

GENERAL SCIENCE

U. S. Science Department?

With two or three billion a year now being spent on scientific research by the government, raising of the National Science Foundation to department status is again advocated.

➤ A SECRETARY of Science? A new department and cabinet position either to coordinate and control the research and development activities of the nation?

Two to three billion dollars a year is now being spent by the government on research and development, most of it by the Department of Defense. There is some duplication in these expenditures: the Army, Navy and Air Force all have their rocket programs.

It is supposed to be the function of the National Science Foundation to survey governmental science as well as private scientific endeavors. The Foundation is expected to advise the President and Congress as to whether the nation has a balanced scientific program. Without such an overall check, we might be neglecting scientific fields vital to our defense or to our health, while we overemphasize fields which have caught the popular or Congressional imagination.

However, the Science Foundation still has little prestige, especially on Capitol Hill. Its appropriation was, under the Democrats, regularly cut far below that thought necessary to do its job. This year, former President Truman's budget calls for \$15,000,000 for the Foundation—perhaps with the economies which might result from such a check in mind, the Republicans will give the Foundation most of this money.

If either the Foundation were raised to the status of a department, or an entirely new department were set up and if it were given some control over allocation of the billions now being spent for defense, the thinking is, we might get more and better research and development for our money. The American Chemical Society in *Chemical and Engineering News* (Jan. 19) advocated making the Foundation a department.

Stumbling block to such a new department might be the concern of the Defense Department over losing control of its research and development program. Defense has set up a Research and Development Board charged with the task of coordinating the scientific efforts of Army, Navy and Air Force.

It would be unlikely that a new Science Department would get more than some say over how Defense dollars for fundamental research are spent. Any attempt at an outside say over the applied research and weapons development program would meet with vigorous opposition from Defense officials.

One assistant secretary in the new department might be in charge of scientific manpower. Defense has a military manpower assistant secretary. Scientists might look with approval on such an official, provided

he has some say as to the drafting and deferment of our short supply of skilled and talented scientists and engineers. Scientific bodies already have launched plans for national control of allocation of this manpower.

Who would be the new secretary? One man suggested is Dr. Alan Waterman, now head of the National Science Foundation.

Science News Letter, January 31, 1953

MEDICINE

Report Factors in Artery Hardening

➤ SIX CONDITIONS that seem to be factors in hardening of the arteries, or arteriosclerosis, are listed in a report from the Illinois State Medical Society.

The exact cause of the condition is not known, the medical society report states. But factors in the condition are: 1. heredity; 2. overweight since the condition is found twice as often in obese people; 3. infections; 4. chronic overwork; 5. long periods of inadequate rest; 6. continued nervous and emotional tension.

Normally, the report states, the arteries or canals by which the blood travels to the various parts of the body are flexible and supple. As we grow older, the flexibility and elasticity are lost, resulting in a condition known as arteriosclerosis. This term comes from two Greek words meaning artery and harden. While the disease is associated with the aging process, it also develops in the younger age group.

The only function of the arteries is to convey blood to the cells which make up the various organs, muscles and bones of the body. So long as the amount of blood received or the rate at which the blood is received by a given organ is adequate for its nutrition, nothing happens. But if the arteries become obstructed or so narrow that the flow of blood is interfered with, the groups of cells within the organ die, impairing its function. Again the blood supply may be sufficient for the organ at rest, but insufficient when it is working.

In arteriosclerosis the hardening may be only an increase in the thickness of the wall of the artery with some loss of elasticity and narrowing. Again there may be patchy or plaque-like deposits of fat in and just beneath the lining membrane of the artery. Gradually, calcium salts, which are normally present in the body, are deposited in these fatty patches, where they remain to become stony hard.

Science News Letter, January 31, 1953

Questions

ASTRONOMY—What can astronomers learn from a study of eclipsing stars? p. 75.

• • •

BIOCHEMISTRY—What are three effects of antibiotics? p. 77.

• • •

BIOLOGY—How do sterile male sugar beet plants aid development of new hybrids? p. 77.

• • •

GENERAL SCIENCE—What scientific decisions face President Eisenhower in the next four years? p. 71.

• • •

ICHTHYOLOGY—How can scientific investigation aid in catching fish? p. 68.

• • •

SURGERY—How can the pain of some cancer patients now be relieved? p. 75.

• • •

VETERINARY MEDICINE—What chemical may now be added to poultry feed to aid in fight against air sac disease? p. 68.

• • •

Photographs: Cover, Walter Reed Army Medical Center; p. 67, California Institute of Technology; p. 69, Fairchild Aircraft; p. 71, Goodyear Aircraft Corporation; p. 77, U. S. Army; p. 78, Westinghouse Electric Corporation; p. 80, Thatcher Glass Manufacturing Company, Inc.

ENGINEERING

Railroads Expand Use Of "Electric Brakes"

➤ MORE AND more diesel-powered freight trains now generate electric current and "burn" it in electrical resistors built into the locomotives when the engineer puts on the brakes.

This method of braking is spreading rapidly through railroads using diesel-electric locomotives, A. V. Johansson and H. R. Stiger of the General Electric Company reported to the American Institute of Electrical Engineers meeting in New York.

Called dynamic braking, it resembles another system already used on some railroads. This system is a "regenerative" system. The chief difference between dynamic and regenerative braking lies in the method used to dissipate the power produced. In dynamic braking, the power is burned in a resistor built into the locomotive. In regenerative braking, the railroad's power system takes the energy from the train and employs it elsewhere, or dissipates it in resistors at the substation.

Originally devised for trains that thread their ways through mountainous country, dynamic braking offers many advantages which make it attractive for use on flatlands. As contrasted to mechanical braking methods, it reduces the number of wheel and brake-beam failures due to excessive heat. And when properly used, electrical braking also gives the engineer better control over his train.

Science News Letter, January 31, 1953