

Experimental Electronic Telephone Revealed

News of Customer Equipment Development

An experimental model of tomorrow's telephone—smaller, lighter and largely electronic—was unveiled on April 17 by H. I. Romnes, Board Chairman, at the American Telephone and Telegraph Company's Annual Meeting in Boston.

The phone of the future makes extensive use of new integrated circuitry developed at Bell Telephone Laboratories. It performs even better than today's phones and can lead to economies in the overall operation of the telephone network, Mr. Romnes said. Although the model shown is radically different in design, he stressed "its significance is the advance in technology."

The slim handset of the experimental telephone weighs less than one half as much as the handset in today's phone. It is two inches wide at the earpiece and tapers to one inch at the mouthpiece. Buttons for TOUCH-TONE® dialing are directly behind the earpiece.

Mr. Romnes said the set shown today was still an early exploratory version. It will be offered in a variety of styles—wall phones as well as desk sets—when it becomes available.

The experimental electronic telephone was developed by Bell Telephone Laboratories with industrial design collaboration by Henry Dreyfuss and Associates.

A new electromagnetic microphone

and its amplifying circuit are about one fourth the weight of the conventional carbon microphone used in today's telephones, occupy much less space, and reproduce the human voice even more faithfully.

This experimental electronic telephone is a first model from which the final models to be manufactured will evolve. Before the development is completed, extensive laboratory and field studies will determine the changes necessary to produce the best possible electrical and physical design consistent with low manufacturing cost and high reliability.

The small size of individual components in the electronic telephone allows the designers of the new set much greater freedom than before in determining the size, weight, and shape of the overall structure. Thus it is expected that human factors, such as appearance, convenience, comfort, and proper use, will play a more important role in the design of the electronic telephone than ever before.

The electronic telephone uses hybrid integrated circuits, combining silicon technology primarily for active devices (transistors and diodes) and tantalum thin films for conducting paths and for passive components (resistors and capacitors). Several of the integrated circuits will evolve from circuits that are now being introduced into other telephones.

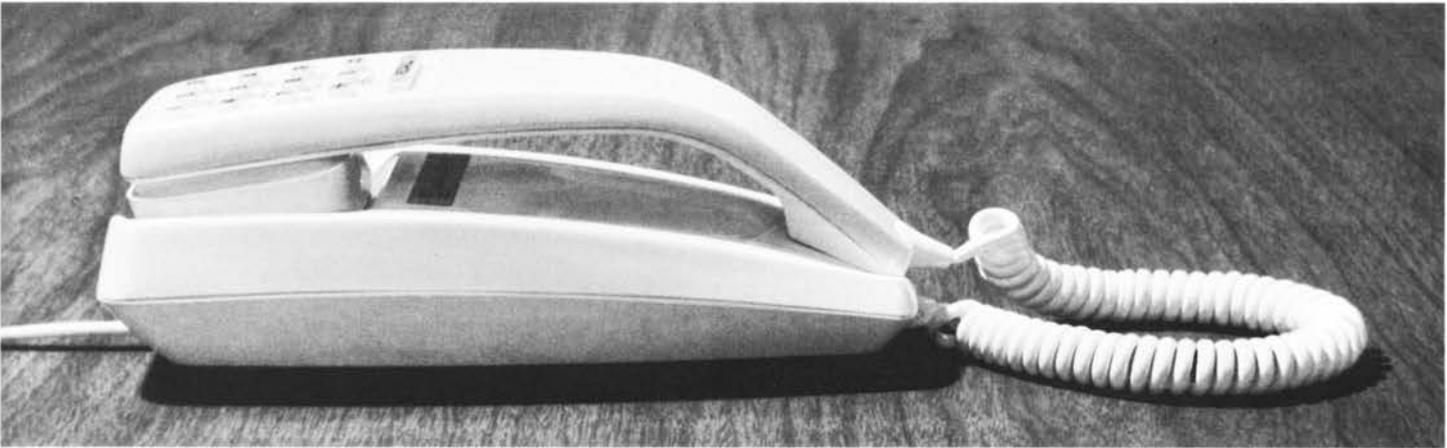
The experimental model shown at the shareholders' meeting had plastic foam injected into the handset and the base to support and protect the internal integrated circuits against mechanical shock. The foam and plastic shell provide strength and rigidity while maintaining light weight.

An electronic tone ringer in the base of this model is smaller, requires less power, and provides a more distinctive signal than the electromechanical bells now used.

A new switchhook in the experimental telephone can be depressed by only one ounce of force, a design requirement necessitated by the lighter handset.

The electronic telephone has several new features less immediately apparent to the user. Control circuits in the handset maintain voice loudness at appropriate levels over a wide range of distances between the central office and the customer. Because of its great versatility, the new telephone opens new vistas in the design of future switching and transmissions systems that may lead to many new and improved services.

The electronic telephone will take its place as the most modern of a series of telephones introduced by the Bell System in the past, including the PRINCESS® telephone, the TOUCH-TONE telephone, and, most recently, the TRIMLINE® dial-in-handset telephone.



An experimental electronic telephone shown at the annual AT&T shareholders meeting in Boston was developed by Bell Laboratories with design consultation by Henry Drey-

fuss and Associates. Tests and further development will probably lead to extensive changes in this new telephone. The handset of the new telephone weighs about 4 ounces.



The electronic telephone, which is still only an experimental model, will undergo extensive laboratory and field



studies before development is completed. Human factors, such as appearance, convenience and use will affect design.