



TELEVISION PICKUP IS MOVED OUTDOORS

EXPANDING the scope of its experimental television, the National Broadcasting Company will inaugurate outdoor pick-ups this month for the first time in America with an RCA mobile television station, Lenox R. Lohr, NBC president, announced at Radio City.

The outdoor experimentation, said Mr. Lohr, will be another forward step in the television field tests conducted in cooperation with the Radio Corporation of America, NBC's parent company. Immediately after the delivery of the new station, NBC engineers will begin an intensive schedule of television outdoor scenes and current events. Football games and other sports, parades and news events are listed in the outdoor schedule. All of the work, however, will be strictly experimental, with a view

to improving the equipment and methods of RCA television.

HANSON'S COMMENT

"The public," said O. B. Hanson, NBC chief of the mobile station, "will expect television to bring distant current events into the home."

"In addition to studio productions, it wants such things as Presidential inauguration ceremonies, political conventions, football and baseball games, boxing matches, fashion parades and all the shows we now class as special events. Through radio it has heard descriptions of all these; sometimes the sounds of the events themselves. What the American public will eventually demand is that television bring faithful
(Continued on following page)

VIDEO TRANSMITTER

PICTURE AND SOUND PICKUP

POWER SUPPLY

(Continued from preceding page)

and image reproductions of all into the control room.

This new mobile unit will enable us to make a start toward supplying that demand. In taking television outdoors we expect to learn much about the sensitivity of our instruments, the use of different types of lenses, filters and shades, the spectral characteristics of sunlight, the effect of reflected light, spheres of action and so on.

GROUP TO BE TRAINED

"Our immediate purpose is to train a group of men in handling the problems of special events. We shall have need of all the practical experience we can accumulate between now and the day when television becomes a daily public service. When that will be, even in the limited area of New York City, it would be foolhardy to guess.

"All of our outdoor work will be strictly experimental. After eight years of continuous research and experiment in cooperation with the engineering staff of the Radio Corporation of America, we feel that we are ready to attack the intricate problems presented by field television. The many contributions we have made to the new art, both in matters of practice and apparatus, will be of considerable help. We are steadily improving the quality of our images; sometimes we feel that our progress is rapid. But we realize that it will be a long time before we can deliver pictures of outdoor events that will meet the home entertainment requirements."

TWO MAIN VANS

The new mobile television station will consist of two specially constructed motor vans, each about the size of a large bus. Apparatus for picture and sound pick-up will be installed in one, and a video transmitter, operating on a frequency of 177,000 kc (1.694m) in the other. In the metropolitan area, where many tall buildings make high frequency transmission difficult, the unit's workable range will be about 25 miles. Ten engineers will be required to operate the two television units. In the experimental field work NBC's present mobile sound transmitter will be included in the station.

Both picture and sound will be relayed by micro-wave to the NBC television transmitter in the Empire State Building. There the programs will be broadcast to the 100 receivers NBC has placed in the homes of trained observers throughout the metropolitan area. The television system to be used will be entirely electric, based on the cathode ray tube developed by RCA Manufacturing Company.

FULLY EQUIPPED

The van mounting the video, or picture, apparatus will be the mobile equivalent of a television studio control room. It will be fitted with television and broadcasting equipment similar to that now in use at Radio City. This will include two cameras, video amplifiers,

blanking and deflector amplifiers, synchronizing generators and rectifiers for supplying the Iconoscope beam voltages.

The principal sound apparatus will be microphones, microphone amplifiers and sound mixing panels. All the equipment will be mounted on racks extending down the center of the van, affording easy access to any part for repairs, and the alterations which will arise from the outdoor experimentation.

Directly in front of the operating engineers in the semi-darkened control room will be two monitoring Kinescopes. One will show the scene actually being transmitted; the other will show the scene picked up by the second Iconoscope camera preparatory to transmission. Sound will be picked up by a variety of microphones, including the parabolic microphone developed in the NBC laboratories, and will be monitored by loudspeaker. An elaborate telephone cue circuit will keep the ten engineers in contact with one another.

STUDIO SERVICE DUPLICATED

The two Iconoscope cameras, to be mounted on tripods, will be technically equivalent to studio cameras, although considerably lighter in weight, focusing will be done by looking directly onto the plate of the Iconoscope, instead of through a separate set of lenses, as in the case of studio cameras. The cameras will transmit the image through several hundred feet of multiple core cable, affording a considerable radius of operations. Four operating positions will also be available on the roof of the van.

The micro-wave television transmitter will be housed in the second van, linked to the first by 500 feet of coaxial cable. Here the principal apparatus will be the radio frequency unit, generating the carrier wave for picture signals, and modulating apparatus for imposing picture signals on this carrier. The signals will be transmitted to the Empire State station's directional receiving antenna either from a single dipole antenna raised on the van's roof, or from a highly directive antenna array raised on the scene of the pickup.

SPARE POWER IN THIRD VAN

Because the transmitting equipment will generate much heat in operation, the interior of the van will be cooled by air drawn through filters at the rear of the vehicle and forced out through the front compartment. A water cooling system will be installed to maintain tubes at operating temperatures.

NBC engineers are at present designing a completely self-sufficient power unit to be used where suitable power supply for the mobile station is not available from New York's commercial service. Occupying a third motor van, this unit will be a generator driven by a gasoline motor and capable of supplying the alternating current required by both the control room apparatus and the transmitter. Power for the mobile station must be free from fluctuations which might seriously affect the operation of television apparatus.