Successful Television Programs Broadcast by WRNY

Station WRNY Will Begin Regular Television Broadcasting into the Homes Ever Attempted.

Television Wins Radio Amateurs

Television Test Held on Regular Broadcast Band

Standard Receiver Used in Experiment Daily Broadcasts

Television Drama Shows With Music in Station WRNY Test

How to See Radio Image Broadcast by WRNY

IT is with a feeling of great pride and satisfaction that Radio News is able to tell its readers that through its own broadcast stations, WHNY and W2XAL, it inaugurated the first regular, daily television broadcast service the world has ever seen.

Numerous are the other organizations and the private experimenters who, both in the United States and in Europe, have staged individual demonstrations of spectacular nature; but, with the single exception of WGY and its narrowly limited image transmissions, no one else has been able to offer a regular, scheduled service that with home radio equipment can depend on as he now depends on the ordinary voice-and-music broadcasting.

The Radio News-WRNY television service is a real service to the experimenter for two important reasons:

First, the broadcast images can be picked up and reproduced with ordinary receiving equipment, on either the broadcast or the short-wave band; and second, the transmitted television signals are confined strictly to the 30,000-cycle margin to which all American broadcast stations are limited by law.

KEEING IN THE CHANNEL

Successful television broadcasting on frequency bands less than 15,000 cycles wide has been held impossible by government authorities and practically all television systems demonstrated so far have required a channel width of channel "on the air," and considerably more.

The first regular television-broadcast program was on the New York Times of August 31, 1928.
WRNY to Start Daily Television Broadcasts; Radio Audience Will See Studio Artists

The first regular broadcasting of images by television over the radio from New York will begin tomorrow, it was learned last night from Station WRNY in the Hotel Roosevelt. WRNY, which is owned by The Radio News Magazine, has recently completed the installation of equipment for broadcasting images, and yesterday it conducted its first experimental broadcast.

The broadcast was done from the station's transmitting plant at Villa Richard, Cuyahoga Valley. The images sent consisted of the faces of John Geloso, engineer of the Pilot Electric Company, and John Ferrara, chief engineer of WRNY. The first broadcast began at 5:15 P. M. and continued until 6:30. The second began at 11 P. M.

There is no telling how many persons saw the images, according to Hugo Gernsbach, President of WRNY. He estimated that there are about 2,000 sets in the metropolitan area equipped for television reception. Owners of sets equipped for television heard the television transmission as an intermittent high-pitched whirr, varying with the action before the transmitter.

Officers of WRNY saw the images at a set installed in a private home a few hundred yards from the transmitting station.

The television broadcasting scheduled to begin today will be made a part of WRNY's usual programs. Mr. Gernsback said. After a singer or other entertainer has finished, his or her face will be sent out over the air by television. Thus the schedule for the television will be the same as for the regular broadcasting of this station.

Considerable experimenting already has been made with television broadcasting by other stations. For some weeks C. Francis Jenkins has been transmitting silhouettes by radio, and other stations which have been developing the television field are WGY, at Schenectady, WLEX near Boston, and WCLF, the labor station at Chicago.

Mr. Gernsback said that WRNY has received thousands of letters asking for television broadcasting, the successful television. As a matter of fact, the whole project was sponsored by Radio News, with Mr. Geloso doing the actual experimental work. After performing successfully in the laboratory, the television described in the aforementioned article was moved on August 12 from Brooklyn to the WRNY transmitting house at Cuyahoga Valley, N. J., from Brooklyn to the WRNY transmitting house at Cuyahoga Valley, N. J., just across the Hudson River from New York.

An experimental receiver was set up a quarter of a mile from the transmitter.
ter, which is on the very edge of the Palisades cliffs, overlooking the entire island of Manhattan. Mrs. Geloso, wife of the inventor, was the first subject televised. Her husband, operating the receiver, tuned in the WRNY signals, adjusted the speed of his scanning disc, and emitted a loud whoop of joy when he recognized the clear image of his wife. These first images, about one and a half inches square, were slightly streaked and had a tendency to move "out of frame," but they were comparable to average newspaper halftones in clarity. The broadcast, it should be noted carefully, was done on the regular 220-meter wave of WRNY, and required no changes in the regular Western Electric transmitter.

On August 14, Mr. Geloso moved the receiver to the home of Hugo Gernsback, editor of Radio News, at 186 Riverside Drive, New York; this location is about five miles in an air line from the WRNY transmitter. With no opportunity for preliminary trial or adjustment, Mr. Geloso tuned on the set at ten o'clock in the evening and again succeeded in reproducing the image of his wife, who was seated before the television at Coney Island. This feat was especially noteworthy because the transmitter and the receiver were operating on entirely separated power lines, and absolutely no means of synchronizing the scanning discs was used. Because of the lack of perfect synchronization, the images wandered out of frame frequently; but for six or seven seconds at a time they were as clear as photographs.

DEMONSTRATION INTERESTS PUBLIC

After this private exhibition, it was decided to stage a public demonstration for members of the radio trade and of the press. The place chosen was Philosophy Hall, at New York University, 115th Street and University Avenue in the Borough of the Bronx (New York City) and the date, August 21, 1928. This demonstration was a marked success, having been attended by more than 600 people, all agog with interest, and many were unable to find room in the hall. Although no automatic system of synchronizing the transmitting and receiving discs had yet been installed, Mr. Geloso managed to obtain satisfactory images of the subjects televised. The images were not perfect, but Mr. Gernsback remarked in his introductory address, which was broadcast by remote control from the hall over WRNY to the television transmitting station, that television is now in the "spark-carbon-and-carborundum stage," and too much cannot be expected of it for the present.

The first printed radio program listing television transmissions as a regular feature appeared on the running of that day; a typical program, taken from the New York Times of August 21, is reproduced on the first page of this article. All the WRNY programs which have appeared since that date have carried the exact time of each television broadcast.

At present, it is not possible to broadcast the images of the artists who are performing in the WRNY studio in the Hotel Roosevelt, New York. Because of line problems, the television must be close to the actual broadcast transmitter; so only the images of the WRNY operators and other persons at the transmitting room will be broadcast, for some time to come. At the start of each transmission, a white card bearing the letters WRNY in heavy, black letters is held before the television, so that the experimental can make the required preliminary adjustments on his scanning disc to receive the transmitted image of a human television subject.

SCHEDULE NOW FOLLOWED

Television images are broadcast simultaneously by WRNY on 320 meters and by W2XAL on 309.1. The first five minutes of every hour that the station is on the air. The complete schedule of television transmissions is as follows (cut this out and save it, for it will be very useful when you make your own television receiver, as described elsewhere in this number), and all times are Eastern Standard; add five hours for Greenwich time:

Mondays: 7:00 to 7:05 a.m.; 8:00 to 8:05 a.m.; 11:00 to 11:05 a.m.; 12:00 (noon) to 12:05 p.m.; 2:00 to 2:05 p.m.; 3:00 to 3:05 p.m.; 4:00 to 4:05 p.m.; 5:00 to 5:05 p.m.; 6:00 to 6:05 p.m.; 6:40 p.m. to 7:00 p.m. (30-minute period).

Tuesdays: 7:00 to 7:05 a.m.; 8:00 to 8:05 a.m.; 11:00 to 11:05 a.m.; 12:00 (noon) to 12:05 p.m.; 7:00 to 7:05 p.m.; 8:00 to 8:05 p.m.; 9:00 to 9:05 p.m.; 10:00 to 10:05 p.m.; 11:00 to 11:05 p.m.; midnight to 12:20 a.m. (30-minute period).

Wednesdays: 7:00 to 7:05 a.m.; 8:00 to 8:05 a.m.; 11:00 to 11:05 a.m.; 12:00 (noon)
to 12:05 p. m.; 2:00 to 2:05 p. m.; 3:00 to 3:05 p. m.; 4:00 to 4:05 p. m.; 5:00 to 5:05 p. m.; 6:00 to 6:05 p. m.; 7:00 to 7:05 p. m.; 8:00 to 8:05 p. m.

Thursdays: 7:00 to 7:05 a. m.; 8:00 to 8:05 a. m.; 11:00 to 11:05 a. m.; 12:00 (noon) to 12:05 p. m.

Fridays: 7:00 to 7:05 a. m.; 8:00 to 8:05 p. m.; 11:00 to 11:05 a. m.; 12:00 (noon) to 12:05 p. m.; 2:00 to 2:05 p. m.; 3:00 to 3:05 p. m.; 4:00 to 4:05 p. m.; 5:00 to 5:05 p. m.; 6:00 to 6:05 p. m.; 7:00 to 7:05 p. m.; 8:00 to 8:05 p. m.; 9:00 to 9:05 p. m.; 10:00 to 10:05 p. m.

Saturdays: 7:00 to 7:05 a. m.; 8:00 to 8:05 a. m.; 11:00 to 11:05 a. m.; 12:00 (noon) to 12:05 p. m.; 3:00 to 4:00 p. m. (20-minute period); 7:00 to 7:05 p. m.; 8:00 to 8:05 p. m.; 9:00 to 9:05 p. m.

Sundays: 7:00 to 7:05 a. m.; 8:00 to 8:05 a. m.; 11:00 to 11:05 a. m.; 12:00 (noon) to 12:05 p. m.; 2:00 to 2:05 p. m.; 3:00 to 3:05 p. m.; 4:00 to 4:05 p. m.; 5:00 to 5:05 p. m.

Most of these periods specified are of only five minutes duration, but it will be noted that there are also three twenty-minute periods, one each on Monday, Tuesday and Saturday. These longer transmissions enable the experimenters to adjust their receiving apparatus more carefully and to receive a greater percentage of perfect images than the shorter five-minute broadcasts allow.

An announcer breaks in several times during each twenty-minute period, to tell what is being broadcast. WNYN now televises these musical themes of living people, the WNYN phonograph, previously mentioned, a moving toy monkey, and a moving "rollipoly man."

Those living in the vicinity of New York may tune in WNYN's regular 250-meter wave on their regular broadcast receivers; experimenters outside of the New York local area can do best by using a simple

short-wave set. WNYN News has available a number of free blueprints of inexpensive short-wave receivers; if you already do not own a short-wave set, drop us a postcard or a letter and we will send you a set of blueprints free of cost. (Ask for blueprint No. 38, if in doubt.)

SIMPLICITY OF THE TRANSMITTER

The Pilot TV receiver now in use at WNYN television apparatus also, as can be seen from the picture at the bottom of page 413, consists of four fundamental units: a source of light (an arc lamp), a scanning disc, a nest of three large photovoltaic cells, and an amplifier for the output of the latter.

The person to be televised sits in a cloth-covered booth facing the photovoltaic cells, which are arranged in a triangle in a wooden frame, through the center of which is an opening about six inches square. These cells (which are the subject of a separate article on page 321 of the September number of WNYN News, previously mentioned) are completely shielded on all sides; the exposed portions of their bases are covered with copper mesh, while the wooden container box is lined with sheet copper. The mesh acts as an electrical screen, but does not keep out light.

On the other side of the frame holding the photovoltaic cells is a flat aluminum scanning disc, 24 inches in diameter, pierced by a spiral of 48 holes. This rotor, at the rate of 160 revolutions a minute, in front of a powerful electric arc, the light of which passes through the holes and falls on the face of the subject. The side of the disc facing the arc is "masked" in such a manner that only one hole at a time passes light on to the subject. As soon as one hole is swept past the arc it turns behind the mask, just as the next hole of the spiral comes into view. As the holes are arranged in a spiral (each being slightly nearer the center of the disc than the preceding one), a series of 48 separate rays of light, one directly under and following the other, flash across the subject's face (see page 222 of the September issue for a fuller explanation). These rays of light are reflected into the photovoltaic cells, which produce electrical currents corresponding in intensity to the amount of reflection from the light and dark portions of the skin and hair; this action may be compared to that of a microphone in transmitting the tones of the voice into electrical vibrations. The impulses generated by the cells are amplified by a bank of special-purpose resistance-capacity amplifiers, which in turn feed the modulator tubes of the broadcast transmitters. The latter send out signals which are plainly audible in any ordinary broadcast set tuned to 335 meters, or in any short-wave set adjusted to 30.91 meters—with reception range of the station—as a peculiar noise with a fundamentally low-pitched note, mingled with shriller ones, depending on the character of the image. (Continued on page 480)
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Putting the Aerial in Shape

(Continued from page 437)

paper. Cut a slot half-way down the paper and then curve the uneven part in the center. Bend the two tabs up at right angles and push them under the clippings or shingles. Refill with a bend or two so that the guard will form a roof over the lightning arrester as shown. This will effectively keep water off the arrester but, if you are in doubt as to the latter's efficiency, buy a good one that is hermetically sealed.

A sneaking or sticky pulley can be lubricated from the ground by tying a piece of silk-soaked rag to the ballcrank and then raising the rag to the pulley, until the oil is squeezed into the wheel bearing. This is shown in Fig. 6 and is a simple remedy.

A STRONG CONNECTION

The proper way to keep the aerial and lead-in in one piece is shown in Fig. C. Pass a loop through the insulator and then twist this loop back over the aerial. A solid hitch is made, and one that will not come away the wire. The twist is shown in Fig. A, which illustrates the frayed condition of a halyard which should by all means be replaced with new rope. Such chafings are caused by too-tight pulleys, rough trees, rotting of the rope, and like causes. Put in new expensive, all around, in the fall and you will not find the aerial lying in the snow some nice morning after the worst storm of winter.

Remember that an efficient aerial must not sway, it must not leak its tiny power to the ground in any way, and it must have a sure metallic path of low resistance over its entire length. Give it an overhauling this fall, and your programs will not suffer from neglect later on.

WRNY Television Programs

(Continued from page 416)

At the receiving end the signals are tuned-in in the normal manner but, instead of being made to operate a loud speaker, are led after A.F. amplification to a neon-gas "glow-lamp" which is fixed behind a scanning disc identical in dimensions and arrangement of its holes to the one employed at the transmitter. This disc also is rotated at the rate of 450 revolutions per minute. The glow tube produces a pinkish glow which varies in intensity in accordance with the electrical impulses fed it; just as a loud speaker produces sound in accordance with the variations of the current flowing through its windings. As the disc revolves, it allows the varying light of the glow lamp to pass through its holes, one at a time, with the result that a continuous series of 48 closely adjoining lines of light is, apparently all at once, visible to the onlooker. These lines are dark at this point corresponding to one where the scanning ray of light in the transmitter hits a dark spot on the subject, and light where the ray hits a light-colored spot. If the transmitting and receiving discs are in perfect step, or "synchronization," with the holes in the receiver flashing past the glow-lamp in exactly the same relative order that the holes in the transmitter flash past the arc light, a recognizable image of the subject's face and form will be visible apparently on the surface of the disc facing the plate of the glow-lamp. (See pages 428-9.)

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