

MEDICINE

Chain Reaction Celebrated

First nuclear chain reaction was achieved Dec. 2, 1942, which has led to better treatment for cancer, leukemia, thyroid disorders, and other diseases.

➤ NEW REPORTS of the benefits and dangers from atomic energy highlighted the fourth anniversary of the first self-maintaining nuclear chain reaction at the University of Chicago's metallurgical laboratory.

Sufferers from leukemia, cancer, thyroid gland disorder and perhaps other diseases have reason to join with scientists in remembering December 2, 1942. Peaceful applications of atomic power are becoming available for medical use.

Treatment of five times as many leukemia sufferers as formerly at one medical institution is one of the most recently announced achievements from a chain reacting pile. The reduced price of radioactive gold from the uranium pile at Oak Ridge, Tenn., makes it possible for more leukemia sufferers to get radiation treatment. This was announced by the Monsanto Chemical Company which operates the Clinton Laboratories at Oak Ridge for the Manhattan Engineer District.

Future accomplishments in treatment of disease and in better knowledge of body chemistry in health and disease will be greater than what has already been achieved with radioactive isotopes, scientists predicted at the anniversary observance held in connection with the meeting of the Radiological Society of America in Chicago.

New knowledge of the dangers of radiation has been gained through medical studies during and since the development of the atomic bombs.

Most of the hazards of over-exposure to radiation in the industry itself have been eliminated, Dr. C. Ladd Prosser, of the University of Illinois, stated. His experiments showed that the effects of radiation on the body are not progressive but happen very suddenly some weeks and even months after exposure.

Healthy cells surrounding cancer cells may become cancerous after the original malignant cells have been treated by radiation, Dr. Austin M. Brues, director of the biology division of the Argonne

National Laboratory, has found in his work on the Plutonium Project.

Science News Letter, December 7, 1946

ASTRONOMY

Sun's Speed Related To Globular Clusters

➤ A NEW star-gazing study has uprooted the basis for determining the speed at which the sun travels in its orbit through the Milky Way.

But it's nothing to worry about. The sun is still highballing at the same speed. The early estimates were "lucky" in accurately calling the turn.

This is revealed by Dr. Nicholas U. Mayall, associate astronomer in the University of California's Lick Observatory.

The new facts were unearthed in observations of 50 globular star clusters, great spherical stellar concentrations which pepper the heavens out to the edge of the galaxy.

Dr. Mayall explained that the sun's speed was estimated by observing its position relative to a few of the globular clusters. It was assumed in these calcu-

lations that the clusters did not rotate.

These "island universes" do rotate slightly. Dr. Mayall found the calculation comes out the same: the sun is traveling in its orbit at from 175 to 185 miles per second.

In addition to their rotation, Dr. Mayall discovered that the star clusters are traveling at a great random speed through space unlike the majority of stars in the galaxy. This random velocity is about 60 miles per second, which compares with a random speed for the sun and other stars in the galactic system of about 10 miles per second.

The globular clusters form the backbone of the galaxy, of which the solar system is but a trivial part. They contain stars of all brightnesses. The sun would be lost in one of them, since most of them contain tens of thousands of stars as bright or brighter.

About 100 such island universes are known, the closest being about 25,000 light years away and the farthest 150,000 light years distant. A light year is nearly six million miles.

Science News Letter, December 7, 1946

MEDICINE

Toxic Convulsions Caused By Lack of B Vitamin

➤ THE DANGEROUS toxic convulsions which afflict some expectant mothers shortly before their babies are due may be caused by lack of a B vitamin, choline.

The counterpart of the damage to kid-



TO GIVE POWER—The last of five generators for Shasta Dam, second largest structure built by man and in the Sacramento River Valley, is being constructed by General Electric.

neys and liver seen in these women can be produced in rats on a diet lacking in choline, Dr. Paul Gyorgy, of the University of Pennsylvania Medical School, reported at a conference held by the New York Academy of Sciences.

Eating a high protein diet would be better for the expectant mothers than taking doses of choline to prevent the condition, Dr. Gyorgy believes. In the rats a deficiency in the ratio of choline

to cystine, one of the amino acids from proteins was as important, if not more so, than lack of choline in producing the kidney and liver changes.

Massive hemorrhage in the adrenal glands and a bone marrow degeneration which results in anemia occurs when rats, and maybe humans also, do not get enough of another B vitamin, pantothenic acid, Dr. Gyorgy reported.

Science News Letter, December 7, 1946

GENERAL SCIENCE

Nazi Mass Sterilization

➤ ADD TO THE HORRORS of war the possibility of making all the people of a nation barren without their knowing they had been sterilized. This possibility was explored by Nazi physicians, Dr. A. C. Ivy, vice-president of the University of Illinois, reports. Dr. Ivy has returned from a government mission on which he was the American Medical Association representative to investigate war crimes of a medical nature.

Putting the dried juice of a plant in the food of a population and exposing men and women to a castrating dose of X-rays while they filled out government forms were two methods of secret mass sterilization studied by Nazi physicians.

One series of murders was done to provide skeletons for an anthropological museum.

Operations were done on human beings as part of the procedure in training students in surgery.

Besides the mass sterilization studies, Dr. Ivy lists 15 other experiments in his

report to the Secretary of War.

Twenty-three Nazi physicians will be tried in Nuernberg, starting Dec. 5, in charges of having conducted experiments on human beings resulting in innumerable deaths. The American Medical Association, through an editorial in its *Journal*, gave as its verdict that such experiments certainly are "contrary to the laws of humanity and the ethical practices of the medical profession which have prevailed for more than 20 centuries.

"Not the slightest good to mankind has resulted from these experiments. The basic sciences and medicine languished in Germany during the period of the war more than in any other country.

"Perhaps most serious of all is the failure of German medical organizations and societies to express in any manner their disapproval of these widely known experiments."

Science News Letter, December 7, 1946

NUTRITION

Bodies Need Fat, Protein

➤ CONSUMER demand for meat or other protein and fats for food is tied up with the economics of the human body as well as with the economics of the market place, it appears from a report by Dr. E. B. Forbes, emeritus professor of animal nutrition, Pennsylvania State College, at the 100th birthday celebration of the University of Buffalo School of Medicine.

Fat and protein, he reported, favor the transformation of food into body substance with less energy waste than would be supposed from the effects of individual foodstuffs. It is not surprising that fat and protein are thus economically transformed into body substance, he pointed out, since human and other ani-

mal bodies are made up mainly of fat and protein.

"A lot of people have very wrong ideas" of the effects of foods in nourishing the body, Dr. Forbes declared. The reason for these wrong ideas is that they are based on study of the effects of one class of foods fed by themselves.

The once-popular notion that meat or other proteins should not be eaten in hot weather because of their heating effects is an example of some of these wrong ideas.

Meat or other protein food which has the highest heating effect when fed by itself has the exactly opposite effect when fed in a mixed diet such as people usually eat, Dr. Forbes found from his 24-

year study of animal nutrition.

The same is true of fats, he found. Diets containing varying amounts of fat but supplying the same amounts of protein and energy were fed in some of his studies. The efficiency with which the energy of the complete diet was used increased as the amount of fat was increased.

The importance of all the nourishing substances in diet was stressed by Dr. Forbes.

"No one essential is more essential than another," he declared.

The maximum usefulness of each food substance and of the entire diet depends on all the body's needs for nutriment being satisfied.

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