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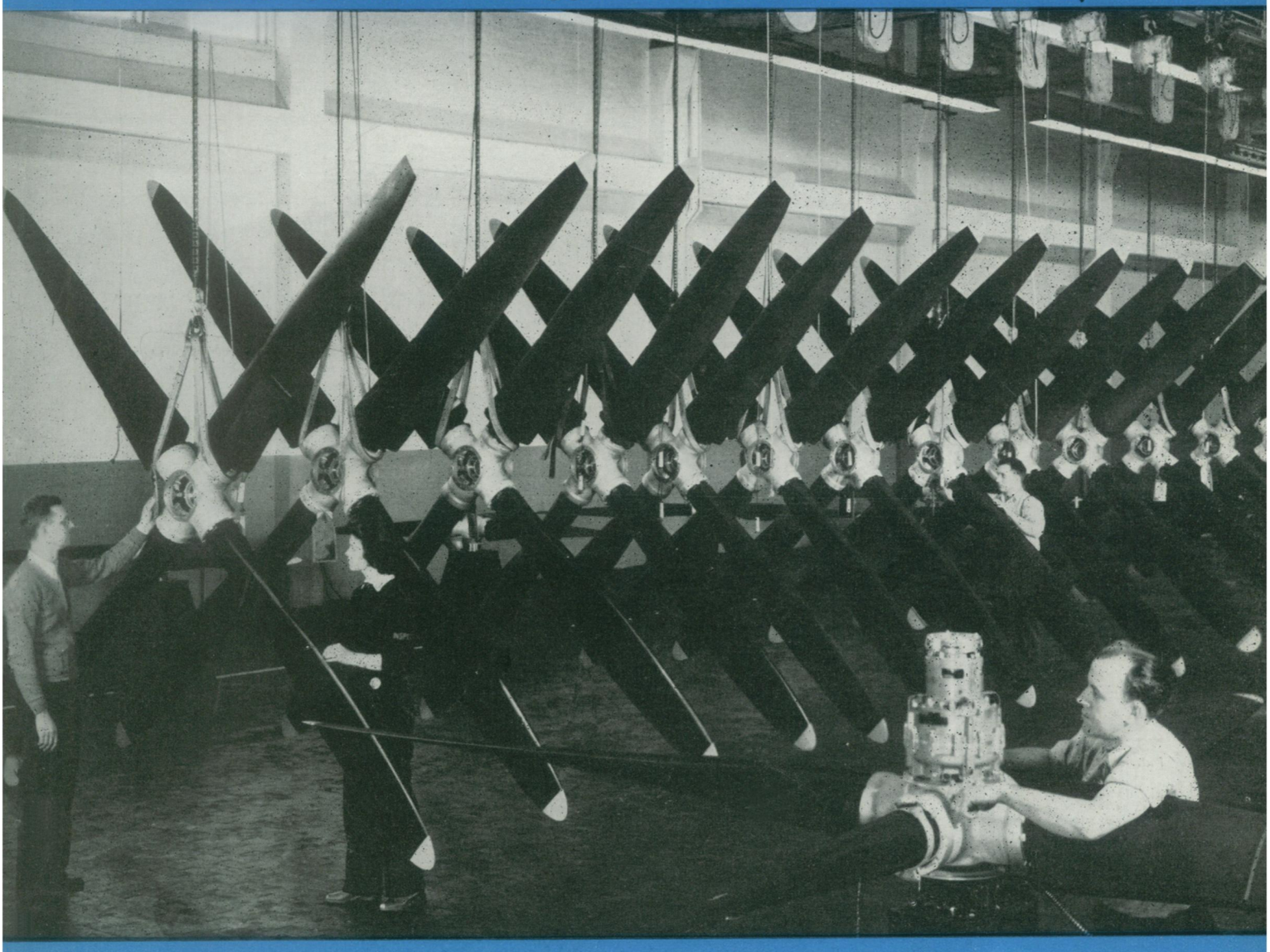
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • MAY 8, 1943



Blades for War

See Page 296

A SCIENCE SERVICE PUBLICATION

Do You Know?

Wallpaper may now be purchased with an adhesive base; the inexperienced housewife dunks it in water and hangs it on the wall.

With Allied occupation of North Africa Germany lost its supply of *phosphates;* without this soil fertilizer its food supply will be reduced.

Research at the University of California indicates that radio-phosphorus may offer a promising weapon against *leukemia,* a blood disease usually fatal.

Only 15 woodland *caribou* are known to exist in the United States, and all of these are in Minnesota, according to a recent report of the United States Fish and Wildlife Service.

Of the world *petroleum* production in 1942, the United States produced 66%, Russia nearly 10%, Venezuela 6.6%; the United Nations together produced 94%, the Axis Powers only 6%.

Warplanes returned to America for overhauling, are disassembled, fitted with new parts as necessary, thoroughly tested and sent back to service mechanically in factory-new condition.

The shortage of certain grades of *wood pulp* necessitates the more general use of groundwood, newsgrade unbleached sulphite, de-inked waste fiber and other waste paper in paper and paperboard manufacturing.

Question Box

Page numbers of Questions discussed in this issue:

Most articles which appear in SCIENCE NEWS LETTER *are based on communications to Science Service, or on papers before meetings. Where published sources are used they are referred to in the article.*

Rattan, formerly used in furniture, is now used for parachute rings and war production needs every inch of it available.

Nearly 22,000,000 acres of land are now included in national *parks* and national monuments under the supervision of the National Park Service.

Golf courses in Scotland are now producing food and flax; 18 hole courses were asked to plow up nine holes; those with nine to plow up three.

Argentina exported in 1942 over 121,000 tons of *vegetable oils* extracted from the following, named in order of the amount produced: sunflower seed, linseed, rapeseed, peanuts, cottonseed, corn and castor beans.

In two years since the first 1,000,000-volt industrial *X-ray* equipment was built and installed, over 30 additional machines of the same type and capacity have been put into service testing materials for war equipment.

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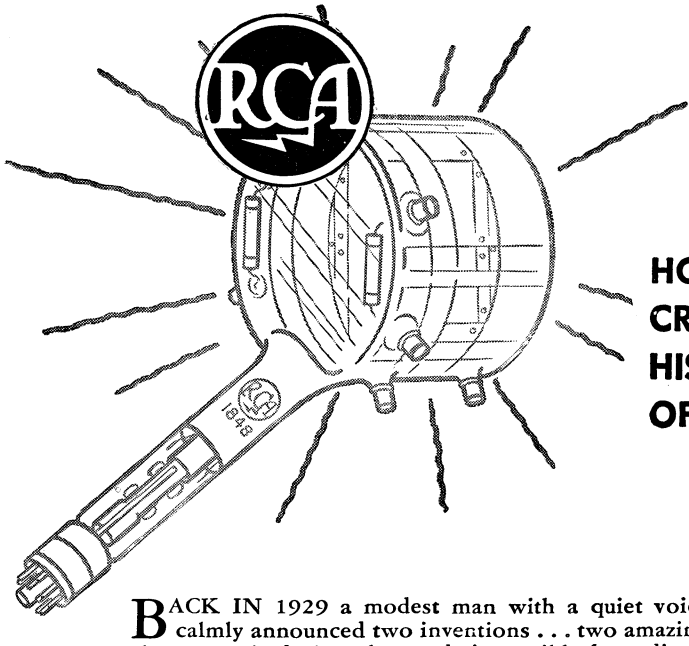


BLAZING THE

HOW ELECTRONIC TELEVISION WAS CREATED BY RCA LABORATORIES... HISTORIC STEPS IN THE EVOLUTION OF THIS NEW SCIENCE

BACK IN 1929 a modest man with a quiet voice calmly announced two inventions . . . two amazing almost magic devices that made it possible for radio to "see" as well as to "hear."

This man was Dr. V. K. Zworykin of RCA Laboratories. And his research in electronics gave radio its electronic "eyes" known as the Iconoscope and the Kinescope. The former is the radio "eye" behind the camera lens; the latter is the receiver's screen.

Since that red-letter day in television history, ceaseless research in the science of radio and electron optics has established RCA Laboratories as the guiding light of television.

The decade of the thirties saw television's coming-of-age. It brought new scientific instruments and discoveries; it developed new techniques of showmanship; it even created new words—televise, telecast, teleview, and telegenic.

In the evolution of television there have been "high spots"; historic milestones of progress; definite "firsts" —made possible by the services of RCA.

1928—1932—FROM THE FIRST EXPERIMENTAL STATION TO ALL-ELECTRONIC TELEVISION

Station W2XBS, New York, was licensed to RCA in 1928 to conduct television experiments. Transmitter located at laboratory in Van Courtlandt Park, was later moved to Photophone Building, 411 Fifth Avenue; then to New Amsterdam Theatre until 1931, when operations were transferred to Empire State Building.

On Jan. 16, 1930, Television pictures were transmitted by RCA from W2XBS at 411 Fifth Avenue and shown on 6-foot screen at RKO-Proctor's 59th Street Theatre, New York.

Television station W2XBS, operated by National Broadcasting Company, atop New Amsterdam Theatre, New York, opened for tests July 7, 1930, with the images whirled into space by a mechanical scanner.

Empire State Building, the world's loftiest skyscraper, was selected by RCA as the transmitter and aerial site for ultra-short-wave television experiments using both mechanical and electrical scanners. Operation began October 30, 1931.

Field tests of 240-line, all-electronic television were made by RCA at Camden, N. J., with television signals relayed by radio from New York through Mt. Arney, N. J., for the first time, May 25, 1932.

1936—OUTDOOR TELEVISION

Television outdoors was demonstrated by RCA at Camden, N. J., on April 24, 1936, with local firemen participating in the program broadcast on the 6-meter wave.

All-electronic television field tests of RCA began June 29, 1936, from ultra-short-wave transmitter in Empire State Building and aerial on the pinnacle releasing 343-line pictures.

Radio manufacturers saw television demonstrated by RCA on July 7, 1936, with radio artists and films used to entertain.

1937—ELECTRON "GUN"

Electron projection "gun" of RCA was demonstrated on May 12, 1937, to Institute of Radio Engineers, with pictures projected on 8 x 10-foot screen.

Television on 3 x 4-foot screen was demonstrated by RCA to Society of Motion Picture Engineers on October 14, 1937; pictures were transmitted from Empire State Building to Radio City.

Mobile television vans operated by RCA-NBC appeared on the streets of New York for first time, December 12, 1937.

1938—BROADWAY PLAY TELEVISED

Scenes from a current Broadway play, "Susan and God," starring Gertrude Lawrence, were telecast on June 7, 1938, from NBC studios at Radio City.

RCA announced on October 20, 1938, that public television program service would be inaugurated and commercial receiving sets offered to the public in April, 1939.

1939—BASEBALL—KING GEORGE VI—FOOTBALL

Opening ceremonies of the New York World's Fair televised by NBC on April 30, 1939, included President Roosevelt as first Chief Executive to be seen by television.

"A first from the diamond." Columbia vs. Princeton, May 17, 1939, televised by NBC.

TELEVISION TRAIL

Improved television "eye" named the "Orthicon," introduced by RCA on June 8, 1939, added greater clarity and depth to the picture.

Television spectators in New York area on June 10, 1939, saw King George VI and Queen Elizabeth at the World's Fair, telecast by NBC.

Brooklyn Dodgers-Cincinnati game telecast by NBC on August 26, 1939, was the first major-league baseball game seen on the air.

First college football game—Fordham-Waynesburg—televised by NBC, September 30, 1939.

Television from NBC station in New York was picked up by RCA receiver in plane 20,000 feet over Washington, D. C., 200 miles away, October 17, 1939.

Television cameras of NBC scanned the scene in front of Capitol Theatre and in lobby at premiere of motion picture "Gone With The Wind," December 19, 1939.

1940—HOCKEY—COLOR—TRACK BIRD'S-EYE TELEVISION

Color television was demonstrated on February 6, 1940, to Federal Communications Commission by RCA at Camden, N. J.

First hockey game was televised by NBC camera in Madison Square Garden, February 25, 1940.

Basketball: Pittsburgh-Fordham, also NYU-Georgetown at Madison Square Garden were televised by NBC, February 28, 1940, as first basketball games seen on the air.

First Intercollegiate track meet at Madison Square Garden telecast on March 2, 1940.

Using RCA's new, compact and portable television transmitter, a panoramic view of New York was televised for the first time from an airplane on March 6, 1940. Television sightseers as far away as Schenectady saw the bird's-eye view of the metropolis.

Premiere of television opera on March 10, 1940, featured Metropolitan Opera stars in tabloid version of "Pagliacci."

First telecast of religious services on March 24, 1940, from NBC Radio City studios, were seen as far away as Lake Placid.

Ringling Brothers-Barnum and Bailey circus viewed on the air, April 25, 1940, through NBC electric camera in Madison Square Garden.

Television pictures on 4½ x 6-foot screen were demonstrated at RCA annual stockholders meeting May 7, 1940, at Radio City.

Republican National Convention was televised on June 24, 1940, through NBC's New York station via coaxial cable from Philadelphia.

Democratic National Convention films rushed by plane from Chicago for NBC were telecast in New York, July 15, 1940.

President Roosevelt was seen by television throughout the Metropolitan areas as he addressed Democratic rally, October 28, 1940, at Madison Square Garden.

Election returns on November 5, 1940, televised for first time by NBC, showed teletypes of press associations reporting the news.

1941—COMMERCIAL TELEVISION

Television progress demonstrated to FCC on January 24, 1941, included: home-television receiver with 13½ x 18-inch translucent screen; television pictures 15 x 20 feet on New Yorker Theatre screen; pictures relayed by radio from Camp Upton, Long Island, to New York; also facsimile multiplexed with frequency modulation sound broadcast.

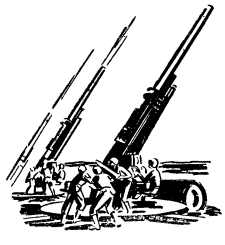
Television pictures in color were first put on the air by NBC from Empire State Building Transmitter on February 20, 1941.

Large-screen television featuring Overlin-Soose prize fight on May 9, 1941, at Madison Square Garden was demonstrated by RCA at New Yorker Theatre; also, on following days, baseball games from Ebbets Field, Brooklyn.

Commercial operation of television began July 1, 1941, on a minimum schedule of 15 hours a week. NBC's station WNBT, New York, the first commercially licensed transmitter to go on the air, issued the first television rate card for advertisers, and instituted commercial service with four commercial sponsors.

Entry of the United States in World War II, enlisted NBC television in New York to aid in illustrating civilian defense in air-raid instructions in the New York area.

1943—AMERICA AT WAR!



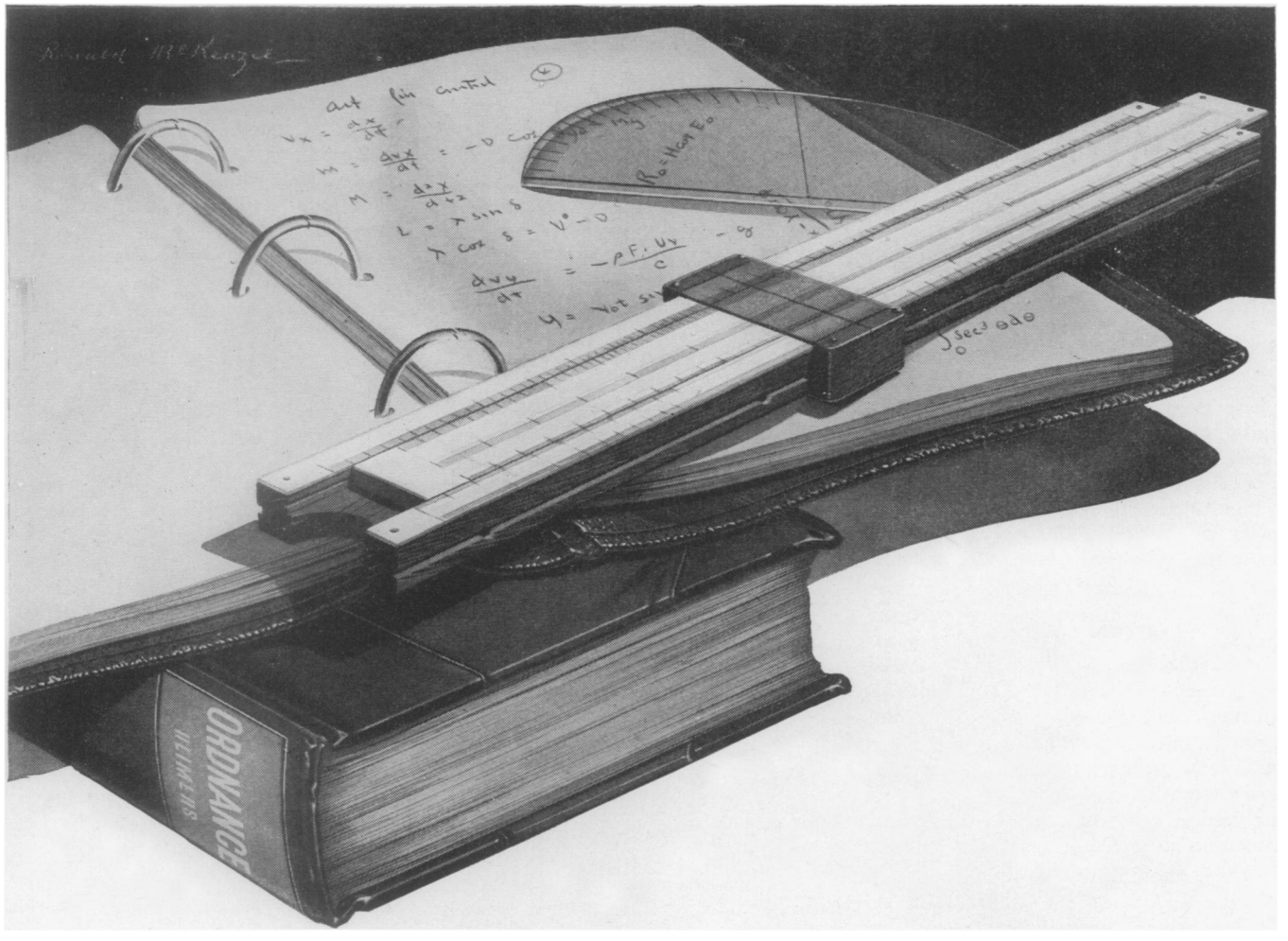
Today RCA Laboratories, pioneer in the science of electronics, is devoting all its efforts to the war.

Yet, from the discoveries, developments and inventions made under the urgency of war, will come greater wonders for the Better Tomorrow of a peacetime world.

RADIO CORPORATION OF AMERICA

RCA BUILDING, NEW YORK

CREATOR OF ELECTRONIC TELEVISION



What's a cotangent got to do with ack-ack?

PLENTY. So have sines, cosines, squares and square roots, differential equations, and integral calculus.

For the accurate firing of anti-aircraft batteries depends wholly upon the science of mathematical calculations that must be made fast—faster than a score of the most brilliant mathematicians could do it!

To solve these problems—to make the ack-ack of the United Nations deadlier—Westinghouse engineers are assisting in the development of an improved "electric brain" that makes the necessary lightning-like calculations.

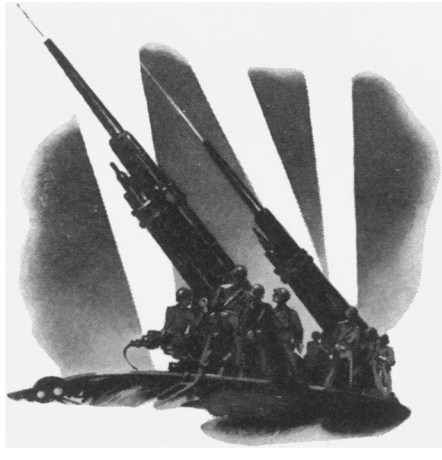
The firing control—known as the "computing director"—not only *locates* the exact position of the target as it twists and dodges through the sky. It also *calculates* where the enemy plane will be by the time the shell has traveled 10,000 or more feet into the air—all in a matter of seconds.

And that's not all. The computing director makes instantaneous corrections for drift, air density, wind conditions, and gun muzzle velocity. In addition, it calculates the fuse setting on the shell—so that the burst will occur at the *calculated position* of the enemy plane.

Westinghouse is making hundreds of other weapons for victory such as: guns, shells, radio equipment, instruments, electric motors and generators, and propulsion equipment for our giant battleships and rapidly growing merchant marine. And delivering these war materials faster than ever!

We are proud of the way Westinghouse "know-how" is adding day-by-day to America's tremendous striking power—on land, at sea, and in the air.

Westinghouse Electric & Manufacturing Company, Pittsburgh, Pennsylvania.



Westinghouse

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