

MEDICINE

Encephalitis Virus Grown in Test Tube

THE virus of encephalitis, recently epidemic in St. Louis, has been grown in a test tube for the first time. The method by which this was achieved is reported by Drs. Jerome T. Syverton and George P. Berry of the University of Rochester School of Medicine and Dentistry. (*Science*, Dec. 20.)

Development of a means of growing this disease "germ" in a test tube or laboratory dish will mean that scientists investigating the virus no longer need to use animals to keep the strain alive for their experiments. The "food" on which the test tube virus was kept alive was made from embryonic mouse tissue, normal rabbit serum and a solution containing calcium, magnesium and similar chemicals.

Science News Letter, January 4, 1936

PLANT PHYSIOLOGY

Cancer-Causing Chemicals Induce Tumors in Plants

CHEMICALS that produce cancer in man and animals also cause abnormal tissue growths when applied to plants, Dr. Michael Levine of Montefiore Hospital, New York City, told the meeting of the American Botanical Society.

Dr. Levine used a number of substances, including the well-known cancer-provoking coal tar and compounds containing the "sulfhydryl" group, claimed by some physiologists to be especially liable to cause abnormal cell formation. He applied them to the growing tips of a considerable variety of plants, both annuals and perennials.

Young sunflower plants thus treated grew crooked stems, the spaces between the leaves were shortened, many small branches were formed producing a "witch's broom" effect. Injured or injected stems painted with chemicals or treated with powdered forms of these agents produced swellings with small tumor-like growths.

Under the microscope, these abnormal growths displayed certain cancer-like appearances, but of the simplest type. The plant tissues did not remain permanently cancerous, but developed the characteristics of mature tissue and stopped their wild undirected growth.

Annual plants seemed most responsive to the cancer-provoking agents. Perennials reacted far less and recov-

ered sooner. Compounds containing the "sulfhydryl" chemical group did not appear to be more effective than the other chemicals in producing the overgrowths.

Science News Letter, January 4, 1936

ENGINEERING

Olive Oil May Be Used in Automobiles in Tropics

OLIVE oil is a suitable lubricant for automobile engines, according to Prof. M. Bastet of the Agricultural Institute of Algeria. (*La Nature*, Nov. 15.)

After being pressed from the fruit, the oil must be de-acidified so that it will not corrode the metal parts of the motor. It may then be used in the crank case or may be graphited for use as a gear lubricant. Using a mixture of one part of olive oil to three parts of the usual mineral oil seems to give better results than the use of either oil by itself. This discovery may solve a difficult problem in tropical and semi-tropical countries where olives are abundant but where mineral oil products are scarce and costly.

Science News Letter, January 4, 1936

PHYSICS

Scientist Calculates Mass of the Universe

TAKE the figure 2 and add 55 ciphers after it and you will have the mass of the universe expressed in grams!

That, in effect, is the report of the famous Viennese physicist, Prof. Arthur Haas, before the meeting of the American Physical Society. Prof. Haas is this year visiting professor of physics at Bowdoin College.

Prof. Haas did not weigh the universe to find its mass, as might seem necessary to the layman. His result was based on theoretical calculations whose interest to scientists is the fact that they were made without the use of customary helps like relativity theory, the concept of an expanding universe, the curvature of space or astronomical data.

From the same calculations Prof. Haas derived the number of particles in the universe and the radius of a spherical volume of space over which astronomical objects are distributed.

The number of particles amounts to the figure 12 with 78 ciphers after it. And the radius in centimeters of the volume of space is expressed as 93 with 25 ciphers following.

Science News Letter, January 4, 1936

IN SCIENCE

MEDICINE

Trench Mouth Increase Traced To Dirty Glasses

AN INCREASE in trench mouth and possibly other serious diseases was laid at the doors of taverns and eating establishments serving alcoholic beverages by Dr. Don Chalmers Lyons of Jackson, Mich.

The increase in these diseases has probably occurred because beverage dispensing establishments are not using proper methods of cleaning their glasses, Dr. Lyons charged in a report to the Society of American Bacteriologists.

He found large percentages of the trench mouth organism and other disease "germs" on the rims of glasses racked on the bar and ready for use and also on glasses rinsed after their return from the customers.

The findings of this study and of a similar one by Drs. W. L. Mallman and W. L. Chandler of the Michigan State College suggest, said Dr. Lyons, "the necessity of better control of methods of glassware cleansing in such establishments."

Science News Letter, January 4, 1936

ASTRONOMY

23-Year Solar Cycle Dates To Ancient Geologic Times

THE 23-YEAR period of solar activity, which is the dominant one of twelve solar cycles, not only exists at present but has existed in at least two past geologic ages, Dr. Charles G. Abbot, secretary of the Smithsonian Institution, told the American Association for the Advancement of Science.

Evidence has been uncovered by paleontologists and geologists that the same slow tides in the sun's energy flowed and ebbed in pleistocene and eocene times that are moving today, he said. Pleistocene time was the Great Ice Age; eocene time was the dawn of the Age of Mammals, about 55,000,000 years ago.

All the twelve lesser solar cycles are aliquot parts of the 23-year period.

Science News Letter, January 4, 1936

E FIELDS

ZOOLOGY

Lowest Animals "All Eyes"; "See" Light By Entire Body

THE lowest animals lack eyes, but are "all eyes" in that they can perceive light with their entire body surfaces. The ameba, a primitive one-celled creature, is an example of this kind of elementary "seeing," Dr. Walter N. Hess of Hamilton College told the Zoological Society of America.

Up the scale just a trifle, but still among the one-celled animals, are other forms in which only the back of the body, usually turned uppermost, is sensitive to light. A little more specialized are one-celled animals which have their light-sensitiveness concentrated at one spot on the body.

Once the step to many-celled structure has been made, specialization sets in. Even such lowly creatures as worms have cells set aside for the special job of responding to light; here we are at the beginnings of eyes. But these cells are still widely scattered over the body, not grouped into well-developed seeing organs such as we find in the higher animals. In other members of the lower groups the light-sensitive function is more definitely localized, the location of these incipient "eyes" being usually toward the forward end of the body.

Science News Letter, January 4, 1936

MEDICINE

Vitamin C May Be Remedy In Infantile Paralysis

SCURVY-PREVENTING vitamin C may prove to be a remedy for infantile paralysis, it appears from studies reported by Dr. Claus W. Jungeblut of College of Physicians and Surgeons, Columbia University, to the Society of American Bacteriologists.

Dr. Jungeblut's results were obtained with monkeys and not in human cases of the disease. He cautions against drawing definite conclusions from his preliminary report but states that "there seems to be a strong probability that vitamin C when injected in proper doses possesses distinct therapeutic power in experimental poliomyelitis."

Vitamin C is found in many fresh fruits and vegetables and has also been prepared synthetically. Dr. Jungeblut injected this vitamin under the skin of monkeys on the day they were infected with infantile paralysis and every day thereafter for two and one-half weeks. One group of monkeys, untreated, served as controls. All these control animals developed typical infantile paralysis. Some of the animals treated with the vitamin did not develop the disease, others developed it without paralysis, and still others developed the disease in typical paralytic form. Apparently the amount of vitamin C given was important, large doses being less effective than small ones.

The monkey studies followed a previous discovery that when very small amounts of vitamin C are added to infantile paralysis virus in the test tube, the virus loses its disease-producing power. These small amounts of the vitamin are normally present in the central nervous system of man, Dr. Jungeblut pointed out. He believes that the presence of these small amounts of the vitamin may account for the fact that the great majority of humans are not susceptible to the disease. Those who are susceptible to it are not necessarily persons who do not get enough of the vitamin in their diet. Glandular disturbance may prevent proper use of the vitamin by such persons, he suggests.

Science News Letter, January 4, 1936

ENTOMOLOGY

Chinch Bugs Carry Own Death Germs

CHINCH bugs, second only to the drought in crop destruction during the trying summer of 1934, carry the germs of their own destruction within their bodies. So Dr. L. R. Tehon of the Illinois State Natural History Survey told the Mycological Society of America.

Chinch bugs readily fall victims to a mold-like fungus known as *Beauveria globulifera*, when weather conditions are favorable for its growth. Collections of the bugs made in Indiana and Illinois between February and May of last year were practically uniformly infected. Since Dr. Tehon carefully sterilized the outside of the bugs' bodies before he examined them, and still found the living fungus, he concludes that they carry this organism, deadly to them, in their interior.

Dr. Tehon found that the bugs harbor a number of other fungus species.

Science News Letter, January 4, 1936

RADIO

Shortwave Interference Traced to Fever Machines

THE cause of the mysterious shortwave radio "shadow" interference, which has greatly disturbed authorities in recent months, was definitely located by scientists in the Cruft Laboratory of Harvard University, under the direction of Prof. H. R. Mimno.

Medical devices for inducing artificial fevers were proved to be responsible for the radio interference. Tests conducted today from Cambridge with one of these machines in normal use proved that signals transmitted from one of the fever machines could be heard by the Naval Research Laboratory in Washington, D. C.

Previously it had been believed that machines of this type could interfere with radio reception over an area extending only a few miles from the source. Today's tests were the first to prove that a signal from an individual machine could be heard and identified hundreds or even thousands of miles, with sufficient signal strength to interfere seriously with shortwave radio.

The signal from one of these fever machines has the characteristic of any shortwave radio and gives a strong whirring sound, which prevents the hearing of any messages going out on the same wavelength. The power lines feeding the apparatus act as antenna in sending out interfering signals.

Reports indicate that interfering signals from these machines have been heard all over the United States, Canada, Central America, and even Europe.

Observers at the Cruft Laboratory, looking for the source of the shortwave interference at the request of the Federal Communications Commission for the past ten days, have heard as many as twelve of these machines in operation at once, apparently in widely separated parts of the country.

Naval authorities have been seriously worried, because the hitherto unidentified signals have interfered with all types of shortwave communication, including airplane radio, official government communication, foreign broadcast, and ship-to-shore radio.

The investigators at the Cruft Laboratory point out that the interference difficulty can be easily overcome by minor changes in the design of the machines. Associated with Prof. Mimno in this research have been H. Selvidge, J. A. Pierce, and P. B. King, Jr.

Science News Letter, January 4, 1936