BIOPHYSICS

# Radioactive Hydrogen Tag

**Tritium, triple weight hydrogen, found suitable for use as chemical label tracing biological reactions in two independently conducted studies.**

➤ MEDICAL SCIENTISTS now have another radioactive chemical they can use as a "tag" or label for tracing food and medicines in the body and seeing how the body handles them in health and sickness.

The chemical is tritium, or radioactive triple weight hydrogen. Before using a radioactive substance for this tracer job, scientists must be sure it is safe to give a person.

Studies at the Argonne National Laboratory in Chicago show that tritium "is no more dangerous than better known forms of radiation."

The conclusion as to tritium's suitability for use as a chemical tag in biological research comes from two independently conducted studies. In one Dr. E. L. Powers, Jr., and Mrs. Deborah Shefner sealed single-celled, slipper-shaped animals, called paramecia, in deep depression glass slides which contained tritium water. During their life in the slide, the little animals were constantly exposed to the radiation given off by the tritium.

Examination after 48 hours of this life in tritium showed the animals had not been damaged any more than they would have been as a result of exposure to X-rays, atomic fission products and other radioactive materials. During the 48 hours of the experiment 500 to 1,000 new paramecia were produced. The animals continued to reproduce after they had been removed from the tritium environment.

The second experiment, which also showed that the effect of tritium is comparable to that of other forms of radiation, was done by Dr. Austin M. Brues, Mrs. Agnes Stroud and Mrs. Leola Rietz. They injected tritium water into the abdominal cavities of young female mice.

Science News Letter, March 1, 1952

ZOOLOGY

# Homing Instinct of Frogs

➤ FROGS MAY have more in the way of human instincts and characteristics than heretofore realized.

Illinois Natural History Survey biologists in Urbana have found some correlation between a well-developed homing instinct and size and sex of bullfrogs from a 10-year study made at 18-acre Ridge Lake, near Charleston, Ill. Frogs captured around the lake shore were marked and released at the Natural History Survey laboratory pier. More of the large than of the smaller-sized frogs returned to their original area of capture. Two-thirds of the frogs, all females, demonstrated a good homing instinct. Of four bullfrogs showing poor homing tendencies, three were males.

The approximate growth rate of the bullfrogs at Ridge Lake was determined from marked specimens, recaptured over the 10-year period. Most of them disappeared from the lake one or two years after they were marked, but one was recaptured after six years.

Adult frogs of the female sex were found to be usually larger than the males, indicating the possibility that the males do not normally reach as large sizes as the females.

Successive recaptures and measurements of some marked adult frogs revealed a decrease in total length after their original capture. In one specimen this decrease amounted to eight-tenths of an inch, a considerable amount considering the small size of frogs.

The study was designed to discover the environmental factors that increase or decrease the numbers of bullfrogs. The information has economic value and is of special interest to people who wish to indulge their liking for a popular food delicacy, frog legs.

Science News Letter, March 1, 1952

ENGINEERING

## Quick Warm-Up Needed To Reduce Engine Wear

➤ AUTOMOBILES SHOULD be redesigned to have a short engine warm-up period to reduce excessive wear, in the opinion of C. C. Moore of the Union Oil Company of California.

A popular car recently studied required from 10 to 15 minutes of driving before the engine reached 150 degrees Fahrenheit, Mr. Moore reported to the Society of Automotive Engineers meeting in Chicago. It took 50 minutes of normal driving before the crankcase oil reached the same temperature.

Engine wear is greatest at low water-jacket temperatures—that is, when the engine is cold, H. R. Jackson, F. C. Burk, L. J. Test and A. T. Cowell, all of the Atlantic Refining Company, reported earlier from their studies using a radioactive-tracer technique.

Mr. Moore pointed out that 20 minutes often was "normal driving time" for many car owners. Where that is the case, it means the automobile engine is wearing excessively practically all of the time the car is in operation.

Mr. Moore said a short warm-up cooling system, in addition to helping to reduce engine deterioration, should also be adequate for continuous hot-weather and heavy-duty service.

Science News Letter, March 1, 1952

MEDICINE

## ACTH Decreases Blood Flow Through Brain

➤ LESS BLOOD flows through the brain when patients are getting ACTH, famous anti-arthritis medicine from the pituitary gland.

The decrease in blood flow through the brain amounts to 18%, Drs. James F. Schieve, Peritz Scheinberg and William P. Wilson of Duke University School of Medicine, Durham, N. C., found.

The Duke scientists made their studies in the hope of learning why some patients have an increased sense of well-being when getting ACTH, and some even become mentally disturbed.

The studies did not give any information on these points, however.

Besides discovering the decreased brain blood flow during ACTH treatment, the scientists found that the brain's use of oxygen and sugar was not changed.

Science News Letter, March 1, 1952

GENERAL SCIENCE

## Joint Labs to Serve All British Scientists

➤ JOINT LABORATORIES to conduct research in special fields for the whole British Commonwealth are being considered at the British Commonwealth Scientific Conference assembled in Canberra, Australia. This is the first time since 1946 that such a meeting has been held.

The country having the best facilities for an investigation would conduct it in some cases, while joint teams would be formed in other instances.

The use of seaweed, application of microbiology to industry, use of low-grade ores and wastes, wool, soil mechanics and the use of solar energy are among subjects to be discussed by the meeting which will continue until March 7. Other problems include: new insecticides, physiology in relation to climate, particularly in the tropics, grasslands, radioactive tracers, blood, tooth decay, and the difference between standards for physical growth in various countries and for different types of people.

Science News Letter, March 1, 1952