

## MEDICINE

# Combatting Heart Disease

Penicillin and heparin, anti-blood clot chemical, show promise of conquering one almost always fatal form, endocarditis caused by germ infection.

► HOPE that a combination of penicillin and heparin, an anti-blood clot chemical, may conquer one almost always fatal form of heart disease appears in a report by Dr. Leo Loewe, Dr. Philip Rosenblatt, Dr. Harry J. Greene and Mortimer Russell, of the Jewish Hospital, Brooklyn, N. Y. (*Journal, American Medical Association*, Jan. 15)

Seven patients suffering from subacute bacterial endocarditis, one of them actually dying, were all restored to health by the combination of heparin and penicillin. Whether they have been cured cannot be told until more time has elapsed. Sometimes patients with this disease appear to recover and remain free from symptoms for some time, only to relapse and die.

This kind of heart disease is due to germ infection. The germs grow on the lining membranes of the heart in clumps mixed with fibrin from the blood. Successful treatment has to be double-barreled, aimed at both the germs and the

tendency if the blood to form clots in which the germs can grow.

Heparin for fighting the blood-clot tendency and both penicillin and sulfa drugs to fight the germs have been tried before, but the results have been mostly disappointing.

The Brooklyn scientists have devised a new technique for giving heparin—that of depositing it in banks under the skin instead of putting it directly into the blood stream. The combination of this method of giving heparin plus large doses of penicillin is, they believe, responsible for the good results they obtained.

*Science News Letter, January 22, 1944*

## CHEMISTRY

## New Versatile Plastic Made from Cheap Gas

► A NEW, highly versatile plastic, named polythene, has been developed by Du Pont chemists and is now ready for

the market in commercial quantities—provided necessary allocations for war purposes can be shown by the processor. It is stated to possess physical qualities that will make it useful in such peacetime employments as toothpaste tubes, wire insulation, water-proof coatings, piping and adhesives. In thin sheets it is flexible without being limp and rubbery, while in thicker shapes it is stiff enough to be classified as a rigid plastic.

Polythene is made by the polymerization, or chemical welding, of large numbers of ethylene molecules. Ethylene is a gas derived from petroleum, natural gas and coal, hence is a cheap, easily obtainable raw material.

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## CHEMISTRY

## Role in Public Affairs Urged Upon Chemists

► CHEMISTS should carry their knowledge of chemistry into the everyday affairs of their lives as citizens, declared Gaston F. Dubois, vice-president of the Monsanto Chemical Company, in his address in New York as recipient of the Perkin Medal, one of the highest awards in American chemical science. Such public activity on the part of scientists, he stressed, must not take on the aspect of lobbying, but should be a simple and direct expression of civic spirit.

Mere negative criticism of governmental activities gets nowhere, the speaker pointed out, characterizing it as “useless and unbecoming.” If any group of people do not like the way things are being done, it is up to them to make their criticism constructive by pointing out possible better ways.

Chemists, as such, are entitled to an attentive hearing on public questions where their knowledge is pertinent, Mr. DuBois held, because of the great importance of chemistry in everyday life, and its supreme importance in time of war. He went back to World War I for an illustrative case in point:

“Thirty years ago there was a belief that the business of dealing with chemicals was something for the British and Germans, but not for Americans. The public in the United States did not know much about chemistry or chemists. The press, our statesmen, our bankers, did not care.

“Even as late as 1916, Hossenfelder, the German consul general in New York, in a letter to von Bethman-Holl-



**WHISKERS**—The bristling guns on this new Boeing B-17 chin turret remind you of the whiskers on a cat. Official U. S. Army Air Forces photograph.

weg, German chancellor, predicted American defeat in World War I because of our dependence on Germany's chemical industry. But he was wrong—we did start making chemicals and World War I demonstrated to us not only their usefulness, but that our industry was indispensable to this great nation. Today the acceleration in the rate of growth of our industry is such that no one can keep even superficially informed of our progress in all lines."

Mr. DuBois, now in his 64th year, was born in Switzerland and came to this country in 1904 to carry on research in industrial chemistry for the Monsanto firm. His work has ranged all the way from making synthetic vanilla flavoring to phenol; recently he has concerned himself especially with the many kinds of plastics that can be built out of the latter compound.

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## CHEMISTRY

## New Tungsten Process

Pure, war-essential metal may be obtained directly from ore by electrolytic method which does not require preliminary transformation into alkali tungstate.

➤ PURE TUNGSTEN, much used in war metals, may be produced directly from tungsten ore by a new method which is successful, at least, in the laboratory. The new process, in which crystalline tungsten is produced electrolytically from a fused borate or phosphate bath, using tungsten ore as the direct source of tungsten, was developed by Dr. Colin G. Fink of Columbia University and Chuk Ching Ma of the Westinghouse Lamp Company, Bloomfield, N. J., and reported by them to the Electrochemical Society.

In the process the tungsten in the ore used does not require preliminary transformation into alkali tungstate as in older processes. The new method may be applied to low-grade ores as well as to high-grade ores or concentrates. The method is technical but is commercially usable and economical.

Tungsten today occupies a major position among strategic minerals. Few metals have so rapidly increased in importance within the past 20 years. It is used as a pure metal, as an alloy constituent in hard steels and other metals, and in chemical compounds. Tungsten is used in high-speed tool steels and in cemented

carbides. Tungsten carbide tools, used in thousands of machine shops producing war equipment, have extreme hardness, being surpassed only by boron carbide and diamonds. Tungsten is used for filaments in incandescent electric lamps, as electrodes for hydrogen welding, electric contacts in automobile engines, and has many other uses.

This metal has a fortunate combination of physical properties. These include tensile strength, hardness, ductility, corrosion and erosion resistance, and a very high melting point, 3,370 degrees Centigrade, the highest of all metals.

The United States mines tungsten ore in Arizona, California, New Mexico, Colorado, Idaho, Nevada, Montana and Washington. Its principal supply has been imported. In 1940, China furnished 46% of the imports, Bolivia 20%, Argentina 10%, and Australia and Portugal 6% each. With much of the China ore no longer available, steps have been taken to secure increased amounts, particularly from Bolivia and from local reserves. The new process, in which low-grade ores may be used, will undoubtedly increase the use of local minerals.

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## MEDICINE

## For Cesarean Births

➤ SUCCESSFUL use of the new childbirth anesthetic method, continuous caudal analgesia, in 48 out of 50 cases of cesarean births is reported by Dr. Clifford B. Lull and Dr. John C. Ullery, of

Philadelphia. (*Journal, American Medical Association*, Jan. 8)

The two failures were due to inability to introduce the pain-killing chemical into the correct spot near the base of

the spine. All the mothers recovered and all the babies cried lustily immediately after delivery and none needed resuscitation. One baby, born three and one-half months prematurely, died eight hours after birth, but its death was not believed attributable to the anesthetic.

Absence of nausea and smooth convalescence without discomfort after the operation impressed both the doctors, the mothers and their families. Mothers who had had previous cesarean operations under inhalation anesthesia were particularly enthusiastic about the new meth-

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