CHEMISTRY-NUTRITION

Mass Output of Protein

A method for cheaper production on a mass scale of protein food substances for vein feeding has been announced. It will be made available to commercial producers.

➤ LIFE-ESSENTIAL protein food substances for vein feeding of stomach cancer patients and others too sick to eat can now be made at low cost by a simple method suitable for mass scale production.

The new method, expected to have a revolutionary impact on present production methods, was announced by Dr. Jesse P. Greenstein of the U. S. National Cancer Institute at the meeting of the American Chemical Society in Atlantic City.

As an example of the price saving possible by the new method, Dr. Greenstein said that one of the essential food substances, an amino called L-methionine, can be produced at a cost of 30 cents for a quantity now costing $6.50. This quantity, representing one-thirtieth of an ounce, is about all any manufacturing company now sells at one time, and the human body needs several times that much every day.

All eight of the essential amino acids can be produced by the new method at similar savings in money. The method is so simple that production by the pound can be achieved by an average technician.

Each of the essential amino acids, as synthesized in the laboratory, includes two closely similar types which are mirror images of each other. They are called L-type, or isomer, and D-isomer. Only the L-amino acids can be safely injected into the blood stream. But commercial production methods so far have not been able to supply anything like enough even at high cost of the L-amino acids needed by cancer and other patients.

In the method developed by Dr. Greenstein and associates, L- and D-amino acids, obtained cheaply in compound form, are digested in concentrated preparations of animal kidney, liver and pancreas. They are then purified by a series of simple chemical means. The technique will be made available to commercial producers.

Associated with Dr. Greenstein in developing the new method were: Drs. Vincent E. Price, Paul J. Fodor, James B. Gilbert, Alton Meister and Carl Baker, all of the National Cancer Institute.

Science News Letter, October 1, 1949

PSYCHOLOGY

Attitude Affects Success In Use of Artificial Leg

➤ DOCTORS can predict how well a veteran will get along with an artificial leg on the basis of the amputated man's attitude toward himself, Dr. Sidney Fishman, of the Veterans Administration's Prosthetic Testing and Development Laboratory, New York City, told the meeting of the American Psychological Association in Denver, Colo.

A board of three psychologists interviewed 48 men who had lost one leg, cut off above the knee, and gave them tests which would measure their opinions of themselves. On this basis, a judgment was made of how well they would adjust to the use of an artificial leg.

The judgment was then compared with photographs of the gait of the man with his artificial leg and with questionnaires filled out by the men and by their employers.

More amputated men take a dim view of themselves than are confident, it was found. And this sort of negative attitude causes difficulty in the use of the leg.

Predictions worked out all right, but were more effective when the man's attitudes were consistently either positive or negative.

Science News Letter, October 1, 1949

NEW SUPERSONIC TUNNEL—Most important single element of the huge tunnel is this 870,000 cfm axial flow compressor.

ENGINEERING

Giant Windtunnel Designed To Aid Supersonic Flight

➤ DETAILS of a new giant windtunnel for studying supersonic flight at the Langley laboratory, Langley Field, Va., of the National Advisory Committee for Aeronautics, are now released. The "secret" four-foot by four-foot tunnel has been in preliminary operation for the past year.

The new facility at the Langley laboratory is designed for the study of certain aspects of flights at speeds faster than the speed of sound, some 760 miles per hour. Because of its size, it permits the use of test models large enough to hold instruments. A 32-inch span model of a complete supersonic airplane now under investigation is fitted with movable controls and more than 300 pressure orifices.

A key element of the new tunnel is a specially designed air compressor of the axial-flow type which generates a flow of 870,000 cubic feet of air a minute. It was designed and constructed by Allis-Chalmers, Milwaukee, in conjunction with NACA Langley engineers.

This compressor is a seven-stage affair, is 11 feet in diameter, and has 1,137 blades. It requires 60,000 horsepower to drive it. It circulates air through the test section of the tunnel at velocities ranging from 1.2 to 2.2 times the speed of sound.

Operating velocities in the tunnel's test section can be varied by adjusting the flexible 25-foot-long walls of the nozzle ahead of the section. By means of gates, the test section can be isolated to permit model changes without returning the entire tunnel to atmospheric pressure.

Science News Letter, October 1, 1949