# RIP DISCOVERS RADIO

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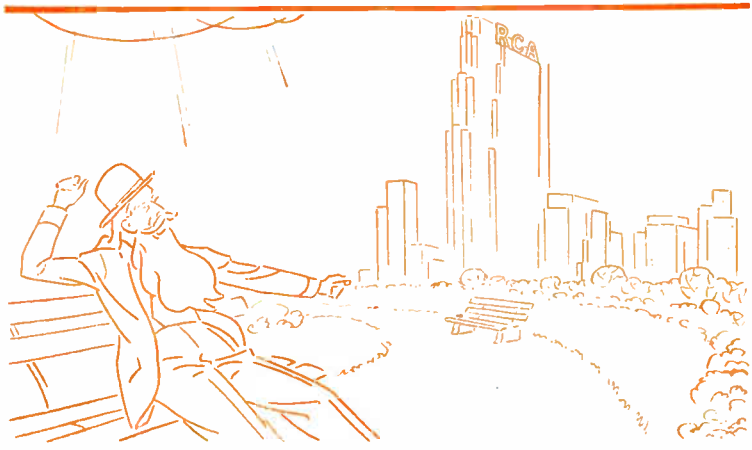



RIP VAN WINKLE yawned and stretched his arms. He remembered hazily about a gay party at which the news of Dewey's great victory in Manila Bay had been celebrated, and of lying down on this bench in Central Park for a little nap.

He raised his sleepy eyes to the skyline at the southern end of the Park—and then he gave a great start and blinked rapidly several times. Instead of the familiar row of four and five story buildings, now there seemed to be a bevy of the most colossal structures towering high into the air, and topping them all was an immense building, on the roof of which the huge letters, "RCA," sparkled in the sunlight.

Rip jumped to his feet and, although he found himself unaccountably stiff, he managed to hobble up the walk of the Park to the main roadway, where dozens of vehicles, without any apparent motive power, whizzed by. One of them stopped, and Rip climbed in, and told the driver that he wanted to go to "that big building with RCA on the top." Almost before he had time to become alarmed at the frightful speed, he was set down before a beautiful sculptured doorway. He entered the building and, seeing a sign which said "Information," accosted the pert young lady behind the counter.


The RCA Building, Radio City.

"What does 'RCA' mean?" he asked.

The bright young thing, who had begun to think that nothing would ever surprise her again, gulped. Then, recovering herself in a split second, she replied evenly, "Why, sir, that means Radio Corporation of America, the foremost radio service of the country."

Rip Van Winkle found himself stroking a long, white beard which appeared to belong to him, and an inkling of the situation began to form in his mind. He looked about him in bewilderment.

"Radio?" he repeated. "What is radio?"

This time the young lady gulped in earnest. Then she set her jaw, determined to master the situation.

"Suppose you take a little tour with me," she said firmly. "I'll show you why radio is the marvel of our 1939 civilization."

Rip had scarcely time to gasp, "Nineteen-thirty-nine!" before he found himself with the young lady in one of those queer horseless carriages, being transported with the speed of the wind through crowded streets and along shaded country roads. In almost no time at all they came to an immense Long Island plain on which hundreds of steel masts towered in the air.

RCA radio messages reach every country in the world.

"This is the modern home of the first radio service to mankind—radio communications," his guide explained. "These are called wireless antennas, and from them messages are flashed with the speed of light to every country in the world. Other antennas pick up return messages from foreign countries, as well as voices and music for broadcasting to listeners in America, and even pictures which are flashed across the ocean to appear in our newspapers. At many points along the entire coastline, other stations similar to this one transmit and receive messages to and from ships sailing on all of the Seven Seas. These are two of the great services of the Radio Corporation of America — R.C.A. Communications and Radiomarine Corporation of America."

Again they were on their way, and as the Juggernaut (which the girl called an automobile) rolled on, she explained to Rip how Guglielmo Marconi had invented wireless, how it had first proved its worth through the saving of life at sea and had continued its valuable service during the great World War; and how the Radio Corporation of America was formed in 1919 to foster and expand all radio services for the benefit of the people of America.

All foreign messages pass through this switchboard.

"On the air" from an NBC studio.

"Now, we'll take a look at another of those services—broadcasting," she said as they again alighted at the RCA Building in Radio City.

She led Rip through an impressive lobby from which a number of large studios opened. Hearing a burst of laughter from one of them, she steered Rip into a glass-enclosed observation room from which he could see a crowd of more than a thousand people applauding a small group on a raised platform.

"This is a program called 'The Magic Key of RCA*'," she told him. "Millions of people are hearing what goes on in this studio as they tune in on 120 broadcasting stations linked in a great network. For more than 17 hours daily, the National Broadcasting Company's two nationwide networks supply a vast audience with the best the world can offer in entertainment and information."

Rip listened with one ear to the strains of a

* Sunday from 2 to 3 P.M. EST, over the NBC-Blue network.



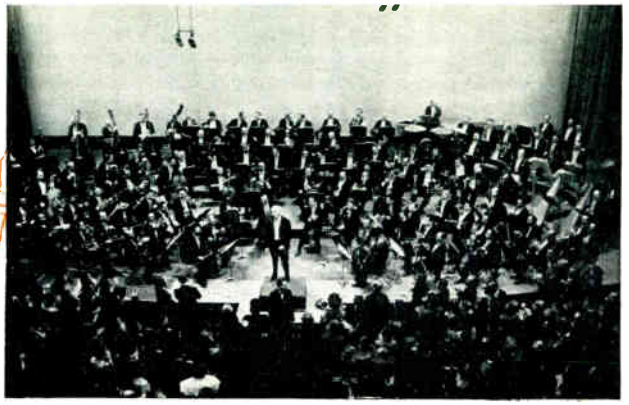
The NBC Special Events workshop.

Beethoven Symphony while his young guide poured into the other an explanation of how the microphone works, the duties of the men in the studio control booth, and a description of the intricate process of putting a program on the air and transmitting it by network broadcasting throughout the country.

She explained why dozens of hours of rehearsal are necessary for one broadcast, and showed him the large traffic boards on which the programs for each entire week are listed as a guide to "setting up" the networks in advance of each broadcast.

"Here are some of the steps in making a program ready for the air," said the girl, as she hurried Rip from one floor to another of the NBC studios. "The program planning board meets in this room and decides on the general make-up of the program. Then the script department steps in and, in cooperation with the music division, prepares a working script which the directors,


Starting an NBC studio tour.



actors and musicians follow. The production department secures the needed artists, prepares a plan for the sound effects, and puts the program into rehearsal."

As she spoke, Rip's guide showed him the workrooms of the script writers, the immense music library, the special events and news studios with their batteries of teletype machines, the production department, and a large room crowded with ingenious contrivances for sound effects. Scores of technicians, actors and musicians were busily engaged in preparing programs for the networks.

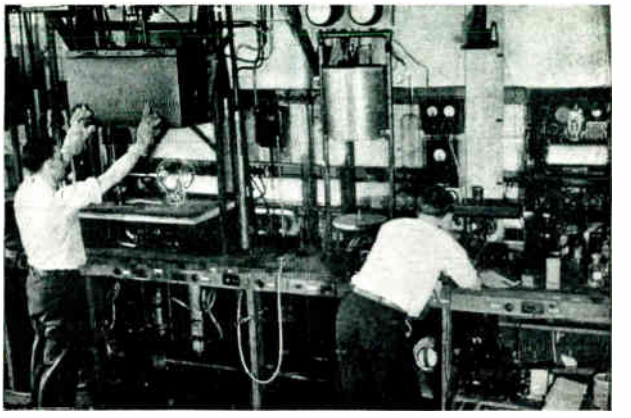
"There are more than seven hundred broadcasting stations in the United States, and more than a hundred and fifty of them are affiliated with the two great NBC networks," she told him. "More than seventy million people listen every day to the programs broadcast by these stations, and the NBC short wave transmitters send additional programs to the people in many countries in Europe and South America."

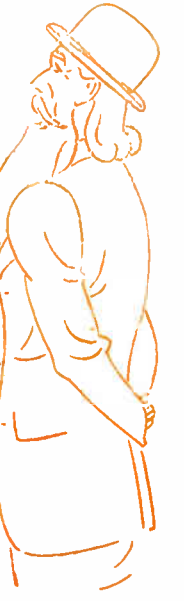
"People who hear broadcasts in their homes—wouldn't they like to see these interesting behind-the-scenes happenings?" Rip asked.

"They would—and they do!" she laughed. "Almost half a million of them take the guided NBC studio and television tours each year."

"But what," Rip wanted to know, "is the heart of this

Toscanini, famed maestro, conducts the NBC Symphony Orchestra in a series of outstanding concerts.





great science? What is the one thing that makes radio possible?"

"The vacuum tube," the girl told him promptly; and without giving him more time to view the fascinating proceedings going on about him in the studio, she dragged him again to an automobile. Another journey, this time to the busy industrial town of Harrison, New Jersey, and a huge building which bustled with activity. Leading him past long lines of workmen and girls busy assembling great quantities of metal and wire and glass, through laboratories filled with odd-looking paraphernalia and reeking with the smell of chemicals, she showed Rip how the Radiotron Division of the RCA Manufacturing Company, another service of the Radio Corporation of America, makes all types of radio tubes, including a large variety of odd-shaped special tubes such as the Iconoscope and Kinescope for television.

"The radio tube is a marvelous device," the girl said. "It is an exceedingly sensitive and accurate instrument—the product of coordinated efforts of engineers and craftsmen. Its construction requires materials from every corner of the earth. Its use is world-wide. Its future possibilities, even in the light of present day accomplishments, are but dimly foreseen, for each development opens new fields of design and application.

Developing special vacuum tubes in the RCA Research Laboratories; (right) More than 100,000 music lovers are members of the Victor Record Society.

RCA radio devices add many safety factors to flying.

"Now, we'll take a little hop," Rip's guide continued, and introduced him to his first aeroplane at the Newark Airport. Before Rip had time to even marvel at the ease with which they were lifted off the ground, the girl was pointing out the radio equipment in the plane's cabin.

"This is all made by RCA too," she said. "The latest RCA Direction Finder enables the pilot to know exactly where his plane is at every instant, even though he is flying in a heavy fog, and of course he can keep in constant touch by radio with the airport nearest him."

In only a few minutes, they were circling over the landing field at Camden, N. J., and as they stepped from the plane they were greeted by a handsome young policeman in a snappy blue uniform and puttees.

"Hiya, Mary," he said. "Do you want me to give you and Grandpa a lift up to the RCA Victor plant?"

Mary smiled an acceptance and in a few moments they were in the police car, speeding down a long street toward a group of huge buildings in the distance.

"Here is another example of what radio does," the girl told Rip, as a voice suddenly emerged from somewhere under the cowl. "This is a police radio, and it has been of inestimable value in preventing crime as well as in speeding up crime detection. By means of radio, every police car can be in constant touch with headquarters, ready to speed to the scene of a crime or an emergency the instant it is reported."

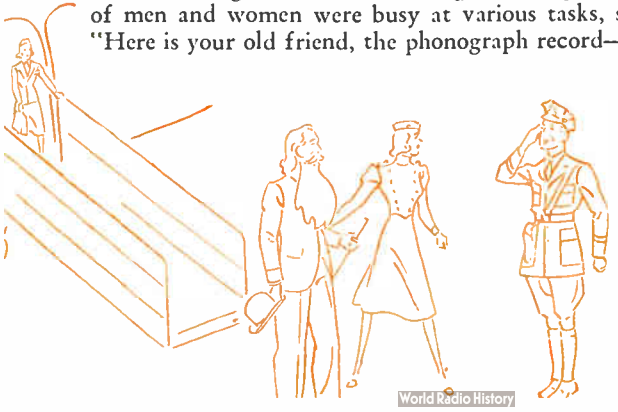
"Does RCA make this too?" Rip asked.

Crime detection and prevention are speeded by RCA radio equipment.

"Indeed it does," Mary replied proudly. "The RCA Manufacturing Company, better known as RCA Victor, makes all kinds of devices used in the radio industry."

The car drew up with a flourish before a large office building. On the ground floor, Mary led Rip into a room in which scores of radio receiving sets of every size, as well as central sound systems for schools, and other radio products were on display. Here she pointed out to him the latest models of sets, and showed him how he could tune in on any desired station merely by pushing a button. She also explained to him how, by turning a knob, he could hear broadcasts from a dozen countries in Europe and South America and could also pick up police and aviation radio signals. Then, she showed him how schools could be equipped with a central monitoring board so that the principal could keep in touch with every classroom in the building and could also "feed" to these rooms through the same system musical and educational programs picked up from broadcasting stations.

Conducting him to another large building, where hundreds of men and women were busy at various tasks, she told him: "Here is your old friend, the phonograph record—but oh, how



Part of the huge RCA Victor plant.

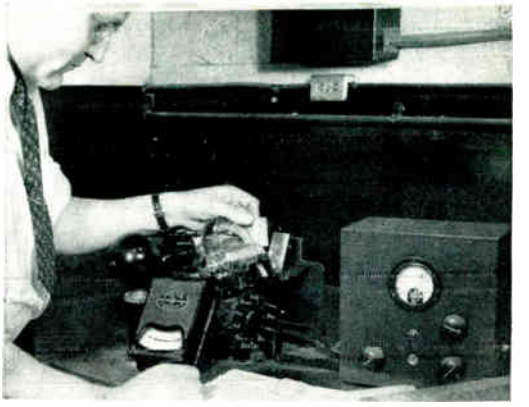
different! By recording the music electrically and then reproducing it on one of the fine RCA Victor radio phonographs, it is possible to have the music you like when you want it almost exactly as you would hear it in a concert hall. All of the great artists and the popular singers and dance orchestras are recorded on Victor Red Seal and Bluebird records."

In other buildings they saw hundreds of expert cabinet makers shaping rare woods into the graceful and dignified consoles which house RCA receiving sets; long lines of chassis on conveyor belts passing before workers, who performed intricate assembling operations with amazing skill and speed; huge rooms where scores of engineers and draftsmen prepared drawings for the construction of many types of radio apparatus and where other hundreds worked in the stockrooms, the shipping floors, and the purchasing and testing departments.

"It would take a week to see all of the activities at this huge plant," said Mary. "There are 27 buildings with more than two million square feet of floor space, where some 12,000 employees produce from three thousand to five thousand radio sets, as well as many other special radio products, every work day. To operate the machinery here, 3600 tons of coal and coke are burned each

RCA radio facsimile, the "newspaper of the air".

An RCA Victor console set.

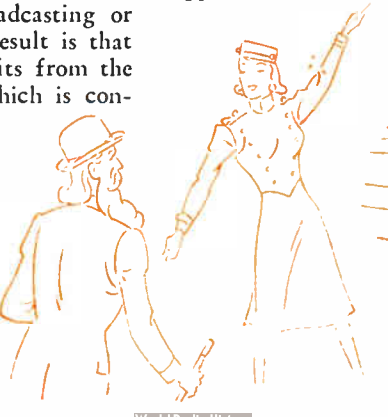


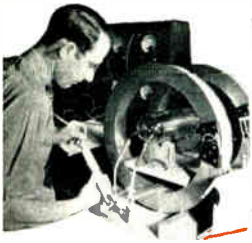
Radio of the future is in the making in the great RCA Research Laboratories.

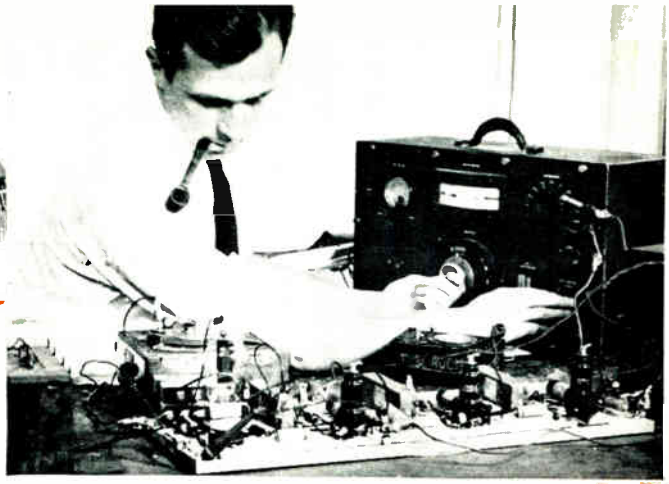
month to generate 91 million pounds of steam, and two million kilowatt-hours of electricity are consumed. Each hour more than eight tons of sawdust refuse from the cabinet plant go to the furnaces. More than a million feet of city gas each month are . . ."

"Please, please!" Rip begged, putting a hand to his forehead. His pretty guide laughed, and just then they stopped before a block-long building which was, she told him, the great RCA Research Laboratories. Here more than two hundred highly trained engineers, including many of the world's best known radio scientists, were developing and perfecting the radio devices and services of tomorrow.

"Because RCA covers all fields of radio, the important research work of these engineers is available in every branch of the industry," Mary said. "Often, in developing an improved service in communications, for instance, these scientists will discover a related application in the field of broadcasting or reception. The result is that one service benefits from the research work which is con-





Scientists develop new marvels of radio in the RCA Research Laboratories.

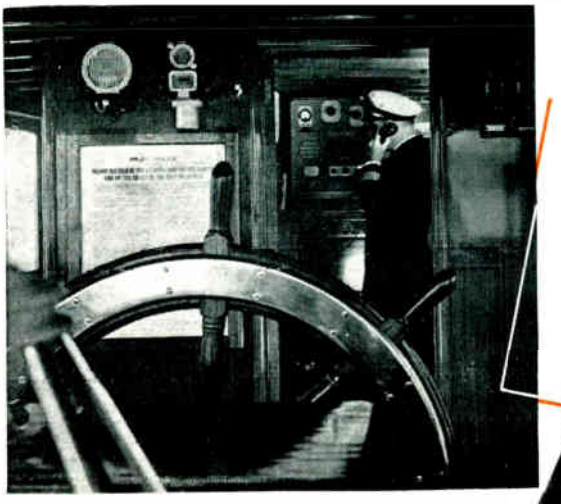
stantly going on in all of the others. That's why our slogan 'RCA All The Way' has a real and important meaning."

When Mary and Rip returned to Radio City, the girl took him into the projection room of a large motion picture theatre, and pointed out to him the sound equipment on the projection machine.

"RCA has been foremost in the development of sound perfection both in the 'shooting' of film and in its projection," she told him. "Many of the biggest studios use RCA Photophone in making their pictures, and theatres all over the country are using RCA Photophone to give their patrons the very best in sound reproduction.

"In fact," she added, "RCA covers the entire field of sound recording and amplification. Hundreds of schools, for instance, are equipped with RCA's central sound system for relaying speech and music from one point to each classroom. All of the sound amplification of the World's Fairs at New York and San Francisco is produced by RCA equipment."



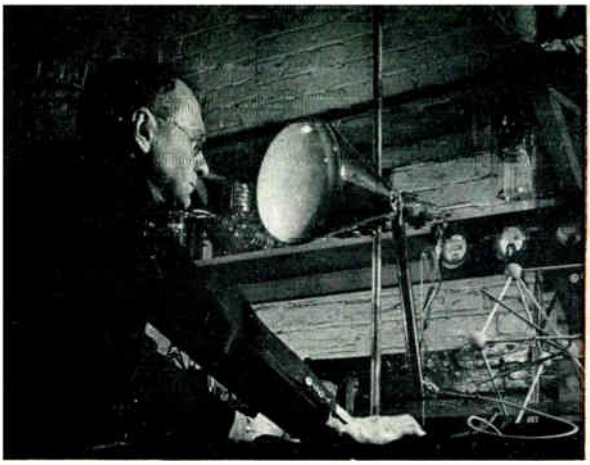


RCA Radio devices add to safety of life at sea.

Mary then took Rip on a quick tour of the R.C.A. Communications and Radiomarine buildings in lower Manhattan. At the former she showed him scores of radio operators sending and receiving messages over direct radio circuits to 43 countries of the world. Here also he watched a series of drawings of the latest Paris fashions being recorded on a revolving drum as they were flashed across the Atlantic by radiophoto.

Going to another room, Rip saw the control panels at which engineers monitor the broadcasts received by R.C.A. Communications from foreign countries before "feeding" them to the networks.

In the Radiomarine Laboratory she showed him the automatic S O S alarm which calls every ship's radio operator to attention the instant a distress call is flashed across the water. Here, too, he saw direction finders which enable a ship to immediately locate her position on the sea in spite of storm and fog, and the efficient little lifeboat receiving and transmitting sets through which survivors of a marine disaster can keep in touch with ships speeding to their rescue. He was shown



Testing the Kinescope, heart of the television receiver, in the RCA Research Laboratories.

on a map the location of the many Radiomarine coastal stations, where messages are transmitted to, and received from, ships on all the Seven Seas. Here he heard many a thrilling story of distress calls flashing through the night to these stations, of swift directions to rescue ships, and of the tense hours during which the shrill dot-and-dash signals told of desperate struggle against the sea and the final victory of radio against the elements.

In the same building, he saw the RCA Institutes, another service of the Radio Corporation of America, where hundreds of ambitious young men take intensive training courses in all fields of radio activity.

Back again at NBC headquarters, his young guide led Rip into a special studio brilliantly illuminated with immense lights where a man was pointing a black box on wheels at several actors in a living room set.

"This is the NBC Television Studio," she informed him. "Here are produced many of the dramatic and musical programs that

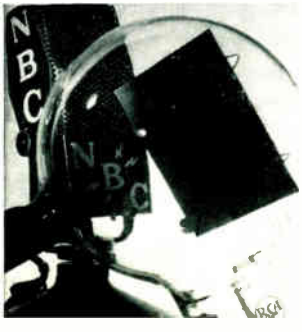
Television instruction at the RCA Institutes.


An RCA-NBC television mobile transmitter.

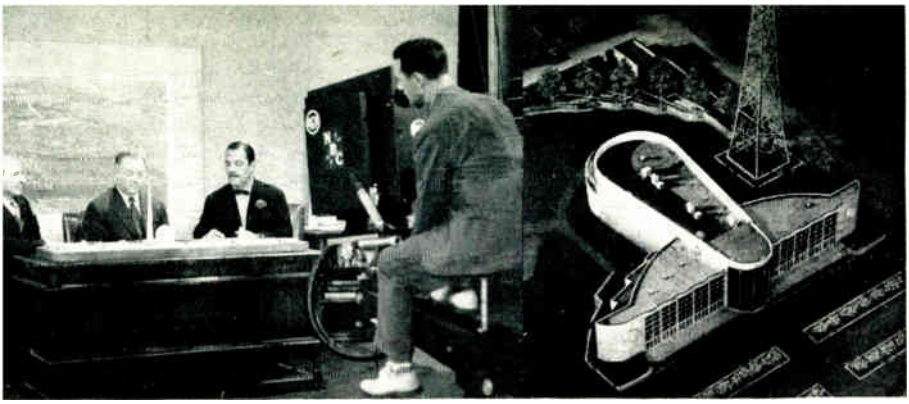
are telecast over the RCA-NBC television system. News and sports events, of course, are picked up by the mobile television units which can televise programs anywhere in the metropolitan New York area."

She gave Rip a brief explanation of how RCA television works. This marvelous new art, developed during the past decade from crude earlier beginnings, embodies scores of television inventions, including the famous Iconoscope, the "eye" of the television camera, and the Kinescope, the picture screen of the receiver. Although today the 441-line images, scanned at the rate of 30 frames per second, are amazingly clear and sharp, much research work is still being done to increase the scope of television service and programs.

RCA engineers are continuing to develop the fields of network telecasting and large-screen projection, while the program directors are constantly adding to the variety and interest of the televised entertainment.




The Iconoscope, "eye" of the television camera.



Television is the theme of the RCA exhibit at the New York World's Fair.

When the girl had finished, Rip Van Winkle shook his head and thoughtfully stroked his beard.

"In my time," he said, "the wonders that you accept as commonplace today would have been called 'black magic.' Radio is a greater factor in enlightening the public and advancing modern civilization than any other scientific development since time began. I'm sorry I slept so long that I missed the development of this great art, but I'm glad I'm alive to see the social and business advantages which broadcasting, television and radio communications are bringing to every American."

The building at the Golden Gate Exposition in which RCA television is shown.

RCA

THE products and services of the Radio Corporation of America are provided by the following Divisions and wholly owned companies which comprise the RCA Family:

*BROADCASTING:*

National Broadcasting Company, Inc.

*MANUFACTURING:*

RCA Manufacturing Company, Inc.

*COMMUNICATIONS:*

*International and Inter-city:*

R.C.A. Communications, Inc.

*Marine:*

Radiomarine Corporation of America

*PATENTS AND RESEARCH:*

RCA Laboratories and Patent Department

*INSTRUCTION:*

R.C.A. Institutes, Inc.