

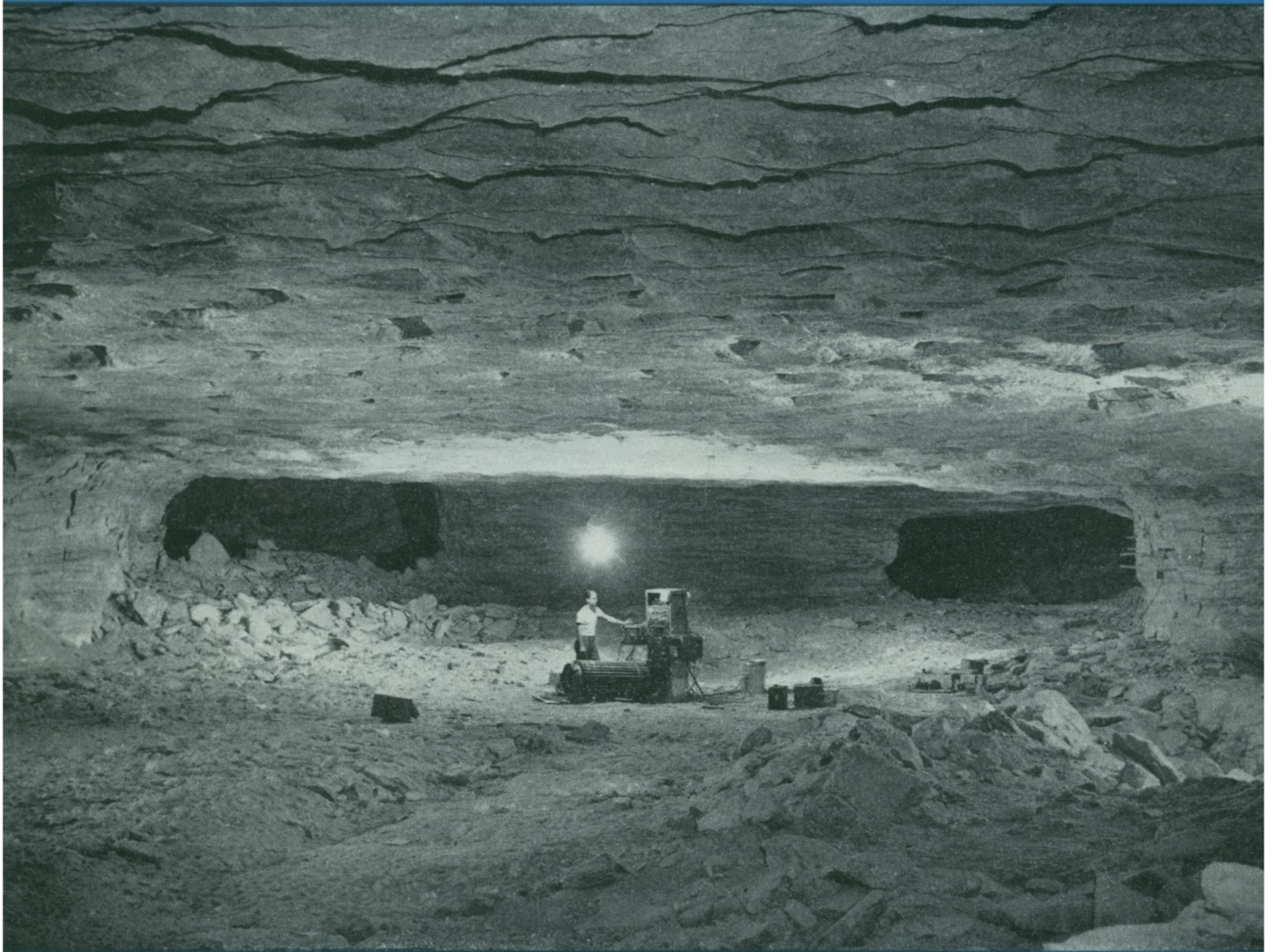
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NOVEMBER 5, 1949

SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



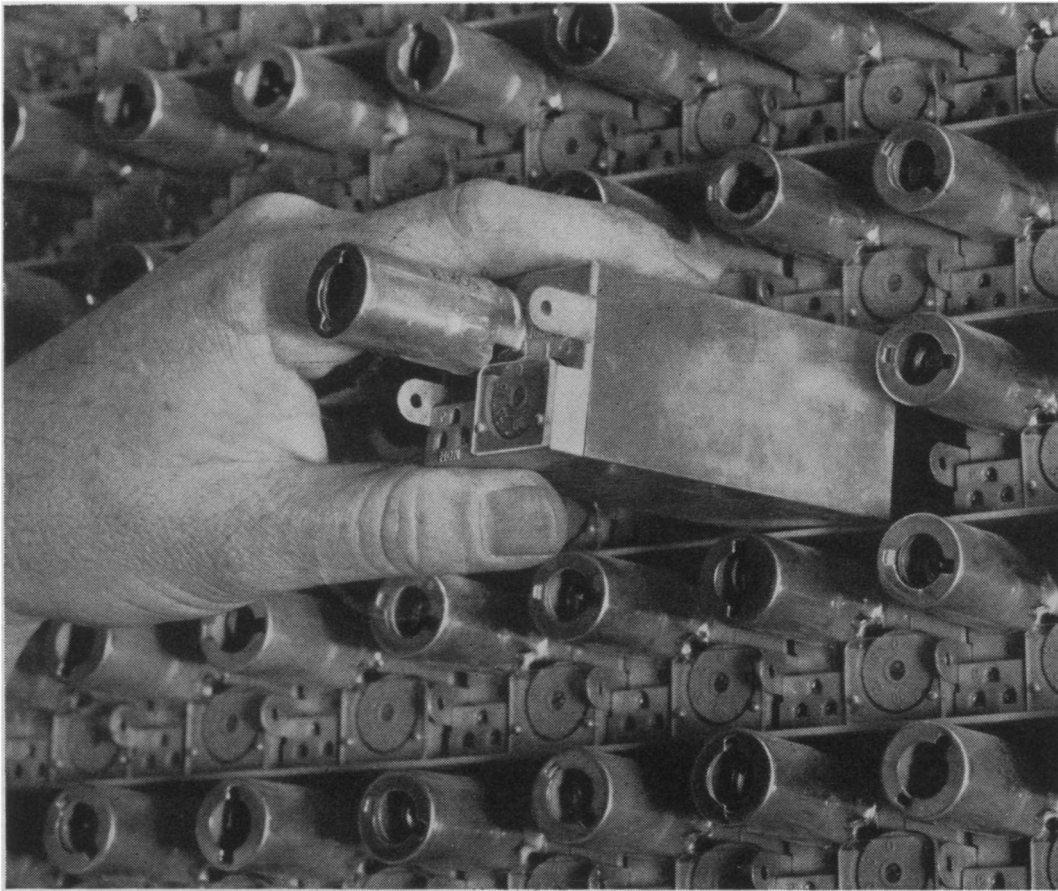
Unearthing Cosmic Rays

See Page 292

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ANOTHER SCORE IN THE

battle of the inches

It takes many costly buildings to house your telephone system. Every inch saved helps keep down the cost of telephone service. So at Bell Telephone Laboratories engineers work constantly to squeeze the *size* out of telephone equipment.

In the picture a new voice frequency amplifier is being slipped into position. Featuring a Western Electric miniature vacuum tube, tiny permalloy transformers, and special assembly techniques, it is scarcely larger than a single vacuum tube used to be. Yet it is able to boost a voice by 35 decibels. Mounted in a

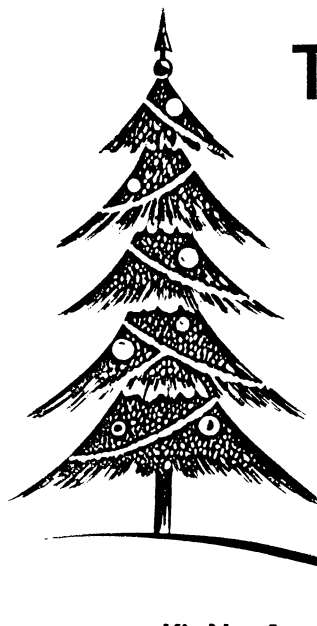
bay only two feet wide and 11½ feet high, 600 of the new amplifiers do work which once required a *room* full of equipment.

This kind of size reduction throughout the System means that more parts can be housed in a given space. Telephone buildings and other installations keep on giving more service for their size — and keep down costs.

The new amplifiers, which will soon be used by the thousands throughout the Bell System to keep telephone voices up to strength, are but one example of this important phase of Laboratories' work.

BELL TELEPHONE LABORATORIES *Exploring and Inventing, Devising
and Perfecting, for Continued Improvements and Economies in Telephone Service*





Three Christmas Gift Ideas for EAGER- MINDED CHILDREN

Kit No. 1

FUNdamentals of Science MAGNETISM AND ELECTRICITY

Equipment and instructions for 56 experiments on magnetism (making a compass for instance), static electricity, the electrophorus, the electro-scope, making a condenser, electric currents, making a galvanometer, and electroplating are contained in this kit.

Specifically, the equipment consists of: MAGNETISM—Horseshoe-type Magnet, Package of Iron Filings, Compass Card, Lodestone. STATIC ELECTRICITY—Sealing Wax, Metal Foil, Pyrex Test Tube, Fur, Cornstalk, Gold Leaf, Metal Disk and Sheet of Acetate Film for Electrophorus. CURRENT ELECTRICITY—Zinc Strip, Coil of Insulated Copper Wire, Carbon Rod, Sal Ammoniac. ONE PARTS BOX CONTAINING—a compass bearing, steel needles, steel pins for compass, gummed strips, soft iron nail, cork disks, ball bearings, straw, ball and pin for electro-scope.

Kit No. 2

FUNdamentals of Science BLACK LIGHT AND GLOWING MATERIALS

26 experiments on fluorescence, phosphorescence, and glowing paints are suggested in the instructions for this kit, along with how to use fluorescent material in crime detection and how to get stroboscopic effects.

Specifically, the equipment consists of: SIX MINERAL SPECIMENS—Wernerite, Semiopal, Autunite, Green Fluorite, Willemite, Brown Fluorite.

SEVEN VIALS OF GLOWING MATERIALS: Fluorescent—Deep Yellow, Blue-Green, Cerise, Light Yellow; Phosphorescent—Light Green, Gray-white; Special—Greenish Gray-tan. One Vial of Gum Arabic, AND A fluorescent golf tee, a brush, a star map, a stroboscope, a picture (for coloring). One 110-Volt Argon Lamp—Rich in ultra-violet.

Kit No. 3

FUNdamentals of Science SOILLESS GARDENING

This kit has the instructions and the equipment for a soilless garden in the house or in an apartment without regard to weather. How to plant seeds, how to water and feed them, how to transplant, about water culture, sand culture, soilless gardening on gravel or cinders, about deficiency symptoms, about seedless fruit hormone, and how to produce seedless tomatoes, and how Hormodin is used—all this knowledge is in the Soilless Gardening Kit.

There are suggested experiments with sprouting seeds, and how to speed germination; on the importance of chemicals and how plant roots produce acid; about phototropism and geotropism; how to grow carrots upside down; how to perform tricks with plants (changing the length of day) and what total darkness does to plants; what light versus gravity does, colored light, and the use of colored tents.

Specifically the equipment consists of: One dozen green POTS (that you can assemble); COLORED CELLOPHANE sheets to be used in light and growth experiments; CHEMICALS your plants will need—potassium acid phosphate, magnesium sulfate, calcium nitrate, ferrous sulfate; Seven kinds of SEEDS—Russian sunflower, Earliana tomato, Globe radish, Dwarf nasturtium, Okra, Soya bean, Ornamental gourds; Box of VERMICULITE; Plant Breeding Material—HORMODIN, SEEDLESS FRUIT HORMONE.

Each kit comes in a colorful, sturdy, wooden box with metal clasps, each kit is expertly wrapped for shipping in corrugated board and heavy kraft paper. Each kit contains the materials (as listed above) for scientific experiments and a book of instruction that is carefully written for easy reading. But most important, each kit contains hours of concentrated enjoyment and new worlds of understanding. Each kit costs \$4.95.

Fill in the coupon at the left, detach and mail today, indicating whether you wish the kits sent direct to your favorite mentally energetic child, or to yourself.

Christmas Order Blank

Science Service, 1719 N Street, N. W., Washington 6, D. C.

Please send, postpaid, to arrive in time for Christmas, FUNdamentals of Science Kits as indicated below, and include with each the special Christmas Card with my name on it as donor.

\$ _____ (\$4.95 per kit) is enclosed.

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