

CHEMISTRY

Acid Essential To Life Discovered

Hitherto Unknown Protein Material is Number 22 In List of Known Amino Acids in Body Proteins

THE DISCOVERY of a hitherto unknown protein material in food absolutely essential to growth and life was announced by Dr. William C. Rose of the University of Illinois to the Federation of American Societies of Experimental Biology.

It is No. 22 in the list of the known amino acids in the proteins of the body and No. 8 in the list of those that have been shown to be necessary to life. Scientifically its name is: *Alpha-amino-beta-hydroxybutyric*.

The newly found amino acid was discovered, identified and prepared synthetically by Dr. Rose and his associates, Dr. H. E. Carter, Richard H. McCoy and Miss Madelyn Womack of the physiological chemistry staff.

Proteins taken into the body in such foods as meat, milk and eggs carry the only type of nitrogen available to the use of the body. These proteins are changed, through the digestive processes, into amino acids and the nitrogen fixed in these acids is absorbed by the body.

About five years ago, in attempting to learn which were necessary to life, Dr. Rose and his associates fed animals a mixture of foods containing no protein but to which had been added all of the 21 amino acids then known. The animals receiving such a mixture declined rapidly in weight and eventually died, he explained. This was interpreted as indicating the presence in proteins of a hitherto unknown component which was essential to life. With that in mind a search began for the substance in question. The search was rewarded with the recent isolation of this new acid. When it and the 21 previously known ones are added to an otherwise normal diet, but one which lacks proteins, normal growth and weight are produced. This is the first time on record that animals have grown on mixtures of highly purified acids in place of proteins.

Dr. Rose is of the opinion that this discovery will make it possible to determine which of the 22 amino acids present

in proteins are necessary for life and which are non-essential. By the use of a diet carrying all, the amino acids may be dropped out one at a time, and the effect of each upon growth accurately determined. This work is already in progress and will require possibly another two years for completion.

After that has been done, Dr. Rose and his staff expect to determine the quantity of all the amino acids which are required for normal growth. It is probable, he thinks, that when such information has been obtained, it may prove to be of clinical value in that the essential amino acids may be administered intravenously to patients who, because of stomach ulcers or other illness, are unable to consume food in the normal fashion. Experiments along this line are now being conducted.

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ZOOLOGY

"Little" Shark 15 Feet Long Captured in Mexico

FIFTEEN feet of whale shark, but rated as "little" because full-grown specimens get to be three times that big, is

the recent capture of Francisco Moreno, fishing captain of the port of Acapulco, Mexico, better known as "Pancho." The skin of the big fish has been acquired by the American Museum of Natural History, and will be mounted.

Half-Hour Struggle

Dr. E. W. Gudger of the Museum, who describes the specimen (*Bulletin of the New York Zoological Society*, March-April) tells of battle which is reminiscent of the struggle with a basking shark, another monster, depicted in the now famous Irish film, "Man of Aran." Pancho saw the big shark swimming in the harbor, a few hundred yards off shore, in about thirty feet of water. He launched a harpoon into it, secured by a seven-eighths inch rope. The shark ran out about 200 feet of line, and put up a struggle lasting half an hour. Then a second harpoon was thrown, and another endurance contest ensued.

Finally the whale shark was exhausted, a line was made fast around its tail, and it was hauled ashore.

Has Captured Six

This is the sixth whale shark Pancho has captured in Acapulco harbor. The others, taken in 1932 and 1933, were of about the same size as the new specimen, except that one was about 19 feet long.

The whale shark is a true shark, and not related to the whales at all. It is so named simply because of its great size and wide mouth. In spite of its formidable appearance it is quite harmless. It feeds only on relatively small fish, jellyfish, swimming crabs, etc., and its gullet is hardly larger than a man's wrist.

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15-FOOT BABY WHALE SHARK