

BIOCHEMISTRY

Protein Study Stressed

➤ INCREASING man's lifetime, possibly enough for a space ship trip to the nearest stars and back, by using certain proteins to prevent aging, is foreseen by Dr. Joseph W. Still of George Washington University School of Medicine, Washington, D. C.

A biochemical approach should make aging "preventable," he told the National Academy of Sciences meeting at Rockefeller Institute for Medical Research in New York. Dr. Still said this approach was made possible by the discovery that there are some relatively stable materials in the brain and other tissues.

The materials may even be permanently stable, he suggested.

Studies of the "run-down" of radioactive carbon-14 in various organs of mice showed the long life of certain materials. Previously, scientists have thought amino acids, the building blocks of proteins, were turned over in the body at a quite rapid rate.

Studies by other scientists confirm his conclusions about the existence of relatively stable amino acids in the body, Dr. Still said.

After feeding a pregnant mouse radioactive carbon, Dr. Still tested the brain, heart and lungs, liver, kidney and spleen, and skeletal muscle of the mouse and her four offspring for radioactive carbon content, after birth.

The carbon-14 retention was greatest in the brain, indicating stable substances there. Dr. Still is now repeating his experiments in order to determine the exact location within the cell of these stable materials.

Since humans possess the cheapest, most efficient and versatile camera and memory known, he suggested man would be the best system to send on an interstellar trip. To do this, man must live long enough to go and return. Thus, Dr. Still concluded, the study of aging is an "important phase of space medicine."

Quality Protein in Diet

➤ CHILDREN getting either too little protein or a poor quality protein in their food may still grow normally but will be much more susceptible to infections.

This was indicated by the results of feeding experiments on mice reported by Dr. Rene J. Dubos and Russell W. Schaedler, Rockefeller Institute for Medical Research, to the meeting.

Inadequate protein nutrition is extremely prevalent in the under-privileged parts of the world. It causes much disease directly and has an indirect effect by lowering resistance to infection.

The inadequacy is of two kinds, Dr. Dubos explained: too small in quantity, and qualitatively poor because the diet is low in certain essential amino acids. Protein deficiency is particularly grave in children because it results in poor growth and in certain metabolic disorders.

Shortly after weaning, mice were fed cafeteria-style on all the known nutritional factors. The protein and carbohydrate con-

tents of the diet were the only variables. After two weeks of the diet, the mice were infected with varying amounts of tuberculosis-causing and other types of bacteria.

All the diets allowed normal growth rates, but the mice that ate a diet containing only eight percent casein, a principal protein of milk, were much more susceptible to all types of infection than mice receiving 20% casein.

The amount of protein, however, was not

the only cause of lowered resistance. Some of the animals got 22% protein in the form of commercial food pellets, but they showed almost as low a resistance as mice receiving only eight percent casein.

Since pellets contain mostly plant materials, it is apparent that the quality of the protein, as well as the quantity, is important, the scientists reported.

The resistance to infection in the low protein group was increased by adding amino acids to the diets.

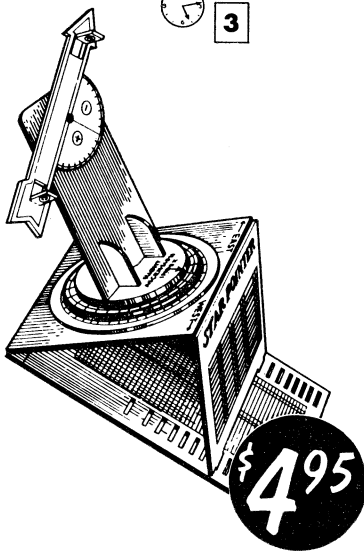
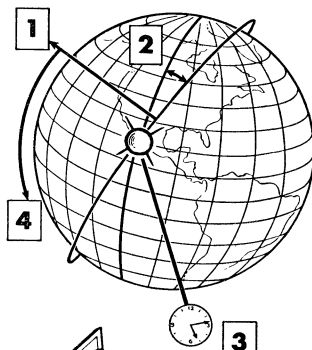
The studies show resistance to infection is controlled by nutritional factors different from those needed to gain weight.

Science News Letter, November 30, 1957

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