

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.

Science News Letter, January 22, 1944

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.

Science News Letter, January 22, 1944

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-

SCIENCE NEWS LETTER

Vol. 45 JANUARY 22, 1944 No. 4

The weekly Summary of Current Science, published every Saturday by SCIENCE SERVICE, Inc., 1719 N St., N. W., Washington 6, D. C. North 2255. Edited by WATSON DAVIS.

Subscriptions—\$5.00 a year; two years, \$8.00; 15 cents a copy. Back numbers more than six months old, if still available, 25 cents.

Copyright, 1943, by Science Service, Inc. Reproduction of any portion of SCIENCE NEWS LETTER is strictly prohibited. Newspapers, magazines and other publications are invited to avail themselves of the numerous syndicate services issued by Science Service.

Entered as second class matter at the post-office at Washington, D. C., under the Act of March 3, 1879. Established in mimeographed form March 18, 1922. Title registered as trademark, U. S. and Canadian Patent Offices. Indexed in Readers' Guide to Periodical Literature, Abridged Guide, and in the Engineering Index.

The New York Museum of Science and Industry has elected SCIENCE NEWS LETTER as its official publication to be received by its members.

Member Audit Bureau of Circulation. Advertising Representatives: Howland and Howland, Inc., 393 7th Ave., N.Y.C., Pennsylvania 6-5586; and 360 N. Michigan Ave., Chicago, STAt 4439.

SCIENCE SERVICE

The Institution for the Popularization of Science organized 1921 as a non-profit corporation.

Board of Trustees—Nominated by the American Association for the Advancement of Science: Henry B. Ward, University of Illinois; Edwin G. Conklin, American Philosophical Society; J. McKeen Cattell, Editor, Science. **Nominated by the National Academy of Sciences:** R. A. Millikan, California Institute of Technology; Harlow Shapley, Harvard College Observatory; W. H. Lewis, Wistar Institute. **Nominated by the National Research Council:** Ross G. Harrison, Yale University; C. G. Abbot, Secretary, Smithsonian Institution; Hugh S. Taylor, Princeton University. **Nominated by the Journalistic Profession:** O. W. Riegel, Washington and Lee School of Journalism; A. H. Kirchofer, Buffalo Evening News; Neil H. Swanson, Executive Editor, Sun Papers. **Nominated by the E. W. Scripps Estate:** Frank R. Ford, Evansville Press; Warren S. Thompson, Miami University, Oxford, Ohio; Harry L. Smithton, Cincinnati, Ohio.

Officers—President: Edwin G. Conklin. **Vice President and Chairman of Executive Committee:** Harlow Shapley. **Treasurer:** O. W. Riegel. **Secretary:** Watson Davis.

Staff—Director: Watson Davis. **Writers:** Frank Thone, Jane Stafford, Marjorie Van de Water, Morton Mott-Smith, A. C. Monahan, Martha G. Morrow. **Librarian:** Jerome Harris. **Science Clubs of America:** Joseph H. Kraus, Margaret E. Patterson. **Photography:** Fremont Davis. **Sales and Advertising:** Hallie Jenkins. **Business Manager:** Columbus S. Barber.

od, as were their families when the mothers returned to their rooms in a cheerful, wide-awake condition.

The Philadelphia doctors endorse the new anesthetic method "as the nearest thing to safe and painless childbirth that we have in our obstetric armamentar-

ium," but agree with the originators of the method, Dr. Robert A. Hingson and Dr. Waldo B. Edwards, of the U. S. Public Health Service, that it should be used only by competent, specially trained persons.

Science News Letter, January 22, 1944

MEDICINE

Hip Baths Improve Vision

Muscle coordination is also aided by spraying hot, then cold water over lower part of trunk. Recommended for routine patrol duty and factory work.

➤ **COLD HIP BATHS** for men doing routine patrol duty or monotonous tasks in factories where acute vision and good muscular coordination "may spell the difference between success and disaster" are suggested in *War Medicine* (December, 1943), published by the National Research Council and the American Medical Association.

The suggestion comes from Dr. Arthur H. Steinhaus and Albert Kelso, of George Williams College, Chicago, with the technical assistance of Viktor Reinhardt. Mr. Reinhardt recently received training in the procedure in Germany where it was perfected as a conditioning device for men in industry and in the air force.

The cold hip baths produce striking temporary improvement in visual functions involving binocular vision, in visual acuity and in critical fusion frequency. They also produce temporary improvement in the rate at which a person can tap a telegraph key and in eye to leg muscle reaction time as shown by automobile driver reaction tests.

Men who took the baths regularly reported feeling exhilarated. Some said that the visual field appeared brighter, that black objects looked blacker and white ones whiter.

Unlike pep pills there is no after-depression or "pay-off" period. The stimulating effect of the cold hip bath may last as long as six hours if no meal is taken after the bath. In the tests made by the Chicago scientists, the baths were taken shortly after breakfast. Tests of the visual function were made before the bath and again at noon, some two-and-one-half hours after.

To take the bath, the subject sits on a chair with feet resting on another chair or stool and sprays water over his lower abdomen and hips. For the first three to

five minutes increasingly hot water, to the limit of comfort, is used. This is gradually changed to tap coldness (45 to 65 degrees Fahrenheit) and the cold water is continued for five to 15 minutes.

Over-all cold showers did not produce the same effects as the cold hip baths. The scientists believe this is because of the greater loss of heat in an over-all shower.

The cold hip baths produce their effect, it is believed, through the sympathetic nervous system.

Science News Letter, January 22, 1944

NUTRITION

Army Bread Can Be Made With Water from Ocean

➤ **BREAD MAKERS** for the Army, stranded on some far-away island in the Pacific, need not despair when their supply of fresh water and salt is running low—they can just dip their pans

into the ocean and use sea water instead.

Tests were made by the Quartermaster Corps Subsistence Research Laboratory in Chicago with samples of sea water taken from oceans around Florida, Virginia, California and Washington. The salt and mineral content of the water was determined, it was strained to remove seaweed, sand and other undesirable matter, and then treated with calcium hypochlorite for purification.

Instead of using 60 parts of fresh water and two parts of salt, it was found that 62 parts of salt water could be used. Otherwise, the bread was made in the usual manner. The finished product, according to a report issued by the War Department, showed only a slight variation from bread made according to the standard recipe.

Science News Letter, January 22, 1944

ASTRONOMY

Jan. 25 Eclipse of Sun Visible from Part of U. S.

➤ **THE TOTAL ECLIPSE** of the sun on Tuesday, Jan. 25, will be best observed in South America and Africa, but spectators in southwestern United States can see a portion of the sun covered by the moon. (See SNL, Dec. 25, 1943)

The farther south spectators from Florida to Texas are, the greater the portion of the sun that will be hidden from them, because of their nearness to the path of totality. (See accompanying map.) For spectators in Miami, Fla., the partial eclipse will begin at approxi-

