

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."

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

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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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 ores 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 child-birth 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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