

GENERAL SCIENCE

Science Foundation Bill

For the third consecutive year President Truman has included a foundation bill in the budget. A total of \$15,000,000 for fiscal 1950 has been listed for it.

► PRESIDENT TRUMAN included a national science foundation in the budget for the third consecutive year and called on Congress to establish the new civilian agency for directing federal support of science.

Scientists, frustrated after three years of legislative and executive disagreement, are hopeful that the new election-borne weight now given the President's words will help bring the long-sought foundation into being. A total of \$15,000,000 for fiscal 1950 for the foundation to start its program is listed in the budget.

A bi-partisan bill, identical with one which passed the Senate and died in the House of Representatives last year, has already been introduced in the Senate. Heading the list of senators who introduced the bill (S. 247) is the new chairman of the Labor and Public Welfare Committee where the bill has been assigned, Sen. Elbert D. Thomas, D., Utah. Other sponsors include two other Democrats, Sens. Harley M. Kilgore, W. Va., and J. William Fulbright, Ark., and three Republicans, H. Alexander Smith, N. J., Guy Cordon, Ore., and Leverett Saltonstall, Mass.

The bill was originally sponsored in the Republican Eightieth Congress by Sen. Smith. It meets the objections the President raised in 1947 when he killed a foundation bill by pocket veto. Main objection at that time was appointment of the director of the foundation by a large group of members. Under the present bill, the President appoints both the director and the members, with advice and consent of the Senate.

The foundation's big jobs are planned to be the support of research, particularly fundamental research, with grants of federal funds and the awarding of scholarships and fellowships to scientists and prospective scientists. As called for in the bill, it would function through divisions covering different sciences. A minor point of dispute in the last Congress was whether special groups should be specified for attacks on major diseases, but this was compromised by providing that the foundation could set up such other divisions and commissions as it deemed advisable.

Dr. Vannevar Bush, president of the Carnegie Institution of Washington, first proposed the foundation as a civilian, peacetime successor to the successful Office of Scientific Research and Development which he headed in World War II. OSRD passed out of existence, but the new foundation failed to be enacted into law, twice dying in Congress and once at the White House.

Meanwhile, the burden of the support

of the fundamental research which everyone has agreed is vital to the country for peace as well as war has fallen chiefly to military organizations, such as the Office of Naval Research.

Most scientists today will be satisfied to get any foundation bill written into law, so that the new organization can finally

start its task, more than three years after the war. Some, however, would like to see some changes made in the present bill. Most of these would be in the direction of more power for the foundation, and particularly the director.

One argument being advanced is that the new Congress need not be hesitant about changing the Republican "Smith Bill" of last year, which is identical with the new one. Some scientists even suggest they would prefer the bill which Sen. Thomas himself introduced in the last session.

But most scientists are merely hopeful that the foundation, which has almost unanimous support from science and education, will finally be established.

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MEDICINE

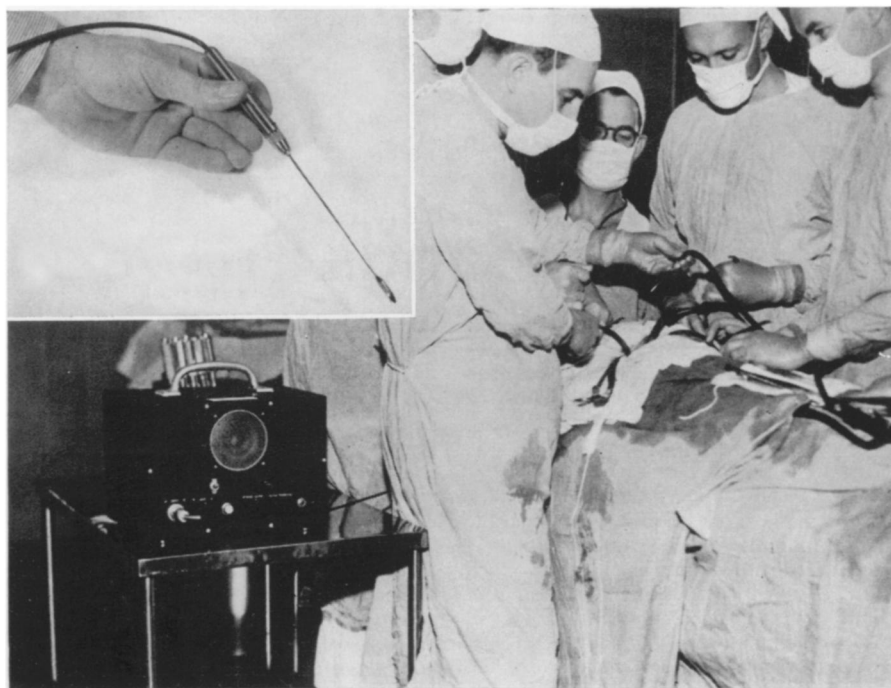
Find Gallstones by Sound

► GALLSTONES hiding in the common bile duct after the surgeon thinks he has removed them all can now be made to broadcast their presence to the surgeon or to the entire surgical team. They will do it through a gallstone detector developed by Dr. Eric A. Walker and E. G. Thurston, of the Ordnance Research Laboratory, Pennsylvania State College, for Dr. C. K. Kirby of the University of Pennsylvania Hospital.

The detector is something like a phonograph pickup. It consists of a standard

surgical probe held in a chuck, or handle, which contains a glenite ceramic piezoelectric element. Sound waves travel through the probe to the crystal and are there turned into small electric currents which are carried by means of a telephone cable to an amplifier. This amplifies the small electric current and changes it back to sound energy in the loud-speaker. Or the amplifier may be connected to earphones for the surgeon to wear.

By this combination the very slight sounds of the probe striking a tiny gallstone are



GALLSTONE DETECTOR—Amplifier at left emits a sound when the probe in insert comes in contact with a gallstone.

amplified hundreds of thousands of times. Besides the increased sensitivity of the instrument over present equipment, the device has the advantage that extraneous noises, such as the handle striking solid objects, are largely eliminated.

The Penn State researchers, who ordinarily do work for the U. S. Navy,

are now working on a similar device to detect kidney stones.

The college will place the gallstone detector on the open market, passing up patent claims, Dr. Walker said, so that it may be made available to the greatest number of people needing this medical aid.

Science News Letter, January 22, 1949

CHEMISTRY

Cotton Gets New Qualities

New chemical processes make treated cotton soak up more water, give it greater rot resistance, and increase the range of dyes it is able to absorb.

► CHEMISTS are teaching cotton new tricks:

It can soak up more water.

It has greater rot resistance.

It can take a wider range of dyes.

The rapidity with which cotton cloth soaks up water is increased through a new chemical treatment. This suggests its possible use on toweling and similar materials, according to the annual report, just issued, of the U. S. Department of Agriculture's Bureau of Agricultural and Industrial Chemistry. The treatment consists of tacking onto the cellulose molecule a group of atoms related to ordinary wood alcohol, called carboxymethyl.

A new type of cotton fabric, known as aminized cotton, is produced by a chemical finishing process recently developed at the Southern Regional Laboratory. This cotton, unlike ordinary cotton, has the ability to take acid wool dyes readily.

The process, which greatly increases the range of usable dyes, consists of allowing 2-aminoethylsulfuric acid to react with the cellulose of the fabric in a strongly

alkaline solution, whereby amino groups are chemically combined with the cellulose. It is simpler and less expensive than other procedures proposed for the same purpose.

The introduction of amino groups permits the addition of metallic elements to give rot resistance or the introduction of organic groups to give water repellency or other new qualities to cotton for specific uses, states Dr. G. E. Hilbert, chief of the Bureau.

The partial acetylation process, developed at the Bureau, is now in limited commercial use. It is the best method so far discovered for making cotton virtually rotproof and mildewproof.

Weather resistance for awnings, tents, shade cloth and seedbed covers was increased by a resin-pigment treatment. Samples of cotton duck treated with urea-formaldehyde resin in combination with lead chromate showed less than five percent loss of strength after a year's exposure to weather, compared to a loss of about 50% by untreated fabrics, the Bureau found.

Science News Letter, January 22, 1949

are for television.

Certain trends in radio broadcasting are indicated by the type for which operation licenses were sought. During the first half of 1948, there was a sudden surge in television applications, and a leveling off of FM requests.

Noncommercial education broadcast stations increased from 38 to 46, and television experimental stations jumped from 81 to 124. The broadcast year was marked by authorization of facsimile, which was scheduled for commercial operation over FM stations.

Science News Letter, January 22, 1949

CHEMISTRY

University Grants to Aid Research in Chemistry

► A \$100,000-program to aid in "stockpiling basic knowledge" of chemistry was announced by the Du Pont Company in Wilmington, Del.

Grants-in-aid of \$10,000 to 10 universities are being made in the new program for the academic year 1949-50. Non-commercial research projects which will be selected by the universities will be aided by the funds.

Institutions receiving the grants are: California Institute of Technology; Cornell University; Harvard University; Massachusetts Institute of Technology; Ohio State University; Princeton University; Yale University; and the Universities of Illinois, Minnesota and Wisconsin.

Science News Letter, January 22, 1949

ENGINEERING

Fluorescent Lamps Light Brooklyn-Battery Tunnel

► THE Brooklyn-Battery tunnel, now being constructed to connect Brooklyn with New York proper with a highway under the harbor, will be lighted by four two-mile-long continuous ribbons of fluorescent light, it was revealed by General Electric which will install the system.

The tunnel is being constructed with two tubes, each with two traffic lanes. Each tube will be lighted by twin rows of white fluorescent lamps. A total of 5,776 individual lamps, each six feet long, will be employed. They will be housed in clear pyrex glass tubes near the tops of the side-walls.

A unique feature of the lighting system is an automatic system that will turn on a higher intensity of light in the portal sections of the tunnel during bright daylight hours. This will promote safety for motorists driving from bright sunlight into the tubes at normal traffic speeds, by allowing the drivers' eyes to become gradually accustomed to the lower light level inside.

Science News Letter, January 22, 1949

RADIO

Frequency Bands Crowded

► SQUEEZING new stations into already congested radio frequency bands to accommodate rapidly developing services has caused many headaches in the Federal Communications Commission during the past year, its annual report just issued seems to indicate. The report covers the fiscal year ended June 30, 1948.

Until methods and equipment are available to use higher portions of the spectrum, present frequencies must be employed more effectively, it says. During the year the Commission, in cooperation with industry, was engaged in reviewing and revamping existing radio service, and making studies looking forward to additional adjustments.

The general public is familiar with broadcasting because it enters the home. But it has little acquaintance with more than 50

other classes of radio stations, equally important in providing more than a hundred nonbroadcast services.

These nonbroadcast stations include safety and special radio services, devoted largely to safeguarding life and property on the land, sea or in the air. They include utilization of radio for industrial and business purposes, mobile stations for use in highway and other traffic, and radio stations in the aviation field which provide all sorts of services to aid air navigation.

Broadcast authorizations increased 400 over the previous year, bringing the total number of stations to nearly 4,000. Of this figure, 3,163 are major broadcast outlets. Of these, 2,034 are the long-used amplitude modulation (AM) type, 1,020 are the newer frequency modulation (FM) kind, and 109