

## BIOCHEMISTRY

# Enzyme Molecules Vary

► **SIMILAR ENZYMES** from different species of animals show variations in molecular structure, Dr. John Paul of Glasgow University, Glasgow, Scotland, has reported.

New techniques for studying these variations may show even greater differences than yet discovered, Dr. Paul told a New York Academy of Sciences conference in New York. With his co-worker, Dr. P. F. Fottrell, he has studied several kinds of enzymes from different animals.

Enzymes are materials that speed up chemical reactions, such as digestion of foods, in plants and animals.

In some animals, Drs. Paul and Fottrell found, the total array of isozymes (the molecular varieties of an enzyme that can be separated) may not be present in all organs. However, only occasionally did they observe enzymes that were specific for a certain organ.

"On the other hand," Dr. Paul said, "each species pattern differed characteristically from every other."

They concluded, therefore, that certain enzymes may be distributed "throughout the biosphere in an enormous variety of molecular forms."

The findings "suggested that many enzymes may contain at least one important area in which the molecular structure cannot vary without alteration of function." They also suggested that the enzymes contain other areas that can be regarded as unimportant, where molecular variation is compatible with retention of function.

In this way the functional properties of a protein may be kept intact by selection while "species-specific structural variations can develop," Dr. Paul said.

Dr. Felix Wroblewski, chief of medical enzymology at Sloan-Kettering Institute, New York, was co-chairman of the three-day conference on multiple molecular forms of enzymes. He said that recognition of the common occurrence of multiple forms is new.

The two newest techniques used to separate different enzyme molecules having the same catalytic activity are electrophoresis and chromatography, which have previously been used for separation of other substances. The first method involves the separation of charged particles by an electric field. The second involves the separation of molecules by adsorption.

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irradiated scrap, representing a saving of almost half a million dollars.

There are now 66 civilian and military power reactor projects in the U. S., not including naval propulsion, aircraft and space reactors.

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*PEEK-A-BOO—A hog, exposed to radiation near an atomic blast, has its eyes checked at the University of Tennessee-Atomic Energy Commission Agricultural Research Laboratory, Oak Ridge, Tenn. The hog was placed near an atomic explosion during the weapons tests at the Nevada test site. Veterinarians found it in good health, with no appreciable eye damage caused by the exposure.*

## PHARMACOLOGY

## Study Drug Effects On Mental Patients

► **WHICH OF SIX** representative drugs being used in the treatment of schizophrenia, or split personality, are most suitable will be the subject of a 24-week study in 36 Veterans Administration hospitals. More than 500 newly admitted schizophrenic patients will be studied.

The drugs, all of which have tranquilizing effects, are chlorpromazine, fluphenazine, reserpine, thioridazine, chlorprothixene and triflupromazine.

The study is part of the VA's continuing cooperative research program to evaluate newer drugs in the treatment of mental illness.

It is the sixth project of this kind in VA hospitals since the program started four years ago.

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## PUBLIC HEALTH

# Increase in Fallout

► **RADIOACTIVE FALLOUT** levels in man and foods have shown a continued increase in the past two years, the Atomic Energy Commission's 1960 report to Congress disclosed.

The increase has continued despite the general decline in fallout since tests of nuclear weapons were stopped in 1958. The fallout increase has apparently resulted from the accumulation of longer-lived contaminating elements from both weapons testing and nuclear development. The elements are retained in the bone of man and animals, in soil and in plants. However, the levels still are well within acceptable limits, AEC biologists have stated.

AEC studies on contamination levels have concentrated primarily on strontium-90 because it is believed to cause leukemia and bone cancer and tends to concentrate more heavily in the bones of children. The studies have also concentrated on carbon-14, because of its genetic effects sometimes resulting in malformations and other defects; and cesium-137, because it is easy to measure and thus provides confirmatory data on strontium-90.

The average level of strontium-90 in the bones of adults in the Northern Hemisphere has shown a 50% increase since 1958, the AEC report said. This was one-seventh the level of concentration shown in one-year olds in 1958.

Levels of strontium-90 in wheat and milk have also risen. However, milling in

wheat and processing in milk can reduce these substantially, the report said.

Carbon-14 activity in the troposphere, that part of the earth's atmosphere in which weather phenomena occur, has increased by as much as 27% in the Northern Hemisphere and 20% in the Southern Hemisphere, according to measurements taken in mid-1959. This increase is considered significant by AEC biologists, and has aroused concern among some geneticists.

Recognizing this concern and the general public fear of fallout, the Commission has proposed to Congress that future weapons tests be conducted underground. In its report, the AEC approves the national policy of "attaining cessation of nuclear weapons tests under a treaty that would establish international controls adequate to assure compliance with its provisions." But it warns that "a continued unpoliced moratorium on weapons testing" threatens United States supremacy in nuclear weapons and the safety of the free world.

Further weapons testing would achieve major advances in nuclear weapons design, the report said.

In the industrial field, the AEC underscores advances in development, including 23 civilian power reactor prototypes under design and construction by mid-1960; operation of the first field power plant for the military services at Camp Century, Greenland; and an increase in recovery of