

COMMUNICATIONS

# Microwave Radio Relay

This method of transmission of long distance phone calls, television and sound will get a chance to prove its worth in New York to Boston tests.

► CAST in the role of guinea pigs, New York and Boston will co-star in a proposed elaborate test to determine the efficiency and economy of microwave radio relay for the transmission of long-distance telephone calls and sound and television broadcast programs, as compared with transmission over wires and cables. The two cities were selected on the basis of the need for additional communications facilities linking them.

With approval granted for terminal stations at New York and Boston, the American Telephone and Telegraph Company has made application to the Federal Communications Commission for authority to construct seven relay stations joining terminals. These relay stations, consisting of transmitters and receivers connected to highly directive antenna systems, will pick up and amplify the radio waves and beam them on to the next station where the process will be duplicated until a terminal is reached.

The FCC has been asked to allocate

eight channels for the tests in the microwave part of the radio spectrum, to provide two simultaneous transmissions in each direction. For the present, and until the completion of experiments, the proposed facilities will not be available for commercial use.

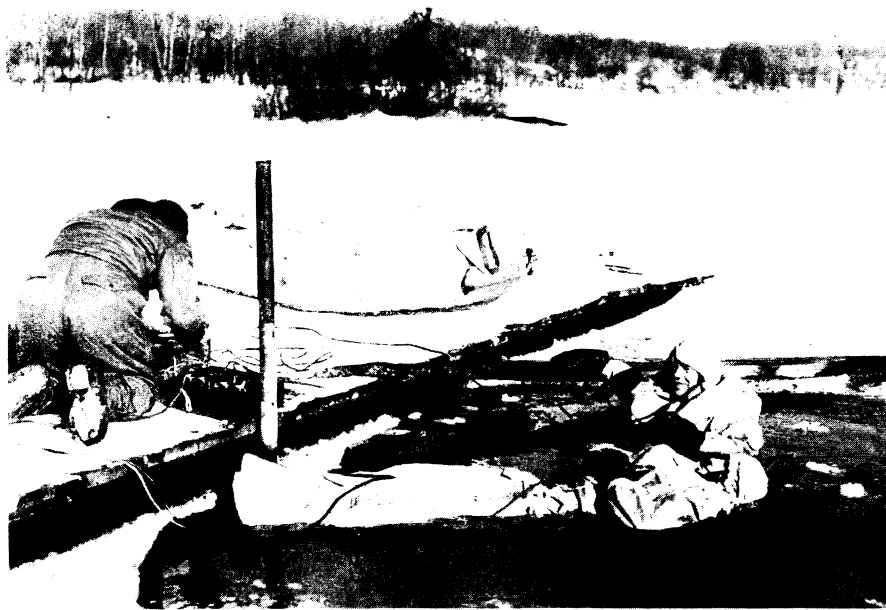
Reception in the microwave region of the radio spectrum is very satisfactory since there is almost no static or fading. The highly directive antennae can concentrate the energy in a narrow beam, thereby increasing the signal strength. If the tests are a success, the relay network may be spread out in all directions to provide radio relay communications to nearby cities and towns. Due to the fact that microwaves do not travel much beyond the horizon, the same set of frequencies can be used over and over again at alternate relay stations.

Since communication is not possible much below the line of sight in the microwave region of the spectrum, sites for the relay stations were chosen for

their elevation. The highest proposed station is 1,395 feet above sea level on Asnebumskit mountain in central Massachusetts. The lowest proposed relay station would be located on Bear Hill, Mass., with an elevation of 355 feet. The Bear Hill-to-Boston leg is about 11 miles, the shortest relay distance in the system. The longest legs in the system, both approximately 35 miles, extend from the New York terminal station atop the A. T. & T. Long Lines Building in lower Manhattan to Jackie Jones mountain (elevation 1,240 feet), north of New York City and west of the Hudson River; and from there to Birch Hill (elevation 1,330 feet), near Pawling, N. Y., and the Connecticut state line. The remaining three stations would be located on Spindle Hill (elevation 1,020 feet) between Waterbury and Hartford, Conn.; John Tom Hill (elevation 875 feet) near Glastonbury, Conn.; and Bald Hill (elevation 1,286 feet) close to the Connecticut-Massachusetts state line.

If commercial facilities are established satisfactorily as a result of these experiments, the microwave radio relay system may eventually be connected with the Bell Telephone coaxial cable that already connects New York and Washington. This would provide facilities for television, sound, and long distance telephone transmission from Boston to Washington. Later on, it might be connected to a nationwide coaxial cable network.

*Science News Letter, April 7, 1945*



**NEW SUIT TESTED**—These two men are floating "comfortably" on freezing water. The nylon suit was designed to protect the wearer from the initial shock of entering the cold water and decrease the effects of exposure from spray and wind when he is floating on an Emergency Rescue raft. (See SNL, Mar. 10.) Official U. S. Army Air Forces photograph.

BOTANY

## Cork Oak Trees Planted In Honor of Servicemen

► MEMBERS of the Armed Forces from Moss Point, Miss., will have cork-oak trees growing in their honor on the high school campus. The cork-oak seedlings were planted there by the Science Club in February as part of the project conducted by Science Clubs of America to increase the cork supply of the United States, largest user in the world.

Cork, used in life belts and for thermal insulation, comes from the cork oak, which can be grown commercially in 23 states in the Union. Science Clubs located in these states, mostly in the South and Far West, are studying specimens of bark and leaves, pictures of the tree and the acorns, and details of planting and growing.

In Baltimore the Parent-Teachers Association has donated land for 4,000 seedlings.

*Science News Letter, April 7, 1945*