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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Atomic Debris Detection

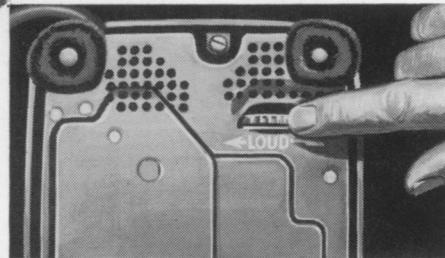
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A SCIENCE SERVICE PUBLICATION

It
adds
miles
to your voice



New "500" telephone. It has already been introduced on a limited scale and will be put in use as opportunity permits, in places where it can serve best. Note new dial and 25 per cent lighter handset.



Adjustable volume control on bottom of new telephone permits subscriber to set it to ring as loudly or softly as he pleases. Ring is pleasant and harmonious, yet stands out clearer.

For years the telephone you know and use has done its job well—and still does. But as America grows, more people are settling in suburban areas. Telephone lines must be longer; more voice energy is needed to span the extra miles.

Bell Telephone Laboratories developed a new telephone which can deliver a voice ten times more powerfully. Outlying points may now be served without the installation of extra-heavy wires or special batteries on subscribers' premises. For shorter distances, the job can be done with thinner wires than before. Thus thousands of tons of copper and other strategic materials are being conserved.

The new telephone shows once again how Bell Telephone Laboratories keeps making telephony better while the cost stays low.

**BELL TELEPHONE
LABORATORIES**



Improving telephone service for America provides careers for creative men in scientific and technical fields.

QUICK FACTS ON NEW TELEPHONE

Transmitter is much more powerful, due largely to increased sound pressure at the diaphragm and more efficient use of the carbon granules that turn sound waves into electrical impulses.

Light ring armature diaphragm receiver produces three times as much acoustic energy for the same input power. It transmits more of the high frequencies.

Improved dial mechanism can send pulses over greater distances to operate switches in dial exchange.

Built-in varistors equalize current, so voices don't get too loud close to telephone exchange.

Despite increased sensitivity of receiver, "clicks" are subdued by copper oxide varistor which chops off peaks of current surges.

What GENERAL ELECTRIC People Are Saying

G. E. HENRY

General Engineering Laboratory

CLEANING WITH SOUND: It is now some twenty-five years since Wood and Loomis first demonstrated the remarkable physical and chemical effects of high frequency, high power, sound in liquids. People have been busy, during this time, looking for ways to turn these effects to practical advantage, especially in the chemical industry. During the last three or four years, however, the most notable advances have been made not for the chemical producer, but for the metal-working industries—specifically for those engaged in small-parts fabrication. High power ultrasonics offers the best means yet devised for cleaning these small parts.

An instrument ball bearing, a small pump fitting, or some other precision made work piece is immersed in a solvent; a high frequency sound wave beamed through the solvent strikes the metal surface and removes almost instantly any film of oil or grease, together with dirt, chips, or other foreign matter.

There is no longer any question of the superiority of ultrasonic cleaning when the characteristics of the work piece and the economics of production are favorable for the application of the new method. The great question remaining is how far the method can be extended to include different kinds of parts—how large a proportion of the total metal cleaning business can be profitably handled with ultrasonics.

*IRE, Evansville—Owensboro Chapter
Owensboro, Ky.*



W. R. G. BAKER

Electronics Division

ELECTRONICS TOMORROW: Human qualities being what they are, man has always had a great interest in the future.

What electronics will do for us tomorrow, or next year, or 50 years from now depends only partially on the state of the art, or the advancement of our knowledge about electronics. It depends upon what

we know about electronics, certainly, but it also depends greatly upon our economic circumstances and our political atmosphere.

Broadly, this is the promise that electronics holds for us. It offers us a means to increase productivity and therefore our standard of living. It offers us quicker and better methods of communications in all areas of industry, commerce, education and entertainment. It offers us a way of making better use of our skills. It offers us a way of bolstering our defenses against aggression.

These promises will not turn into reality automatically and without effort on our part.

They call for investment on our part not only of capital funds but of human resources. We must make it possible for greater numbers of young men and women to receive the education and training that will permit them to participate in this more highly technical civilization and to contribute to its continued growth. We must continue to invest in research, to broaden the basic knowledge on which we can build a stronger economy.

There is one other area in which engineers can make a contribution to the advancement of this country's strength and its future. Science cannot guard against the intellectual germ warfare being carried on by the proponents of the "something-for-nothing-isms." Engineers cannot design electronic devices or atomic weapons to protect against this type of infiltration. But engineers can make certain that their economic and political education advances in step with their technical education. The ability to separate truth from propaganda is as important as the ability to separate scientific fact from misinformation. Your future may depend on your ability to do both.

*Institute of Radio Engineers
Washington, D. C.*

J. J. FITZGERALD

Knolls Atomic Power Laboratory

SAFETY IN NUCLEAR OPERATIONS: Waste gases as finally discharged into the air, from the Knolls Atomic Power Laboratory at Schenectady, N. Y., are no more radioactive than the normal surrounding atmosphere and in many instances are even less radioactive.

These gases are discharged through a 100-foot stack, and are constantly monitored to make sure that the concentration of radioactive material is kept well below permissible limits.

Constant air monitors are located at selected sites to check the radioactive concentrations at various points near ground level. Plant samples also are analyzed on a regular schedule to evaluate the accumulation of radioactivity on vegetation.

Waste radioactive gases and smokes from the working areas are first passed through a "scrubber," in which a caustic solution washes out the larger radioactive particles as well as the more volatile components. Next they go through a high-efficiency filtering system, which removes more than 99.9 per cent of the small amount of radioactive material left. The air that remains is diluted, from a thousand to ten thousand times, with filtered air from the ventilating system of the building, and then is discharged through the stack.

Normal atmosphere contains measurable but harmless quantities of radioactive elements, and these produce radioactive particles which are also removed by the filtering process.

As a result, in many instances the effluent from our stack is cleaner than the atmosphere itself.

*AIEE
New York City*

You can put your confidence in—

GENERAL  ELECTRIC