of the tower marks another advance in the rapid growth of electronics. In the infant days of radio such structures were necessary; but as the art of communications advanced, smaller and more powerful equipment was created and proved equally effective. Today's methods of communications have rendered the tower unnecessary.

## *Built in 1914*

Historically as well as visually, the tubular steel structure served as a landmark, having its wellspring directly in the beginnings of radio communications. The weighty mast was built in 1914 by the J. G. White Engineering Company for the Marconi Wireless Company of America. It was part of the Chatham station which had supplanted the original Marconi station situated at Wellfleet, Mass., 23 miles north of Chatham.

The Chatham station, WCC, which the tower shadowed, maintains a safety watch on distress radio frequencies 24 hours a day, transmits weather reports periodically, gives free medical advice to ships which carry no doctors, sends press reports to large passenger ships which publish daily papers on board, and receives and transmits thousands of business and social radio-telegrams to and from ships and shore.

Aside from playing a vital role in the regular day-to-day communications business of WCC, the tower had



After 40 years of service, the historic tower of Radiomarine station WCC at Chatham, Mass., crashes to the ground. Above, the mast buckles at start of its fall; below, the shattered structure lies on the ground.



been involved in many of the most exciting dramas lived by man. If it could have talked, it might have told the history it made working with famed pilots, bold explorers and daring seamen, noted ships and planes.

It could have told of maintaining communications with the Byrd expeditions to the South Pole; the lighter-than-air craft, "Graf Zeppelin"; the ill-fated "Hindenburg"; of having provided the weather information that Lindbergh relied on during his celebrated flight.

When the last guy wire was seared and the giant had tumbled, it was more than just a fallen tower, for its going signified a nostalgic farewell to a bygone era.

# TV EYE

*for Commerce  
and Industry*



by M. S. Klinedinst  
*Manager, Distributed Products  
RCA Engineering Products Division*

TELEVISION may have helped to produce the watch you are wearing, saved you a few minutes at your bank this morning, or attracted you recently to an exhibit or an advertising display. It may be protecting your business property or helping to train you and your fellow workers in sales and production techniques.

These jobs, and many more, already are being handled by the workhorse variety of television — the closed-circuit system that provides sight as well as sound communication in the factory, the office and the store.

The widening scope of applications in business and industry in the past year alone suggests that television already is working a revolution in the field of business comparable to that wrought by broadcast TV in mass communication.

Just a year ago, RCA introduced the "TV Eye," a rugged, compact and inexpensive system consisting of a Vidicon camera weighing less than five pounds, and a camera-control unit. Connected to any standard home television receiver, the camera and control provide closed-circuit communications within a range of 1200 feet on any television channel from 2 to 6. With its suggested retail price of \$995, the system is one of the most inexpensive available.

Hundreds of installations of the "TV Eye" have been



The "TV Eye" helps RCA workers to meet an assembly deadline. Assemblers, above, follow through television the technique and instructions of specialist, left, in the complicated assembly of an intricate device.

made, with a range of industrial and commercial applications extending from production control to remote observation of processes too hazardous for human surveillance. About 80 percent of these installations have gone into industry; 10 percent have been placed in banks, and the remainder have been applied to miscellaneous tasks such as product demonstrations, property protection, merchandising and sales promotion activities, and accommodation of overflow crowds.

#### *New "Eyes" for Boston's Oldest Bank*

The most extensive system yet installed is cutting costs and improving service in Boston's oldest bank — the Provident Institution for Savings in the Town of Boston. *The American Banker*, the daily newspaper of the banking profession, credits "TV Eye" with having "streamlined the bank's procedure, simplified and speeded up teller operations, and provided swift, efficient service for over 100,000 depositors."

The Provident installation includes four cameras in the bank's signature section, four in the balance section, and an individual receiver in each of the 17 teller booths. Its use has reduced the process of withdrawals to a matter of seconds, since tellers can now verify signatures and balances without leaving their booths. Instead, each teller is able to call directly to both balance and signature files over a microphone and loudspeaker system. The file clerk locates the proper card and places it be-

fore the lens of the camera. An indicator box, with buttons corresponding to each receiver position, enables the clerk to direct the information only to the teller concerned, who views the balance information or the signature on a television screen mounted below the counter level and is not visible to the depositor.

Besides saving valuable floor space in the bank by eliminating files in the banking area, the installation has substantially increased the number of transactions each teller can make and has permitted the Provident bank to accommodate thousands of new depositors.

#### *Saving Time for the Watchmakers*

Another "TV Eye" installation, at the Providence, R. I., plant of the Bulova Watch Company, is providing visual communication between engineering and production sections that are located in different buildings.

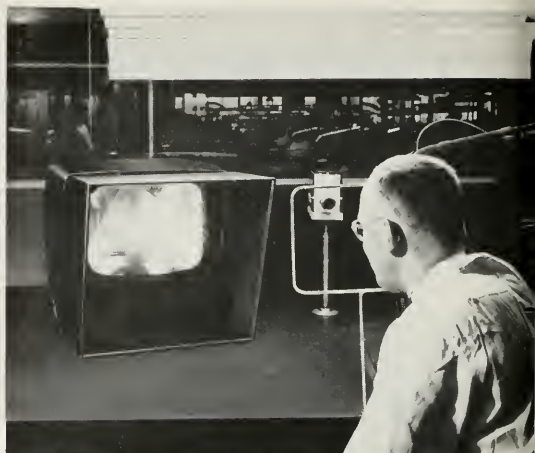
Before the system was installed, Bulova's engineering-production problems had to be handled by telephone or by personal traveling between the two buildings to check parts or blueprints. Now, with the use of one "TV Eye" unit and a standard home receiver in each of the two buildings, production and engineering personnel can compare notes and check their parts and blueprints visually without leaving their desks.

The result has been a saving of hundreds of man-hours for executives and skilled personnel, greater efficiency, and less time away from the job.



Largest installation yet of "TV Eye" helps to speed banking operations at the Provident Institution for Savings in Boston. File clerk, above, holds signature card before the camera for viewing by teller, right.





At the Bulova Watch Company in Providence, R. I., "TV Eye" permits visual communication between engineers, left, and production section, right, in separate buildings.

The RCA Engineering Products Division, which manufactures the "TV Eye," has itself gleaned benefits through use of the system. Recently, the Division was faced with a rush order for a key electronic component used in its "Stereoscope" theatre sound equipment. With ten theatres calling for the equipment for the opening date of Cinemascope feature, a quick and accurate multiple assembly line operation was necessary to meet the deadline. This is how it was done:

A "TV Eye" camera was mounted in position over a work bench where a specialist assembled the component. The camera picked up every movement of his hands and his tools as he assembled the intricate device. Simultaneously, a close-up, step-by-step picture of the assembly operation was transmitted to six television receivers placed at production benches on the floor. In front of each set, an assembler watched the screen and followed the movements of the leader, completing the components in time to make the deadline.

#### *Uses Virtually Unlimited*

These are three varied examples from a list of "TV Eye" uses that appears virtually unlimited.

Another bank — the new Industrial National Bank of Dallas, Tex., — has installed a system that links four outside teller windows with signature and record rooms deep within the bank itself, permitting rapid drive-in banking service for its clients.

A number of companies are making effective use of

"TV Eye" for promotional purposes. The Parker Pen Company, for example, employs a system in its sales promotion campaign with a "see yourself" application.

The system also has been applied to department store operations. The L. W. Ayres Company in Indianapolis has used "TV Eye" to televise fashion and style shows within the store for passers-by outside, to promote special sales with "see yourself on television" as an added attraction for customers, and, in a more technical application, to test and check television sets.

In every installation, "TV Eye" has either improved productive or commercial operations, or increased the effectiveness of a promotional campaign. In its industrial applications, it is proving the ideal means of extending human vision to remote points, with resulting improvements in quality, total production, or safety — or perhaps all of these things.

For particular and special industrial uses, RCA has devised and built accessories to adapt the system to a variety of working conditions. These include such features as remote optical focus, permitting the camera lens to be adjusted remotely from the control unit; weather-proof housing, to protect the camera in outdoor applications, and explosion-proof housing for operation in atmosphere containing gasoline, petroleum, naphtha, natural gas and other explosive elements or compounds.

A number of installations requiring these accessories already have been made, and the list is expanding steadily as progressive managements become aware of the vital contribution which television can make to the improvement of many industrial operations.

# Dr. Zworykin Elected Honorary Vice-President of RCA



Dr. Vladimir K. Zworykin, with historic TV tubes he has helped to develop.

**D**R. VLADIMIR K. ZWORYKIN, who conceived and developed the iconoscope, television's electronic "eye," pioneered in development of the television picture tube, and contributed to many other aspects of modern television, retired on August 1, 1954, as Vice-President and Technical Consultant, RCA Laboratories, and on August 6 was elected by the RCA Board of Directors to the first Honorary Vice-Presidency in RCA history.

In a tribute to Dr. Zworykin's many contributions to electronic science, leading scientists, educators and industrialists met in Princeton, N. J., on September 18 for a scientific seminar and a dinner given by RCA in his honor. The seminar, covering developments of the past thirty years in synthetic materials, aeronautics, nuclear physics and medical electronics, included talks by Dean Hugh Taylor of the Graduate School, Princeton University; Dr. I. I. Rabi, Nobel Prize winner and Professor of Physics at Columbia University; Dr. Jerome C. Hunsaker, retired head of the Department of Aeronautical Engineering, Massachusetts Institute of Technology, and

Dr. James Hillier, Director of the Research Department of Melpar, Inc.

Brig. General David Sarnoff, Chairman of the Board of RCA, was the principal speaker at the dinner, held at the David Sarnoff Research Center of RCA. In a talk paying high tribute to Dr. Zworykin, General Sarnoff said:

"When you add to the genius of a Zworykin the freedom and opportunities provided by America, you really nourish the divine spirit and ignite the divine spark of achievement."

Dr. E. W. Engstrom, Executive Vice-President, RCA Research and Engineering, who served as toastmaster at the dinner, emphasized that Dr. Zworykin will continue to serve as a consultant to RCA.

"While there has been a formal change on the records coincident with retirement, we will continue to have his counsel," Dr. Engstrom said. "He will continue to share his days with us in the laboratory to the extent that he wishes to do this."



# RCA Service Company

## *Consumer Service*



One of the fleet — the familiar truck of the RCA serviceman.

by D. H. Kunsman

*Vice President, Consumer Products Service Division,  
RCA Service Company, Inc.*

ON the last day of August this year, a vicious hurricane, deceptively called "Carol," swept New England, wreaking havoc with lives and property. Phone facilities were disrupted, electric power failed. In Boston, the 650-foot tower that serves the NBC affiliate, WBZ-TV, collapsed. Antennas atop countless homes were ripped from their moorings and destroyed.

Within hours, New England branch offices of the Consumer Products Service Division of the RCA Service Company, Inc., were flooded with calls, telegrams, letters and personal visits. RCA Service Company technicians

worked ten to twelve hours a day trying to bring some order out of the chaos. Telephone poles, trees and debris blocked roads, making the work even more difficult.

The only bright aspect of the story was the almost miraculous speed with which the RCA technicians executed their tasks. WBZ-TV went back on the air, with a temporary antenna, the same day that the hurricane struck. New antennas were installed on the roofs of homes as soon as possible after each loss had been reported to the Service Company branch office. Often it meant arduous travel over rough detours for the technicians—clearing away debris as they went, or helping with any emergency that they might meet. But, despite almost impossible conditions, the RCA technicians did arrive and were able to bring the situation under control in unexpectedly short time.

The files of the RCA Service Company are filled with letters praising the RCA technician who serves the average customer so well—often far beyond the call of duty. One such customer wrote, "I wonder if you ever stop to consider what a goodwill ambassador your serviceman is. Do you realize he is the only connection we as customers have with RCA? I think they are a fine group of men, and their work is above reproach."

#### *Thousands of Contacts Each Week*

Unexpected and even dramatic occurrences are actually "par for the course" for the more than 3,000 representatives of the Consumer Products Service Division. In addition to their routine duties of installing and correcting RCA Victor television, radio and phonograph sets and servicing RCA Air Conditioners and RCA Estate Ranges, they are often called upon for much more.

Many thousands of contacts with RCA customers are made every week by these carefully-selected, well-trained specialists. And in the home, where the RCA Service Company technician spends most of his working hours, his activity is inevitably expanded beyond repairing and installing RCA Victor instruments.

For instance, a branch manager recently received in the mail the keys to the home of a customer of many years standing. An accompanying note asked that the air conditioner be serviced while the family was on vacation. Also enclosed was a diagram of the house indicating the location of all plants, with the request that, if it wouldn't be too much trouble, the service man water them while he was there. Note: The request was cheerfully granted.

#### *Meets Unusual Situations*

This is a mild example of the many unusual circumstances with which the RCA technician may be confronted. There have been instances when, but for his quick thinking, catastrophe might have resulted.

Not long ago, an RCA technician was installing an antenna in a New York suburb when a heavy rainstorm hit the area. After the storm had subsided, the technician returned to the job, but he noticed that the flat roof of the adjoining building was flooded with more than 18 inches of water.

Knowing that water enclosed on a flat roof can sometimes cause the roof to collapse, the technician crossed over and drilled holes in the necessary places so that the water could drain off. The building was a store, and the crowd of people inside remained unaware that a possible major tragedy had been averted. When the technician and the store manager inspected the premises soon afterward, they found that several beams had cracked and pulled away from the side of the building.



A basic task for the RCA service man—adjusting a newly-installed TV set in the home.

In a matter of minutes, the roof would have caved in, with tragic results.

An appreciative letter on file tells of two RCA Service Company technicians who, on Christmas Eve, worked until after 9 p.m. erecting an antenna, so that Santa Claus could get due credit for a new TV set. The grateful customer added, "Working on a cold night, missing a Christmas party, and being pleasant about it is almost unbelievable. . . ."

The high caliber of the Service Company representatives is not "almost unbelievable" when their training and qualifications are considered. Each technician is required to have above average technical background, either in the form of technical education or practical experience, or both, in order to qualify for the job. After joining the Service Company he must complete



Installation of mobile two-way radio systems is an important RCA Service Company job.

Home Study Courses that last 42 months while he serves as an apprentice technician.

In addition to this, a Training Coordinator in each of the eleven districts supervises continuous training of all representatives to keep them abreast of latest developments and techniques in service work. Many technicians supplement their knowledge by taking advantage of a company-sponsored tuition loan refund plan that enables them to take approved correspondence courses or attend local schools and colleges.

An indication that the public has faith in these superior standards is manifest in the hundreds of thousands of RCA Victor television owners who buy the RCA technician's services on a yearly contract basis through the RCA Victor Factory Service Contract.

#### *History of Service Company*

The RCA Service Company, Inc. is RCA's own service organization. From its beginning as an RCA Victor Service Division installing and maintaining

Photophone equipment, the RCA Service Company expanded with the advent of television and was formally organized as a wholly-owned subsidiary of the Radio Corporation of America in 1942, with headquarters in Camden, N. J.

The first RCA Service Company branch was opened in 1945 in Long Island City, N. Y. Today, Service Company specialists operate in every state in the Union and in 34 overseas locations. Within the Service Company there are several divisions other than the Consumer Products Service Division which have as their special tasks installing and servicing such diversified equipment as radio and television broadcast, mobile communications, theatre sound and projection, industrial electronic and many types of military electronic equipment.

In the field of mobile and microwave communications, the RCA technician is on the job for pipeline companies, transport and taxi companies, and industrial firms throughout the nation, maintaining the equipment that make rapid economical radio communications possible.

#### *New Plans Inaugurated*

The Service Company is frequently inaugurating new plans designed to improve its already high standards. Sales programs, with special emphasis on the role of technician, a modernized fleet of service trucks, worthwhile incentive programs for branch management and technicians are such recent innovations.

In view of their training, background, and scope of activities, it is not surprising that the engineers and technicians who comprise the Service Company have made outstanding contributions to the television industry. In the area of UHF, for example, RCA Service Company technicians and engineers aided in the development of several UHF antennas and other installation accessories now in use. Their contributions in field testing activities paved the way for successful UHF broadcasting.

These men played a major part in the introduction of color television to the American public, setting up and conducting demonstrations from coast to coast. Participation in the early phases of color development and field tests prepared the RCA Service Company technician for his later role as instructor among other field groups and for conducting color TV service clinics throughout the country.

The Radio Corporation of America is proud of the manifold achievements of the RCA Service Company technician who is seen daily on the streets and roads of innumerable towns, driving the familiar truck of the RCA Service Company. To vast numbers of potential and actual RCA Victor customers, he is "Mr. RCA."





# news in brief



## *Cosmopolite*

J. Fred Muggs, who, via television, has become something of a legend in the past year, made a triumphal entry on the *Today* set in August, five weeks after leaving New York on a trip around the world. The famous chimpanzee, during his global trek, danced for the customers in a Beirut night club, rode a camel in Cairo, made an appearance on Nippon TV, and frolicked among the pineapples in Honolulu. The trip wasn't solely without hitches, however. Muggs caused the Middle East Airlines people some confusion when they found he was listed neither as cargo nor passenger. One of his NBC travelling companions resolved the difficulty by buying him an infant's ticket. Then, too, in Hong Kong, Muggs and his party forgot to tell their police escort that they were going out shopping one day. Getting to the store presented no problem, but after word of Muggs' whereabouts spread throughout the city, it took a riot squad to get them out. All in all, Muggs' good-will tour was highly successful and gives him the distinction of being the most cosmopolitan simian in the world.

## *Eyes Front*

A new invention, undetectable to TV viewers, permitting a performer to be prompted and still look straight into the camera lens, has been successfully demonstrated by WNBT on a closed circuit. The prompting attachment, called the "Gerard Eycline Mon-

itor," is attached in front of the lens of either a live or a motion picture camera. In addition to allowing the performer to look directly into the eyes of his audience, a further advantage of the "Eycline Monitor" is that the sets of lenses on the live television camera can be used at any position desired, not tying up one by making it necessary to keep a particular lens in use.



## *Hospital TV*

More and more of the nation's hospitals are installing television receivers in patients' rooms to help make hours and days of recuperation pass more rapidly and enjoyably. One of the latest and most modern installations has been completed in private and semi-private rooms and solariums at the Albany Hospital, Albany, New York. A total of 225 RCA Victor receivers, all of them with 17-inch or larger screens, now are in use there. Special glasses, with prismatic lenses, make it possible for patients who must not move from a prone or supine position to see the screen. Each receiver is equipped with a small, flat speaker for sound reception which is placed under a patient's pillow. A remote control switch permits patients to turn the sets on or off from the bed.

## *Royal Tour*

"The Royal Tour of Queen Elizabeth," the film documentary of the tour of Queen Elizabeth II and the Duke

of Edinburgh, marks the first Cinemascope film made and processed outside the United States with full Stereophonic Sound on four magnetic tracks. The Stereophonic Recording was done by RCA Photophone Limited, RCA associate company in England, at the Tower Studio in Hammersmith, London, for the producer, British Movietone News. The picture was released by 20th Century Fox.

## *Home Tuneup*

A consumer-aimed promotion campaign designed to help television service dealers alert owners of home TV receivers to the benefits of periodic "tuneups" has been initiated by the RCA Tube Division. The campaign is utilizing national radio and television advertising, point-of-service advertising and display material, and direct-mail literature to spotlight a Fall TV Tuneup Special to be offered by thousands of service dealers from coast to coast.



## *Choice of the Voice*

The Voice of America has selected "Princeton '54," WNBT's educational television series presented last Spring in cooperation with Princeton University, for telecast to nations throughout the world. The nine half-hour television programs represent the results of discussions and studies extending over a period of 18 months on the part of Princeton and WNBT. The programs explored the techniques and methods by which the resources of a university such as Princeton could best be made available to television. The series which dealt with the arts and sciences, was a result of a grant made to Princeton by WNBT in the fall of 1952.

# Aspects of Broadcasting

*(Continued from page 7)*

side" an equal opportunity to answer daily?

If the right to editorialize is not confined to the interest of the network itself or the interests of the radio art and industry, in which the network or its owner also has an interest, but is extended to other public or political questions — that is, if the network is to have the same right as the newspaper has to editorialize — it follows that it must have the same political rights. Thus a network could be a Republican network or a Democratic network, or the network of some other legally recognized political faith. It so happens that now there are only four TV networks, and it is conceivable that all four networks could become Republican, or all four might become Democratic networks. Surely this cannot be anyone's intention, for such a condition would be highly undesirable.

## *Impractical Solution*

Therefore, if one takes the position that a network should editorialize as freely as a newspaper, he might also do it as frequently. Thus, there may be a daily network editorial as well as a daily newspaper editorial. Well, if a network broadcasts one editorial a day on some important subject, is it going to give the other side or sides an opportunity, every day, to answer that editorial in the same time? That would seem to me to be impractical for many reasons.

And if it does not furnish such equal opportunity to reply, the network might fail to meet the requirements of the Federal Communications Commission.

Because of the complex and serious nature of this problem, I think that while Dr. Stanton picked the right issue in demanding that radio and television be accorded the same rights as the press to broadcast the McCarthy hearings or any other public hearings, I regret exceedingly that he has confused a specific case with a general principle, by adding the word "editorial" on the TV screen. Whether a network should or should not editorialize, raises a fundamental question that calls for the most careful study and consideration.

I am not saying that networks should not have the right to do it. I think they should have that right. Whether they should exercise that right — and under which circumstances — calls for clearer definition than Dr. Stanton has given in the statement which he made on the air.

As I have said, I am in agreement with him as far as concerns the immediate case of the right of radio and television to report on, and to broadcast the hearings now going on in Washington.

So far as the National Broadcasting Company's network is concerned, we have not engaged in editorial-

izing; not since we have been in the broadcasting business. And we are not ready to abandon our policy. Of course, we shall watch the new developments as they go along and study the reactions they produce.

## *Government Licensing of Networks*

As you know, the question of government licensing of networks has recently been raised in Washington. I am certainly not in favor of requiring networks to be licensed because I do not regard network operations — as distinguished from individual broadcasting stations — a business that should be licensed or regulated by the Government. But the licensing question may be viewed differently when the problem of general editorializing by a network is considered. It raises the question of licensing networks in an atmosphere that changed when the word "editorial" was flashed on the TV screen by CBS.

I recognize the distinction between a network and a broadcasting station. Insofar as individual stations are concerned, I believe they should have not only the right to editorialize, but that they might well exercise that right in their local communities.

The circumstances surrounding stations are certainly different from those surrounding networks. For example, in New York City there are more radio and television stations than there are newspapers. I can visualize an independent station being frankly partisan, just as there are newspapers that are frankly partisan. But, when it comes to the network imposing its editorial views on a public or controversial question upon its affiliated stations, it is quite a different matter. It is not a sufficient answer for a network to say that a station could reject that editorial if it did not share the network's opinion and views. There are practical limitations of program scheduling, etc., which must be taken into account by stations as well as by networks.

## Change in NBC Call Letters

The call letters of three of the National Broadcasting Company's company-owned stations will be changed at midnight, Sunday, October 17. The changes affect NBC's radio and television stations in New York, and its TV stations in Los Angeles and Washington, D. C.

The NBC New York stations, which are currently WNBC, WNBC-FM, and WNBT, will become WRCA, WRCA-FM, and WRCA-TV. The company's Los Angeles television station will become KRCA instead of KNBH, while the Washington NBC television station, now WNBW, will become WRC-TV.



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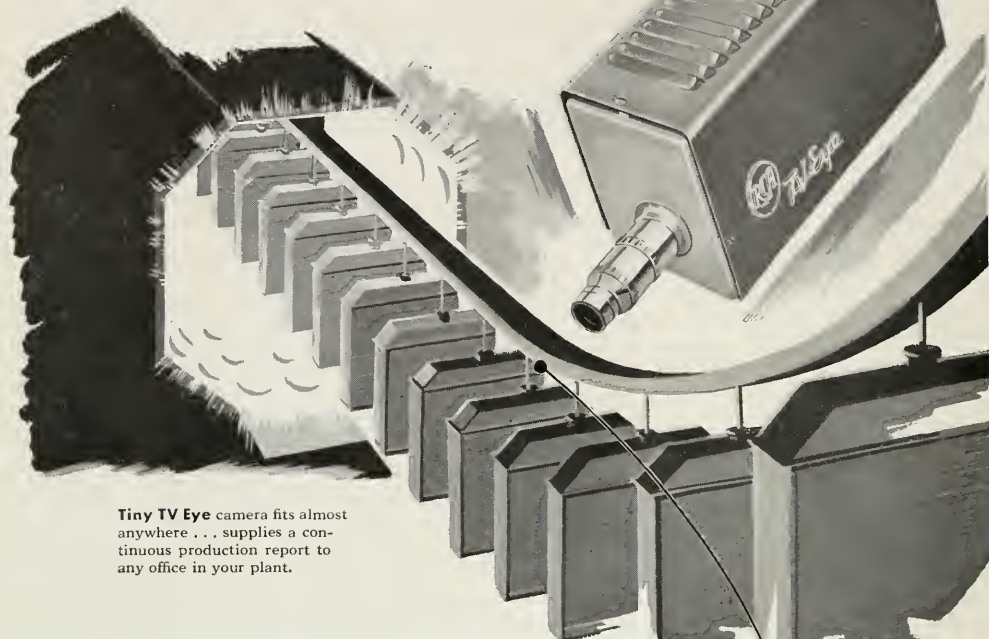


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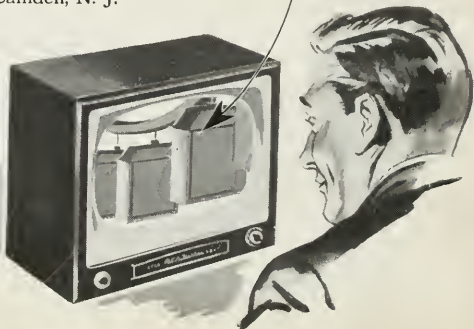
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COMPACT TV EYE consists of a small camera that weighs less than five pounds and fits almost anywhere—and a small control unit, no bigger than a table radio. These two units connect by cable into any standard TV receiver—operate from standard 115-volt, a-c outlet.

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