

BIOCHEMISTRY

Antidote to Beryllium

Discovery of "first successful antidote" to beryllium poisoning reported. Chemical, aurin tricarboxylic acid, fixes the metal, making it inactive.

► DISCOVERY OF "the first successful antidote" to beryllium poisoning has been announced by Drs. Jack Schubert, Marcia R. White, Asher J. Finkel and Arthur Lindenbaum of the Argonne National Laboratory, Chicago.

Beryllium poisoning might be called an atomic age disease. The light weight, durable metal, beryllium, was formerly used in fluorescent lamps. It was abandoned for this use when its poisonous quality was learned. Now it is under investigation as a construction material for atomic piles.

The antidote discovered at the Argonne Laboratory is a chemical called aurin tricarboxylic acid, or ATA for short. It reacts with beryllium salts to form a red compound. The reaction is the same kind as that by which a metallic salt fixes a dye to cloth.

By fixing the beryllium, turning it into an inactive, non-poisonous compound, ATA prevents the metal from exerting its poisonous action on the body.

Poisoning from beryllium comes from the presence of small amounts of the metal or its compounds in the body. Inhaling beryllium causes widespread damage in the lungs. No successful cure for the poisoning is known at present, although the hormone chemical, ACTH, has brought marked temporary improvement in many patients.

Experiments in which ATA proved a "nearly perfect" antidote for otherwise fatal doses of beryllium compounds in laboratory animals were reported by Dr. Schubert and associates to the American Chemical Society meeting in Chicago.

Science News Letter, December 1, 1951

MEDICINE

Site of Cancer Spotted

► SCIENTISTS HAVE put a finger on the spot in a tumor cell which can make it cancerous and traced the route by which the cancer potentiality can spread to normal cells.

The scientists are Drs. J. Stasney, A. Cantarow and K. E. Paschkis of Jefferson Medical College, Philadelphia.

The chromatin material in the tumor cell is where the malignant, or cancer, potentiality lies, they told a conference on viruses and cancer sponsored by the New York Academy of Sciences.

Chromatin is part of the cell nucleus. It is present in normal as well as cancer cells, and is the carrier of the genes in inheritance.

Chemically, it is a desoxyribose nucleic acid attached to a protein structure base.

Chromatin forms a network of nuclear fibrils, or thread-like structures within the cell. The Philadelphia scientists believe that it is by the entrance of these chromatin threads or some component of them into normal cells from tumor cells that the malignant potentiality of the chromatin of the tumor cell is spread.

This spotting of the cancer potentiality part of tumor cells was done in experiments in which the chromatin and other fractions of rat cancer cells were extracted and then injected under the skin of other rats.

Science News Letter, December 1, 1951

PLANT PATHOLOGY

Virus Epidemic in Barley

► A NEW virus disease of oats, wheat and particularly barley hit California's crop in epidemic proportions this year, two University of California scientists in Davis report.

Department of Agriculture officials in Washington state that to keep the deadly disease from spreading, all work on infected plants will be done within California.

The disease, "widespread and destructive," is known as yellow-dwarf, a name that closely describes the symptoms on barley—a brilliant yellowing of the leaves accom-

panied by moderate to severe stunting of the plants.

As far as is now known, the disease is caused by a virus that is transmitted by four different species of grain-infesting aphids. Other aphids that spread the disease may be found, Drs. John W. Oswald and Byron R. Houston of the University's division of plant pathology predict.

Although the disease is not new in California, this is the first year that it has been so destructive. The plant pathologists think that the abnormally large population of

aphids on grain crops during 1950 is responsible. Aphids, abundant last March, when barley and other cereals were for the most part very young, made the damage from the disease more acute, they believe. The scientists are now looking for the plant that serves as host to the disease-spreading aphids during the summer and early fall, they state in *PLANT DISEASE REPORTER* (Nov. 15).

Science News Letter, December 1, 1951

PUBLIC HEALTH

Disease-Spreading Snails in Japan Successfully Fought

► SUCCESS OF "Operation Santobrite" in Japan to eradicate disease-carrying snails was reported at the joint meeting of the National Malaria Society, the American Society of Tropical Medicine, and the American Society of Parasitologists in Chicago.

The operation was carried out by the following six-man team of American Army and civilian scientists and Japanese scientists: Col. George W. Hunter III, L. S. Ritchie, Capt. R. Freytag, C. Pan, M. Yokogawa, and Sgt. D. E. Potts.

"Operation Santobrite" got its name from the name of the chemical used in the snail-eradication trials. Chemically, Santobrite is sodium pentachlorothenate. During the spring and fall of 1950 and 1951 this and two other chemicals were put along the ditches and rice paddies around the village of Nagatoishi-cho in Kyushu, Japan.

Santobrite turned out to be the best of the three chemicals for eradicating the snails that spread the blood flukes that cause schistosomiasis. The latest snail count, made in the spring of this year, showed it reduced the snail population 99.5%.

Science News Letter, December 1, 1951

MAMMALOGY

As Rat and Mouse Fighters, Cats Declared Failure

► TO GET rid of rats or mice in your house, do not rely on a cat. Most city cats live by feeding on garbage or on table scraps.

Rodents are a "small item" in a cat's diet, Dr. William B. Jackson of Johns Hopkins University's School of Hygiene and Public Health, Baltimore, has found from surveying the food of cats in two residential areas of Baltimore. Perhaps the cats would eat more rats if there were less garbage around, but further studies would be needed to prove this.

In the city blocks studied, cats ate about 20% of the rats that must die during the year to keep the number of rats from increasing, he estimates. This does not mean, however, that these rats would not die from other causes if the cats were not present. Dr. Jackson's observations on what cats eat appear in the *JOURNAL OF MAMMALOGY* (Nov.).

Science News Letter, December 1, 1951