

BIOLOGY—MEDICINE

Influenza Virus Much Smaller Than Previously Supposed

Larger Particles, Once Thought To be Virus Units, Now Believed Normal Cell Components Carrying Them

THE INFLUENZA "bug" that made so many people sick last winter is only one-eighth or perhaps one-tenth the size scientists had previously believed it to be, although that was much too small to be seen even with powerful microscopes.

The diameter of each disease-causing unit of influenza virus is 10 millimicrons or less, Dr. Leslie A. Chambers and Dr. Werner Henle, of the University of Pennsylvania School of Medicine, told the Federation of American Societies for Experimental Biology in Chicago.

A millimicron is a millionth part of a millimeter, which is only .03 inch.

Since the scientists could not possibly see such tiny particles, they had to measure them in various indirect ways, using powerful centrifuges that separate particles of known size from still smaller ones, studying the speed with which particles move through a liquid and checking the calculated measurements with the electron-microscope. Although this instrument will show particles as small as 20 millimicrons in diameter, it did not show the influenza virus particles.

The eight or ten times larger particles which scientists had previously believed were the individual units of the flu virus are now believed to be normal components of body cells which carry the tiny virus particles.

Not only influenza virus but a virus used to make smallpox vaccine and another virus commonly found in the brains of mice are also much smaller than previously supposed and are probably carried on the larger particles which scientists had believed were the virus particles themselves. This was discovered by Dr. Jaques Bourdillon, also of the University of Pennsylvania, in studies of the rate at which viruses moved through a solution. The smaller particles believed to be the real viruses move more rapidly, he found, than the larger, carrier particles.

Science News Letter, April 26, 1941

Morphine May be Safe

PAINLESS childbirth may, contrary to previous medical opinion, be achieved with safety by giving morphine

or one of its derivative drugs to mothers, it appears from experiments reported by Dr. Franklin F. Snyder, assistant professor of obstetrics and gynecology at the University of Chicago, and Dr. Kha Ti Lim, of Peking, China, Union Medical College.

Doctors heretofore have believed it was unsafe to give morphine to abolish the pains of childbirth because the drug was supposed to interfere dangerously with the breathing of the unborn child.

Unborn rabbit babies, the scientists found, continued to breathe rhythmically for two hours or longer even when their mothers had been given 15 times the dose of morphine required to deaden pain. Various other morphine compounds

with powerful pain-killing effects were also studied.

"The results," Dr. Snyder declared, "suggest obstetrical usefulness."

Science News Letter, April 26, 1941

Arthritis Blood Differs

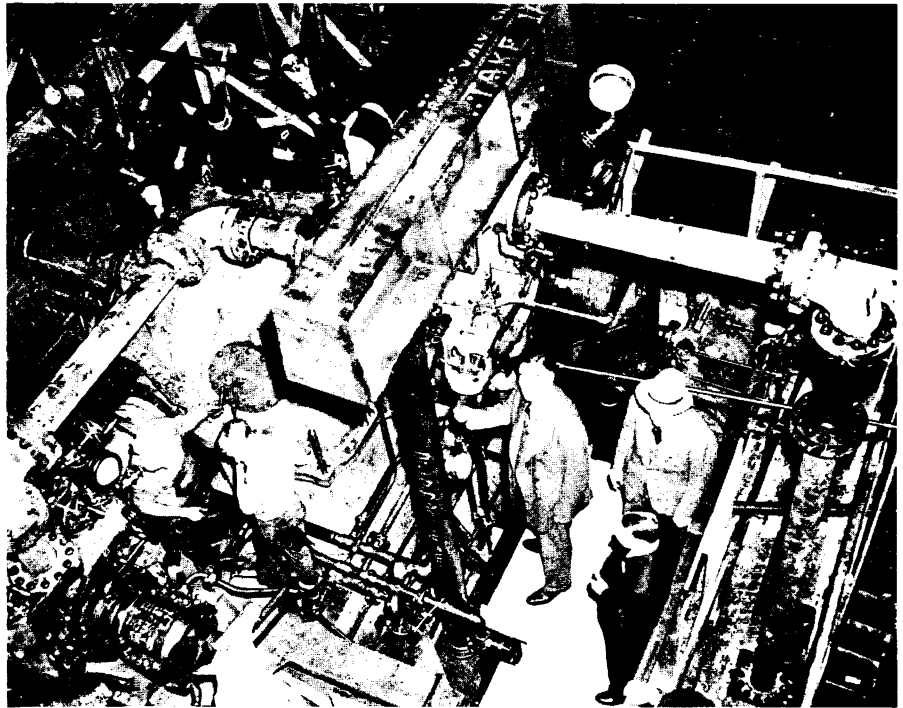
THE protein in the blood of patients with arthritis is different from that in the blood of normal persons, Dr. Otto H. Müller, of Cornell University Medical College, discovered through a test derived by a scientist in Europe, Dr. R. Brdicka, to study cancer and infectious diseases. This is the first application of the test to the study of that baffling and widespread ailment, arthritis.

Patients with gout did not show any significant difference from normal persons in this blood test.

Science News Letter, April 26, 1941

New Test for Vitamin B₁

A NEW way of determining whether or not a person is getting enough of the morale vitamin B₁, one of the "must" ingredients of the new enriched



INSPECTION

Recently appointed Assistant Secretary of the Navy Ralph A. Bard, inspects a boiler which is destined to be used in the new Navy. This boiler is being built at the Westinghouse plant in Lester, Pa., where steam equipment for about 100 fighting ships and merchant marine is being produced for defense. A. W. Robertson, chairman of the Board, and Vice-President R. A. McCarty are the Westinghouse officials who showed Secretary Bard about the plant.

flour and bread, was announced by Dr. Daniel Melnick and Dr. Henry Field, Jr., of the University of Michigan.

The test is made by giving a known amount of the vitamin and then determining the amount excreted via the kidneys during the next four hours. Normal persons excreted an average of 12% of the original dose within the four hours, but patients who had been on a diet deficient in the vitamin excreted only 3% of the original dose during the four hours. The remainder was absorbed by their bodies, indicating the previous lack of the vitamin.

New evidence of this vitamin's importance to health was obtained by Dr. E. S. Guzman Barron, Dr. Carl M. Lyman, Dr. M. A. Lipton, and Dr. James Goldinger, of the University of Chicago. Vitamin B₁, they reported, combines with phosphate to form an enzyme or ferment without which the kidney cannot produce sugar or the heart and brain produce citrate.

Science News Letter, April 26, 1941

Army Rations Okay

U. S. SOLDIERS on average Army Post rations apparently get all the vitamins they need. Daily supplements of pellagra-preventing nicotinic acid, of morale vitamin B₁ and of anti-scurvy vitamin C given to eight representative infantrymen at Fort Snelling did not make them feel any better nor show any favorable effect on heart rate, blood pressure, blood hemoglobin and other conditions tested after 15 minutes of marching, with pack and rifle, at nearly four miles per hour on a motor-driven treadmill with a 12.5% grade.

The tests were made over an 11-week period by Dr. Ancel Keys and Dr. Austin F. Henschel, of the University of Minnesota, under the sponsorship of the Surgeon General of the U. S. Army and the National Research Council.

Science News Letter, April 26, 1941

Make Own Drinking Water

MAMMALS which live in salt water, such as seals, get their vitally necessary fresh water supply from the food they eat and they have a special kidney mechanism for preserving this meager fresh water supply, Dr. Edwin P. Hiatt, of New York University, and Dr. Stanley E. Bradley, of Mount Desert Island, Me., Biological Laboratory, discovered.

Science News Letter, April 26, 1941

Clues to Bone Disease

CLUES to the cause and cure of a strange bone disease may result from a delicate operation on the heart said to have been performed successfully for the first time and reported by Dr. M. Mendlovitz and Dr. A. Leslie, of Mount Sinai Hospital, New York City.

The operation consisted in making a passage between the pulmonary artery, which carries blood to the lungs, and the left heart chamber, which receives blood from the lungs. This short-circuiting operation allowed part of the blood to circulate around the body without passing through the lungs where it normally goes to pick up oxygen.

The operation proved, it was stated, that an animal can live even though part of its blood is shunted past the lungs. As a result of the operation the rate of heart beat increased, more red blood cells appeared in the bone marrow, where they normally originate, and the oxygen content of the blood was lowered.

X-rays of the dogs on which the operation was performed showed increased bone development similar to that seen in hypertrophic osteoarthropathy, a human bone disease in which the bones become oversized. This bone disease is believed due to disease of the lungs in which toxic matters are absorbed from diseased areas. For this reason, it was pointed out, further studies of dogs that have had this delicate heart operation may throw light on the cause and cure of the bone ailment.

Science News Letter, April 26, 1941

Acne From Sex Hormone

TREATMENT of acne, that troublesome skin eruption that usually occurs during adolescence, may be revised in the light of the discovery that it can be induced by doses of male sex hormone substance, testosterone propionate. The discovery was reported by Dr. James B. Hamilton, of Yale University School of Medicine.

A group of men who had not matured sexually and who never had acne, were given the male sex hormone, whereupon they developed typical blackheads and pimples. The same result following male sex hormone treatment was seen in men who had been castrated and women who had lost their ovaries because of disease or accident. When the sex hormone treatment was stopped, the acne cleared up rapidly.

Doctors have long suspected a relation between acne and sex hormones, but no

direct experimental evidence for it had previously been established.

"The fact that sex hormones may induce acne in susceptible individuals," Dr. Hamilton pointed out, "is not proof that the sole cause of acne is the action of the hormone. Other factors and a predisposition to acne undoubtedly are of great importance."

Science News Letter, April 26, 1941

Test for Paralysis Harm

A NEW test that may help in treatment of infantile paralysis was announced by Dr. A. T. Milhorat and Dr. T. P. Almy, of Cornell University Medical College.

The test would be made by injecting two drugs, prostigmine and physostigmine, into the body. In some infantile paralysis patients the prostigmine caused twitchings of muscles in which no adventitious movements had previously been noticed, it was discovered. This phenomenon would probably be useful, Dr. Milhorat said, for determining the paralytic involvement of muscle groups which on neurological examination appear not yet to be affected by the disease.

Treatment to strengthen muscles and to prevent crippling from overuse of one set of muscles would, it appears, be helped by the knowledge this test could give of which muscles and nerves are affected.

Science News Letter, April 26, 1941

Food From Sheep's Wool

JUST as if to make things more upside-down than they already are in a world in which chemists have produced wool for clothing from cow's milk, a report suggests that sheep's wool may be made into a source of food.

So far, the sheep's wool powder has only been used as food for rats. They can digest it all right and when supplemented by other dietary ingredients, it proved to be a good source of certain protein constituents, Dr. Joseph I. Routh, of the State University of Iowa, found.

The similarity between rats and humans in their dietary requirements suggests that the powdered wool might become a food source for men as well as rats.

Science News Letter, April 26, 1941

The Indian influence in American fashions includes new Indian *tweeds* and woolens which the Sequoyah Indian Training School in Oklahoma is producing.