

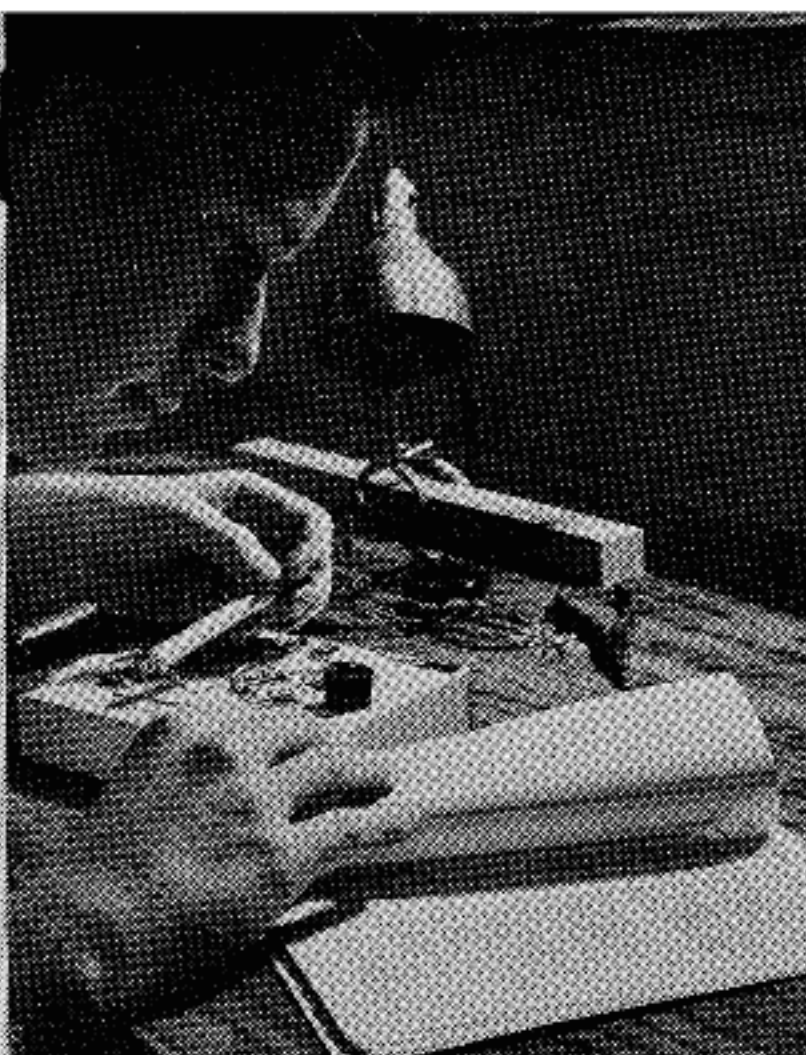
*“Put together by scientists and science teachers, these resources offer educators a unique opportunity to expand their effectiveness.”*

Robert H. Carleton, *Executive Secretary, National Science Teachers' Association*



These “Aids to High School Science” have been demonstrated before educational leaders throughout the country and Mr. Carleton reflects the educators’ enthusiastic approval.

If you would like to obtain further details about these teaching aids, contact your local telephone office. They will be happy to assist you.



bell system

**aids to high school science**



## A MACHINE THAT DEMONSTRATES SIMILARITIES IN WAVE BEHAVIOR

For the first time, here's a simple device to demonstrate wave motion. Made up of iron rods clipped to a center rod and mounted on a wooden base, the machine shows similarities in wave behavior — a subject basic to the understanding of physics.

The wave behavior package is made up of five parts — the wave machine; a lecture for use in demonstrating it; a film in which the machine's inventor, Dr. John N. Shive of Bell Telephone Laboratories, uses it to help explain the fundamental physics of wave motion; and teachers' and students' editions of Dr. Shive's book, "Similarities in Wave Behavior."

Physics instructors can build their own wave machines from detailed instructions provided in Dr. Shive's book. However, at the request of educators who evaluated the package, factory-made machines have also been made available. They can be purchased direct from the manufacturer in two forms — assembled or in kit form to be assembled by students.

The other parts of this package are available through your local telephone company.

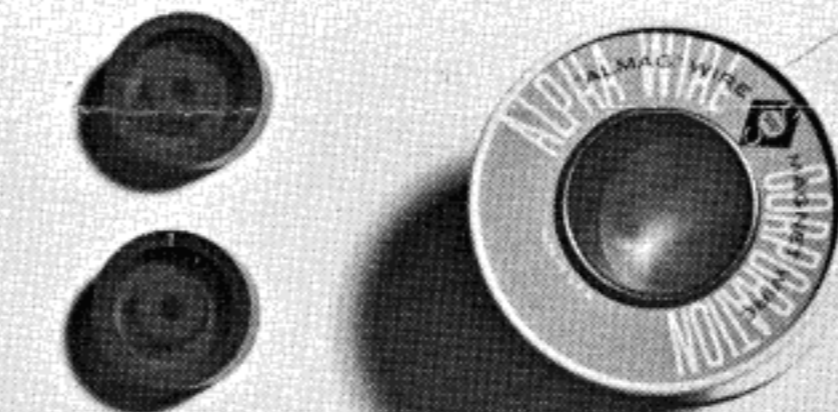
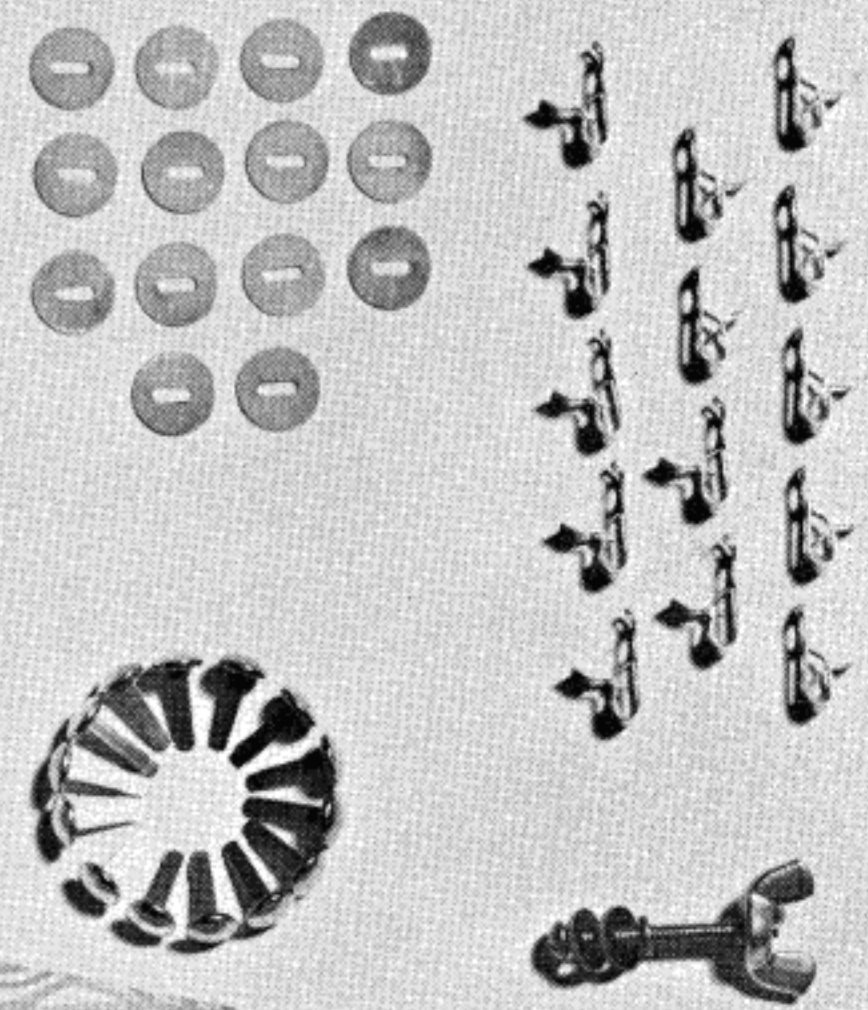
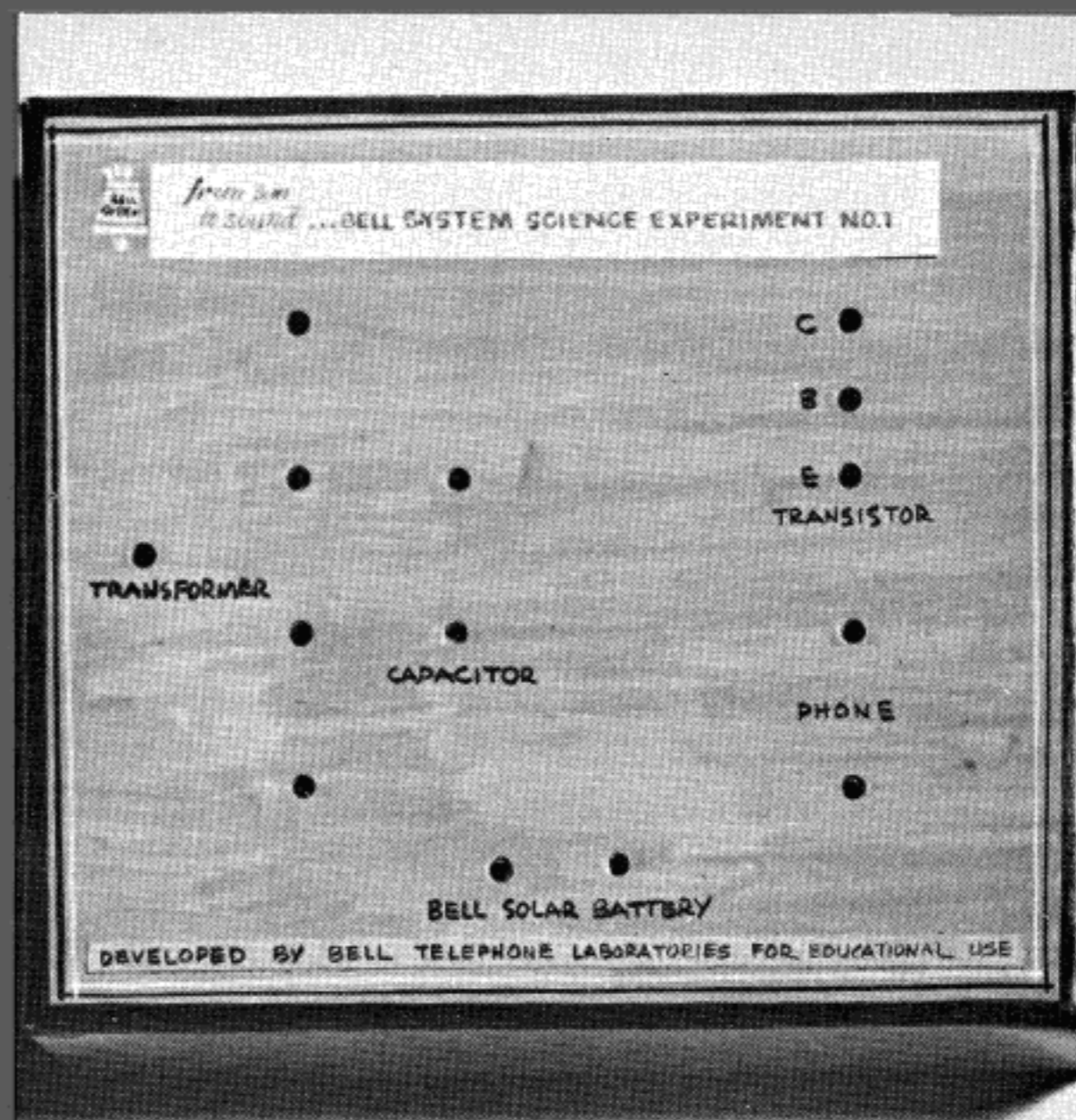
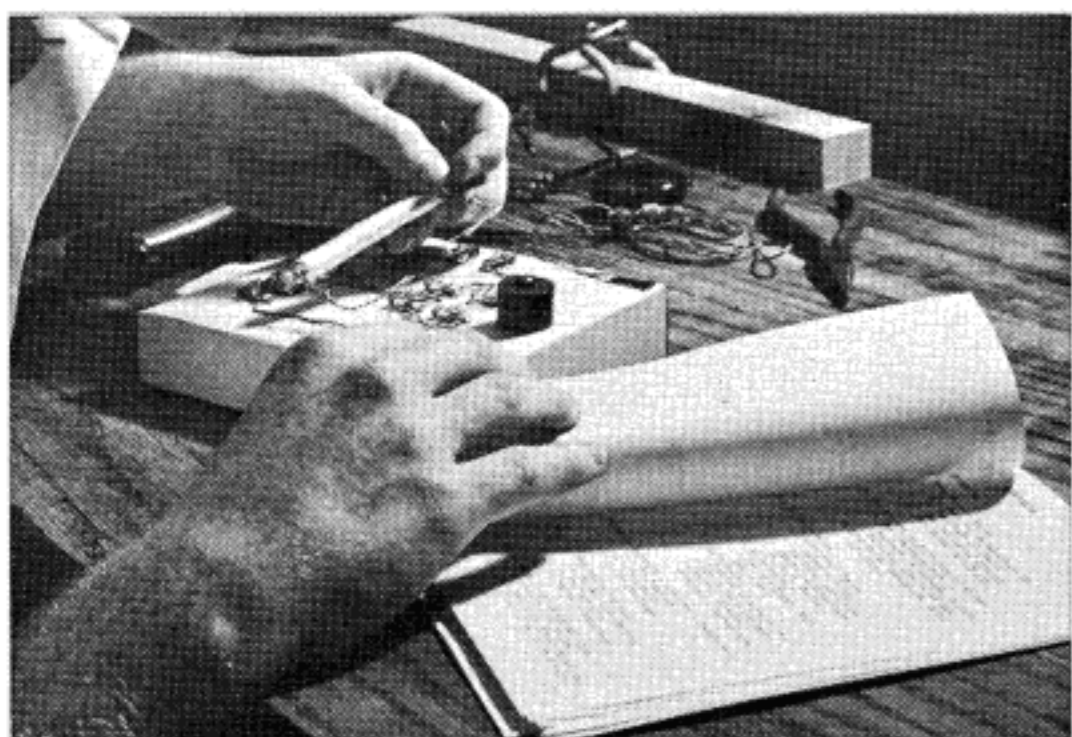
## "FROM SUN TO SOUND"

Developed for advanced high school science students, this package contains materials and information necessary for the design and construction of a solar-powered, transistor audio-oscillator similar to those used to send back information from outer space. "From Sun to Sound" incorporates the theory of such new devices as the transistor and solar battery and can be adapted by the imaginative student for more than one experiment.

The package contains an information booklet, a coil of copper magnet wire and core material for a transformer, a solar cell, a Western Electric transistor, and a mounting base and mounting clips. To complete the original experiment, the student must provide an earphone and the wax paper and aluminum foil necessary to build a capacitor.

The information booklet does not give step-by-step instructions for completing the experiment. The student studies the background information, then applies the necessary mathematics for successful completion of the experiment.

The "From Sun to Sound" package is available free in limited quantity from your local telephone company.



**THE TRANSISTOR**  
The transistor is probably "old stuff" to you now, but it was very new back in 1948 when it was invented at Bell Telephone Laboratories. Scientists at the time predicted a great future for it in science, and they were right. Today, however, their prediction came true only because a way was found to economically and reliably reproduce this "laboratory curiosity" in large numbers. The way was found by the transistor.

**THE BELL SOLAR BATTERY**  
A three-man team of scientists — a chemist and two physicists — invented the Bell Solar Battery at the Bell Telephone Laboratories. They made their discovery while doing basic research on the properties of silicon, one of the earth's most abundant elements. The discovery was announced to the public during April, 1954.  
In the fall of 1954, a Solar Battery

