

WRC

THE VOICE  
OF THE  
CAPITAL

*August 1, 1923*

RADIO CORPORATION OF AMERICA



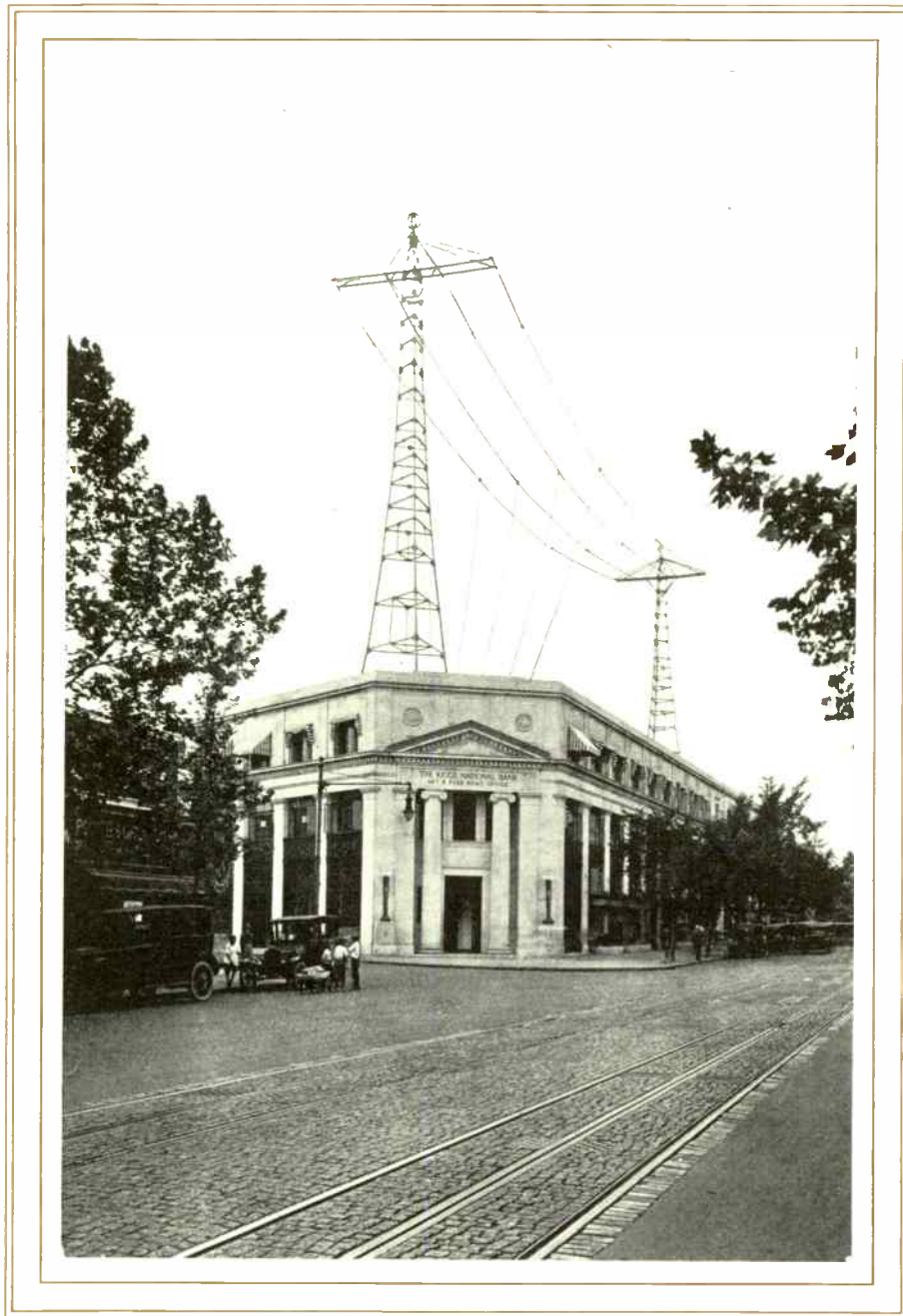
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*Antenna of Station "WRC" Viewed from 14th Street*

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## THE VOICE OF THE CAPITAL

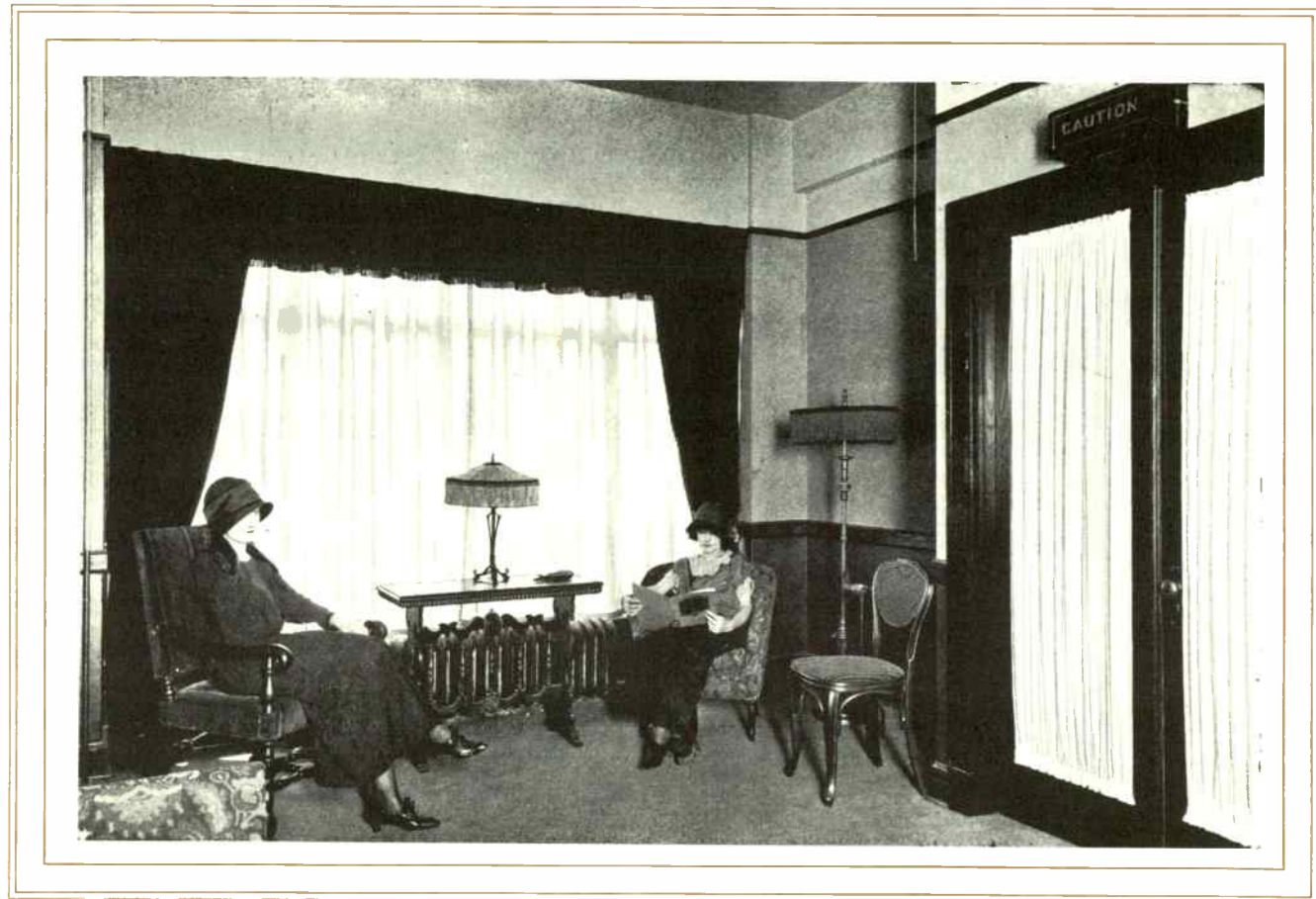
BROADCASTING STATION "WRC" has fittingly been termed "The Voice of the Capital." To every corner of the United States, this powerful station will carry the words of great men in political and diplomatic life, the progress of world events as they transpire, and the music of our nation as well as of other nations as rendered by visiting musicians. This station provides an instantaneous link between the country's political center and every American home. A better understanding of government, of the issues involved in political campaigns, and of the questions which arise in our relations with foreign countries cannot fail to result from its operation.

There is a wealth of material available in Washington from which to make the programs of "WRC" most enjoyable and educational. At once it is possible that the ceremonies accompanying the dedication of memorials to great Americans, the features of the many conventions held in this city, and the spiritual counsel of the clergy may be carried to the transmitter and sent forth so that the whole country may hear and appreciate them.

Momentous events, of interest to the nation, do not, of course, occur every day. The greater part of this station's operating hours will be devoted to the broadcasting of the musical and dramatic talent of Washington and other events of special interest to residents of this city. Washington is rich in both professional and amateur talent, and every effort will be made by those in charge of station "WRC" to arrange programs so that those local interpreters of music and drama may be heard from time to time not only by their fellow-townsmen but by citizens of neighboring cities.

The location of station "WRC" is an exceptionally good one. The Riggs National Bank Building, in which both studio and

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*A Corner of the Quiet and Comfortable Reception Room*

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equipment are accommodated, is one of the highest points in the city, with no tall steel structures in close proximity to absorb and influence the waves radiated from the station.

Placed diagonally on the roof of the building, and 218 feet apart, are two imposing steel towers which support the antenna wires 150 feet above the street. These towers are a recent development in the design of such aerial structures. The three corners of the towers, instead of being straight from base to tip, curve inward, this being known as "vertical bridge" construction, which distributes the pull and bending strain of the wires equally to all parts of the towers, each of which is 115 feet high.

One hundred feet from the roof are cross-arms, 36 feet long, to which the four spans of wire are attached. Each wire from cross-arm to cross-arm is broken up by insulators into three sections. The sections at either end, 49 feet in length, are merely supporting cables for the active center sections which are 120 feet in length. From the exact center of each of these four active lengths a wire drops to the roof below, where all are connected together and to a heavy copper "lead-in" which connects them with the transmitters. This forms what radio engineers call a "T" antenna. The operating wave length of "WRC" is exactly 469 meters.

The office, studio and equipment of station "WRC" are all on the second floor of the building, and entrance is made from the hall into a tastefully furnished reception room where artists and speakers may wait in comfort before facing the microphone. Above a door to the right is a small illuminated sign warning "Caution," that no one will make an unnecessarily loud sound to mar the program.

Were it not for a two-door and vestibule approach, no one could enter the studio while broadcasting was in progress without admitting extraneous noises which would affect the microphone. But with this feature built in, the director or announcer may open the outside door, step into the vestibule, and, carefully closing the

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*East Wing of Studio, Announcer's Control Box and Microphone in Foreground*

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door behind him, enter the studio by the second door without disturbing the program. Over the second door, brightly lighted, is another sign, this one commanding "Silence."

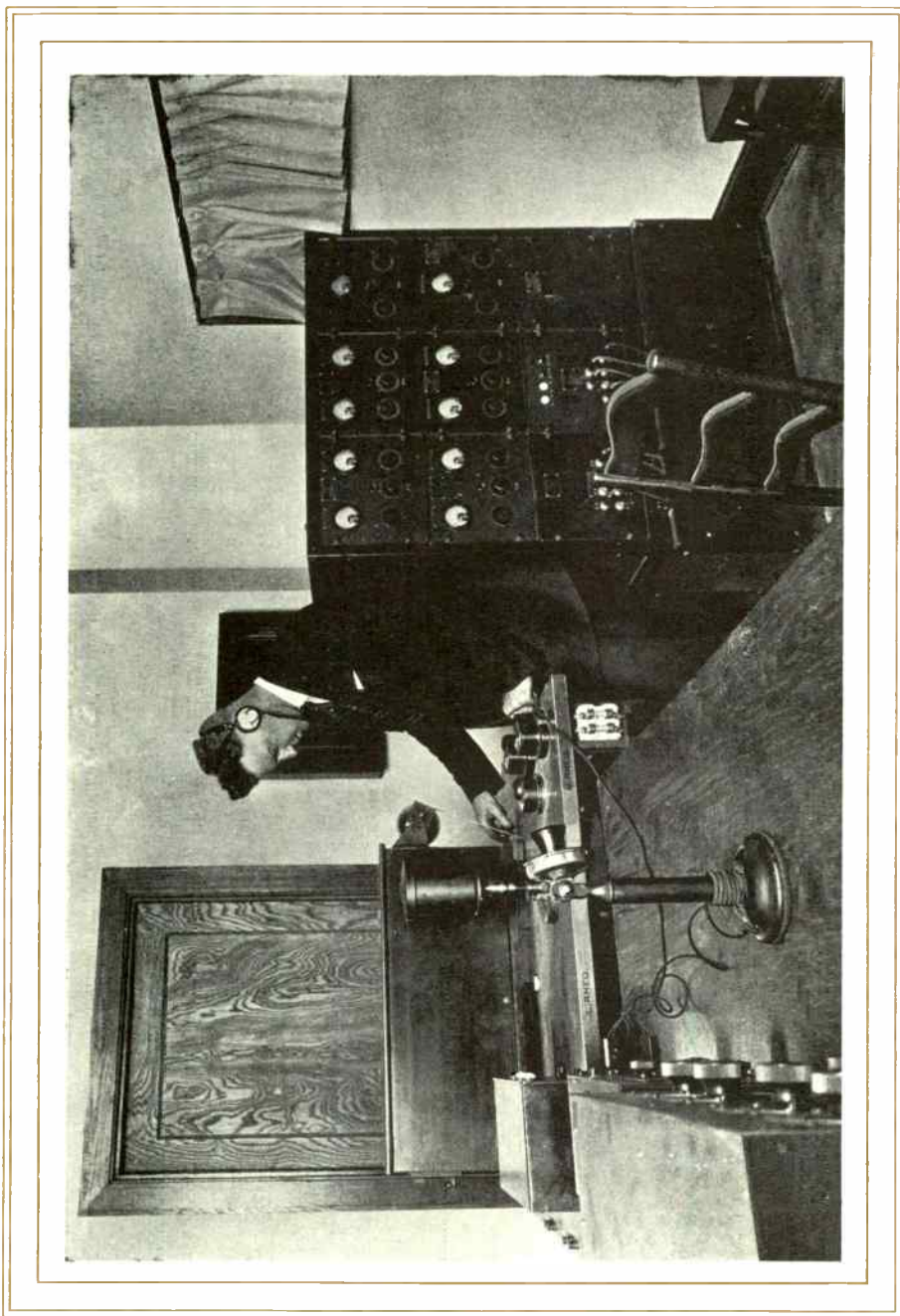
Within the studio, which is one of the largest used in America for broadcasting work, all is harmonious, dignified and restful. The panelled walls are done in old ivory and brown, while the windows are draped with heavy hangings of maroon. A unique feature of the walls, which is not apparent while looking at them, is discovered when one touches the panels. The lightest pressure of the finger will bend them outward. These unique walls play an important part in broadcast transmission. They are made of wax-treated muslin laid over felt and absorb all sound waves not entering the microphone. This acoustically correct construction prevents even the minutest echo, which might otherwise blur the clearness necessary to enjoyable entertainment.

On one side of the studio is a narrow curtained window beyond which is the voice-control equipment. Here an expert operator is stationed at all times. Before him stands a large steel cabinet on the front of which are many knobs and meters. Through the window the operator can observe all that goes on within the studio and, by means of the control apparatus within the cabinet, maintain, at normal, the strength of the voice or music and its action on the radio waves.

This control board is a very vital part of the several broadcasting stations of the Radio Corporation of America. Behind its black panel are vacuum tubes of medium size used to strengthen, or amplify, the electrical currents which carry voice or music before actually reaching the transmitter. Its use is especially necessary when the program is being brought to the station over a wire a few miles in length, otherwise there would be insufficient energy to materially affect the radio waves. Used in connection with programs taking place in the studio, it is invaluable. The artist may move away from the microphone, may sway closer to it in

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*Room Where Quality of Voice and Music Is Closely Observed*

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his earnestness, but by a touch of a knob the man at the control board can offset these variations.

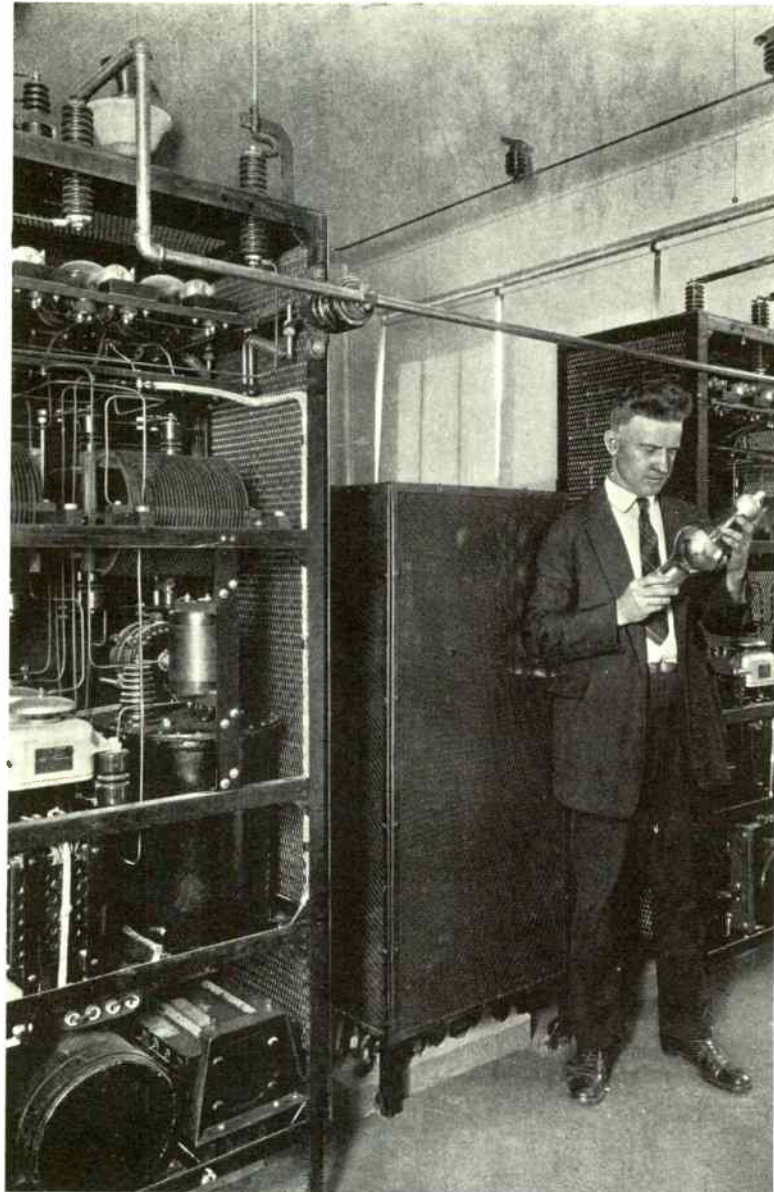
Close to the operator, and occupying the greater part of the room, are the powerful transmitters. Although but one will be in use at any time, two complete sets are provided, that a reserve unit may be in instant readiness should the active set fail for any reason. It is planned to operate these outfits alternately on alternate days. Either set is the equal, in power, range and clearness, of any now in use, being rated at 500 watts effective output, but if the two sets are combined for the broadcasting of some special event, the range of this station will far surpass that of any other in the country.

Each is complete in itself and contains all necessary tubes, inductances, condensers and transformers, this equipment being mounted behind a large panel and completely shielded by a perforated steel cabinet. This not only eliminates any chance of interaction between the radio and audio frequency currents, but protects the operators from accidentally coming in contact with bare surfaces carrying 2000 volts.

The operating table is in front of the transmitters, and on it is a small box through which the operators may throw in either of the powerful transmitters and listen to the outgoing program at various stages of its progress. On this table, also, is a microphone that the operator on duty may cut-in and talk to the "unseen audience" himself should this be necessary at any time. By means of an inter-communicating phone he may talk to office, studio and reception room or be called by them. Because the law requires that a transmitting station must constantly listen-in for distress signals from ships, a highly efficient receiver is provided.

The motor-generators are housed in an adjoining sound-proof room, that their low hum may not disturb either artists or operators. Two machines are provided, one for each transmitter. Each of these powerful units consists of a single motor driving two gen-

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*The "Business End" of the Compact Powerful Transmitters*



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erators, one of which supplies 2000 volts for the oscillator and modulator tubes and 1000 volts for the amplifier tubes, while the other furnishes the 125 volts used to operate the automatic relays and the 88 volts which heat the filaments of the large vacuum tubes.

A unique feature of this station, and one which further assures perfect transmission of programs, is a device known as the oscillograph, by which the operators have before them "a working picture of the voice." This delicate instrument may be switched into any one of the many circuits and shows, by means of an undulating, ever-varying beam of light, exactly how the artist's voice or music is affecting the electrical and radio currents. By watching this little tell-tale beam, as reflected from revolving mirrors, one knows instantly whether the sound waves are too weak, too great in volume or blurred.

This is the latest of the nation-wide system of broadcasting stations which is being established by the Radio Corporation of America. All the experience and recent improvements which are part of Broadcast Central, the Radio Corporation's great duplex station "WJZ"—"WJY" in New York, are embodied in Station "WRC." Nothing has been overlooked that will give Washington and neighboring cities true excellence of programs and enjoyable realism. Soft, quiet colors and luxurious furnishings put the speakers and singers at ease and in a mood that will encourage their best efforts; equipment of the latest and most advanced type combines the sound waves with the radio waves; a perfect control of this action is provided which is accurate to the minutest degree.

Broadcasting is a living vibrant force that has as its chief aim the improvement, both spiritual and intellectual, of mankind. It is the hope of those who conceived and built this great broadcasting plant that "The Voice of the Capital" will always entertain and instruct only with that which is for the good and the advancement of the millions of Americans who will nightly tune-in its message.

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