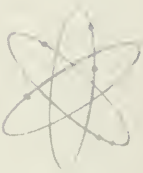
RCA

Electronic Age

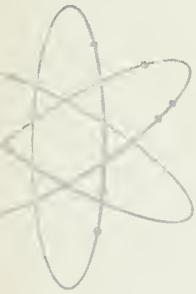
OCTOBER 1957

COLOR ADDS NEW LIFE TO TV

Electronic Age



Published by the Radio Corporation of America for sixteen years, **Radio Age** has brought to its readers in many parts of the world a quarterly report of RCA pioneering and progress. With this issue, **Radio Age** gives way to **Electronic Age**, heralding the full-fledged arrival of the electronic era. **Electronic Age** will chronicle RCA's increasing role in electronics, radio and television, and continue to report every three months on advances in this, the world's fastest growing and most dynamic industry.



OCTOBER 1957
VOLUME 16
NUMBER 4

Electronic Age

RESEARCH · MANUFACTURING · COMMUNICATIONS · BROADCASTING · TELEVISION

COVER

Color adds new life to television.

CONTENTS

NOTICE

When requesting a change in mailing address please include the code letters and numbers which appear with the stencilled address on the envelope.

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

Printed in U. S. A.

RADIO CORPORATION OF AMERICA
RCA BUILDING, NEW YORK 20, N. Y.

DAVID SARNOFF, *Chairman of the Board* · JOHN L. BURNS, *President* · FRANK M. FOLSOM, *Chairman, Executive Committee*

JOHN Q. CANNON, *Secretary* · ERNEST B. GORIN, *Treasurer*

Colorcast of "Annie Get Your Gun," starring Mary Martin and John Raitt, on November 27, is part of NBC's greatly expanded color programming schedule for the fall season.

Biggest Color TV Campaign Under Way

Coast-to-Coast Drive by RCA-NBC

Stirs 25 Major Areas Toward Mass Market 'Breakthrough'

In twenty-five major markets across the land, RCA's biggest push for color TV is on!

Sales and promotional efforts to make this the year of the big "breakthrough" for color television have already resulted in phenomenal increases in color set sales in several areas.

The aim of the most extensive color campaign ever planned is to achieve mass market status for color television during 1958, and extend it as quickly as possible into a nationwide service to the public.

This campaign has already attracted national attention, not only from thousands of dealers and distributors but from the man-in-the-home as well — in fact, millions of them, from coast to coast.

The great color promotion got under way in four cities — New York, Philadelphia, Detroit and San Francisco — in August. It swiftly spread out across the country and is now boosting color sales in such prime market areas as Baltimore, Washington, D. C., Harrisburg, Albany, Buffalo, Atlanta, Cleveland, Minneapolis, Indianapolis, Milwaukee, Peoria, Lansing, Davenport, Des Moines, and Los Angeles.

Stirring campaigns in these markets are patterned on the highly successful 40-day Milwaukee "Carnival of Color" held last April and May.

In New York and Philadelphia, efforts were concentrated on the World Series color telecasts.

Trade-In Program

In Detroit, a strong trade-in campaign was inaugurated by dealers and distributors. In the first few weeks sales of color TV sets zoomed upward over 100%.

In Cincinnati, Dayton, Columbus and Indianapolis, the Crosley Broadcasting Group is giving all-out support to the color drive. The only independent station in the country equipped to originate color TV live broadcasts, Crosley has cooperated with the RCA distributor and the local utility company in promoting color. A whopping 45% of all RCA Victor TV sales in this area have been color sets since the drive started in Cincinnati.

In Pittsburgh, Los Angeles and Omaha, strong and aggressive efforts to promote color are showing a gratifying response in receiver sales. In Pittsburgh, dealer orders are running ahead of RCA's capacity to supply.

Of crucial importance to the big color campaign is the expanded color programming schedule announced by NBC for the new season. This expansion will amount to a 67% increase in color telecasting. It will average a full two hours daily and up to four and one half hours a day on weekends. And, almost all of these color shows will be on the air during the peak viewing hours.

Twenty-four big color specials have been scheduled for the fourth quarter of this year alone. These include the world series and the four top college football games.

Dealer Promotion

In June, an intensive indoctrination program, embodying a six-point promotion, was aimed at dealers and distributors to increase their color selling efforts. This presentation emphasized the importance of home demonstrations, telephone solicitations, and sales training, and also presented a general promotional program slanted to the dealer level.

Closely following this program, RCA Victor initiated its basic fall promotion plans for color television. Tailored especially for distributors and leading dealers, the planning kit spelled out in detail a complete range of color-selling ideas for dealers.

It included a sample agenda for a distributor-dealer meeting, with announcement letters, speeches for the meeting itself, registration blanks and follow-up letters; it listed customer give-away items, window displays, service information, sales contests, tie-in promotions, trade-in information, a suggested advertising schedule and many other promotional ideas.

Stars of the RCA closed-circuit presentation—Right group (l. to r.): John L. Burns, Martin F. Bennett, J. M. Williams and Robert A. Seidel. Left group: John Bricker, of Whirlpool-Seeger, D. H. Kunsman, J. P. Bannon and Allan B. Mills.

POINTS OF PROGRESS

- Dealer apathy to color TV has changed into enthusiastic eagerness to participate in the coming color boom.
- TV servicemen's reluctance, founded on the mistaken impression that color servicing is difficult and expensive, has been transformed into willing cooperation.
- Programming shortcomings, which had brought complaint from color set owners, have been eliminated by NBC's expanded programming plans for the coming season.
- The television industry as a whole, which in the past had established a notable record of opposition to color TV progress, now is undergoing a rapid change of attitude in favor of color TV.

Two-Hour TV Sendoff

The full force of the growing campaign was brought into focus on September 4 over the biggest closed-circuit telecast in television history. A stunning two-hour color presentation, the show was received enthusiastically by distributors and dealers, broadcasters and the press. It was a superb summing up, in one concise package, of the swiftly accelerating color drive.

The telecast was presented in two parts, the first describing RCA's color campaign plans for the coming season, the second detailing the National Broadcasting Company's expanded color program schedules.

Beamed to dealers and distributors in 90 cities across the country, the RCA show was the equivalent of a nationwide sales meeting. The dealer organization saw and heard top company executives outline the new merchandising, sales, advertising and service plans.

NBC's Fall Program Preview featured many of the stars scheduled to be seen regularly on color telecasts. A witty, sparkling show, it emphasized the heavy support NBC is giving the new color campaign. In addition to dealers and distributors, this part of the program was seen by NBC-TV's station affiliates, TV press writers, and agency representatives in more than 150 cities.

Martin F. Bennett, Vice President, Merchandising, acted as master of ceremonies in welcoming viewers to the RCA presentation.

In introducing the industry's biggest color campaign, John L. Burns, President of RCA, said: "The starting of anything new that is of real significance on the American scene has always called for vision, convictions, and persistent hard work.

"The Radio Corporation of America has put these into color television. In the area of investment, we spent one hundred million dollars so that color television will present a great future for all of us — and many of you have supported RCA's efforts with your own investments in color.

"We believe that all of our resources — Research and Development, Tube Manufacturing, Set Manufacturing and Service — will, by their combined efforts, develop color television into a household word and need. And we have invited the entire industry to join us in this endeavor.

"At the close of today's presentation you will be quite convinced that color is ready — that color is right — that color is here."

Robert A. Seidel, Executive Vice-President, Consumer Products, said there is now a tremendous and important market for color receivers that can be exploited by aggressive sales and advertising.

Mr. Seidel emphasized RCA's willingness to break new trails. "The role of pioneer," he said, "is not unusual to the Radio Corporation, or its distributors or dealers. Pioneering has always been a cornerstone in our structure. And, it has always paid off — in leadership, sales, profits and prestige —for dealers and distributors in every phase of home entertainment — 'Victrolas', records, radio, black-and-white television, orthophonic high fidelity recordings and instruments, tape, and stereophonic sound. So it will in color. And, we are gaining ground rapidly.

"Consumers purchased three times as many color sets this year as last. Service Company installations are three times as great. Consumers can be sold ten times as many. And because color offers such unlimited promise — because the very profit future of your businesses, and ours, is dependent on color success, we solicit your skill, ingenuity, and wholehearted support. Together, let's MAKE IT HAPPEN!"

NBC Color Program Schedule

Robert W. Sarnoff, President of the National Broadcasting Company, in commenting on NBC's expanded color programming schedule said that the company had never gone into a season with such a "restyled program wardrobe."

"There will be," he said, "21 new nighttime shows, about 55 percent of our entire evening schedule.

"This season we've tried to make color TV available to the widest possible audience so we've built our color schedule around many key nighttime programs, with emphasis on periods when viewing is at its peak.

"And, we'll have color programming for an average of two hours daily."

The Merchandising Picture

In presenting the RCA merchandising story, Allan B. Mills, Merchandise Manager, RCA Victor Television Division, introduced the five new RCA Victor color models designed to supplement the excellent "700" series models.

These five models, selling at higher prices than the "700" series, incorporate important design improvements. These include a new chassis and color glass kinescope. The new chassis has been designed specifically to operate with the new color kinescope to establish the maximum in color television performance.

First of the new models, the Abington, is a table model that is housed in a metal cabinet and available in mahogany and limed oak grain finishes.

The Sanford is, in effect, a consolette, only slightly larger than a table model. Its brand-new styling is made possible by the use of a new speaker, measuring fourteen by three inches.

The Anderson is a new full console model featuring Panoramic Sound reproduction, with one six-by-nine and two three-and-one-half inch balanced speakers.

The Wentworth incorporates all the above features; it is housed in an all-wood cabinet with veneers and solids of the woods specified.

The Townsend is a lowboy console in genuine veneers and solid woods of walnut and oak.

Three of these new models, the Abington, the Sanford and the Anderson, together with three of the "700" series models, the Aldridge, the Westcott and the Lockhaven, constitute the V.I.P. lineup, the Very Important Products. These six models are expected to account for approximately 70% of total retail sales.

Advertising and Promotion

Describing RCA's comprehensive advertising and promotion plans for color TV, J. M. Williams, Manager, Advertising and Sales Promotion for the TV

New RCA Victor color receivers are (l. to r.) the Wentworth, the Anderson, the Sanford and the Abington.

Advances made in receiver design can be seen in comparing old Model "630-TS" with 1958 set, right.

The Abington, a table model, is the lowest-priced ($550) of RCA Victor Mark Series color receivers.

Division, said that RCA was continuing its stepped up color activity right down the line — in addition to one of the strongest black-and-white campaigns the company has ever undertaken.

The advertising campaign got under way in September with four-color ads in *Life, TV Guide, The New Yorker, Sports Illustrated* and *Sporting News*, plugging the color TV broadcasts of the World Series. Ten-second World Series tags on the *Eddie Fisher* and *George Gobel Shows* were seen by an estimated fifteen million fans; the same tags were shown on *The Price Is Right* and *Tic Tac Dough*.

Color casts of football games this fall are being featured in dramatic split screen ads — "This Season in College Football, See the Difference Color TV Makes" — in *Sports Illustrated, The New Yorker* and *TV Guide*.

Potential color set buyers no longer have to worry about service problems, according to D. H. Kunsman, Vice President and Operations Manager of the RCA Service Company.

He stated that service demands on the part of color set owners are gratifyingly low. On courtesy calls to homes of contract holders, 91.8% of the set owners had no need for service and fully understood how to get the best reception.

Statistics showed that service call requirements on the current color sets are no greater than they were on the famous 630 TS black-and-white receiver, the set that touched off the television boom in 1946.

Sales

Those dealers who went in for heavy promotion of color receivers a year ago have made excellent progress in the sale of color sets, according to J. P. Bannon, General Sales Manager of the TV Division.

He pointed out that 25% of the RCA Victor color dealers have sold 65% of the RCA color receivers now in use. In 20% of the distributor areas, the dealers, as a group, sold 35% of their total TV sales volume in color TV sets. He said that the successful color dealers have also enjoyed an 11% increase in black-and-white sales.

Mr. Bannon emphasized three types of activities that bring dealers best results: Trade-in, home demonstration ads and telephone follow-up. Home demonstrations, he said, have averaged 60% in sales.

Summing up: "Color is ready — color is right — color is here!"

Speaking before the Advertising and Sales Executives Club of Montreal on October 2, Martin F. Bennett, Vice President, RCA Merchandising, said: "I do not think it is too soon for you to consider the future impact of the new medium on advertising. Certainly no one can afford to be color blind any longer in advertising." He pointed out that according to the Fowler Report on Industry in Canada, color TV will be introduced on a gradual basis, beginning probably in 1959.

Radio Speeds Ore Gathering

Microwave-Controlled System in Venezuela Makes History

THE WORLD'S only ore-gathering system with microwave-radio Centralized Traffic Control will move its twenty-five millionth ton of ore in early October. The system controls the movements of all ore trains on the Orinoco Mining Company's 90-mile single-track railroad from the Venezuelan ore mine, Cerro Bolivar, to its shipping port, Puerto Ordaz, on the Orinoco River.

CTC — with its radio-electronic magic — has proven itself a reliable and economical tool of management in building important tonnage totals, in the opinion of Francis Thomas, President of Orinoco Mining, a U. S. Steel subsidiary, which is now in its fourth year of shipping ore from its Cerro Bolivar mine to the United States.

"We began with 3,060,000 tons in 1954," said Mr. Thomas. "In 1957 we expect to raise that total to 12,000,000 tons annually."

Orinoco Mining estimates that it has saved over half a million dollars on its decision to use CTC, which permitted the company to avoid the heavy expense of installing ground wire communications equipment between the mine and the port.

CTC enables a centrally located dispatcher in Puerto Ordaz to supervise and direct by radio the company's railroad from the mine to Puerto Ordaz, the port on the Orinoco River where the ore is loaded onto boats for shipment to the U. S.

The dispatcher sits at a console, the lights of which give him a complete picture of the electronic railroad, its four sidings and the ore trains moving up and down the tracks.

As the ore trains come and go, all switch and track signals are given via microwave radio by the dispatcher in Puerto Ordaz; in turn, radio-controlled lights confirm the CTC action on the console.

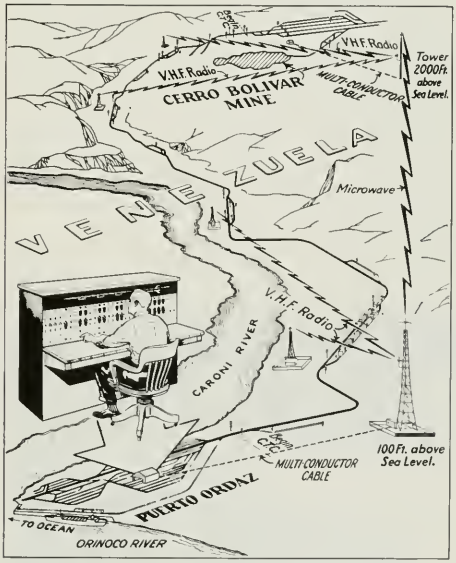
To Add Passing Tracks

Orinoco Mining is now planning to add two more passing tracks to the system. With this added trackage to join the CTC system, and to integrate with the mining, processing and shipping operation, the company expects to be able to increase its yearly output to 16,000,000 tons.

Instrumentation and equipment for the radio-activa-

All switches and signal lights on Orinoco Mining Company's ore railroad are radio-activated.

CTC enabled company to dispense with ground wire communications, saving thousands of dollars.



tion of the CTC system were developed, manufactured and installed by the Radio Corporation of America through its RCA International operation. The CTC system itself was supplied and installed by the Union Switch and Signal Division of the Westinghouse Air-brake Company. The over-all system was envisioned and the basic plan drawn by the Paul Godley Company of Upper Montclair, N. J., communications consultants.

As a loaded train comes down the hill from a 1500 foot altitude and runs the 90 miles to the port it passes return train loads of empties on passing tracks; work cars and maintenance crews are on sidings; these track movement controls come from the CTC board.

The train reaches Puerto Ordaz, where the Caroni River joins the Orinoco, in about three hours. In Puerto Ordaz, the ore is crushed, stock-piled, and eventually loaded by conveyor belt on an ore boat whose movements in the Orinoco channel are assisted and mapped by ship-to-shore radiotelephone.

All changes up and down the 90 miles of track show in lights on the dispatcher's console. "Memory" devices permit the CTC system to store codes, since only one radio station at a time can transmit CTC codes. The stored codes, with their messages, are released on a CTC priority basis when the circuits are clear, in a matter of seconds, four seconds being the time needed to send a control or indication call.

Switches are thrown by small trackside motors controlled by pulses sent by the microwave radio signal. The dispatcher initiates these pulses by merely pressing a button on his control machine. The pulses start out as d-c, are converted to tone and transmitted by microwave to a siding. They are reconverted into d-c at the receiving point where they operate relay equipment. The relays perform the desired predetermined functions.

The CTC codes transmitted from the dispatcher's console are an uninterrupted 2,500-cps synchronizing tone and simultaneously, a 2,000 cps tone keyed for coding at approximately four pulses per second.

Lights on console in Puerto Ordaz give dispatcher a complete picture of all movements on the system.

The passing track radio stations are normally silent. However, to transmit a code, a passing track radio station is automatically turned on and keys the 2,500-cps synchronizing tone received from the dispatcher location, thus returning the tone to the dispatcher in the form of an indication code.

There are no wire lines along the right-of-way, only the towers of the radio system and buildings for the generating plant and the small neat housing for the radio and tone equipment.

The dispatcher maintains a log, showing the movements of all trains, their loads, crews and performance schedules. He has radio-telephone communication with all trains. He can talk to the engineer in his cab, the conductor in the caboose, and they can talk to him and to each other. This radio set-up also connects the port and the yard-master at the mine, and radio-equipped work trains and other mobile units.

The overall Orinoco Mining Company telecommunication system is basically multi-channel and also provides numerous communication services vital to mining operations, including a dispatcher-to-train radio system, four dial telephone channels, two teleprinter channels, a remote radio transmitter control and numerous tone dialing and signaling channels.

Thus, four telephone channels operate between automatic exchanges connecting Puerto Ordaz and the mine, connecting hundreds of subscribers at each, and with one another, and over another Orinoco radio link with headquarters in Caracas. A teleprinter channel exchanges vital printed telegrams between Orinoco Mining headquarters in the port, operational headquarters at the mine, and Caracas.

This is part of an overall RCA engineered radio system which first helped Orinoco Mining penetrate the area, deepen the river channels and build cities, roads and docks, and which now connects Orinoco Mining's offices in Caracas, the mine, Puerto Ordaz, the town of Ciudad Piar, built at the foot of Cerro Bolivar, the ore ships in the river and the ore gathering system.

Engineering on the system for the Union Switch & Signal Company was done by H. D. Etchison and W. P. Quintin, Jr. The radio project was directed for RCA International by D. H. Pain, with engineering by B. Sheffield, C. H. Brereton and R. M. Ball, Jr.

Mr. Thomas says: "We are grateful to the Venezuelan Government for allocating all the frequencies necessary for the operation of our radio system. This cooperation is symbolic of the assistance we have received from Venezuelan authorities. It is matched by the wholehearted endeavour of all our Venezuelan personnel, of which endeavour we are extremely proud."

New plant houses executive, engineering and marketing staffs and manufacturing facilities.

Pace-Setting in Transistors

RCA's New Somerville, N. J., facility produces complete semiconductor line

By Dr. Alan M. Glover

General Manager
RCA Semiconductor Division

The electronics industry — since the invention of the three-element vacuum tube in 1906 — has been speeded in its progress by one epochal development after another. But none in recent years has been as important as the introduction of the transistor in 1948. Almost overnight this tiny, mighty newcomer sparked the industry to new growth and set in motion countless programs of research and development, with results that now are reaching sizeable proportions.

As the outstanding pioneer in electronics development, RCA has been a major contributor to industrial progress. It is therefore only natural that our Company has become a pace-setter in the semiconductor industry.

Important evidence of this may be seen by any traveler along Route 202, heading west from Somerville, N. J. On an 85-acre landscaped plot located two miles from Somerville, RCA has erected a modern industrial plant with 180,000 square feet of floor space to facilitate the design, development and manufacture of a complete line of transistors and diodes. Although the plant has been operating only since November 1956, expansion has been rapid.

Today nearly 1,000 employees — a gain of approximately 25 per cent since the first of this year — are responsible for the engineering, production and marketing of 19 different types of transistors and four semiconductor diodes. The units are being rapidly absorbed by a constantly expanding number of applications in the entertainment field, industry and government.

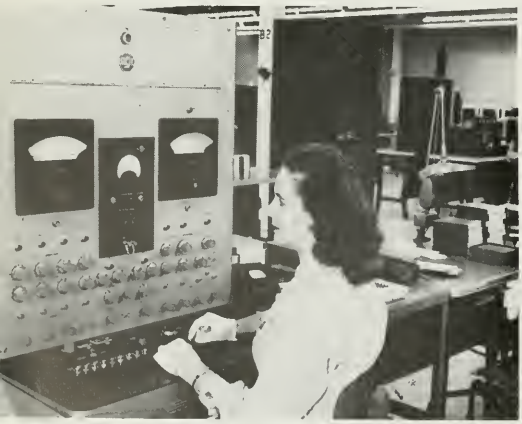
Aware from the beginning of the potentialities of the transistor, RCA began its commercial operations in a building of the corporation's Electron Tube Division at Harrison, N. J. Meanwhile, a search was started for a suitable site for a new plant. One of many possible locations, Somerville was finally selected because it came closest to meeting all requirements.

First, the community is close to the RCA laboratories at Princeton, N. J., where basic research and

An operator observes the formation of a developmental silicon crystal in the Materials Laboratory.

development of semiconductors are centered. The area around Somerville has many attractions for engineers and scientists. There are numerous engineering interests to attract and hold technical personnel. Equally important are the educational facilities available for graduate work, Princeton and Rutgers Universities being less than 20 miles away. This is important to those who wish to continue their studies to keep abreast of a rapidly developing technological development.

Testing console makes final check of the electrical characteristics on commercial transistors.



In two other ways Somerville fitted in with RCA's plans. The town itself is receptive to new industries, and the area has an available supply of women workers who constitute nearly 80 per cent of RCA's employees at the plant.

Community Participation

Although the RCA Semiconductor Division has made its headquarters in Somerville for less than a year, its faith in the community has already expressed itself in tangible ways. Executives participate in civic affairs as members of local organizations, and the company has contributed to the welfare of local institutions. All of these factors have made Somerville a place so attractive that more than 50 per cent of the key personnel who formerly were assigned to the Harrison operation have moved to Somerset county.

Discussing the semiconductor industry as a whole, it is neither safe nor easy to make predictions on its curve of growth. Its surprising expansion and the expectancy of great technical advances tend to make forecasts unpredictable. But certain known facts about transistors and the current trends in research may be used to develop a dependable guide for the immediate future.

It is apparent that the industry has "shrugged off" some of the glowing premature claims for transistors and is now determined to rely on their proven ability to perform. At the start of the industry only nine years ago, visionaries saw mysterious wonders in the transistor. Today, it is acknowledged that there are some functions the transistor cannot accomplish. But, there are many functions it can perform more satisfactorily than any other devices.

The semiconductor industry shows definite signs of stabilization. For one thing, transistor manufacture is becoming concentrated in fewer hands. Opportunists who entered the business with limited knowledge of the problems involved are turning to other fields. Furthermore, specific research in this field, particularly by such organizations as the David Sarnoff Research Center of RCA at Princeton, has led to a concentration of effort on fewer of the natural elements that might be suitable for semiconductor operation.

It is now evident that the element germanium is here to stay despite threats of inroads by other elements, although silicon is being used increasingly. Silicon transistors are able to out-perform germanium transistors in certain applications, particularly where ambient heat is a problem.

Entranced by some of the original wide-eyed claims

for transistors, the public has been puzzled by the slowness with which they have been adopted for instruments used in entertainment. However, the increasing use of these devices in home radios, automobile radios and some types of amplifiers are gradually allaying an impression that transistors have been oversold. So far transistors have had limited use in television receivers, due to their high cost. When production can be materially increased and manufacturing processes simplified, these costs will come down. When that time comes, TV sets will comprise one of the most attractive markets for transistors.

Theory and Application

A major obstacle to progress in the transistor field, and one seldom mentioned, is the failure of industry to educate engineers in transistor theory and application. When these engineers, long steeped in electronics but not in semiconductors, understand the potentials of transistors, a lively growth pattern is expected and the tiny devices will find use in a host of instruments in a wide variety of applications.

But the so-called entertainment field should not be considered as the primary consumer of transistors in years to come. It is believed that eventually the military and industrial markets will far outrun all others in their demand for transistors.

Yet, despite the growing pains of the semiconductor industry, those who have pioneered have reason to be proud of their accomplishments when considered in terms of manufactured units. For example, the total output of the industry in 1956 was 12 million units. By the end of this year the industry will have produced an estimated total of 27 million. By 1965, it is believed that the electronics industry will be turning out one half billion of these devices.

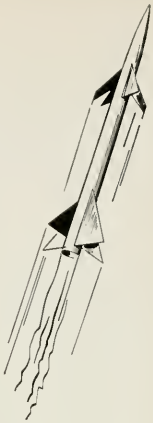
From month to month, the armed services are finding more and more uses for transistors. Their small size and light weight, their stability, and their freedom from heat generation make them ideally suited for use in large numbers in constricted places. In commercial fields, hearing aids are absorbing millions of units, radios and other entertainment instruments are calling for increased quantities, control devices for industrial plants are beginning to depend on transistors for their operation, and computers, now riding high as another one of the great advances of the age are looking to transistors to solve the limitations of space and heat dissipation. As computers, both large and small, come into wider use in small businesses as well as large, it is expected that they will use an impressive percentage of all transistors manufactured.

Engineering laboratory works out processes for making developmental semiconductor units.

Germanium pellets, base tabs and emitter-collector materials being placed in an alloying jig.

Germanium crystals are "grown" in high temperature electric furnace. Drum contains heating unit.

RCA's Cherry Hill facilities instruct relays of air force men on fire control system maintenance.



SCHOOL FOR AIRMEN

Trainees spend sixteen weeks at the school; they are drawn from air bases throughout the world.

Most trainees live in homes or apartments in the Cherry Hill community. They have full shopping rights in RCA "Family Store."

RCA technicians teach air force trainees maintenance on airborne fire control system

FROM 6 a.m. to midnight, five days a week, blue-uniformed Air Force men move in and out of the Radio Corporation of America's Cherry Hill, N. J., facilities, mingle easily with RCA employees in the cafeteria and generally make themselves at home amidst the buzz of business and engineering activities.

Although the nearest Air Force facility is McGuire Air Force Base at Pemberton, N. J. (35 miles away), some 224 airmen are "stationed" at RCA's Cherry Hill site, and most of them live in homes and apartments nearby.

Actually, the airmen are attending the East Coast Fire Control School, operated by the Government Service department of the RCA Service Co., Inc.

"Where to Aim . . ."

This is a secret training operation, teaching airmen maintenance on the RCA-produced MG-10 Airborne Fire Control System. About all that can be safely said

about this system is that it "shows where to aim and when to fire" and is a vital factor in the country's defense against possible guided missile and/or airplane attacks.

The Air Force men at Cherry Hill (which is located some six miles from Camden) spend 16 weeks at RCA completing their training, and have been drawn from Air Force stations throughout the world.

An intensive course, taught by thirteen instructors is fired at these specially-selected men. At the end of the course, they will be capable of doing any maintenance work required on the intricate fire control system.

The first class, or "shift," begins at 6 a.m. when the initial contingent of airmen report.

All Material Classified

All classes are held in modern well-equipped classrooms in a "secure," or guarded area. Admittance is by badge only and all material within this area is classified — or restricted to authorized personnel only.

Two completely-equipped laboratories — containing two systems of the MG-10 Airborne Fire Control — are in constant operation. Here, the airmen actually work on the material they will be later called upon to repair and maintain all over the world.

The first shift breaks at 3 p.m., after a nine-hour duty. The second shift of Air Force personnel then moves in and operates until midnight.

The RCA East Coast Fire Control School is striving for a "practical approach to the problem of training qualified electronic maintenance personnel for the defense of this country," according to A. L. Conrad, Vice President, Government Service Department of the RCA Service Co., which operates the school.

"We are trying to train these men for the job they have to do, as swiftly and as well as we possibly can," he said. "We want to take much of the 'mystery' out of electronics and teach it at a level that will make these men effective 'trouble shooters' on complex fire control equipment.

"In other words, we don't want to overtrain them and waste a lot of time and money for both RCA and the government. We are training them for a specific tangible job — field maintenance on the MG-10 Airborne Fire Control System — and are trying to make this training as objective as possible," said Mr. Conrad.

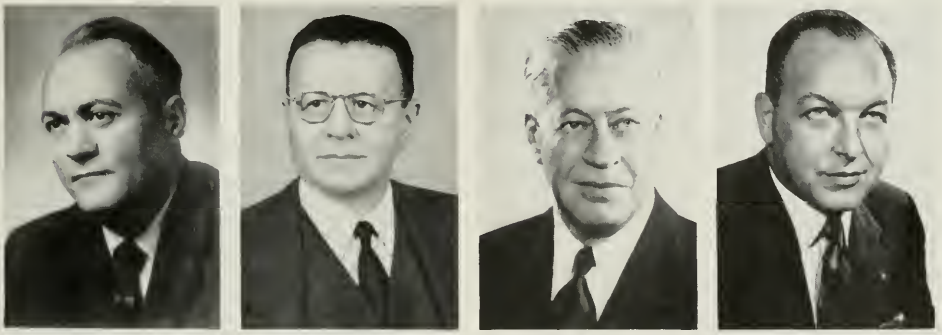
Once the men are deemed able to perform their maintenance duties, the Air Force takes over and ships them to wherever the MG-10 is in operation in the U. S. and overseas.

Until then, however, 224 airmen are living and learning in Delaware Township, living much as any other resident, but learning something that is vital to the future security of our country.

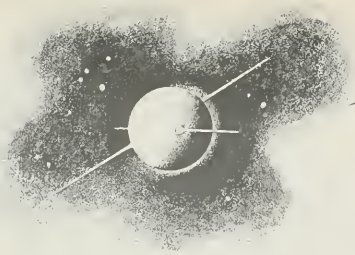
Temporary residents with an important future.

. . . . . .

New RCA Directors



Four new members of the Board of Directors of the Radio Corporation of America: (l. to r.) Charles M. Odorizzi, RCA Executive Vice-President, Sales and Services; Andre Meyer, Senior Partner, Lazard Freres & Company; Paul M. Mazur, Partner, Lehman Brothers; and Robert W. Sarnoff, President of the National Broadcasting Company. Mr. Odorizzi was elected to the RCA Board in July; Messrs. Meyer, Mazur and Sarnoff were elected in September.



Signals from Outer Space!

FIRST radio signals from the Russian earth satellite to be heard in the United States were picked up by RCA less than two hours after announcement of the launching in Moscow at 6:30 p.m. (EDT), Friday, October 4.

These first signals — faint cricket-like "beeps" — were plucked from outer space at the 2,000-acre receiving station of RCA Communications, Inc., Riverhead, L. I. They were recorded on tape at 8:07, 8:15 and 8:22 p.m., as the Soviet-built "moon" spun in a southeasterly direction some 500 miles overhead. At 8:30 p.m., the signals faded.

Earlier on that memorable Friday night, newsmen at the National Broadcasting Company headquarters in Radio City, New York, had alerted the RCA personnel at Riverhead to attempt a pickup of the satellite's transmissions. Thus at 9:00 p.m., with the monitored tape recording of the radio signals on hand, NBC broke into its radio and television networks across the Nation to bring the American people the first sounds from the startling Russian globe.

NBC affiliated stations called for a rebroadcast. The TV network was broken again at 10:47 p.m., and at 11 p.m. the radio network put the weird "beeps" once more on the air. During the next forty-eight hours NBC was to cover the satellite's repeated passages over this country, with its "Monitor" broadcasts and special radio and TV programs transmitting the recorded signals. NBC's "Youth Wants to Know" program on Sunday, October 6, featured Soviet scientist A. A. Blagonravov, head of that country's delegation to the IGY conference in the United States.

Meanwhile, RCA's staff of engineers and its international communications network were mobilized to follow as closely as possible the progress of the swift earth-girdling "moon," and to supply the information it gathered to news outlets and others interested in the dramatic event.

One of the first moves at Riverhead was to measure the varying shifts in frequency of radio signals from the satellite. This information provided an estimated speed for the orbiting sphere of 17,712 miles an hour, slightly below the estimate of the Russians.

According to RCA data, the satellite seemed to be crossing the United States about every other trip around the earth, and passing over the vicinity of New York about once every 12 hours. Signals from the satellite were found to be audible for twenty-five to thirty-five minutes when the "moon" passed over the New York area.

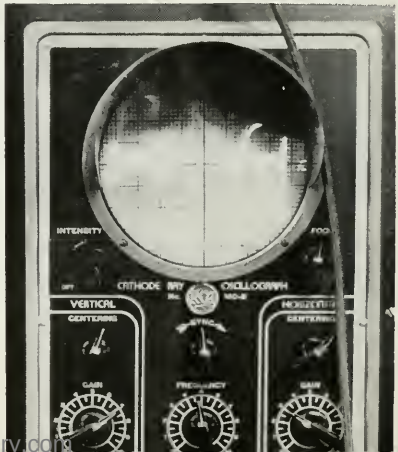
The whizzing globe broadcasts signals that last three-tenths of a second, with a pause of equal length. This was the pulse rate, recorded by the RCA engineers at Riverhead.

On the eventful Friday night, October 4, it was an RCA receiving technician, at Riverhead, Milton Tyte, who tuned in the satellite's transmitting frequencies. He heard the first tiny "beep" at 8:07 p.m. This was about an hour and forty minutes after Moscow Radio's English-language broadcast announcing the launching, and the start of bell-ringing bulletins of news agencies telling America of the event.

After the signals from the satellite faded out at 8:30 p.m., RCA monitors were kept tuned to the satellite's frequency, and the signals were heard again at 9:36 p.m., for another thirty minutes. The signals continued to reappear thereafter about every ninety minutes, until daybreak, when they were heard about every hour, according to the operator's log.

At RCA Communications offices at 66 Broad Street, New York, signals of the satellite were monitored on various graphs and oscilloscopes, which showed the pulses as a wiggly line of green light.

RCA oscilloscope shows varying patterns of radio signals received from satellite.



Electronics in Insurance

INSURANCE policy records, which now occupy five or ten floors of a skyscraper office building, will ultimately be condensed on a few hundred reels of magnetic tape and stored in a single room, Brig. Gen. David Sarnoff, Chairman of the Board of Radio Corporation of America, declared in a speech delivered in Washington on September 13.

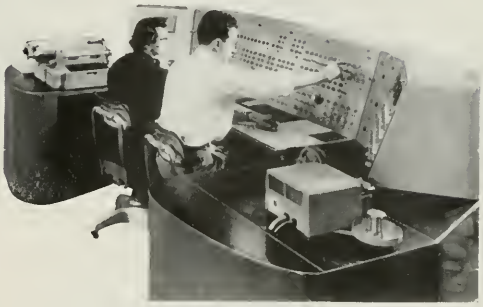
Addressing the 34th annual conference of the Life Office Management Association, General Sarnoff outlined the growing impact of electronic devices on business office procedure, emphasizing the importance of this trend toward automation in the insurance office.

"One of the greatest over-all advances in the use of electronic computers," General Sarnoff said, "is being made in your own field of insurance. There, computers are at work handling premium billing, dividend calculation and distribution, and a host of other operations too numerous to mention. Though computers are relatively new to the insurance business their substantial advantages are already becoming evident. Recent studies show that they are opening the way for major economies in personnel and floor space, eliminating file duplication, supplying management with up-to-date information, providing better administrative control, and offering more efficient service to insurance policyholders.

"Computers have demonstrated a capability for performing astonishing feats in our offices. For instance, they are completing in twenty-four hours certain file-maintenance procedures that once took a full month. They are processing in one hour as much work as 400 girls with hand calculating machines used to turn out in the same time. They are storing on a single reel of magnetic tape as much information as was previously held on dozens of file shelves. And, they are reading from tape at 3,000 words per second — a rate at which they could finish Tolstoy's "War and Peace" in about three minutes.

General Sarnoff said that no area in business has been more enterprising than insurance in adapting electronic devices to its special needs. "Many of your companies," he said, "have devoted thoughtful study to the development of plans for the efficient use of electronic data processing systems. Among insurance people there has been wide acceptance of the practicability and potentialities of these systems.

"It may well be said that the insurance business — through the intelligent application of electronic equipment and through the wise investment of its funds — has contributed importantly to the exuberant upsurge



RCA's Bizmac electronic "brain."

that has made electronics a $12 billion industry, and one that is growing at the rate of three to four million dollars a day."

Looking to the future, General Sarnoff said that in insurance it is "not unreasonable to envisage the day when all branch offices will be tied in with the home office through communications circuits that will be an integral part of the computer system. A single system will perform all the accounting operations within a firm. Or the same kind of facilities — with smaller computers — will be able to handle decentralized accounting where that is preferred.

"An employee who wants some specific information on your policy or mine will simply press a button or dial a code number. The electronic memory will be searched at lightning speed, and the desired information will appear instantly on a television-like screen on the employee's desk."

General Sarnoff deprecated the fears of the "disciples of despair" who predict that automation will bring widespread unemployment. "We have the word of our most eminent economists that the major problem in the years ahead will not be unemployment, but how to stretch the labor force to keep pace with our growing population and our rising standard of living," he said.

He declared that automation can become a "vital asset" to our national economy and to the security of the free world in the cold war against Communism.

Gen. Sarnoff said that automation "has become critically important to us and to our allies." He added: "It offers the stimulating prospect of greater security, wider industrialization, a higher standard of living, and a better and happier life. If we have the wisdom and the will to face up to our opportunities, electronics can broaden our horizons beyond all expectations."

. . . "as others see us"

by Joe Michaels

Accompanied by an NBC cameraman, "Today" reporter Joe Michaels recently covered some 30,000 miles and shot more than 26,000 feet of film in foreign lands interviewing the "man in the street" as to his views on the United States.

WALKING around with chin extended and a sign around your neck reading "Hit Me" is not, in most circles, considered evidence of great intelligence. Even Daniel didn't get into that lions' den without some pretty forceful persuading.

But this reporter not only stuck out his chin and donned the aforementioned sign but also leaped into the den willingly—fully clothed and head first.

The occasion was an early morning inspiration on the part of some "Today" program personnel. A news item originating from abroad had started a heated discussion of what other peoples thought of us, of the United States, that is. And since it seemed so interesting to all those present they assumed that the rest of the nation might be equally intrigued. The idea was brought to News Director Bill McAndrew and when he liked it, too, the only thing remaining was to find a reporter (sometimes spelled P-I-G-E-O-N in more sophisticated circles) to assign to the job.

Four days later Cameraman Sy Avnet and myself were aboard a plane headed for Britain, the first stop in an around-the-world trip which would include that country, France, Germany, Yugoslavia, Egypt, India, Formosa and Japan. Our assignment: to find out what people in other countries think of America from every possible point of view; in other words, not just as a nation but as individuals, too. We were to ask how they felt about

NBC Reporter Joe Michaels, left center, asks Frankfurt man-in-the-street opinions of U. S.

". . . Our assignment: to find out what people in other countries think of us."



In Europe, criticisms were not expressions of hostility. "Much more important were the continued assurances from almost all the people that I talked to in Western Europe that our destinies were bound together."

American culture or, indeed, if they felt that we had any. We were to find out if they liked us or hated us or had any feeling about us at all, why they felt that way and where these ideas came from.

Finally, and perhaps most important, we were to speak not to statesmen or diplomats or famous figures but to ordinary men and women, the people who would be most likely to answer in terms of what they genuinely thought, rather than as policy might determine it would be convenient for us in America to *think* they thought.

"Nobody Likes Us"

Even for a reporter not unacquainted with the world the trip was full of surprises from beginning to end. When the final program, a summation of our findings, was presented one newspaper reviewer said he believed the title should have been changed from ". . . As Others See Us" to "Nobody Likes Us." Unquestionably, there was much to substantiate this view.

Certainly I met few people willing to say a good word for us in Egypt. It was Election Day when I started interviewing people in Cairo, the first election since 1947 for that country, and though no anti-Nasser candidates were knowingly allowed to run still the atmosphere was electric and—to me—depressing. Never have I been surrounded with such uniform and complete hostility; hostility directed not to me as an individual but as a representative of the United States.

We are imperialists, I was told, out to reduce the Arab countries to serfdom. The pressure we brought to bear on Britain, France and Israel at the time of Suez? All a phoney was the unanimous answer. It was the Russian threats which made Nasser's enemies withdraw.

And the misinformation! One man said, "We had some hope for Eisenhower but now we see that he, too, is in the control of the Zionists." Everything in America, it seems, is controlled by the Zionists, a euphemism for Jews. A crowd grinned and applauded as another individual told me solemnly that it is well known that "the Zionists control industry, government—everything."

A college student happily informed me that Americans worship money and have no true culture. "I am sorry to have to say this," he told me with a most unsorrowful expression on his face, "but you are a shallow people." And when an elderly man, a retired professor, denied this, saying he had met many highly intellectual and truly cultured Americans, he was almost mobbed by a crowd which charged him with being in American pay.

Where do they get these ideas? "From the radio, from newspapers—from everything." Needless to say, all such media in Egypt are either government-owned or government-controlled.

In Yugoslavia: ". . . Only in Communist-ruled Yugoslavia did people tell me that the United States was a land of free people . . . only in a land which has never had such freedom did I hear this view . . . I feel something should be done. . . ."



Japan doesn't like foreign troops . . . "Yet, right now American products have never been so popular."

Does Formosa want us out? . . . "Certainly not, according to every Chinese I talked to."

NBC cameraman Sy Avnet prepares to cover interview of Taipeh citizens.

A-Bomb Experiments

But this sort of thing was to be expected in Egypt where an anti-American campaign has been waged for many months. It came as something of a surprise to hear much the same sort of thing from Indians. In Calcutta, two lady professors solemnly informed me that because of American and British hydrogen bomb experiments the climate of West Bengal has changed in the past couple of years, decreasing the food supply in this food deficient nation. How do they know this? Oh, everybody knows it. How about the Russian experiments; have they had anything to do with this unfortunate situation? Well, they didn't know about that but they did know about the American bombs.

They knew, too, that it was the bomb experiments which caused the Asian flu! Now, I had been prepared for a great deal by this time, but I must confess when I heard that statement made so calmly and so positively I couldn't think of a thing to say. Nor is that the opinion of just a few. Hundreds of thousands of people have been told it and by now subscribe to just such views. The question is, why do they believe such things?

In some cases the answers are easy. Take India, for example. To us there is only one important menace in the world and that, of course, is the Soviet Union. But, India is a new nation, only ten years old, and as completely wrapped up in her own direct concerns as new and insecure nations are likely to be; as we ourselves were one hundred and fifty years ago. India has been in conflict with only one nation during her short history and that nation is her neighbor, Pakistan. Harsh words have been continually flung back and forth and the issue of Kashmir is still *the* big story in this country.

America Suspect

To Indians of whatever degree the only nation which threatens the peace is Pakistan. America has been giving arms to Pakistan, therefore America is suspect. It is as simple as that. Indians do not believe that Red Russian imperialism menaces Pakistan and they are convinced that if we do believe it we are at best naïve, at worst plotting with her neighbor to destroy her.

As for Egypt, the answer there is even more simple. All organs of public opinion there are under government control and at this time Egypt's government is anti-American—so anti-American that at the time I was there

In England . . . "Ever and ever there is the old chestnut about our lack of culture, even while American books jam the bookstores."

"We were to speak not to statesmen or diplomats but to ordinary men and women. . . ."

radio newscasters were telling the people that rock 'n' roll, which had just been officially banned, had been introduced by American agents bent on subversion!

But, certainly, opinion about us is not so negative everywhere. Sure, we are criticized, but this does not necessarily indicate anti-Americanism. For example, the Nationalist Chinese on Formosa are still unhappy about the decision in the now-famous Reynolds Case, where an American master sergeant was acquitted in the killing of a Chinese whom he contended he caught in the role of a Peeping Tom. Many Chinese called the acquittal by an American court martial a whitewash and a mob sacked our embassy in Taipeh. Does this mean they want us to get out? Certainly not, according to every Chinese I talked to.

The Japanese, on the other hand, *do* want our troops to leave. Does this indicate anti-American feeling? No, said one newsman, it is merely an expression of national pride. Japan has never in all her thousands of years of history been occupied by a foreign power. No matter what agreement the two governments may make, to most Japanese the presence of American troops represents just that—an occupation.

Said another, "Listen, if we were anti-American we would not be buying American goods. Yet, right now American products have never been so popular."

The French and British have their criticisms, too. McCarthyism, for instance, is still likely to come up. A Frenchman is liable to say that we should have supported them at the time of Suez, that we don't "understand" the situation in Algeria. And ever and ever there is the old chestnut about our lack of culture, even while American books jam the bookstores and American music comes to your ears from all sides.

Much more important were the continual assurances from almost all the people I talked to in Western Europe that our destinies were bound together. They know it, and though they might ask for more consideration of other points of view than our own, most would not change it.

Only in Communist-ruled Yugoslavia did people tell me that the United States was a land of free people, of democratic self-rule; only in a land which has never really had such freedom did I hear this view expressed. And I feel that something should be done about it.

on the 50-Yard Line

Portable camera cruises sidelines for shots of crowd and band, as well as the game.

by Tom E. Gallery

NBC Sports Director

IF YOU want a seat high up on the 50-yard-line at some of the best college football games this Fall, just flip on your television set to your local NBC channel. For the sixth time in seven years, NBC-TV is televising the schedule of football games approved by the National Collegiate Athletic Association.

Four of the eight nationally televised games are being presented in color, as well as black-and-white. Color television adds another dimension to all sports, but in football it is of special value because it provides a better means of identifying the players. The enjoyment of the game, the halftime show and other attractions that make college football such a great spectacle are vastly enhanced by color.

The NCAA series again take the nation's gridiron fans to all sections of the country. With the experience gained from past years of telecasting the "Game of the Week," we at NBC have developed a production technique which — regardless of where the ball is in play on the field — provides the televiewer with what amounts to the choicest seat in any stadium.

Long before college football squads took their first opening practice licks at the tackling dummy, NBC-TV's staff of sports production experts was hard at work mapping plans for the football coverage.

As early as May, Perry Smith, who produces the grid telecasts, started work on the football project, along with director Harry Coyle. During the Summer, they surveyed the stadiums involved in the TV schedule. They checked press-box facilities, picked camera locations, arranged for transmission lines and made all the other necessary plans for placing the remote equipment.

Most of the games on this season's schedule will be covered by a mobile unit from NBC's New York headquarters. Others will be handled by the NBC-owned or affiliated station in the area. For the games televised in color as well as black-and-white, NBC's color mobile unit will be used. The custom-designed unit is the only one of its kind in network TV.

Four Cameras In Use

NBC personnel, headed by Smith and Coyle, usually arrive at the stadium on the Thursday preceding the Saturday game. The mobile unit is parked outside the stadium, and the engineers' first task is to make the complex installation of cameras, cables and microphones.

Four cameras are used to cover the games. Two cameras are placed atop the press box at the 50-yard-line and two more are located at each 20-yard-line. The cameras are spotted in this way so that as the play moves up or down the field, the televiewer is assured of a "ringside" view. One of the cameras at the midfield stripe can call on a 40-inch-telephoto lens which

obtains extreme closeups and practically puts you in a huddle. The other three cameras are equipped with Zoomar lenses, which can move in and out of closeups. We also utilize a camera with a special 60-inch telescopic lens at games where the press box is far back from the field, such as the Army-Navy battle in huge Municipal Stadium in Philadelphia.

A fifth camera, NBC-TV's ultra-portable camera, is used for games televised in black-and-white. The portable unit travels up and down the sidelines to pick up shots of the crowd, the cheering sections, the bands and — occasionally — special game action, such as goal-line stands.

While NBC engineers are working in the stadium, other technicians are arranging the telephone line hook-up that will feed the telecast from the stadium to NBC headquarters in either New York, Chicago or Los Angeles, whichever is closest, where the telecast is transmitted into the coast-to-coast network. An open phone line is installed from the mobile unit control room to the master control point so that film commercials can be integrated without intertupting the telecast of the game itself.

By Friday afternoon, the camera and relay installations are all set, all cables connected and the microphones installed in the announcer's booth, where commentators Lindsey Nelson and Red Grange and their spotters (who help identify the players) sit. Smith, the directors and the engineering crew then talk over anticipated problems of the following day

They map out a carefully integrated plan which includes such points as which camera covers kickoffs, punt returns and passes, which picks up the referee signalling after the attempt for extra point, which catches defensive shifts, and so on. Any TV sports director, by the way, will tell you that there is no substitute for top-notch cameramen in covering a game, for they are his "eyes" and must be alert and quick to provide him with all the action on the field.

The director quite literally must be a grandstand quarterback — and a good one, at that. Sitting in the mobile unit control room, he watches monitors which show the picture each of the four or five cameras is getting at that moment. He must prepare for whatever play the offensive team is likely to run and then call his camera shots accordingly.

On Saturday morning, the NBC crew stages a complete rehearsal, and by noon is ready to go on the air.

Coordinating Game Action

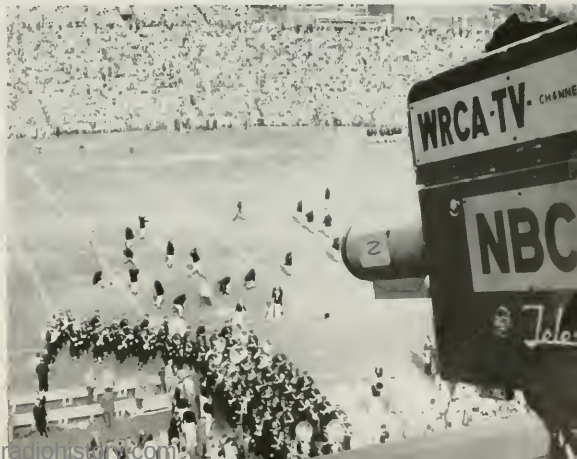
Obviously, the actual telecast of the game requires coordination of widely scattered activities. The camera crews, the announcer's booth, the control room in the mobile unit and the NBC-TV master control point are in constant touch by open phone lines. Producer Smith controls the program from his seat in the mobile unit, while the director is responsible for getting the best possible sound and picture story of the game transmitted to the network.

Game day is a long one, and of course there's always the threat of rain, sleet or snow. Special foul-weather gear is provided the camera crews and protective tarpaulins are stored beside each camera. You might bear this in mind this Fall as you watch the series from your living room easy chair.

When the Saturday telecast is finished and alumni are assembling for victory celebrations or post-mortems, the NBC crew is still hard at work. After the crowd files from the stadium, the engineers dismantle the installations, coil the wires and cables and load up the mobile unit truck. On Sunday the truck goes to its home garage, where maintenance men check every item of equipment. By the first of the week, the unit is ready to roll to the next stadium and game.

Zoomar lenses move in and out of closeups.

Two cameras are at midfield, two on 20-yard line.



On tour, Vaughn Monroe entertains admirer in Texas hospital.

Monroe and Miss New Jersey at Cherry Hill.

"Ambassador of Good Will"

WHEN Vaughn Monroe decided to stop being one of the country's top band leaders and try his hand at salesmanship, the question of his future was worth considerably more than $64,000. His entire career was at stake.

Today—more than four years after Vaughn Monroe's momentous decision—the big question has been answered very satisfactorily indeed, not only for the former singing band leader but for the Radio Corporation of America, his sales boss, and Kenyon & Eckhardt, his sponsoring agency.

Monroe has become RCA's foremost selling personality on radio, television and in dealers' showrooms. For sixteen years, he had been a top recording artist for RCA Victor. Now he devotes almost all of his time to producing commercials for RCA and touring the country as "The Voice of RCA" and RCA's "Good-will Ambassador."

On tour, Monroe visits the members of the widely scattered RCA distributor organization, with its thousands of dealers, often working in association with national and local charities. He has represented RCA's

At 10th anniversary of the RCA Exhibition Hall, Monroe obliges fans.

In Tampa, Monroe leads school band at the opening of Maas Bros.' "Store for Homes."

distributors and dealers in more than 150 cities since 1954.

In contrast to his former monotonous round of "one-nighters," Monroe now rarely knows what the next day will bring. He might find himself atop a 27-foot ladder in a Warner Brothers studio in Hollywood filming a TV commercial; he might spend a full day in a New York NBC studio recording radio commercials for 50,000 RCA dealers; he might appear at a rally of 50,000 boy scouts in Dallas, courtesy of RCA; or he might represent RCA at the inauguration of a multi-million dollar department store in Salem, Oregon.

Monroe aired his first RCA commercial on the Sid Caesar Show in September, 1954. From that date it rained commercials. He has appeared on the Milton Berle Show, The Martha Raye Show, Producer's Showcase and the Saturday Color Carnival. For the coming season he will produce commercials for the Perry Como Show, the George Gobel Show, The Price Is Right, The Eddie Fisher Show and Tic Tac Dough.

In taking up his new career, Monroe, a trained professional vocalist, experienced no difficulty in handling singing commercials. The acting and voice roles were a different story, and Monroe required special coaching from the staff of Kenyon & Eckhardt, the agency responsible for RCA's commercials. Within a few months he was taking these assignments in stride.

Recognition for Commercials

Two of Monroe's commercials have gained national and international prominence. The "Floating TV Commercial" won the Art Director's Award for live, filmed action. A portable television receiver, floating unassisted, suddenly came alive, alighted from a Ford Thunderbird and entered a home. The Floating TV set showed its versatility by climbing and descending stairs into various rooms of the houses where it might serve a useful purpose, turning itself on and off, all described by RCA's "voice," Vaughn Monroe.

The Floating Glove Commercial was voted first honors at the Cannes Film Festival. The ingenious and original film showed a lovely fuchsia-gloved hand caressing a color TV receiver, pinpointing the highlights of color and RCA styling.

Monroe's touring assignments began when RCA offered promotion assistance to one of its dealers in New Brunswick, N. J. This went over so well that visits to distributors became a permanent part of his promotional efforts. Monroe is now on a regularly scheduled five days per month itinerary. In these five-day promotions Monroe combines a national charity campaign kick-off with a salute to RCA dealers by being their spokesman in an RCA Victor Week.

His tours have included visits to Salem, Oregon, where he dedicated the new multi-million dollar department store of Meier & Frank; at Pomeroy's, Levittown, Pa., and at Jordan Marsh, Miami, he represented RCA for the important Allied Stores Corp. inaugurals.

At the RCA Cambridge and Canonsburg plants, production stopped and the girls mobbed him for autographs while the plant public address system played, "Racing With the Moon." He serenaded hundreds of factory girls in a cleared area between the machine shop and the chassis soldering sections.

He addressed students at the University of Tampa and exhibited RCA filmed commercials — telling the students of some of the work that goes into their production. At Hamden, Conn., he dedicated a new million dollar shopping center that houses RCA dealers, and in Cleveland he regularly appears at the annual Higbee Christmas Carol Community Sing in the downtown Square.

He served as host to the national and international press at the RCA Hospitality Center at both the Democratic and Republican Conventions. During the inactive periods at the conventions he interviewed delegates, senators, congressmen, governors, and alternates on RCA tape for their home town radio stations.

Monroe is a versatile performer who fits in easily wherever he happens to be. He is doing an outstanding job as RCA's roving ambassador and his success is attested by the increasing number of requests that are being made by dealers and distributors for Vaughn Monroe appearances.

Vaughn Monroe was the keynote speaker at the opening of improved Pomeroy's in Wilkes-Barre.

Scholarships For Science Teachers

EIGHTY-THREE young men and women are now receiving financial assistance in their quest for higher education at American universities and colleges under RCA Scholarships and Fellowships. This fall the list includes for the first time students awarded the new RCA Science Teacher Scholarships.

There are four separate parts to RCA's 12-year-old student aid program:

(1) Thirty scholarships are provided, under the newest phase of the program, for students preparing to enter the science teaching profession.

(2) Thirty-three other scholarships are offered to undergraduate college students majoring in science, industrial relations, dramatic arts and music.

(3) Twenty fellowships are awarded to postgraduate students pursuing studies in electrical engineering, physics, engineering physics, business administration and dramatic arts. Ten of these fellowships are offered to outstanding RCA employees.

(4) A Tuition Loan and Refund Plan enables employees to take college and correspondence school courses after working hours.

The thirty new Science Teacher Scholarships awarded this fall are designed to help ease the critical shortage of high school science and mathematics teachers. Based on the results of a survey made by the RCA Education Committee, the scholarships were established at twenty teacher-training colleges in sixteen states where the shortage was found most acute.

A chemistry student experimenting in the laboratory of Goucher College which is participating in RCA plan.

Science Teacher Scholarships

Ten of the Science Teacher Scholarships, providing annual grants of $800, were awarded to prospective science teachers during their sophomore, junior or senior years at: Berea College, Berea, Ky.; Adelphi College, Garden City, N. Y.; Clark College, Atlanta, Ga.; University of Delaware, Newark, Del.; Goucher College, Baltimore, Md.; West Virginia Wesleyan College, Buckhannon, W. Va.; University of Wyoming, Laramie, Wyo.; Trinity College, Hartford, Conn.; St. Louis University, St. Louis, Mo.; and University of Rhode Island, Kingston, R.I. RCA also made an unrestricted contribution of $500 to the seven independent colleges in this group.

Twenty other new scholarships, ten of which provide $800 each, were granted to selected teacher-training colleges, and awarded to junior or senior students. In addition, ten scholarships of $250 each were granted at these same teacher-training colleges to encourage freshman and sophomore students. The twenty scholarships were awarded at: New Jersey State Teachers Colleges at Trenton and Montclair, N. J.; Eastern Kentucky State College, Richmond, Ky.; New York State College for Teachers, Albany, N. Y.; Georgia State College for Women, Milledgeville, Ga.; Henderson State Teachers College, Arkadelphia, Ark.; Western State Teachers College, Macomb, Ill.; New Mexico Highlands University, Las Vegas, N. Mex.; Arizona State College, Flagstaff, Ariz.; and Western Washington College of Education, Bellingham, Wash.

Each college or university had the responsibility of selecting recipients for these awards. Most of the company's scholarships and fellowships established at designated institutions are awarded in the same manner.

Other Scholarship Awards

The thirty-three RCA Scholarships are the outgrowth of a program started in 1945 to stimulate interest in the

study of science and engineering. Currently each scholarship provides an annual grant of $800 for the student and an unrestricted gift of $500 to independent colleges maintaining the awards. Most of the scholarships are offered in science at such institutions as Franklin and Marshall, California Institute of Technology, Notre Dame, Princeton, Harvard, Purdue, Rutgers, Union, Swarthmore, Howard, West Virginia University and Wellesley. Awards in dramatic arts are available at Carnegie Institute of Technology, Yale and Iowa State College. A scholarship in industrial relations has been established at the University of Michigan and one in music is available to a student of Oberlin College. One additional scholarship is awarded each year to an outstanding graduate of RCA Institutes who wishes to continue his education in an engineering school.

Graduate Fellowships

In 1947, the Scholarship Plan was extended to include graduate fellowships in electrical engineering. Today the Corporation has twenty fellowships valued at approximately $3,500 each. The grant provides full tuition costs, $2,100 for living expenses and $750 as an undesignated gift to the university.

Students conduct a surveying test at Berea College in Kentucky where an RCA scholarship will be awarded.

A campus scene at Trinity College, Hartford, Conn., where one recipient of an RCA scholarship will study.

Ten David Sarnoff Fellowships, established in honor of the Chairman of the Board of RCA, are awarded to outstanding employees selected to work toward post-graduate degrees. At present, six are in science, three in business administration and one in dramatic arts.

The other fellowships are available to students majoring in electrical engineering, physics, engineering physics and dramatic arts at specified universities including Princeton, Columbia, Cornell, Yale, Rutgers and Carnegie Institute of Technology.

Since the start of the Plan, more than 280 students from thirty-three states have been assisted by RCA Scholarships and Fellowships. Some of the past recipients are now working with RCA.

Tuition Loan and Refund Plan

Another segment of the Corporation's educational program is the Tuition Loan and Refund Plan which enables employees to take college, university and correspondence courses outside working hours. RCA has 3,636 men and women studying under this plan. During 1956, the company spent more than $235,000 to reimburse employees for successful completion of various courses.

The plan makes it possible for employees to borrow the tuition for approved courses. After the courses are completed, the amount is refunded by the Corporation. Employees who choose to pay for the courses themselves are reimbursed when their studies are finished. Many RCA employees are taking advantage of this opportunity to obtain their B.S., M.S., and Ph.D. degrees.

THE SINGLE RECORD:

"That Certain Uncertainty"

by John Y. Burgess, Jr.

Manager, Single Records Department,
RCA Victor Record Division

THE popular single record industry is a many-splendored headache. It's a feast or famine business with no slide-rule measurements or charted courses to guide by. There is no sure way to predict trends and changes in taste and it is still a mystery why one record sells and the next one doesn't.

The industry's challenging fascination lies in this unpredictability. The necessity to create, promote, present and sell a new and different product constantly is a phenomenon seldom encountered in any other business. The mechanics of recording, packaging, shipping, advertising, merchandising, promoting and publicizing a single unit require a long chain of specially trained personnel and, most important, an intangible factor called timing. All efforts are of little use if the timing is off on a given unit.

This single intangible is the key to the success or failure of many things, and it is perhaps an over-simplification to say that timing in the debut of a record is the most important factor, because if one of the other factors involved is lacking or mis-managed or inadequate, the entire effort can be ruined. But, in contrast to this uncertainty in timing, there is quite a strong measure of control over the actual production and distribution of a record; quite a bit of predictability over the packaging, shipping, advertising, promoting and publicizing of the product involved.

Problems, Guesses, Doubts . . .

If the only problem were to keep supplying the public with a specific formula at a specific time, our business would be as solidified and as predictable as necessity products. Obviously, there are other things involved which create the problems, guesses, doubts, surprises, triumphs and failures.

Motivational research still has a long way to go in the exploration of why certain groups of the buying public buy certain things. It was found that teenagers are the biggest buyers of the single record and that girl record buyers outnumbered boys by a wide margin. There have been a great many surveys made which were designed to explore the impulses of teenage spenders and the reasons why they buy what they do with their allowances or earned dollars.

Since World War II there have been more teenage dollars spent than ever before. Part of this is the increase in population, and a very important contributing factor has been that teenagers are taking more part-time jobs. The post-war bonanza known as baby-sitting has been a teenage windfall. With more money to spend, the youngsters have gone in for luxury items that they were previously unable to afford. One of these is records.

Young people have always struggled to be independent of the tastes and choices of their parents, and with added financial independence they have had an opportunity to create their own musical heroes and heroines, and demand the kind of music they want to hear. Rock 'n' roll has been one of their choices, and in the past two years they wanted little else.

Youngsters want the single hit of the moment. Their

Kay Starr at session with Hugo Winterhalter, Musical Director, RCA Victor Records.

Teenagers, tiring of rock 'n roll, are swinging to ballads. Perry Como is a top all-time favorite.

Ballads are a specialty with Dinah Shore, who has had a steady succession of top selling records.

Julius La Roso has made a rapid climb into the ranks of best selling recording artists.

loyalties are ever-changing; the passing mood, the newest idol, the importance of being a part of the current trend; all combine to create the youthful demand for the single record. They set their own standards, often to the dismay or amazement of their parents, teachers and older friends.

Established Patterns

The group of youngsters who swept the record industry into its biggest era are now older, of course, but they have established a pattern for their little brothers and sisters who are discovering for themselves their own preferences as the tastes of the older group are changing and broadening. For this reason the record business is continuing to increase with greater rapidity than ever and it is impossible to put a ceiling on its expectations.

For the past few months there has been a decided trend toward ballads. The youngsters are beginning to tire of rock 'n' roll to a certain extent, and are interested in a wider variety of musical fare. They are asking for a better product with better sound and treatment. Their interest in ballads has been increasing and they are particularly impressed by ballads which are given a rhythmic treatment, accompanied by a subtle background beat.

Another change that is becoming more and more apparent is the collapse of the lines of demarcation between all types of popular music. At an earlier time, the different sections of the country were strongly identified with their own regional music, but since the advent of TV on a wide national scale, the borderlines have become blurred between country and western, rock 'n' roll, rhythm and blues, and even Latin music. A hit of any one of these types now becomes a national hit rather than just in the area most frequently associated with it.

In a sense this blending has created new attitudes on the part of popular singers and musicians who are branching out from the particular type of songs and arrangements with which they have been identified in the past. Arrangers are incorporating a wider variety of beats and backgrounds, and the singers themselves are proving their versatility by changing and modifying their styles to suit the new sounds.

The interest and enthusiasm for hi-fi has spread rapidly to the young popular single record buying public. The sales of hi-fi sets have proven that there is a universal interest in a better product with a better sound. Once they have heard the exciting sound improvement that hi-fi supplies they are not content to settle for less.

There is no way to predict trends, but indications are that music lovers will be buying more records than ever before.

'ZIP' TO HONOLULU

Matson installed RCA Leased Radio Channel to speed up its mainland-Hawaii cammunications.

MATSON Navigation Company recently solved its heavy United States-Honolulu message load problem with the installation of an RCA leased Radio Channel, making possible the sending and receiving of messages simultaneously.

The custom-designed radio-telegraph system, appropriately tagged "ZIP" (the old telegraphic code for "Please increase power") was arranged by RCA Communications, Inc. The circuit connects Matson's Honolulu offices with the company's private communications network in the United States. Matson estimates a saving of some $35,000 annually as a result of this installation.

Matson now not only serves Hawaii with four passenger ships and 24 freighters, but operates four hotels in Honolulu and recently entered the insurance business.

The new communications set-up was designed to speed communication for all Matson's island services, freight, passenger, and hotels. Some ten years ago, the regular Trans-Pacific Telegraph service was satisfactory. But the message load continued to rise and, with the transfer of the Hotel reservations division to Honolulu, the RCA Leased Channel was installed.

The system now handles upwards of 350 messages a day. To further speed Matson's communications, a pre-printed form is used by the stateside sending offices. (New York, Chicago, Los Angeles.) These messages, which are also punched on teletype tape, funnel into and subsequently out of Matson's San Francisco headquarters. The messages appear on an identical pre-printed form at the Honolulu destination.

Matson carries its "Untouched By Human Hands" communications one step farther. By flipping an automatic selector switch, the San Francisco communications center can send any given message to its destination alone, cutting out other points. Each hotel reservations office, in other words, sees only messages directed to it, and not those destined for the docks. San Francisco-destined messages also can be routed to specific offices.

The "ZIP" system connects Matson's Honolulu offices with firm's private network in the U. S.

WORLD'S LARGEST Hi-Fi PLANT

The Cambridge plant can produce 6,000 hi-fi sets a day, such as the new Mark VI Orthophonic instrument, above. LEFT: James M. Toney at dedication ceremonies.

THE world's largest and most modern high fidelity manufacturing center was dedicated last month by the Radio Corporation of America in Cambridge, Ohio.

The plant is capable of turning out more than a dozen hi-fi "Victrola" phonographs a minute (6,000 a day), and is, in addition one of the largest producers of record changers, tape recorders and stereotape players.

At the dedication ceremonies, James M. Toney, Vice President and General Manager, RCA Victor Radio and "Victrola" Division, predicted that Americans will spend more than a billion dollars next year to enjoy recorded music in the home.

Governor C. William O'Neill of Ohio headed the list of state and local dignitaries attending the dedication, which took place September 11.

"By 1958," said Mr. Toney, "the fantastic growth of high fidelity will have helped boost the home-music industry's sales by 200 percent over a period of five years, while spending for all recreation was rising only about 17 percent."

Mr. Toney said that a further spur to the industry was the rising interest in stereophonic sound, bringing about sharp increases in the sale of record-players. He gave this industry breakdown of estimated business for 1958: Packaged hi-fi, $407 million; records and pre-recorded tapes, $400 million; standard phonographs, $140 million; tape-recorder-players, $120 million.

The ultra-modern plant features the very latest in functional design and has almost tripled in size during the past year. It now contains 355,000 sq. ft. of working space with fifteen assembly lines. These assembly lines can be quickly converted to the production of different types of phonograph assembly.

Among other features, the plant includes a complete parts manufacturing shop which fabricates more than 80 percent of the parts used in RCA Victor record changers.

It has a quality control room where the quality level of all high-fidelity units is checked continuously. The plant also has huge semi-automatic punch presses that stamp out metal parts for record changers and tape recorders.

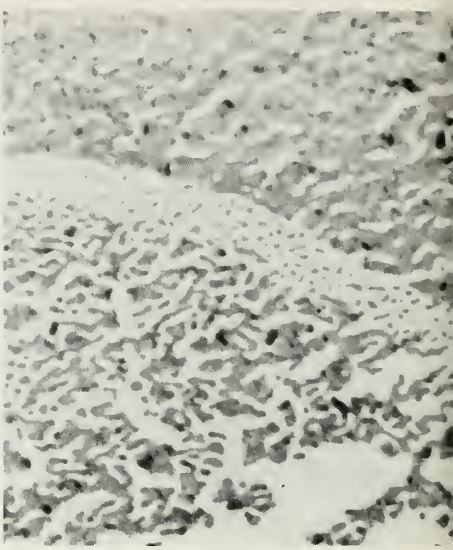
This year, in addition to turning out five high-fidelity "Victrola" models and all RCA Victor stereophonic sound systems, the new plant will produce all of the company's standard "Victrola" lines and high-fidelity tape recorders.

"The demand for high-fidelity instruments," continued Mr. Toney, "has grown almost overnight to enormous proportions not even remotely anticipated when this plant was originally occupied by RCA four years ago."

Mr. Toney said that this booming market was expected to continue its growth pattern through the development of new high-fidelity products. The new plant was designed with an eye toward the manufacture of products yet to come in the world of high fidelity.

In speaking of expectations that the boom will continue, Mr. Toney said that, "Public reaction to the first new development — stereophonic sound — attests to this. Everywhere we have demonstrated our new RCA Victor Recorder — 'Victrola' Stereotape Players — we have seen far greater enthusiasm than when the first high-fidelity instruments were demonstrated."

Dr. Cecil E. Hall, of M.I.T., demonstrates tiny microscope specimen-holder as he lectures on electron microscopy techniques in RCA seminar at Camden.



Evaporated gold enlarged 227,000 times.

Electron Microscope Seminar

INTRICATE laboratory demonstrations of electron microscopy techniques were seen by more than 60 persons simultaneously via closed-circuit television at a seminar held last month at RCA's Camden, N. J., Electron Microscope Laboratory.

The three-day sessions, September 4 to 6, were devoted to lectures and demonstrations of these techniques —in medical and industrial microscopy, specimen preparation and electron microscope operation.

Dr. Councilman Morgan of the Columbia University Department of Microbiology, and Dr. Cecil E. Hall, Associate Professor of Biophysics at Massachusetts Institute of Technology, participated in the seminar as guest lecturers.

The group included more than sixty medical and industrial research microscopists and students, as well as some of the country's outstanding biologists and scientists, who were invited to view the potential of closed-circuit TV as a teaching medium for instructing large student groups in electron microscopy techniques. RCA electron microscope engineers and scientists conducted the seminar.

Dr. Morgan discussed and demonstrated the latest advances in biological and medical microscopy techniques. Dr. Hall described and demonstrated advanced techniques relating to general industrial applications of electron microscopy.

The electron microscope has achieved outstanding importance in medical, dental, scientific and industrial research and development. Its magnifications, which can be photographically enlarged by more than 300,000 times, are of particular use in solving the industrial

problems of quality control, product improvement and development of new products.

The RCA seminar, according to Theodore A. Smith, Executive Vice President, RCA Industrial Electronic Products, was arranged as an educational service to supplement the efforts of universities, colleges, and medical and industrial laboratories to keep research microscopists and students abreast of advances in electron microscopes, specimen preparation, and laboratory microscopy techniques. A portion of the seminar was devoted to operation of RCA electron microscopes by the visitors under the supervision of RCA specialists. Many of the educational institutions and industrial laboratories represented at the seminar are users of RCA electron microscopes.

Closed-Circuit Presentation

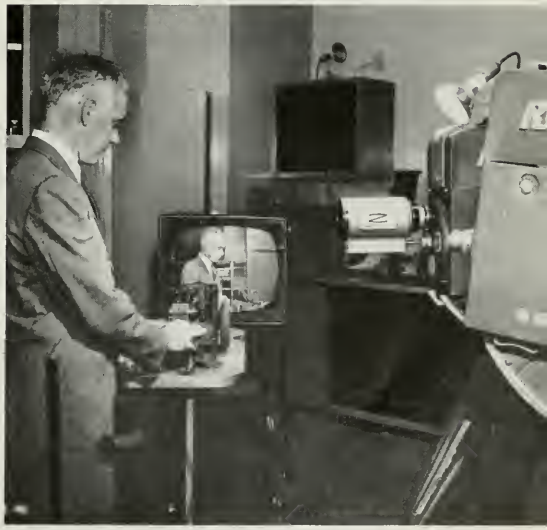
The RCA sessions, it is believed, marked the first use of non-broadcast television as a medium for group instruction in electron microscopy. Two RCA live studio TV cameras were installed in the Electron Microscope Laboratory and connected by closed-circuit to six RCA Victor television receivers in an air-conditioned auditorium some 500 feet away. The two cameras were used interchangeably for flexibility in televising and interposing views of the lecturer, demonstrations, and specimen magnifications picked up directly from the viewing screen of an RCA electron microscope in the laboratory. An inter-connecting sound system permitted two-way voice communication between the lecturer in the laboratory and guests in the auditorium.

"Because of space limitations and the required room darkness," Mr. Smith explained, "the number of students who normally can directly view the techniques and results of the instructing microscopist at any one time can witness a direct demonstration on the microscope.

"Closed-circuit TV, however, enabled us to overcome these obstacles to group instruction. The use of television at the RCA seminar enabled more than 60 persons to see simultaneously, and in the same enlarged detail, exactly what the demonstrating microscopist saw and did. Audiences of appreciably greater size could be accommodated with equal benefit and impact merely by adding additional TV monitors to the closed-circuit system."

RCA technical presentations and demonstrations at the seminar were made by F. J. Herrmann, Manager Scientific Instruments; J. J. Kelsch, H. C. Gillespie, Dr. J. H. Reisner, and S. M. Zollers of RCA's electron microscope engineering and research functions.

Televised images were projected via closed-circuit TV to guests in separate auditorium. John J. Kelsch, RCA research scientist, describes the microscope's operation.



Dr. Councilmon Morgan, Columbia University Department of Micrabiology, demonstrates lotest advances in biological and medical microscopy techniques.

Briefly Told . .

"Thyristor" . . .

A new type of transistor that "approaches the ideal electronic switch" for high-speed switching functions in electronic computers and automatic control systems has been developed experimentally by scientists of RCA, it was announced October 6 by Dr. Irving Wolff, Vice President, Research.

The new device, called the "Thyristor," is described by Dr. Wolff as "a marked advance" over both gas tubes and existing transistor switching devices because of its combination of simplicity, speed and "extremely low" power requirements.

The "Thyristor" was developed by an RCA Laboratories research team including C. W. Mueller, J. Hilibrand, and L. E. Barton, members of the technical staff at RCA's David Sarnoff Research Center, Princeton, N. J.

Reserve Award . . .

"Outstanding cooperation" of RCA in the nation's Military Reserve Program received recognition of the U. S. Department of Defense in September. The Defense Department Reserve Award, including an official citation and display pennant, was presented to Theodore A. Smith, Executive Vice-President, RCA Industrial Electronic Products, by Maj. General Roger J. Browne, USAF, Commander, First Air Force, at a ceremony at Camden, N. J. The citation paid tribute to RCA personnel policies which encourage participation in Reserve activities.

Folsom in Europe . . .

Frank M. Folsom, Chairman of the Executive Committee of the RCA Board, is in Vienna, Austria, attending the conference of the International Atomic Energy Agency as Permanent Representative of the State of Vatican City. Following the month-long conference, Mr. Folsom will visit RCA activities in Germany, Italy, Spain, France and England. He will return to the United States in November.

Radio Cigarette Lighter . . .

For easy-chair addicts who don't wish to interrupt a jazz-listening session to go to the kitchen for a match, RCA Victor Radio and "Victrola" Division has come up with a table-model radio equipped with a cigarette lighter—the Winthrop.

The lighter, which is mounted in top of the cabinet, works and looks like an automobile lighter: Push it in and in a few seconds it pops out ready for action. A lighter knob and "ash sleeve" protect fingers from accidental burning. The lighter takes power from the line only during the ten-second heating operation, and the assembly fuse turns off automatically in case of overheating.

Mrs. Ivy Baker Priest, Treasurer of the U. S., presented a citation to John L. Burns, President of RCA, on September 11 for RCA's outstanding participation in the 1957 National Savings Bond Program.

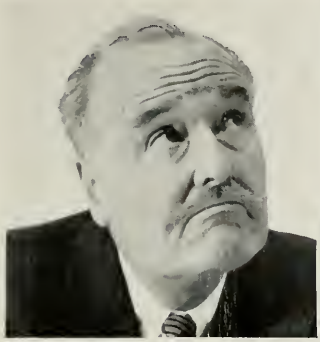
Story of TV . . .

A special thirteen and a half minute adaptation of the RCA documentary film—"The Story of Television"—has proved such an excellent means of telling what TV represents in America that 171 TV stations across the country put it on the air for their audiences during National Television Week in September. The film, presented by RCA and produced by the William J. Ganz Company, traces the highlights of TV progress from its inception and spectacular growth to the present development and major expansion of the color television era. Copies are being made available on a loan basis through the Institute of Visual Training, 40 E. 49th St., New York City 17.

Color TV in Clubs . . .

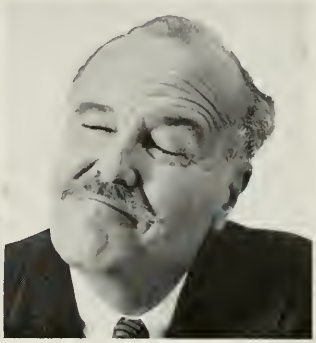
The Harvard Club of New York installed one of RCA Victor's newest color TV sets and a 24-inch black-and-white receiver for reception of the World Series and football games. Several hundred members and guests in Harvard Hall watched the Series. Among other clubs and groups viewing the World Series on color TV sets were the Lawyers' Club of New York, the Rockefeller Center Luncheon Club and the Irving Trust Company suite at the Hotel Biltmore.

TEX Overseas TELETYPEWRITER SERVICE

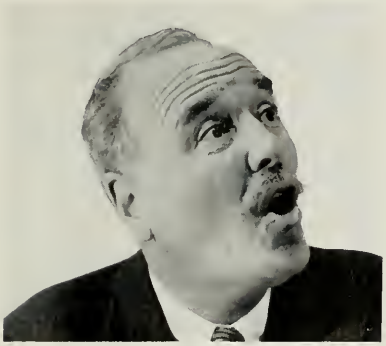


It's been hours since I queried Hamburg... and still no answer

If I only could reach Europe with our TWX machine



I'd have the answer RIGHT NOW



Wait a minute! I did hear something about . . .

. . . an RCA overseas teletypewriter service called TEX*

Yes, with your TWX machine, you can now make overseas teletypewriter calls to telex* machines in 30 overseas countries via RCA's TEX Service. Your TWX machine is connected with your correspondent's telex machine overseas. Rates are low; for instance, only $3 per minute ($9 minimum) to Europe, Japan, and the Philippines. To make a TEX call with your TWX machine, simply call RCA *collect* at:

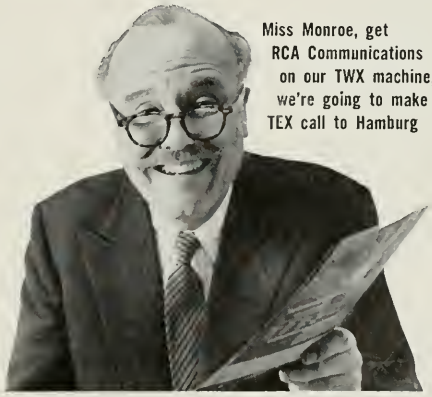
NEW YORK: NY 1-1909 · SAN FRANCISCO: SF 1460

An RCA TEX operator will put your call through promptly.

*In most overseas countries, the word, telex, is used to denote teletypewriter exchange service.

RCA COMMUNICATIONS, INC. A Service of RCA

New York 4: 66 Broad St., Hanover 2-1811
San Francisco 5: 135 Market St., Garfield 1-4200
Washington 6, D.C.: 1812 M St., N.W., National 8-2600



Miss Monroe, get RCA Communications on our TWX machine, we're going to make a TEX call to Hamburg

RCA VICTOR ANNOUNCES NEW "FLIGHT-LINE" PORTABLE TV

Hathaway. 262 sq. in.* viewable area. Ebony-and-gold. (21PD811) **$229.95. Socialite.** 156 sq. in.* viewable area. Choice of five finishes. (17PD809) **$189.95. Nassau.** 108 sq. in.* viewable area. Ebony or bark gray. (14PT802) **$129.95.**

Compact new easy-to-carry design with "Mirror-Sharp" picture in every wanted size—from $129.95

Here's portable TV with a slender, space-saving design that's breezy and easygoing as a southbound swallow. It goes anywhere, fits anywhere, plays on any 110 AC outlet. Your ideal second set.

There's powerful excitement in the new "Mirror-Sharp" picture, too. It's crisp and clear as the picture on a console. Yet "Flight-Line" prices (*including* all the important new extras) are really down-to-earth. See new "Flight-Line" portable TV in exactly the size and color you've been wanting. Come in today!

RCA's 110° tube makes tapered "Flight-Line" TV inches shorter. The already slim 14"† models have 90° tube.

New Sun Visor helps keep "Mirror-Sharp" picture, even in bright sunlight. Optional extra on 14"†, 17"† models.

RCA VICTOR
Tmk(s)® RADIO CORPORATION OF AMERICA

Manufacturer's nationally advertised VHF list prices shown. UHF optional, extra. Slightly higher for West and South. Prices, specifications subject to change. RCA Victor Factory Service available in most areas, but only to RCA Victor owners.

*Picture tube, overall diagonal (inches)†	14	17	21
†Square inches of viewable picture area	108	156	262