

MEDICINE

New Penicillin Triumph

The drug saved a patient with blood disease following gold salts treatment for arthritis. Called most potent remedy for condition.

➤ A PATIENT so sick that on one day his physicians feared for his life was on the next day "suddenly almost well," thanks to penicillin which rescued him from agranulocytosis, serious blood disorder in which the white cells are lacking.

The case is reported by Maj. Edward W. Boland, Capt. Nathan E. Headley and Col. Philip S. Hench, of the Rheumatism Center of the U. S. Army, Hot Springs, Ark. (*Journal, American Medical Association*, March 2).

The patient in this case was a 39-year-old officer who had been getting gold salts treatment for chronic rheumatism. Some persons are sensitive to gold and are poisoned by the treatment even when it is carefully given. Agranulocytosis is one of the severe, potentially fatal conditions which may develop as it did in this officer's case.

Agranulocytosis may be caused by other chemicals, such as sulfa drugs; thiouracil, a new and effective remedy

for toxic goiter; and certain coal-tar chemicals in headache remedies. The bone marrow in such cases is damaged so that it fails to produce white blood cells. When the body is robbed of these natural defenders, it is an easy prey to invasion by disease germs. It is this germ invasion that kills the patients.

Penicillin acts as a temporary substitute for the white blood cells, holding the germs at bay until the bone marrow can form a new army of defending white cells.

Prompt recoveries in 10 cases besides that of the officer have now been reported as a result of penicillin treatment of agranulocytosis.

Penicillin is now "the most potent remedy" for prevention or control of this dangerous condition, the medical officers state. In their opinion it allows for much more optimism about the outcome of the disease in future patients.

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METALLURGY

Low-Melting Gold Alloy

Gold-germanium alloy, 88% gold and 12% germanium, is hard and has superior wearing qualities. Is useful in jewelry and dentistry.

➤ A LOW-MELTING gold alloy with several other unusual properties was described at a meeting of the American Institute of Mining and Metallurgical Engineers in Chicago by Dr. Robert I. Jaffee of the Battelle Memorial Institute, Columbus, Ohio, where the alloy has been recently studied.

It is a gold-germanium alloy, 88% gold and 12% germanium. The latter is one of the less known metallic elements, but it is mined in the United States and is considerably cheaper than gold. The alloy melts at 673 degrees Fahrenheit, only 50 degrees higher than the melting point of lead. It is what scientists call a gold-germanium "eutectic," a term applied to an alloy with a lower fusing point than its components have by themselves. Gold melts at 1945 de-

grees Fahrenheit, and germanium at approximately 1760 degrees.

This eutectic is harder than ordinary gold alloys and has superior wearing qualities. These properties make it of value in jewelry. Another property of the alloy, Dr. Jaffee stated, is its slight expansion on solidification, which compensates for contraction in cooling to room temperature. Because of this property, he said, extremely precise castings, such as dental inlays, can be made, and these dental castings would require no correction to take care of shrinkage that occurs with most alloys.

Because of the low melting point of the alloy, it can be used as a solder by jewelers doing repair work on gold jewelry. They can obtain the necessary heat to melt it with a common gas flame.



FIRST TO LIVE—These Surinam toads at the zoological park in Washington, D. C., are the first to survive in captivity. Of the 26 born recently, 22 are still living and growing on a diet of white worms. They will be five inches long when full grown. Photograph by Fremont Davis, Science Service staff photographer.

Gold-coated jewelry of long-wearing properties can be made by merely dipping the object to be plated into the molten eutectic.

This gold-germanium alloy is not entirely new to metallurgists. It was first mentioned in an obscure German publication, Dr. Jaffee said. But Battelle Institute has been conducting experiments with it to determine its best uses. The chief interest in the metal at the present, he stated, is its potentialities as a rectifier in radar equipment.

Germanium is produced as a by-product in the production of cadmium. It resembles silicon in appearance and is closely related to silicon in nature, he explained. It was first discovered by a German scientist in 1886, but little thought was given to its utilization until recent years. The U. S. Bureau of Mines states that germanium is a crystalline gray-white metal, with chemical properties intermediate between those of silicon and tin. While far from being abundant, germanium can be recovered in rather large quantities in the form of its oxide, as a by-product of zinc. Dr. Jaffee stated that about a ton a year is produced in America.

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