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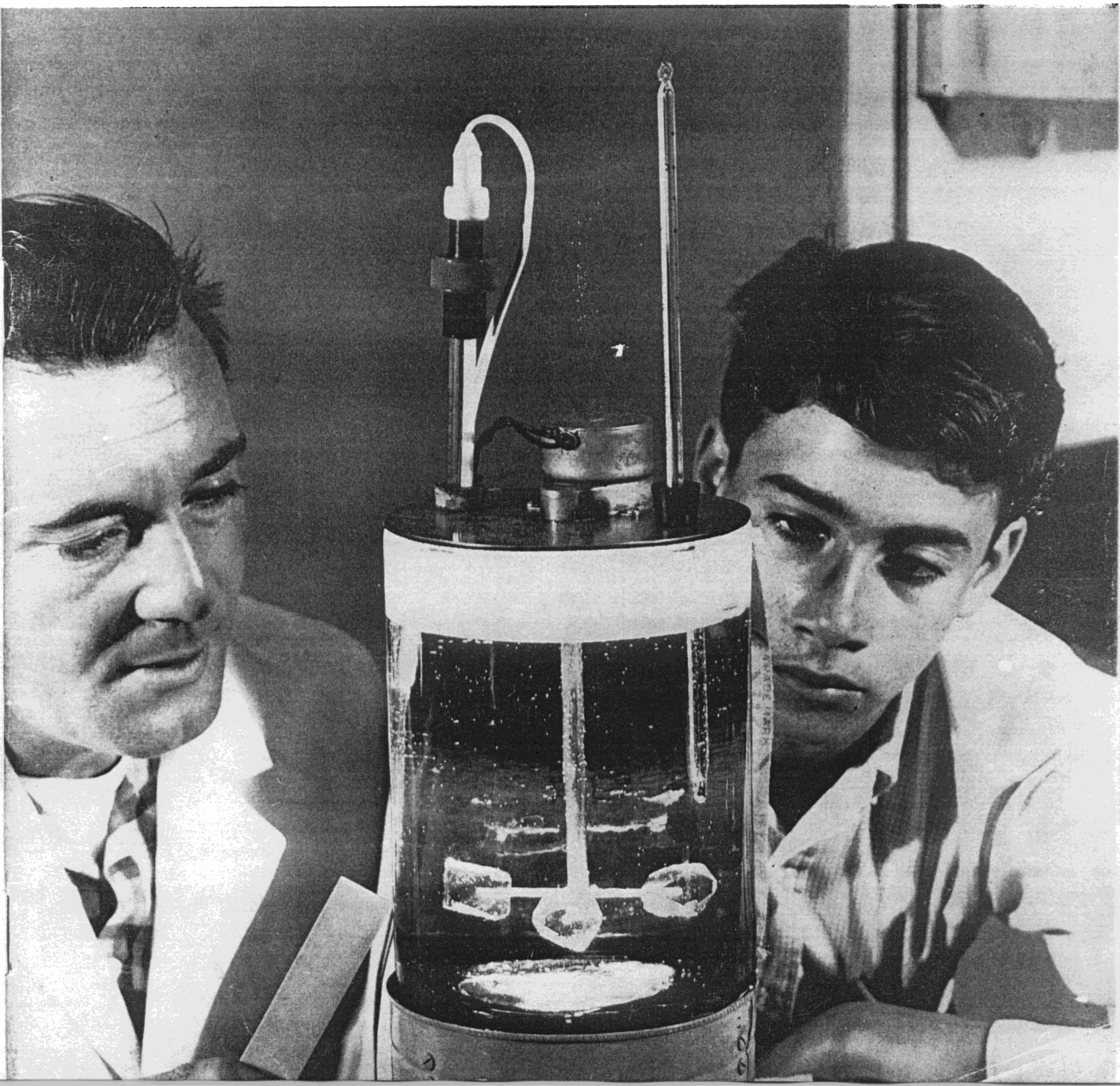
COVER STORY—NEW BELL
SYSTEM TEACHING AIDS, PAGE 20.



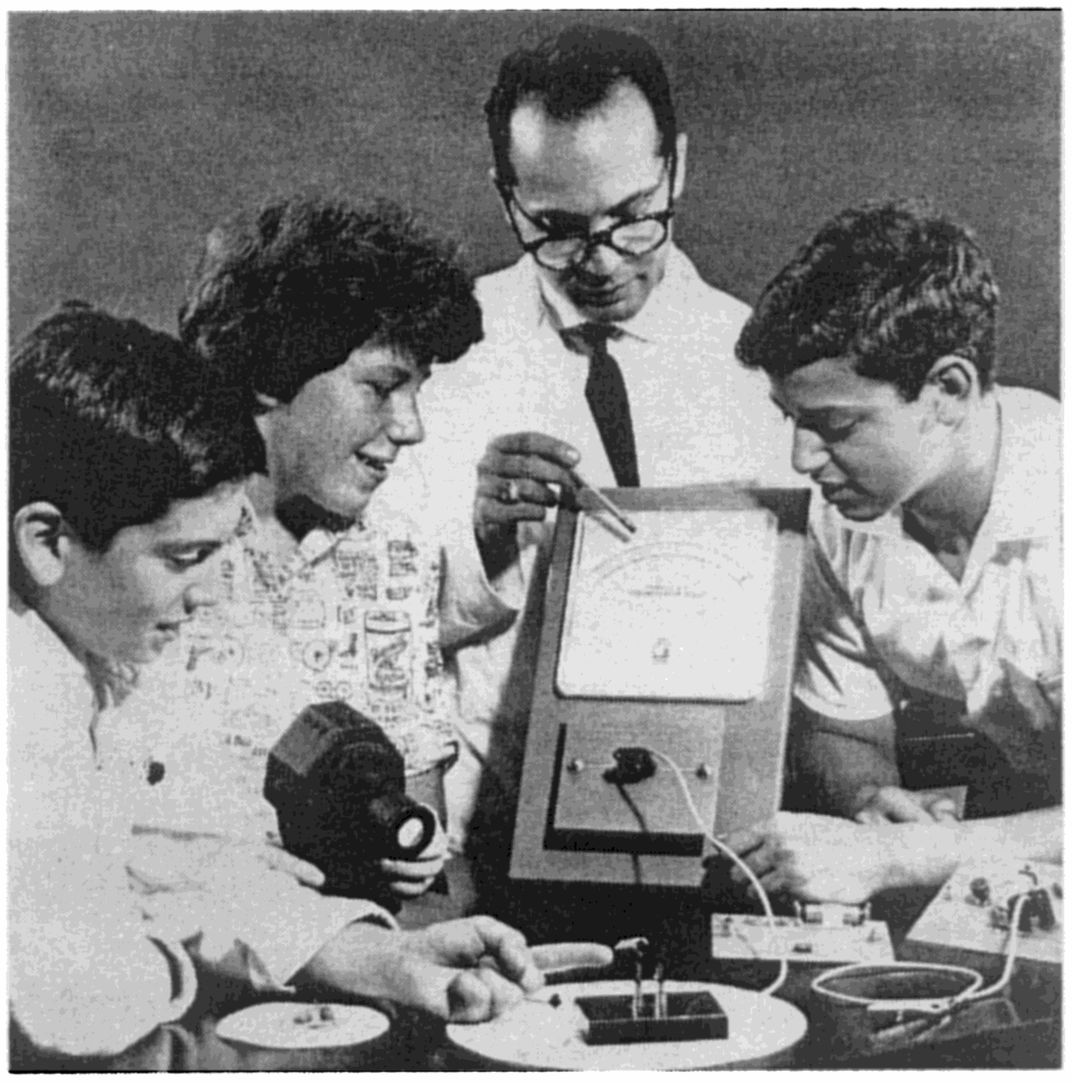
■ NEW BELL SYSTEM science teaching aids are now being introduced to the nation's high school and elementary grade teachers.

Representatives of local Bell companies currently are making the high school presentations, which deal with semiconductor physics and crystallography.

Now in its fifth year, the Bell System's "Aids to High School Science" program is intended as a concrete contribution to education in areas where Bell scientists are particularly competent.

These new science aids include two units designed for the teacher to use with the entire class, and a self-contained science experiment for the unusually able or interested student.

One of the new teacher-oriented units explores semiconductor physics, a subject of increasing importance in science and technology. It includes a book for teachers and students about



Demonstration apparatus in Bell semiconductor physics unit for high school science shows basic properties of semiconductors, conductors and non-conductors, demonstrates temperature coefficient of resistance, rectification, thermal effects.

Bell System Has New Teaching Aids For High School, Elementary Science

New Bell System elementary teacher aids on communications available free or on loan from Bell companies. At upper left, Teletrainer amplifying unit which connects the two telephones, and produces dial tones, ringing and busy signals. Other materials pictured are the 25-minute film, "We Learn About the Telephone"; four film strips, three wall charts, pupil's booklet and teacher's guide.

electrical conduction, a manual of experiments designed to acquaint the class with the principles of electrical conduction and semiconductor action, and a device for demonstration of the basic properties of semiconductors, conductors and nonconductors.

Also for the high school level, a 15-minute color film, "The Genesis of the Transistor," has been produced for the unit. The film tells the story of the discovery of the "transistor effect" and subsequent invention of the transistor. Done in direct, documentary style, it places emphasis on experimenting, rather than on details of experiments.

Rotary Crystallizer Aid

The other teacher's aid being introduced in the new program is a rotary crystallizer tank (See cover photo), a precision apparatus in which a class can grow large, nearly perfect crystals of various water soluble salts, such as sodium chlorate or nickel sulfate.

The new experiment for advanced

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tomer service of the highest quality.

A program for operator progress not only provides opportunities for answering the operator's natural questions of "What is expected of me?" and "How am I doing?" but also for answering still a third important question she is sure to ask, "HOW CAN I IMPROVE?"

The operator-centered approach of a program such as this, helps the operator realize that the only real answer to her final question lies within herself. Her progress toward meeting, and even exceeding expectations lies in her interest in the job and the company, and in her sincere desire to improve. ■ ■

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Success or failure in business is caused more by mental attitudes than by mental capacities.—Walter Dill Scott.

BELL SCIENCE AIDS

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students also concerns crystallography, although it teaches about light as well. It is in kit form with parts the student can assemble into a simple polarizing microscope; samples of mica, calcite, ADP and several other crystalline materials with which the student can experiment; a book of experiments; and a reference book. The unit is called "Experiments with Crystals and Light."

Classroom materials introduced in the past three years are also available through local Bell Telephone business offices. These are called "Similarities in Wave Behavior," "Theory of Ferromagnetic Domains" and "The Speech Chain."

Experiments for advanced students, available through Bell companies, also include: "From Sun to Sound," "Solar Energy Experiment" and "Speech Synthesis Experiment." More than 120,000 of these three units already have been given by telephone companies to high school teachers for their budding young scientists.

Bell's "Aids to High School Science" program last year won the National Science Teachers Association's Business-Industry Section award for "excellence in industrial aid to education."

New Elementary Program

The Bell System's new elementary teaching program, to replace the classroom aids that have helped teach more than 30 million youngsters about communications in the last 15 years, is called "Telezonia."

This latest Telezonia package consists of a live-action and cartoon-animation color film called "We Learn About the Telephone," and expanded supplementary teaching aids.

Bell officials say the 25-minute film is more comprehensive than the earlier "Adventure in Telezonia" movie, because it covers many more aspects of communications—including basic science—of interest to youngsters old enough to answer the telephone or to make a telephone call.

The new film tells the story of a nine-year-old boy and his four-year-old sister who are visiting their uncle on a rainy day. While waiting for the rain to stop so they can go on a picnic, the children become interested in the telephone.

Their uncle, an artist, draws cartoon characters who help teach the youngsters, and the viewing audience, some communications history, the basic science of sound and how the telephone works, the proper way to use the telephone and telephone courtesy, and how to find a number in the telephone book.

When the rain stops, a visit to the police station on the way to the picnic grounds gives the children an opportunity to learn how to dial for help in an emergency, and creates an appreciation of the importance of the telephone in

the community.

Although comprehensive enough to be used alone according to Bell, the film is supported by a variety of materials. There are four filmstrips designed to tie in with curriculum units in language arts, social studies and science. They enable a teacher to discuss in-depth telephone usage and courtesy, communications and the community, alphabetizing and directory usage, sound and how the telephone works.

Three wall charts and a take-home booklet for pupils also review and expand on the subjects presented in the film and filmstrips.

It is explained that the teacher's guide is shorter and better organized than the one in the former elementary program. It also includes suggested classroom activities and elementary science experiments.

An additional feature of the Telezonia program is the Teletrainer, an amplifying and control unit that produces dial tone, ringing and busy signals, and connects the two working telephone sets provided with the unit.

It is suggested that a grade school teacher may prefer to use a single teaching aid and nothing else in the package, but each aid is designed to support and relate to other items.

The new Bell Telezonia program was developed with the help of the National Education Association, the U. S. Office of Education and classroom teachers. It is directed to the lower elementary grades, but the specific grade level at which the materials are used remains the decision of each school.

All Telezonia materials are available through local Bell Telephone Co. offices. Some Independent telephone companies have also made arrangements to make the teaching aids available to schools in their communities.

Any Independent telephone company interested in information about any of these teaching aids to science should contact the Bell-Independent Relations department at the nearest Bell System company. ■ ■

Chilean congress. A new congress will be elected Mar. 7, but will not convene before May.

Harold S. Geneen, chairman and president of ITT, said that the agreement would enable the company to install 185,000 new telephones in Chile between now and 1970. This and an expansion of long distance facilities will be carried out at a cost of $125 million.

Financing of the program will come primarily from subscriber investment, funds from the Chile Telephone Co. and internal sources. A small amount will be sought through loans from international lending institutions outside Chile.

The agreement provides for the company and the Chilean Development Corp. (Corfo) to obtain "specific and extended risk guarantees as may be required for external financing under the terms of the United States Agency for International Development program."

Other clauses in the agreement stipulate:

An expansion of the manufacturing capacity of Standard Electric of Chile, an ITT affiliate, to produce equipment for the accelerated telecommunications program.

An interconnection of facilities of the telephone company and the national telecommunications network (Empresa Nacional de Telecomunicaciones, S.A.). The telephone company will provide voice service with the telecommunications network providing record or telegraph service on a non-competitive basis.