

METALLURGY

Zirconium Produced

► A NEW METAL "with the bright atomic future," zirconium, has graduated from laboratory oddity to large-scale commercial production, following ten years of intensive research and experimentation, the U. S. Bureau of Mines revealed.

Zirconium's properties make it a desirable construction material in the field of nuclear energy, the Bureau reported. Almost as strong as steel, but lighter, it is resistant to corrosion and has an extremely high melting point of 3,350 degrees Fahrenheit. (Most grades of steel melt below 2,800 degrees Fahrenheit.)

It is used in building atomic ovens, since it does not absorb and thus waste neutrons needed to sustain a chain reaction. The metal was a vital material in the power plant of the first atomic submarine, the Nautilus.

Until 1954 the Bureau of Mines was the principal supplier of zirconium used by the Atomic Energy Commission and the Navy Department's Bureau of Ships. Now the Bureau has handed the production job

over to private industry and is working on research aimed at increasing zirconium's usefulness, according to the report.

Commercial production of the metal began in 1945, using a technique developed by Dr. William J. Kroll, a metallurgist who escaped to this country from his native Luxembourg before the Nazi invasion. In this process, molten magnesium is used to "win" the pure metal from the compounds it is found in naturally.

Zirconium absorbs impurities from the air, so that extracting and melting it must be carried out in a vacuum. It is "temperamental," and will burst into flame during certain stages of production unless handled carefully.

In 1948, when the AEC became interested in the metal, there was one pilot plant already operating capable of producing 3,000 pounds of sponge metal a year. Later, that Bureau-operated plant came to produce more than 280,000 pounds of zirconium a year.

Science News Letter, January 21, 1956

ORNITHOLOGY

Case of the Dying Birds

► IT TOOK techniques more normal to Scotland Yard than a wildlife agency to solve the mystery of the dying goldfinches. But experts with the California Department of Fish and Game in Sacramento found the death cause: poisoning by cyanide.

The fish and game department was called on the case when a report came in that hundreds of birds were dead in a residential area of the Sacramento Valley. Checking the scene of the deaths, Ernest Clark of the department noted a nearby grove of almond trees from which the birds, American goldfinches, were feeding.

He gathered a few of the partly eaten almonds and took them to the laboratory of Dr. Stuart A. Peoples of the University of California at Davis. Analysis revealed that the almonds had a cyanide content of approximately 0.2 milligram per nut.

As a check, the chemical amylnitrite, a specific antidote for cyanide poisoning, was administered to several birds just after they were seen to fall. The effect was spectacular. When treated, the apparently lifeless birds came to, shook their heads, and in about three minutes were able to fly again.

According to the report made in the journal, the *Condor* (Nov.-Dec.), by Wallace C. Macgregor of the fish and game department, almonds contain chemicals that react in the presence of water to form hydrocyanic acid, along with other by-products. This is evidently what happened in the almonds that killed the goldfinches, Mr. Macgregor said.

Humans have little to worry about this

kind of poisoning, unless they eat pounds and pounds of water-logged almonds.

Science News Letter, January 21, 1956

In England, rubber technicians have developed *rubber tires* for trains.

The 1955 average of world *crude oil* production was more than 15,000,000 barrels daily.

Science News Letter, January 21, 1956

● RADIO

Saturday, Jan. 28, 1956, 2:05-2:15 p.m. EST
"Adventures in Science" with Watson Davis, director of Science Service, over the CBS Radio Network. Check your local CBS station.

Dr. W. A. Baum, staff member, Mt. Wilson and Palomar Observatories in California, will discuss "Probing Farther Into Space."

PUBLIC HEALTH

Survey World's Facilities For Treating Tuberculosis

► A WORLD-WIDE SURVEY of facilities for treating tuberculosis has been completed by Dr. John D. Steele of the Veterans Administration Hospital, San Fernando, Calif.

Of 30 countries surveyed, he found an adequate or more than adequate number of hospital beds in Great Britain, Ireland, Holland and Switzerland.

An "almost adequate" number of beds to care for TB patients were found in Finland, Belgium, West Germany, Poland, Spain, Portugal, New Zealand, Trinidad, Peru, Uruguay and Chile.

Inadequate beds were reported for Jordan, Egypt, Iraq, Burma, Malaya, Indonesia, South China, Formosa, Japan, Mexico, Jamaica, Costa Rica, Panama, Paraguay and Argentina.

Dr. Steele, former president of the American Trudeau Society, conducted the survey with aid of correspondents in each of the 30 countries surveyed.

A Russian correspondent said that "under the single government system of medical aid in the U.S.S.R., the number of beds allotted to any given form of the disease is governed by the necessity of the moment. In case an excess of beds exists for a given form of tuberculosis, the excess is then assigned to the type of tuberculosis in which there is a lack of beds."

Science News Letter, January 21, 1956

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