CHEMISTRY

Lack of B Vitamins Shows Viruses Not Living

➤ VIRUSES, the causes of many diseases including the common cold and infantile paralysis, are not living organisms like other disease germs but complicated protein chemicals, inanimate in nature, in the opinion of Prof. Roger J. Williams, director of the Biochemical Institute of the University of Texas.

The reason for his opinion is based on findings at the Clayton Foundation, showing that viruses apparently do not contain any B vitamins. Appreciable amounts of the various B vitamins have, however, been found in all forms of living matter which have been investigated, Prof. Williams states in a report to the *Journal of the American Chemical Society*. (May)

The presence or absence of these vitamins, he suggests, may be used as a criterion of the living or non-living nature or origin of a material in question.

Science News Letter, May 13, 1944

MEDICINE

Sulfaguanidine Effective In Asiatic Cholera

➤ SULFAGUANIDINE may be the means for conquering "our bitter enemy," Asiatic cholera, Dr. Joo-Se Huang, of the Kwangsi Provincial Medical College, at Kweilin, China, reports. (*Journal, American Medical Association*, May 6)

Only one patient died of the 22 he treated with sulfaguanidine. This is a death rate of less than 5%, whereas the death rate from Asiatic cholera ranges from 20% to 60% in various clinics. with a rate of 26% in the Provincial Hospital of Kweilin during 1943, Dr. Huang reports.

The only other treatment given the patients was lots of water to drink and drugs such as camphor water and tincture of digitalis to stimulate circulation. Within three or four hours after the first dose of sulfaguanidine the patients began to improve and within eight hours no more cholera germs could be found in their discharges. Vomiting and diarrhea had almost ceased and the deadly cyanotic color of their skins and mucous membranes had given way to a healthy bright color.

As the treatment decreased the vomiting and diarrhea within a few hours, the continuous and overabundant loss of water from the tissues was prevented and the danger of severe dehydration avoided.

The favorable results of sulfaguanidine treatment of bacillary dysentery gave Dr. Huang the idea of trying it in cholera, which is also a disease that attacks the intestinal tract. He was surprised to find the drug effective in the first case treated with it but, he reports, after several experiments he "had to concede that sulfaguanidine could give an unexpected effect in Asiatic cholera and that an effective remedy had been found whereby our bitter enemy cholera, which had been killing a great many people in the world for many years, could eventually be subdued."

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PHYSIOLOGY

Brain Injury Affects Complex Action Control

➤ HOW INJURY to the frontal cortex of the brain affects control of complicated movements has been shown by studies of dogs and of human patients. Removal of frontal sections of the cortex of dogs, Prof. P. K. Anokhik reported at the tenth physiological conference held in Moscow in memory of the great Russian physiologist, Ivan Pavlov, left secretory and simple motor reactions untouched but showed itself in the fact that it was impossible to stop motion that formed part of a complex action once it had been started. Impossibility of stopping movement and disruption of consecutiveness and different phases of complex actions were shown in a number of patients with injuries to the frontal cortex, as reported by Prof. A. R. Lurye.

Science News Letter, May 13, 1944

INVENTION

New Flying Boat Hull With Hinged Step Patented

➤ GIVING flying boat hulls a better shape for moving through the air is one of the objectives of patent 2,347,841, taken out by James F. Parker of Guantanamo Bay, Cuba. The normal under surface of a flying boat has a stepped structure, like a hydroplane, to assist it in lifting itself out of the water. However, the step creates troublesome air drag in flight. Mr. Parker obviates this by hinging the step, so that it can be retracted after the takeoff, making the hull more smoothly streamlined.

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IN SCIEN

ENGINEERING

Compact Dust Precipitator Suitable for Trains

➤ AN ELECTRICAL dust precipitator, claimed to be much more compact than other similar apparatus, is the subject of patent 2,347,709, granted to G. W. Penney of Wilkinsburg, Pa., and assigned to the Westinghouse Electric & Manufacturing Company. Secret of the compactness is the use of thin, closely spaced plates on which to precipitate the dust particles after they have been given their electrical charges. Suitability for use in railway trains, buses and the like is one outstanding advantage claimed by the inventor.

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CHEMISTRY

Bitter Flavor in Milk May Be Due to Lipase

➤ A BITTER FLAVOR in sweet milk and cream is sometimes caused by a substance called lipase, present in most milk, under certain conditions, it was reported by B. L. Herrington and V. N. Krukovsky of the Cornell University Agricultural Experiment Station.

By attacking the butterfat globules and breaking them down to produce fatty acids, lipase can cause the milk to take on a flavor that is similar to but not quite as strong as that of rancid butter.

The lipase becomes activated only under conditions favorable to this action, the Cornell scientists explained. For instance, vigorous shaking of raw milk or homogenization, which breaks up the fat globules into small particles, may cause bitterness to develop rapidly. Warming of raw milk to 85 degrees Fahrenheit and then cooling it also brings rapid breakdown of some of the fat, with the resulting bitterness. This often happens in country cream plants unless the milk is heated to 120 degrees Fahrenheit before separation, or unless the cream is pasteurized immediately after separation.

Skim milk never develops the off-flavor, as it contains no fat to be decomposed.

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SCIENCE FIELDS

NUTRITION

New Vitamin Discovered Helps Nourish Chicks

➤ DISCOVERY of what appears to be a new vitamin is announced by Dr. B. L. Hutchings, Dr. E. L. R. Stokstad, Dr. N. Bohonos and Dr. N. H. Slobodkin, of Lederle Laboratories. (*Science*, May 5).

The scientists do not give any name to the substance which they report having isolated in crystalline form. It is active in promoting growth of two kinds of microorganisms, *Lactobacillus casei* and *Streptococcus lactis R.* It is also active in the nutrition of the chick. What role, if any, it plays in the nutrition of humans is not stated.

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PUBLIC HEALTH

Vaccine Effective Against Two Types of Influenza

➤ INCREASED resistance to two types of influenza may be achieved by vaccination in future, it appears from reports by Dr. Thomas Francis, Jr., Dr. Jonas E. Salk, Dr. Harold E. Pearson and Dr. Philip N. Brown, of the University of Michigan School of Public Health and the Ypsilanti, Mich., State Hospital, to the Society for Experimental Biology and Medicine.

A vaccine containing concentrated, inactivated influenza virus, Types A and B, was given to a group of men at the Ypsilanti State Hospital in anticipation of an influenza outbreak in late winter and early spring of 1942-1943. When the outbreak failed to develop that winter, the effect of the vaccine was tested by spraying influenza A virus into the noses of one group of vaccinated men and having another vaccinated group inhale through their noses influenza B virus.

Increased resistance to each of these viruses was achieved by the mixed vaccine, the studies showed.

The influenza A outbreak during the winter of 1943-1944 gave an opportunity to test the vaccine on a larger scale and during a real epidemic. As reported in March by the Army's Commission on Influenza to the *Journal of the American Medical Association* (*See SNL*, April 8) vaccination shortly before or even after the onset of the epidemic did give protection. The trial of the vaccine was made on 12,500 men in Army Specialized Training Program units. Influenza attacked 2.2% of the vaccinated and 7.11% of the non-vaccinated controls.

The logical assumption is that the vaccine will be equally effective in protecting against any future outbreak of influenza Type B, since it was effective against both B and A types in the Ypsilanti trials.

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ASTRONOMY

Jan. 25 Eclipse Photos Arrive at Harvard

See Front Cover

➤ PICTURES of the Jan. 25 eclipse of the sun, observed in Chiclayo, Peru, by the Mexican Eclipse Expedition, have just been received at the Harvard Observatory. (*See SNL*, Dec. 25, 1943, and April 29)

The 30-second exposure picture on the cover of this SCIENCE NEWS LETTER, showing the polar feathers, or aigrettes, at the time of total eclipse, was taken with an 8-meter camera.

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HORTICULTURE

"Gas Mask" for Apples Now Being Developed

➤ EQUIVALENT of a gas mask for prime apples during the storage period to combat the ill effects of the saboteurs of the apple crop, the riper apples that give off ethylene gas, is being developed by the Agriculture Experiment Station of Cornell University.

As in soldiers' gas masks, the contaminated air in the storage bin is filtered through activated charcoal, with a little bromine added. During this process, the ethylene gas is absorbed and the air left purified.

Separate compartments in the storage bin would not solve the problem of protecting the apples, as any crop of apples may contain a few fruits riper than the rest. As few as 1% of the ripe specimens will speed the aging of the harder apples stored with them, Prof. R. M. Smock of the experiment station explained.

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HORTICULTURE

New Cantaloupe Variety Is Resistant to Mildew

➤ TEXAS cantaloupes, due to reach the market before long, should become more abundant from now on, because a new variety has been developed that is resistant to both aphids and downy mildew, worst insect enemy and worst fungus pest of cantaloupe vines everywhere. Breeding work on the new variety was done by Dr. S. S. Ivanoff of the Texas Agricultural Experiment Station. (*Journal of Heredity*)

Breeding stocks were selected from four varieties of West Indian origin, all of which had shown good resistance to aphids and mildew under South Texas conditions. Good size and shape for market requirements, ability to stand up under shipping conditions, and desirable qualities of sweetness and flavor were developed during the breeding program.

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PHOTOGRAPHY

Photoflash Lamps Okay For High-Speed Movies

➤ PHOTOFLASH lamps are satisfactory for the illumination of films taken with high-speed motion picture cameras on continuous moving film at the rate of upward of 2,000 frames per second, Henry M. Lester of New York City reported at the meeting in the same city of the Society of Motion Picture Engineers. He accompanied his description of the methods employed with motion pictures and demonstrations.

High-speed cameras are now in use he said, that produce exposures of from 1/10,000 to 1/30,000 second. Such brief exposures call for illumination of great intensity and high color temperature.

Incandescent lamps capable of providing such illumination, especially when operated at voltages higher than their respective rating, have many disadvantages, he stated. Among them are great power requirements, heavy conductors and the development of considerable heat.

"Operating on the current of a 6-volt dry cell (Hot Shot) battery one or more photoflash lamps will provide ample light of high color temperature of easily controllable duration," he continued. "Successive flashing of any number of photoflash lamps is accomplished with a Flash Distributor of a simple design."

Science News Letter, May 13, 1944