

GENERAL SCIENCE

Science Foundation Bill Passes Senate Third Time

➤ A BILL to establish a National Science Foundation has been passed by voice vote in the Senate.

It was the third time over the Senate hurdle for the Foundation which leaders in science, government and industry have been urging since the end of the war.

Two years ago the Senate first passed a bill to create the Foundation, but the legislation died in the House. Last year, both houses passed a Science Foundation measure which President Truman vetoed. The new bill, which now goes to the House, is believed to meet the major objections raised in the President's veto message.

Some scientific and educational groups are already making up lists of names to help the President in appointing the 24 members of the Foundation. In addition to this group, the President, under the new bill, appoints a director for the Foundation. Appointment of the director by the members of the Foundation was provided for in the bill which was vetoed.

The measure would create a civilian, peacetime organization for promoting government support of science. It was proposed originally as a postwar successor to the highly successful Office of Scientific Research and Development which mobilized scientific effort in World War II.

But OSRD has gone out of business and its functions have been scattered, while legislation for the Science Foundation has bogged down. Now, it is hoped, the long-awaited Foundation may at last be approaching formation.

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GENERAL SCIENCE

Academy Issues Statement Criticizing Condon Attack

➤ THE National Academy of Sciences, the "senate" of American science, has approved by a large majority a statement that the treatment of Dr. E. U. Condon, Bureau of Standards director, by the House Un-American Activities Committee "may have the effect of deterring scientists from entering government employ and may diminish the respect with which citizens regard opportunities for service to their government."

The statement approved in a mail

poll prior to the annual meeting held recently also objected to the Thomas committee calling Dr. Condon a menace to national security without having given him a hearing.

Dr. A. N. Richards, president of the Academy, revealed that he had reported to the academicians that Rep. J. Parnell Thomas (R., N. J.) had authorized him to assure the Academy that "Dr. Condon would be treated with complete fairness" in the hearing which subsequently was indefinitely postponed. The Academy is reported to have voted "intense and continuing interest in the conduct and outcome of the forthcoming hearings."

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MEDICINE

Three Deaths Traced To Contaminated Solution

➤ AT least three deaths and 10 injuries attributed to an unknown substance contaminating a sugar and salt solution given to critically ill patients have been reported to the U. S. Food and Drug Administration. The reports were from Kentucky, Georgia, Florida and Alabama.

The solution is known technically as five percent glucose in normal saline. Such solutions, given by injection into the vein, are used almost routinely for patients just after surgical operations as well as in other conditions. The contamination occurred in the solution manufactured and distributed by Cutter Laboratories of Berkeley, Calif. Doctors and hospitals have been warned not to use bottles of this solution bearing the code number CM 8164, and to notify the Food and Drug Administration immediately if they have any in their possession.

All Food and Drug Administration laboratories have been put to work on the problem of identifying the contaminating substance, while field officials are making a nationwide survey to track down the several hundred bottles of the original shipment which have not yet been recovered.

Vomiting, diarrhea, cyanosis (blue skin color) and very low blood pressure are the symptoms reported after use of the contaminated solution.

Food and Drug Administration action started when the American Medical Association notified them that a Kentucky physician had reported injury to a patient following use of the Cutter glucose solution.

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IN SCIENCE

PLANT PHYSIOLOGY

Plants Need Some Zinc To Promote Proper Growth

➤ ZINC is needed in microscopic quantities by plants to promote normal growth. This role of the metal in plant nutrition has been proved by researches conducted in the botany laboratories of the University of Wisconsin by Dr. Cheng Tsui.

Tomato plants grown in a culture solution without the slightest trace of zinc grew a few inches, then stopped. When a little zinc was added, they resumed growth and eventually became almost normal.

Zinc-deficient plants were found upon analysis to be very short of the natural growth-promoting substance known as auxin, and also to be short in the protein building-block, tryptophane, from which auxin is formed in the plant. The direct effect of zinc lack appears to be in blocking the synthesis of tryptophane.

Details of the experiments are reported in the *American Journal of Botany* (March).

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DENTISTRY

Dentist Population Has Increased by 8,000

➤ YOU have a better chance of seeing a dentist if you live in the middle east and central states than if you live in Southeast or Southwest, the latest roll call of the nation's dentists shows. The roll was called by the American Dental Association for its new directory of dentists.

The nation has 8,000 more dentists now than the 1940 census showed. Total number today is 78,490.

Greatest number of dentists in proportion to population are found in New York State. The figure there is one dentist for each 1,106 residents. Next highest is Washington, D. C., with one dentist for each 1,197 residents. Other states well supplied with dentists are: Minnesota, Illinois, Wisconsin, Nebraska, Connecticut and California.

States with fewest dentists in proportion to population include: Mississippi, South Carolina, Arkansas, Alabama and Georgia.

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E FIELDS

BACTERIOLOGY

Revived Dead Germs Give Clue to Drug Resistance

► CLUE to the drug resistance which makes penicillin and streptomycin fail to cure some patients may come from dead bacteria which have been revived.

The revival of these germs, which had been dead to every known test for as long as three days, was accomplished by Prof. George I. Wallace and Miss Ione Rhymer of the University of Illinois.

The bacteria, or germs, had been killed by streptomycin. Reproduction through cell division, common evidence of bacterial life, was halted completely. Some of the germs had even twisted into weird shapes under the influence of the drug. They appeared completely inert. But when a mysterious "inhibiting factor" was added to them, they resumed normal activity and appearance.

The "inhibiting factor" was obtained from the media on which the bacteria had been growing before streptomycin was added. The Illinois bacteriologists found three years ago that bacteria growing in certain media were killed more readily by streptomycin than the same kinds of germs growing on different media.

The chemical nature of the "inhibiting factor" is now being studied by Prof. Herbert E. Carter of the University's chemical department. It may be lipositol, a protein substance customarily obtained from brain tissue or soybeans, or an ingredient of this protein.

Effects of the factor on bacteria and the possibility that bacteria themselves may produce it are also being investigated.

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PHOTOGRAPHY

Fastest Camera Shutter Known to Science Revealed

► THE fastest camera shutter known to science, capable of operating at a rate of 100,000,000 frames per second, was revealed at the Navy's dedication of the new Michelson Laboratory at the Naval Ordnance Test Station, Inyokern, Calif. It is in the Zarem camera, invented by Dr. A. M. Zarem.

The Zarem camera is about 25,000

times faster than the fastest motion picture camera commercially available. If motion pictures of a bullet leaving the muzzle of a gun were taken at this rate of 100,000,000 frames a second and projected on a screen at the normal rate, the bullet would appear to travel about four feet an hour.

A so-called Kerr cell is the secret of this fast shutter. This cell, long used by scientists, is a glass tube filled with nitrobenzene in which a pair of electrodes is immersed. The Kerr cell is placed between two polarizing plates so set that the polarized light emitted through the first is in the wrong plane to pass through the second. When high voltage is applied to the electrodes in the Kerr cell, the state of the polarization of the polarized light is immediately altered, allowing the light image of the subject being photographed to pass the second plate and on through the camera lens to the film.

By controlled timing of the voltage, photographic records with an effective exposure time of one hundredth of a millionth of a second have been obtained. The camera is designed for use in studying certain rapidly changing phenomena which heretofore science has been unable to observe and record accurately.

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ASTRONOMY-PHYSICS

Moon Does Not Influence Cosmic Rays on Earth

► THE moon may shine brightly upon the earth and may even influence human actions through romantic or outmoded superstition, but it can't affect materially the cosmic rays that bombard the earth from outer space.

Dr. Manuel Sandoval Vallarta, Mexican physicist, who has been guest this winter at the Tata Institute of Fundamental Research in Bombay, India, has assayed mathematically the possible effect of the moon's magnetic field on these penetrating particles.

Even though Drs. S. Chapman and P. M. S. Blackett in British studies have been able to compute the magnetic field of the moon, Dr. Vallarta's analysis shows that it is so small that it would affect cosmic rays of only such low energy that they would not be likely to reach the earth. He tells scientists, in a report to the British journal, *Nature* (April 24), that they will have to look elsewhere for an explanation of the daily and seasonal variations in cosmic rays.

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ENGINEERING

First Gas Turbine Engine For Power Plant Revealed

► A GAS turbine engine, now under construction, will be installed in Oklahoma City to develop electricity for the Oklahoma Gas and Electric Company, and will probably be the first gas turbine used for an electrical utility in this country.

The engine is being built by General Electric, Schenectady, N. Y., and is a duplicate of a 4,800-horsepower locomotive gas turbine now undergoing tests. The installation will be a 3,500-kilowatt gas-turbine generator set. It will be ready for operation in about a year.

Natural gas will be used for fuel in this gas-turbine installation, a fuel of which this state has an ample supply. Another advantage of this type of power plant is that the gas turbine requires practically no water, and water in this region is not as plentiful as it is in some other parts of the country.

In the gas turbine, fuel is burned mixed with air under pressure in an air-cooled combustion chamber, and the resulting expanded gases are driven against hundreds of vanes on a propeller shaft. Maintenance is low because the gas turbine has only two major moving parts. Oil may be used for fuel as well as natural gas. A coal-burning gas turbine also has been developed, and will be used on locomotives. The coal used must first be very finely pulverized, and burns in the combustion chamber in a swirling mass of air.

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GENERAL SCIENCE

Young Scientists' Training Shouldn't Be Interrupted

► TRAINING of students in the natural sciences should not be interrupted by military service in future draft or military training programs, the nation's largest general organization of scientists warned.

The executive committee of the American Association for the Advancement of Science "deems it essential that laws covering the manpower needs of our military forces do not interrupt the continued training of qualified students in the natural sciences on the under-graduate and graduate level," a resolution of the group declared. Members of the committee are 11 American leaders in science.

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