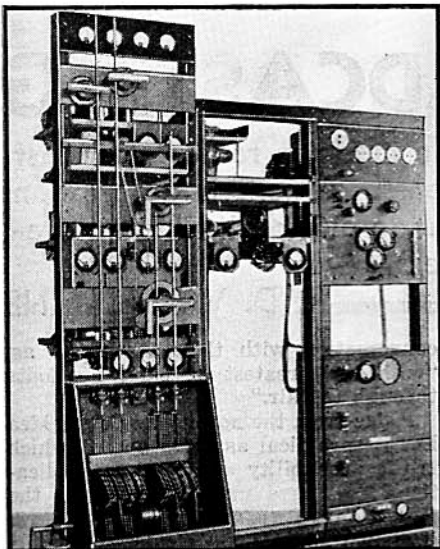
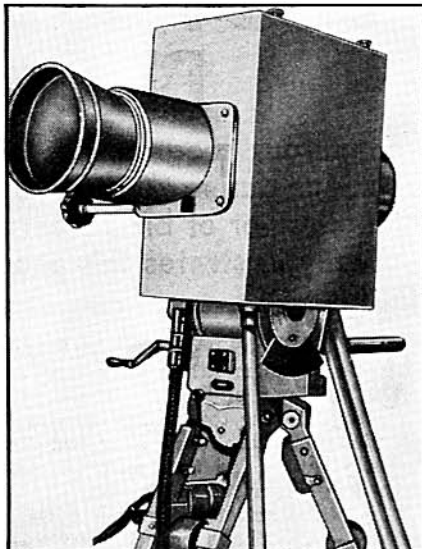


IN REVIEW

Radio is now such a vast and diversified art it becomes necessary to make a general survey of important monthly developments. RADIO-CRAFT analyzes these developments and presents a review of those items which interest all.



Variable-frequency ionosphere installation.



The European version of Farnsworth's camera.



The small size of the flat Arcotron vacuum tube.

MULTI-FREQUENCY IONOSPHERE TESTS

AS a means for continuously checking the height of the reflecting layers of the upper atmosphere, the Department of Research in Terrestrial Magnetism of Carnegie Institute of Washington set into operation, last month, a new multi-frequency transmitter sending out signals which automatically sweep the wave-band between 516 and 16,000 kc. every 15 min. during day and night.

By an ingenious circuit, the same antenna system and tuned circuits are used for both transmitter and receiver which are installed at the same location. The tuned circuits are swept through the desired wave-range by means of motor mechanisms which are synchronized with a film recorder so that a permanent record of the ionospheric height at different times in the day and year (at different frequencies) is obtained.

The quick change of frequency prevents interference of the transmitter with other transmissions on the same frequencies.

NEW WJZ ANTENNA DEDICATED

THE new ultra-modern 640 ft. antenna for station WJZ, which has been mentioned before on these pages was dedicated with due ceremony last month, in conjunction with NBC's 10th anniversary.

While the station will remain at 50,000 watts output for the time being, the new antenna will increase the radiated power equivalent to an increase to 110,000 watts (or 110 kw.).

EUROPEAN VERSION OF FARNSWORTH'S TELEVISION CAMERA

THE effectiveness of American developments in television was amply proven last month when word came that the German firm of Fernseh A.G. had completed a new television pick-up camera for outdoor pick-ups, following the design developed by Philo T. Farnsworth.

This new pick-up camera will be used by the German Broadcasting Co. for interesting outdoor events, such as sports, news items, etc.

SUPER-POWER CAUSES FIGHT

A CONFERENCE called last month by the F.C.C. to aid in serving the millions of radio listeners scattered over the 3,000,000 square miles of our country was the cause of a heated dispute between two factions among the broadcasters.

The first, headed by Edwin W. Craig of the National Broadcasting Co. and known as the "clear channel group" wants the existing cleared channels kept as they are, with permission to increase the power of these stations. Only with such increased power, they claim, can remote sections be served completely.

The second group, headed by William S. Paley, president of the CBS warns that many small local stations would of necessity be obliterated if super-power stations were introduced. Mr. Paley stated that the proposal had "dangerous implications for many independent and smaller broadcasters."

THE ARCOTRON—A NEW TUBE

AN interesting new type of tube was brought to light, last month, in Germany. This new tube, known as the Arcotron tube is simpler in design and thus easier to make on a production basis than the present types.

The plate electrode of the Arcotron is in the form of a wire mesh which envelops the filament. Sputtered in the surface of the flat-shaped glass envelope is a metallic layer. This metal coating influences the electron emission through the wire mesh (plate) by means of an electrostatic field created by the signal current which is applied to the coating (grid). Multi-element tubes are made by dividing the sputtered coating into sectional "rings."

This tube thus comes under the class of "grid-less" tubes.

Coincidentally, the Harries Thermionics, Ltd. in England, who developed the "critical-distance" tube mentioned several months ago in *Radio-Craft* announced a new "UNIVERSAL TUBE." This tube can be used as frequency changer, power output tube, R.F. and I.F. amplifier, A.F. amplifier and detector and has good characteristics in all positions. Considering the 375 or so radio receiving tubes available now in the U. S., it must be admitted that Mr. Harries has enclosed a good many tubes in his "magic bottle."

The new tube utilizes the principles discovered by Harries in developing the critical-distance beam tube—that is, the placement of electrodes in the positions with respect to cathode is at the particular distance which produces the least secondary emission and greatest controlling influence.