

BIOCHEMISTRY

Experiments Show Nature of Chemical Action of Enzymes

CHEMISTS who study the reactions occurring in the human body have been struggling, for years, to learn something of the nature of the mysterious products called enzymes which appear to make possible many of the biochemical happenings on which life itself depends.

Experiments which tend to reveal the exact chemical action of the enzymes in the digestion of protein compounds have recently been reported to the New York section of the American Chemical Society by Dr. Joseph S. Fruton of the Rockefeller Institute for Medical Research.

The proteins of our foods furnish us with the nitrogenous material which is so necessary in building up our own tissues. But to do this they must first be broken down into simpler products by the action of our digestive secretions in the stomach and the intestines. The digestive secretions act upon these proteins by means of the enzymes or ferments that they contain. How the enzymes attack or react with the large protein molecule and break it up into simpler compounds that can be absorbed into the blood is one of the difficult chemical problems that physiologists have long been attempting to solve. Dr. Fruton reports experiments by himself and others which indicate a method that promises eventually to solve this problem.

The protein molecule is a complex structure built up of hundreds or thousands of atoms of carbon, hydrogen, nitrogen and oxygen. It consists of a long chain of simple acids, known as amino acids because each contains an amino group, (NH₂). Organic chemists can take these simple amino acids and make them unite in chains containing two or a dozen or more, and in this way can synthesize molecules of the same nature as the protein molecules that occur in living tissues, only less com-

plex. These synthetic molecules are acted upon by certain enzymes and broken up into their constituent amino acids in much the same way as the proteins of food are affected by the digestive secretions. Since the chemist can determine the number and location of the various amino acids in any synthetic molecule he can ascertain when the enzymes make their attack upon it.

Dr. Fruton presents evidence to prove that some enzymes act upon the end groups of the chain of amino acids,

while others attack the linkages toward the center of the molecule.

By methods of this kind systematically applied it is hoped that the nature of the enzyme reactions will be disclosed. He suggests, moreover, that since certain viruses are attacked by enzymes of this class (carboxypeptidase) whose mode of action is known, it is possible that further work on these lines may throw light upon the structure of these mysterious agents of disease.

Science News Letter, August 1, 1936

Gift Prices

ON SCIENCE NEWS LETTER SUBSCRIPTIONS

1 subscription for one year	\$5.00
2 subscriptions for one year each	\$7.00
3 or more one year subscriptions, each	\$3.50

SCIENCE NEWS LETTER

2101 Constitution Avenue, Washington, D. C.

Send Science News Letter for one year starting with your next issue. Bill me at rates quoted in advertisement.

to

Address

(More than the above gift subscription may be ordered at the above prices by listing the recipients' names and addresses on a separate sheet of paper.)

from

Address

(For Canadian subscriptions, please add 50 cents a year; for foreign subscriptions, 75 cents a year, to above prices, to cover extra postage.)

Check here if you wish the Editor to write a personal letter to the recipient of the subscription, naming you as the donor.

RADIO

August 4, 2:15 p.m., E.S.T.
WORLD POWER CONFERENCE—Dr. Morris L. Cooke, Chairman, Executive Committee, World Power Conference.

August 11, 2:15 p.m., E.S.T.
WHY REGISTER BIRTHS AND DEATHS?—Dr. Halbert L. Dunn of the United States Bureau of the Census.

In the Science Service series of radio discussions led by Watson Davis, Director, over the Columbia Broadcasting System.

