

## ENGINEERING

**Kerosene Lamp Powers Transistor Radio Set**

► THE KEROSENE lamp, a museum curiosity to many of today's younger set, has been given a new lease on life by Dutch engineers who have made it power a completely batteryless radio.

The radio set has seven transistors and a loud speaker that gives adequate room volume when connected up to a device called a thermopile, a series of thermocouples mounted on the top of a burning kerosene lamp.

The thermopile consists of a stack of open-centered discs, like thin doughnuts, that can convert heat into electricity. They are made up of a series of wires or bars of two electrical conductors of different resistances. These are welded end to end alternately, and they produce a small electric current when one end of the joint is heated and the other is cooled.

To get more heat from their experimental lamp, the engineers slipped the discs down over a shortened lampglass, added a Welsbach incandescent mantle to make the lamp burn brighter, and put a short metal chimney on top to increase the draft. With this

arrangement, the thermopile produced about 2.2 volts, less than it takes to power an ordinary flashlight, but enough for the radio.

The lamp consumes about an eighth of a pint of kerosene per hour and in the Netherlands the cost is about the same as it would be for an electric lamp, the engineers reported.

At the present time, the thermopile and radio are merely laboratory devices, an official of the North American Philips Company, Inc., Mt. Vernon, N. Y., explained.

J. van Hengel and J. Volger, Holland, reported on the thermopile-powered radio in the *Philips Technical Review*.

Science News Letter, January 26, 1957

## MEDICINE

**Hydrocortisone to Stay On Prescription Drug List**

► SKIN lotions and ointments containing hydrocortisone, the now-famous arthritic drug, and hydrocortisone acetate must remain on the "by prescription only" list of drugs, the Food and Drug Administration has announced.

The order ends the year-long controversy that developed between pharmaceutical companies and the medical profession over whether or not the drugs were safe enough to be sold over-the-counter for skin ailments.

The available evidence fails to show that the drugs are safe for use without medical supervision, the new order states, particularly in regard to how much hydrocortisone can be safely absorbed by the skin.

The FDA had originally proposed to exempt the drugs from prescription sale but received so much medical testimony warning against over-the-counter sales that it has now reversed its former proposal.

Science News Letter, January 26, 1957

## GENERAL SCIENCE

**Gnotobiotics, New Ph.D. Field**

► THEY will soon be conferring the Ph.D. in gnotobiotics at the University of Notre Dame.

Do not go to the dictionary, for the word is not there yet. Gnotobiotics is the term coined at the Lobund Institute, Notre Dame, Ind., to describe "the production and study of organisms isolated from other species or in association with recognized species."

In other words, it is the study of animals in a germ-free or germ-controlled environment. Prof. James A. Reyniers, who built up during the past two decades and who directs the Lobund Institute, has pioneered in the application of this method to medical research. He has been joined by Dr. Thomas G. Ward, co-discoverer of the APC group of viruses, as associate director in charge of graduate studies. The first candidate for gnotobiotics doctorates will begin work next September.

Germ-free animals are used to study the effects of bacterial contamination and in

investigating diseases such as cancer, radiation sickness, the common cold, tooth decay, shock, and amoebiasis.

Science News Letter, January 26, 1957

## BOTANY

**Ancestor of Red Pine In Fossil Record**

► THE POSSIBLE ancestor of the living red pine in the forests of today has been found in the fossil record of the Cretaceous sediments of Minnesota laid down more than 100,000,000 years ago.

Dr. Richard L. Pierce of the University of Minnesota department of botany reports in the journal *Science* (Jan. 4) discovery of ancient pollen that matches that of today. Dr. Pierce does not go so far as to conclude that red pine has existed as a specific entity since the Cretaceous, since its Tertiary record is unknown, but the evidence he finds "temptingly suggestive."

Science News Letter, January 26, 1957

## GENERAL SCIENCE

**More Government Money Goes to Research**

► EVERY MAJOR government agency conducting scientific research is assigned more money for the coming fiscal year than for the past one, according to President Eisenhower's budget message delivered to Congress in Washington.

The President recommended "substantial increases" for studies to improve the health of the American people and the protective health of the nation. He estimated that Federal scientific research and development programs will cost \$3,345,000,000 during the 1958 fiscal year, which starts July 1, an increase of \$364,000,000 over the current fiscal year.

The greatest part of the total, 61%, goes to the Department of Defense. Next largest cut, 21%, is assigned to the Atomic Energy Commission.

Increased emphasis on research to meet human needs in health, welfare, educational and economic terms is seen in the assignment of six percent of the total, or \$187,400,000, to the Department of Health, Education, and Welfare.

To permit support by the National Science Foundation of a greater number of promising research proposals, President Eisenhower recommended expending \$33,200,000 for its regular activities and \$9,600,000 for support of the International Geophysical Year.

Because the increasing number of airplanes must be able to fly safely and because of the whole new range of problems created by jet planes, the 1958 budget for the National Advisory Committee for Aeronautics was expanded almost \$12,000,000 over 1957 to a total of \$86,500,000.

More than 40,000 students are being aided by the Government through training programs in the sciences and through support of scientific research, an analysis of the budget figures showed.

Science News Letter, January 26, 1957

**Have You Ever Played Nim With a Computer?****GENIAC,**

the first electrical brain construction kit, not only plays NIM but you can build over twenty-five other semi-automatic computers which display intelligent behavior, run on only one flashlight battery and require no soldering.

GENIACS are simple enough for intelligent boys and girls to put together yet interesting to anyone because they demonstrate in easily constructed models a fascinating variety of computing and reasoning circuits.

GENIAC is the result of five years of development by prominent computer designers to bring experimental reasoning machinery within the budget of the amateur scientist.

Some of the 33 GENIACS you can build from the completely detailed instruction manual are:

LOGIC MACHINES: Comparing; Reasoning;

Sylogism Machine; Intelligence Tester.

GAME PLAYING MACHINES: Tic-Tac-Toe;

Nim (Think you can beat the machine?)

ARITHMETICAL MACHINES: (Binary and

Decimal): Adder; Subtractor; Multiplier;

Divider; Arithmetical Carrying.

CODE MACHINES: Secret Coder; Secret De-

coder; Combination Locks.

SIMPLE MACHINES: Burglar Alarm; Auto-

matic Oil Furnace Circuit.

PUZZLE SOLVERS: The Space Ship Airlock;

The Fox, The Hen, The Hired Man and the

Corn; The Uranium Shipment and the Space

Pirates.

ACTUARIAL: Douglas MacDonal's Will.

GENIAC parts are specially manufactured to high tolerance; they include a special six deck switch of unique design and over 400 components plus a sixty-four page book "GENIACS SIMPLE ELECTRICAL BRAIN MACHINES AND HOW TO MAKE THEM."

GENIAC is a remarkable buy for

**only \$19.95**

Kit and instructions are returnable for full refund in seven days. This is a perfect father and son project; your whole family and your friends will enjoy the finished machines. You can design new computers from the adaptable parts.

MAIL THIS COUPON

OLIVER GARFIELD COMPANY Dept. SL 17-D  
126 Lexington Avenue, New York 16, New York

Please send me:  
1 GENIAC Electric Brain Construction Kit and Manual.

\$19.95 (East of Mississippi) . . . . .

\$20.95 (Elsewhere in United States) . . . . .

\$21.95 (Outside the United States) . . . . .

Returnable in seven days for full refund if not satisfied. I enclose \$ . . . . . in full payment.

My name and address are attached.