

GENERAL SCIENCE

Science Needs Support

A compromise is needed between the President and Congress to advance science with government support via a National Science Foundation.

By WATSON DAVIS

► BECAUSE Congress and the President couldn't agree about how to run a National Science Foundation, the nation is without strong government support of the kind of fundamental scientific research that may decide between future abundant life and disastrous destruction of civilization.

Congress passed a bill that provided a foundation controlled by a board of two dozen part-time members, but President Truman vetoed it because he wanted it run by an administrator with an advisory board.

The next session of Congress will have the same line-up and players. There is not much hope that either side, President or Congress, will adopt the other's plan.

Scientists and the public, polls and inquiries have shown, want science to advance with government support.

They want essentially civilian direction of scientific research, despite the necessary accelerated development of science for military use and the stop-gap grants being given munificently by the armed forces to universities and other laboratories.

So, Mr. President and Mr. Congressman, how about a new plan? Could you get together for the sake of the nation, on some such scheme as this:

1. For the controlling body, authorize a U. S. National Science Commission of five full-time members.

The commission form of organization is a workable, approved method of government administration, as in the Atomic Energy Commission, the Federal Trade Commission, the Federal Communications Commission, the Federal Power Commission, etc.

2. Incorporate in the new bill for a National Science Commission the salient features of the bill that passed in the last session, modified as necessary to be acceptable to both the President and Congressional leaders.

3. Invite all members of Congress to join in introducing the bill in the next session of the 80th Congress. There is excellent precedent for this unity for science. In the 75th Congress, S. 2067 "authorizing the Surgeon General of the U. S. Public Health Service to control and prevent the spread of the disease of cancer" was introduced jointly by every member of the Senate. The bill passed. Few members of the present Congress will wish to go on record "against science" in this atomic age, just as in 1937 no member of the Senate could afford to be in favor of cancer.

Mr. Truman, why not ask the Senate and House backers of the National Science Foundation bill to confer with you? This is an international emergency, as important in the long pull as filling empty human stomachs.

Science News Letter, November 1, 1947

Nickel was first discovered as an element in 1751 by a Swedish scientist.



WINS AWARD—Dr. Bernardo A. Houssay, of Buenos Aires, is the co-winner of the Nobel prize in medicine. He discovered the relation between the pancreas and the pituitary gland.

lutions per minute, the sound has a pitch of 30,000 cycles, and is too high for the human ear to hear.

White mice placed in the sound field died after one minute of exposure. Another mouse, exposed a half minute, appeared normal eight minutes later. The following day, however, its outer ear had deteriorated. The silent siren also was found effective in killing insects. Mosquitoes died in 10 seconds but a monarch butterfly caterpillar lived 215 seconds.

Possible uses for the device include the sterilization of foods, medical treatments and surgery, treatment of seeds to increase germination, elimination of the smoke menace, and speeding up chemical reactions.

When the human hand is placed over the siren, the heating is felt at those parts of the fingers that are close together but not quite touching. Temperatures were measured with a thermocouple attached to the hand. They were also measured with the thermocouple attached to soft rubber tubing in place of the fingers. Increases as much as 45 degrees Centigrade were noted. With stiff rubber tubing the temperature increases were slight. The heating, therefore, seems to be produced by the damping of vibrations set up in the fingers by the intense sound field in the region between them.

Science News Letter, November 1, 1947

PHYSICS

Sound Kills Mouse

► SOUND too high-pitched for the human ear to hear, given out from a lantern-shaped siren developed at the Pennsylvania State College, contains enough heat energy to light a pipe, pop corn, or to kill a mouse, it is now revealed.

The device is called an ultrasonic siren. Details of its construction, together with some of the biological effects secured with it, appeared in the *Journal of the Acoustical Society* (Sept.). The

report was by C. H. Allen and Dr. Isadore Rudnick who developed the siren under the direction of Dr. H. K. Schilling, director of the Penn State acoustics laboratory.

In the siren, compressed air in a small chamber escapes through 100 small holes shaped like cones and spaced equally on a six-inch circle. As air escapes, a wheel with 100 teeth chops the air into pulses. Each pulse then becomes a sound wave. When the wheel spins at 18,000 revo-

GENERAL SCIENCE

Nobel Prize Awarded

Two men and a woman are the winners in medicine for their researches which may pave the way to a possible conquest of diabetes.

► THE millions of diabetics throughout the world may well cheer the 1947 Nobel Prize award in medicine and physiology as they cheered the same award nearly a quarter of a century ago. Then (1923) it went to the discoverers of insulin, the diabetic's lifesaver. This year the award goes to two men and a woman whose fundamental researches will certainly do much to pave the way for a final conquest of diabetes, if that is ever made.

This year's Nobelists in medicine and physiology are Dr. Carl F. Cori and his wife, Dr. Gerty T. Cori, of Washington University School of Medicine, St. Louis, and Dr. Bernardo A. Houssay, of Buenos Aires.

The discovery of insulin, in 1922, brought life and health to diabetics. But, as any diabetic forced to take his insulin "shot" daily and sometimes oftener can tell you, the life-saving chemical is not a cure. And any biochemist can tell you that the discovery of insulin loosed a thousand questions to be solved.

Insulin is produced by islands of tissue in the pancreas. In diabetes, these islands stop producing the chemical. Without it a person dies. Give it to a dying diabetic and he is restored to life in a few hours. Why does it stop the drain of needed sugar from the body? How does it promote the burning of sugar in the muscles?

Solution to many questions about what happens in the body to sugar and starch eaten in food was found by the Coris. They discovered how sugar, stored in the liver as another chemical, glycogen, is converted back to sugar for transport in the blood to the muscles for reconversion there to glycogen. They also discovered that if the muscle fails to burn sugar completely the waste products are returned to the liver for conversion to glycogen.

The Coris' discovery of how insulin acts to promote burning of sugar was made following one of Dr. Houssay's discoveries. This was the relation between the pancreas and the pituitary gland. The

death from diabetes which usually occurs after the pancreas with its insulin-producing islands is removed can be prevented if at the same time this tiny gland in the head is removed. While Dr. Houssay went on to show further relationships between the various glands of the body, including the thyroid and adrenals as well as the pituitary and the pancreas, the Coris kept on with their studies of sugar utilization.

The key reaction in the burning of sugar in the body is not affected by insulin, but can be completely blocked by chemicals from the pituitary or adrenal glands. Insulin, however, lifts the blockade. This discovery of where and how insulin acts has given scientists a laboratory method for testing insulin substitutes. Its importance lies in the fact that an insulin substitute is badly needed, since increasing demands for insulin may some day outrun the supply.

Science News Letter, November 1, 1947

PHYSICS

Navy Seeks New Design For Magnetic Compass

► THE Navy is seeking a new design for one of the oldest instruments used in navigation, the magnetic compass.

But the new compass, which scientists are working on at the Navy Material Laboratory at the New York Navy Shipyard, is a remote-reading magnetic compass which will accurately indicate directions despite heavy seas and the firing of modern guns.

During World War II, the Navy substituted remote-reading compasses for more conventional direct-reading instruments. A shortage of non-magnetic materials made it necessary to have a compass high on the mast of a ship, from which remote indicators could be read in the wheelhouse.

This system, which used aircraft compasses on the mast of the ship, was not entirely satisfactory as the roll and pitch of the ship frequently made for inaccurate readings.

Now the Navy is trying to develop a remote-reading compass which will serve effectively under the conditions of modern naval warfare. Two devices being used in tests of new compass designs are a 75-foot, non-magnetic mast and a "Scorsby," an instrument which tests vibrations under conditions of rotation and controls the earth's magnetic field in an area large enough for accurate testing.

Science News Letter, November 1, 1947



NOBELISTS—Dr. Carl F. Cori and his wife, Dr. Gerty T. Cori, of Washington University School of Medicine, St. Louis.