

hydroponics to large-scale use. In this kit there are a dozen green pots, the chemicals the plants will need, seven kinds of interesting seeds suitable for soilless gardening use, a box of vermiculite, which is the shiny stuff that serves as soil but isn't really. In addition there are two vials of plant growth-promoting chemicals, one with which you can grow seedless fruit in your outdoors or indoors garden and the other

which you can use to promote the growth of roots on cuttings for vegetative propagation of plants.

All this material is contained in the Science Service SOILLESS GARDENING kit that will be sent postpaid anywhere in the U.S.A. for a remittance of \$4.95 addressed to Science Service, 1719 N St., N. W., Washington 6, D. C. Be sure to ask for the Soilless Gardening Kit.

Science News Letter, February 26, 1949

#### MEDICINE

## Chemical Lead to Cancer

➤ A GOOD lead toward the possibility of some day being able to do something with chemicals to cure cancer seems to have been found by scientists working with vitamins, antivitamins and related compounds.

In some cases children with acute leukemia, which is a cancer of the blood, got better temporarily following treatment with a chemical called aminopterin. But the chemical is dangerous. Some patients were lost because of the drug's toxic effects. All patients were in the last, hopeless stages of their disease before getting it. They did not recover, but the temporary improvement, or remissions, encourages the scientists to go on with research on these chemicals.

Studies on this and newer chemicals, called An-Fol-A and Amino-An-Fol, were reported by Drs. T. H. Jukes, E. L. R. Stokstad and A. L. Franklin of Lederle Laboratories, Pearl River, N. Y., at a New York Academy of Sciences symposium.

The An-Fol part of the names of these

new drugs shows that they are analogues of, or similar to, that relatively new and exciting vitamin, folic acid.

These new chemicals are also being tried, very cautiously, in two other malignant conditions, Hodgkin's disease and lymphosarcoma. And at the Sloan-Kettering Institute, the antivitamins, or folic acid antagonists, are being tried on experimental tumors in animals, in the hope of gaining still better leads to possible chemical cures for human cancer.

Antivitamins, or at least some of them, also have antihormone effect. In chicks, they can check the effect on growth of female sex hormone chemicals, Drs. R. Hertz and W. W. Tullner of the National Cancer Institute, Bethesda, Md., found.

Such interference with a hormone by an antivitamin, they think, may help both to explain the mechanism of hormone action and to develop chemicals of curative value.

Science News Letter, February 26, 1949

#### ENGINEERING

## Magnetic Alloy Developed

➤ A NEW magnetic alloy of superior properties, developed by the U. S. Naval Ordnance Laboratory, has proved exceptionally valuable in magnetic amplifiers for use instead of delicate electronic tubes. The Navy has named it Orthonol.

The Navy's interest in research in magnetism, and the development of this superior magnetic alloy, was discussed by Dr. G. W. Elmen, internationally famous scientist in the magnetic alloy field, and Edward A. Gaugler, both of the Naval Ordnance Laboratory, as guests of Watson Davis, director of Science Service, on Adventures in Science, heard over the Columbia network.

Orthonol, like others, is an iron-nickel alloy, but one in which the best magnetic qualities are brought out by a different heating treatment. The "ortho" in its name comes from a Greek word meaning rectangular, and the "nol" stands for the Naval Ordnance Laboratory.

The reproduction in this country of the German magnetic alloy known as Perme-

norm 5000-Z at the Navy laboratory was also discussed by these scientists. It was used during the war in Germany in the fabrication of huge rectifiers and applied in the electro-chemical industry. Its chemical make-up was easily determined, but the heat treatment required to bring out its best magnetic properties took several years to determine. In the year since the process was discovered, and the information released to the public, several manufacturers have started making it, and found several valuable applications. It is an important alloy, but is said to be somewhat inferior to the new Orthonol.

Without magnetic metals we would have practically no industry, Dr. Elmen declared. The transfer of electrical energy to mechanical energy would be impossible. Our vast production lines would be non-existent. We would have no electric lights, no telephones, and practically none of our modern conveniences.

The Navy's primary interest is the Nation's security, and the job of the Bureau

of Ordnance is to provide weapons for the Navy. All the research carried on by the Bureau's activities is directed toward that end. But for the efficient operation of these weapons, magnetic metals, in one form or another, are essential.

Science News Letter, February 26, 1949

#### NUCLEAR PHYSICS

## New Diagram Shows How Atom Bomb Might Be Made

➤ A DIAGRAM showing how an atomic bomb might be built has just been published.

The diagram, drawn in the form of a conventional bomb, is really more like a gun, explains Lt. Col. David B. Parker, General Staff Corps, in the ANTI-AIRCRAFT JOURNAL (Jan.-Feb.), published in Washington by the United States Coast Artillery Association.

His drawing shows a fuze and powder charge. Half of the fissionable material, either uranium 235 or plutonium, is at the end of a gun barrel and the other half is in the breech. A highspeed bullet would set off the chain reaction of the atomic bomb.

Science News Letter, February 26, 1949

#### AGRICULTURE

## Save on Pea Processing By Using Froth Flotation

➤ A PROCESS first used to concentrate ores in the mining industry is saving \$600,000 a year in the processing of peas.

The process is froth flotation in which floating is used to separate materials. Cracked peas, pea skins, nightshade berries and tar-weed seeds are now floated out of batches of peas in the way foreign material is floated out of ore.

Developed at the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry laboratory in Pullman, Wash., the froth flotation process is expected to save an estimated \$2,000,000 yearly in the future in the cost of processing peas for canning or freezing.

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### Archaeology

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