

Flat-Screen Video

An experimental flat-screen video system that transmits handwriting, reproduces pictures, and can be used to communicate directly with a computer has been demonstrated by scientists at Bell Laboratories in Holmdel, New Jersey. The system consists of a commercially available plasma panel display (modified by Bell scientists), electronic control circuitry, and a light pen. The plasma panel is made up of thousands of tiny neon-gas cells arranged in vertical and horizontal rows. The cells glow when energized by an electric current.

In the Bell Labs system the cells are turned on or off selectively to produce an image from dots of light. Instructions for turning the cells on or off can be transmitted over telephone lines, so that an image can be sent from far away and appear on the panel.

When two panels are interconnected, the light pen is used as a pencil or pointer, and "writing" on one panel is reproduced on the distant panel. To do this the pen and electronic circuitry work together to determine where the pen has been placed on the sending panel. The receiving panel then is instructed to turn on or off its corresponding dots of light to reproduce the writing.

To give the gray tones necessary for picture or facsimile reproduction, the density of turned on cells is altered over a given area of the panel. The researchers believe this technique may be useful in other facsimile reproduction systems.

Bell scientists are conducting the work because the Bell System is seeking ways to improve the way in which people and machines interact, and because two-way plasma panels could provide visual communications services between people.

To explore the potential of the dis-

play system, the scientists placed 8- by 4-inch panels in two telephone housings. Connected to a computer, and using the light pen as a pencil or pointer, this laboratory system can:

- Record a person's signature, and then display it on command.
- Reproduce pictures and charts at the rate of a few per minute.
- Display a list of telephone numbers, and simulate dialing the one pointed to with the pen.

- Serve as a desk-top calculator.
- Display the time and date on command from the user.
- Display a typewriter keyboard, allowing "hunt-and-peck" entry of data into a computer.

Bell scientists are working to reduce the control-circuit costs, and lower the power needed to light the panel. The system is in the research stage, and the Bell System has no plans now to offer it to customers. □

Putting pen to panel, Eugene Sampiere and Peter Ngo (right) of Bell Laboratories demonstrate a flat-screen video device that can be used to transmit handwriting instantaneously, reproduce pictures, and communicate with a computer. Such a device—still experimental—may help people interact with machines more effectively, as well as provide visual communications over ordinary telephone lines.

