GEOLOGY

Deposits of Tantalum Ore Found in New Mexico

➤ THE DISCOVERY of new ore deposits of the rare metal tantalum in New Mexico, which promise high productivity, is welcome news to war manufacturers who use this metal and its compounds.

Tantalum's first commercial use was in electric lamps, then it jumped into prominence by its use in radio tubes. Because of its power to resist corrosion, it is used in surgical and dental instruments, electrical contacts, pump and valve parts and temperature control apparatus. Carbides of tantalum are used in wire-drawing dies, steel-cutting tools, wear-resistant parts of machines, and in dies for cold-nosing artillery shells.

Although tantalum ore has been mined in Wyoming, South Dakota and New Mexico, the principal source has been abroad. The new deposit, if it meets expectations, may supply the principal needs, at least during the war.

The new ore body was found in a pegmatite deposit in New Mexico by a private geologist. Samples sent to the United States Bureau of Mines pilot plant at Rolla, Mo., resulted in the shipment to that station of 30 tons of the ore, from which over three tons of high-grade concentrate were obtained. This is being taken over by the Metal Reserves Company, a federal agency, at $7,000 a ton, according to the Bureau of Mines.

The discoverer is reported to be planning to erect a local concentrate mill as soon as possible if further explorations indicate an ample supply of the ore.

Science News Letter, May 15, 1943

ENGINEERING

Cold Welding Used To Save Cracked Cylinder Heads

➤ THE DEVELOPMENT of a special alloy which has the lowest temperature coefficient of expansion of all known alloy, has brought success to the method of salvaging cracked automobile engine cylinders and blocks by the cold-welding or lacing process, A. B. Tincher of Kerkling and Company, Bloomington, Ind., told the Society of Automotive Engineers meeting in New York.

This alloy has a very high conductivity of heat units, he stated, and used in connection with it is a metallic seal developed especially for this purpose. Both the alloy and metallic seal are reported to be available commercially.

The wide acceptance of cold welding today "is the result of consistent improvement and technical development that has perfected a method so simple it may be understood and used by the average garage mechanic," according to the speaker. He describes it as "a mechanical lacing process, using taps, dies, drills and metal rod."

A channel the width of the diameter of the metal to be used is cut along the crack, about one-sixteenth of an inch deep. The ends of the crack are drilled to prevent its further development. Threads are cut in the holes drilled, and the special rod is screwed in and cut off. Then the crack is drilled and tapped its entire length and the special rod inserted so that each stud interlocks with the one next to it.

The sealing compound is then circulated through the cooling system of the engine, and the job is completed. Engines used in all types of cars and trucks have been repaired by this method, and the repairs are reported to last as long as the engines.

Science News Letter, May 15, 1943

MEDICINE

Nerve Fragments Frozen For Later Use as Grafts

➤ A METHOD for storing fragments of nerves for future use as grafts, somewhat as blood is now stored for future use, was announced by Dr. Paul Weiss, of Chicago, at the meeting of the American Neurological Association in New York.

The nerve fragments can be stored indefinitely without losing their effectiveness as grafts, Dr. Weiss reported.

The nerves are frozen at 150 degrees below zero Centigrade, dehydrated in a high vacuum, sealed in and stored in the dry condition. They are rehydrated before use.

"This treatment," Dr. Weiss said, "leaves the histological, biophysical and biochemical properties of the nerve essentially unharmed. When grafted, such nerves are readily and fully pervaded by regenerating nerve fibers, much as if they were living."

Sleeves of fresh or frozen-dried arteries are another aid to the neurosurgeon. With their aid, nerve stumps can be spliced without being sewed together and "practically ideal nerve regeneration has been obtained," Dr. Weiss reported.

Science News Letter, May 15, 1943

IN SCIEN

MEDICINE

Penicillin, Disease Remedy, Scores New Triumph

➤ PENICILLIN, potent disease remedy obtained from mold, has rung up another triumph over its rivals, the sulfa drugs.

Germs grow resistant to penicillin's ability to check their growth, just as they grow resistant to sulfa drugs, making the latter ineffective as remedies in some cases. Strikingly unlike their resistance to the sulfa drugs, however, their resistance to penicillin is accompanied by a decrease in their virulence. Studies showing this, made with Type III pneumonia germs and mice, are reported by Dr. C. M. McKee and Dr. C. L. Houck, of the Squibb Institute for Medical Research, to the American Association of Immunologists.

Science News Letter, May 15, 1943

ENGINEERING

Invisible Rays Dry Molds for War Casting

➤ INVISIBLE RAYS now dry molds for war castings in about an hour-and-a-half, reducing labor requirements by three-fourths.

This new application of the widely used infra-red rays was reported to the American Foundrymen's Association meeting in St. Louis, by L. M. Duryee, Connecticut Light & Power Co. engineer.

Navy casting specifications call for uniform surface smoothness that posed a problem under old methods of drying the green sand molds. Then infra-red rays were tried.

Tests showed that drying commenced within 30 seconds; 90 minutes later metal was being poured into the molds. And the castings met all inspection requirements for war equipment.

No labor is required during the new drying process; men who formerly did the job by using torches and charcoal are freed for other war work.

The method is now finding its way into foundry practice throughout the nation, further expanding the use of infra-red rays. They already have important war uses, such as the quick-drying and baking of painted military equipment.

Science News Letter, May 15, 1943

CE FIELDS

PSYCHOLOGY

Most People Can't Identify Their Own Handwriting

➤ IDENTIFICATION of handwriting by lay witnesses is not reliable evidence for use in court cases, it is revealed by a scientific experiment reported to the Eastern Psychological Association meeting in New York. Only four out of ten persons were able to identify their own handwriting correctly after several weeks.

The test was made on 181 men and women of 17 to 42 years and coming from 39 states, Alaska and four foreign countries. The experimenters were Dr. Steuart Henderson Britt, of the Office of Psychological Personnel, National Research Council, who is a lawyer as well as psychologist, and Ivan E. Mensh.

The persons tested were not told the purpose of the experiment when the samples of handwriting were obtained.

Science News Letter, May 15, 1943

PSYCHOLOGY

Nazism May Spring Up Where Ground Is Fertile

➤ NAZISM is an evil that may spring up in other countries besides Germany if social and cultural conditions are permitted to form fertile ground for it, Prof. Max Wertheimer, of the New School for Social Research, warned psychologists at the meeting of the Eastern Psychological Association in New York. Prof. Wertheimer, before he came to this country, watched the development of Nazism and Facism in Europe.

"When young people feel that they have no place in the world, nothing to look forward to in the future, and when they do not know what to do about social problems crying out for solution —then they may become ready to follow a leader like Hitler who promises them a place of usefulness," Prof. Wertheimer declared.

"I saw many students join the Nazis," he said. "Many were idealistic young men who wanted to do something useful, to be somebody, to feel that they were needed.

"They didn't realize at that time how blind they became and what tragedy they were building."

The authoritarian type of society is developed by education of the children, Dr. Ruth Benedict, anthropologist of Columbia University told the same meeting. If children are consistently rewarded for fitting into the authoritarian pattern and punished for seeking independence, gradually the authoritarian way of life will dominate the tribe or nation, she said.

The authoritarian type of character, she explained, is one that sees all people as divided into those having power and those not having power. Some class of people is always being seized upon and made submissive—either young people or old people, women, or certain occupations. The one thing they cannot tolerate is for any other group to seek independence.

Science News Letter, May 15, 1943

MEDICINE

New Medical Treatment For Goiter Announced

➤ SUCCESS in the first trials of a new method of treating goiter by medicines instead of by surgical operation is reported by Dr. E. B. Astwood, of Harvard Medical School (*Journal, American Medical Association,* May 8).

The medicines used are thiourea and thiouracil. They have the unique property of inhibiting the function of the thyroid gland, actually, it is believed, preventing production of its powerful hormone.

Patients with the kind of goiter in which popping eyes, extreme nervousness and thinness are symptoms suffer from too much thyroid hormone. This excess hormone drives the life processes at too fast a pace and even acts as a poison in its effects on the heart.

Operation to remove part of the gland and thus reduce the amount of hormone produced has so far been the chief method of treating the condition. The results reported by Dr. Astwood suggest that patients in future may not need to have this operation but can have their too-active thyroid glands kept under control by taking daily doses of thiourea or thiouracil.

Further studies, Dr. Astwood points out, will be needed to determine the best and safest methods of using these new medicines for long term treatment.

Science News Letter, May 15, 1943

RESOURCES

Powdered Bituminous Coal Mixed with Heavy Fuel Oil

➤ POWDERED bituminous coal mixed with heavy fuel oil may be used in industrial plants for heating and power during the remainder of the oil-shortage period, if tests now under way give the results expected. These tests are being made by the U. S. Bureau of Mines in cooperation with an oil refining company in one of its Eastern industrial plants.

Studies made by the Bureau of Mines seem to indicate that a coal-oil fuel can be made that may be used successfully in existing boilers in industrial plants with no loss in plant efficiency. It is not proposed to use it in home heating plants, but the saving in oil that may result from use of the mixture in heavy industries would alleviate the serious petroleum shortage along the Atlantic seaboard.

The mixture now being tried consists of approximately 60% oil and 40% pulverized bituminous coal. Coal with low ash content is used. It is proposed that the mixing be done in central mixing plants and delivered to the consumers ready for use.

The tests now under way are designed to determine the types of boilers and furnaces in which the coal-oil mixture may be used, the amount of ash in the coal, the fusion temperature of the ash, and the best method for removing the ash from the boilers.

Science News Letter, May 15, 1943

NUTRITION

Alaskan Caribou May Be Additional Meat Source

➤ AN ADDITIONAL, untapped source of meat exists in the domesticated caribou (reindeer) herds of Alaska, Dr. William H. Hobbs, emeritus professor of geology, University of Michigan, suggests (*Science,* April 23).

The domesticated herds in Alaska number from 50,000 to 100,000, with millions more in wild herds in Alaska and Canada, Dr. Hobbs states. Caribou meat, in his opinion, surpasses the best venison and the best beef in taste, having something of venison's gamy flavor with a juiciness more like that of beef.

"As the domesticated herds are largely in northwestern Alaska near the Bering Sea," he points out, "it would be possible to ship the refrigerated meat by sea to our bases in the southwest Pacific and to our own Pacific ports."

Science News Letter, May 15, 1943