

## CHEMISTRY

**Fluorine Research Leads to Making of New Compounds**

► WARTIME IMPROVEMENTS in the technique of preparing fluorine, exceedingly active gas related to chlorine, are already resulting in the first commercial productions of fluorine compounds hitherto regarded as chemically possible but commercially impracticable. Two patents, 2,408,784 and 2,408,785, cover a process for preparing anhydrous monofluorophosphoric acid, an ingredient of effective insecticides, and useful also in certain reactions as a catalyst.

All that is necessary is to mix four or five parts of thoroughly dry metaphosphoric acid with anhydrous hydrofluoric acid, with careful precautions to exclude all moisture, and then shake at room temperature or warm gently. The resulting compound is a clear, oily liquid that somewhat resembles concentrated sulfuric acid. It becomes a glassy solid at a little below minus 30 degrees Centigrade.

Willy Lange and Ralph Livingston of Cincinnati, who claim that this compound has never been successfully prepared before, have assigned their patent rights to the Ozark Chemical Company.

*Science News Letter, October 19, 1946*

## MEDICINE

**Milk May Help Prevent Cancer of the Liver**

► FRESH MILK may play a part in preventing cancer of the liver, Dr. Cornelia Hoch-Ligeti of the Royal Cancer Hospital, London, England, suggests in a report to the American Association for Cancer Research.

Rats that got some fresh milk to drink daily were protected to a considerable extent from the development of liver tumors which these animals get when fed a cancer-causing dye.

Translating results of experiments with rats to terms of human disease is dangerous, Dr. Hoch-Ligeti points out. But cancer of the liver occurs very frequently in Africa and certain parts of Asia. Diet habits differ among inhabitants of these regions and complete information on how much milk they drink is lacking. It seems unlikely, however, that drinking milk is a daily habit of these people.

Lack of milk in the daily diet may not be the only cause of liver cancer in man. Rats on deficient diets did not develop

cancer. It took the combination of the poor diet and the cancer-causing dye to produce the cancers. Similarly in man, Dr. Hoch-Ligeti suggests, some cancer-causing agent may be concerned but its effect blocked by fresh milk in the diet.

Whatever it is in milk which protects the rats and maybe man from a liver-cancer-causing agent is not known. Apparently this unknown is destroyed when milk is dried.

Dr. Hoch-Ligeti is going to carry out further experiments to clear up the mechanism of the protecting effects of milk.

*Science News Letter, October 19, 1946*

## SEISMOLOGY

**Santo Domingo Earthquake Continues Disturbances**

► THE SANTO DOMINGO earthquake series which is still going on more than two months after the shock of Aug. 4, bids fair to set a record as one of the really outstanding earth-disturbances of the present century. A new quake in the same region, at 9:45 a.m. EST, on the morning of Oct. 4, was nearly or quite equal to the original shock of Aug. 4, according to measurements of instrumental records made by seismologists of the U. S. Coast and Geodetic Survey.

The Aug. 4 and Oct. 4 shocks were both at least as violent as the one that initiated the destruction of San Francisco in 1906, the seismologists said. Only two earthquakes since 1904 have been stronger. The first, in 1906, was on the Colombia-Ecuador boundary; the other took place in Tien Shan province of China in 1911. The one reason why the capital of the Dominican Republic, Ciudad Trujillo, has not suffered more damage from the almost continuous trembling of the earth is that the epicenter, or point of greatest disturbance, is under the sea some miles off the coast.

Experience with this notable earthquake series has stimulated Dominican authorities to set up a seismological observatory of their own, which they have hitherto lacked. They now have a temporary station, replacing one which was maintained by the U. S. Coast and Geodetic Survey for a time. They plan, however, to make a permanent installation, and also intend to send students to study seismology in the United States.

*Science News Letter, October 19, 1946*

**IN SCIENCE**

## INVENTION

**Simplified Traffic Light Eliminates Time Switches**

► A TRAFFIC light that operates with only four electric lamps, eliminates the amber warning signal, and needs no time switches is the subject of U. S. patent 2,407,382, granted to Frank T. Powers of Glen Cove, N. Y.

Instead of having fixed lamps that are lighted and extinguished by the operation of time switches, the new device has two pairs of lamps, mounted at right angles on a shaft that is turned at the proper time intervals by a motor-driven mechanism in the base. Each lamp is enclosed in a parabolic reflector, with a red or green lens or filter over its face. It is unnecessary to have an amber warning signal with this setup, the inventor states, because just before the light changes, both colors are momentarily shown, one above the other.

Obviously, with this system, two positions for the two light colors would not be necessary. It would seem desirable, however, to retain a two-position system because color-blind drivers depend on the position rather than the color of the light for their traffic information.

*Science News Letter, October 19, 1946*

## HERPETOLOGY

**Rattlesnake Dies from Bite of Rattlesnake**

► RATTLESNAKES are not immune to each others' poison, as is often claimed. Fresh evidence on this point is offered by Dr. H. K. Gloyd and W. A. Bevan of the Chicago Academy of Sciences.

Two Great Basin rattlesnakes in the Lincoln Park Zoological Garden in Chicago, they state, somehow got into a fight, and each struck the other several times. One of them, which had been bitten on the head and also on the body near the spleen, was found dead the following morning. The other suffered a badly swollen head and neck and showed signs of great distress lasting until the next day, but finally recovered.

*Science News Letter, October 19, 1946*

# CE FIELDS

## MEDICINE

### Chewing Paint on Toys Is Not Poisoning Risk

► PAINT-CHEWING children run no risk of lead poisoning, unless they attack the paint on the outside of the house, Felix E. Wormser, secretary of the Lead Industries Association, told the seventh annual Congress on Industrial Health in Boston. Cribs, toys and furniture that babies are likely to chew are not painted with white lead paint.

Lead hazards in industry and to the public are on the downgrade, thanks to modern safety precautions, Mr. Wormser said.

Prompt X-ray examination of persons stricken with convulsions and nausea will tell whether they have lead poisoning and will lessen the poison toll.

*Science News Letter, October 19, 1946*

## AGRICULTURE

### Methoxone, Weed-Killer, Increases Britain's Crops

► METHOXONE, a weed-killing chemical related to the 2, 4-D now being used in the United States, has shown itself able to increase the per-acre yield of wheat, in extensive field tests carried on in Britain during the past three years. Mobile dusting units have applied the compound to not less than 13,000 acres, which have returned harvests stated to average 22% greater than those from untreated fields.

It is known that similar experiments with 2, 4-D have been conducted on grain fields in Canada and the United States; but the more extensive tests in Britain have been spurred by the necessity for obtaining maximum food returns from this country's much smaller producing area.

The value of Methoxone as a weed-killer was discovered almost by accident, during the course of experiments on the nature of growth-promoting substances at Jeallot's Hill, one of England's leading agricultural research stations. It was found that a considerable number of these substances killed certain plants if used in sufficient concentration, but left others unharmed. Notable among the unharmed plants were members of the grass family, which includes all

grains. By a fortunate circumstance, among the most easily killed weeds are members of the mustard family, to which belong such plants as the charlocks, treacle mustard and pennycress, among the worst grainfield weeds in Britain.

It is hoped that Methoxone may prove useful also in combating malaria and the mosquito pest generally, by keeping down water-weed growths that make favorable conditions for the breeding of certain mosquito species.

*Science News Letter, October 19, 1946*

## TEXTILES

### Army All-Purpose Coat Shuts out Water, Wind

► THE POSTWAR Army has a new all-purpose coat designed to repel water and resist wind. Now under test by the Quartermaster Corps is a new trench coat with removable lining and leg attachments to protect trousers.

With an inner shell of five-ounce poplin and an outer shell of nine-ounce sateen, the coat has a liner of 21.5-ounce napped wool. The leg protectors are made of sateen and can be folded up and buttoned inside the coat when not being used. In use, the leg attachments are fastened with zippers.

The coat weighs seven-and-one-half pounds with the lining and five pounds without it. Eleven sizes of the new garment for both enlisted men and officers are being ordered, the Quartermaster Corps reported.

*Science News Letter, October 19, 1946*

## HERPETOLOGY

### Frogs Develop "Leprosy" When Kept in Aquaria

► FROGS DEVELOP a disease resembling human leprosy when kept in aquaria, Dr. S. Meryl Rose, of the Smith College zoology faculty, reports in *Science*, (Oct. 5). First symptoms are persistent sores on the toes and red spots on the legs. As the disease progresses, the flesh begins to fall away, and sometimes entire feet are lost. Nervous function is seriously impaired.

The disease can be prevented, Dr. Rose states, by keeping the frogs in water containing fifteen hundredths of one per cent of salt.

*Science News Letter, October 19, 1946*

## BACTERIOLOGY

### Colistatin Joins Other Antibiotics Against Germs

► DISCOVERY in soil of a new anti-germ chemical that may take its place with the famous antibiotics, streptomycin and penicillin, is announced by G. F. Gause of the Institute of Tropical Medicine, Moscow, in *Science*, (Sept. 27).

Colistatin is the name Dr. Gause gives the new antibiotic. He chose this because the substance stops the growth of a germ called *Bacterium coli*. Colistatin is produced by a bacillus found in black earth or chernozem soils.

Germs of pneumonia, one kind of dysentery, a paratyphoid germ and staphylococci are also stopped by colistatin. Unlike streptomycin, this new antibiotic merely checks the growth of the germs and does not kill them.

*Science News Letter, October 19, 1946*

## AERONAUTICS

### Sandwich Construction Will Decrease Expense

► SANDWICH construction in aircraft will make family airplanes inexpensive, the International Congress of Applied Mechanics was told by Dr. Nicholas J. Hoff of the Polytechnic Institute of Brooklyn, N. Y. The low cost is due to the fact that cheap materials such as paper and cork can be used in the sandwich core.

Sandwich construction, usable in the fuselage and supporting surfaces, is made of two thin layers of high strength material between which is a thick layer of an ultra-light core. The faces may be plywood, paper or aluminum alloy; the core is cork, balsa wood or a spongy synthetic material. They are held together with a special glue. Fabrication is rapid; the face, core and glue are put into a mold under pressure and heated for about 20 minutes to set it.

Sandwich type construction eliminates the network of reinforcing elements necessary in today's aluminum planes in which the construction involves a tremendous amount of riveting, Dr. Hoff declared. It has better aerodynamic properties than are possible in the present aluminum construction in high-speed aircraft, he asserted, and greater durability than is possible in fabric covered planes in light aircraft.

*Science News Letter, October 19, 1946*