

TECHNOLOGY

Develop "Picture-Phone"

Commercially practical system permitting persons to see one another while talking has been operated from West to East Coast. The talk-see system uses one pair of additional wires.

See Front Cover

► YOU will be able to "see" by telephone.

The forerunner of a commercially practical "picture-phone" system that permits persons to see one another while talking has operated across the continent between Los Angeles and New York.

The new talk-see system uses an additional pair of ordinary telephone wires such as used for speech to send the pictures. Developed at Bell Telephone Laboratories, it was reported at a joint meeting of the Institute of Radio Engineers and the West Coast Electronic Manufacturers' Association in Los Angeles.

With the system, it will be possible for a caller's picture to be "dialed" like an ordinary telephone call, provided the switch on the picture equipment is on at both ends of the line. If off, the call will go through anyway. Pictures can be turned on after a call is underway. It is also impossible to be seen by the caller unless your switch is on.

Experimental pictures have varied in size from one by one and one-half inches to two by three inches. Head and shoulders can be seen and facial expressions are recognizable.

The new system is not television. It differs from TV principally in the number of pictures transmitted. TV sends 30 pictures a second at high frequencies, requiring expensive coaxial cable and microwave relay systems. It produces a very clear and detailed picture, as shown in the photograph on the cover of this week's SCIENCE NEWS LETTER.

The Picture-phone, on the other hand, sends a smaller and less detailed picture every two seconds. It can be transmitted over standard low-frequency telephone channels, like those now used in homes.

Now undergoing further development, Bell expects that the system could be offered as an optional telephone service.

One of the many experimental sets now in use uses a miniature television camera mounted on a desk. It is about the size of a small suitcase and, instead of bright lights required on a TV stage, requires only natural daylight or moderate amounts of artificial light.

Only one other line, consisting of a pair of wires like regular telephone wires, would be installed on the customer's premises to carry the picture. A Picture-phone caller checks his position in front of the camera by a visual guide. He can be photographed when within the guide lines.

Discussing the future developments of the see-it-as-you-talk system, Bell scientists

said that, in its present form, equipment for the Picture-phone is bulky and expensive.

"However," they add, "a number of avenues are being explored for reducing size, complexity and cost."

The Picture-phone system was devised by Winston E. Kock, Floyd K. Becker, R. L. Miller and others.

Science News Letter, August 25, 1956

GEOPHYSICS

Aurora Recorder Works Automatically

► AURORA, the shimmering lights that occasionally glow in the northern sky from the United States, can now be recorded automatically.

The device is so sensitive it will "see" auroras, or northern lights, too faint to be spotted by humans. It was developed by Dr. D. M. Hunten of the University of Saskatchewan, Saskatoon, Canada, for use

during the International Geophysical Year. The IGY is a world-wide, intensive study of the earth, its seas and skies slated to start July 1, 1957.

The automatic aurora recorder produces tabulated results directly. The sky's light is caught on a small mirror that automatically tilts to different positions across the sky from horizon to horizon every five minutes. A second mirror reflects the light beam through a light chopper, a lens and an aperture to a photo-multiplier.

The photomultiplier's readings are recorded directly on a strip chart for immediate viewing and as numbers on punched tape for later study or for possible automatic analysis. This latter feature is a big improvement over previous recorders.

The device is almost completely insensitive to white light, catching the aurora in green light and recording its intensity. However, if white light becomes very bright, a warning signal is produced.

It is expected to go into operation at isolated stations, relieving personnel from the burden of visual observations, which require staying awake all night to make. Total power consumption of the device and the tape punch is about 280 watts, Dr. Hunten reports in the *Journal of the Optical Society of America* (Aug.).

Financial support for the project was provided by the Defense Research Board of Canada.

Science News Letter, August 25, 1956



THREE-FOOT RADIATION WINDOW—A three-foot thick radiation shielding window weighing three tons, such as pictured here, will be shown by Corning Glass Works, Corning, N. Y., at the Trade Fair of the Atomic Industry in Chicago, Sept. 24 to 26. Measuring 30 by 36 inches on the "hot" side and 18 by 30 inches on the "cold" side, the window has a density of 3.3 and offers shielding equivalent to three feet of barite or magnetite concrete.