found: Frequent and often serious, 9; sporadic, 16; seldom found, 16, and disease not reported, 11. A more wide-spread survey would almost certainly add to the numbers in the classes "sporadic" and "seldom found."

The first class, in which the disease is frequent and often serious, includes only nine out of the 41 counties where it is known to occur, and with one exception—the Isle of Wight—these lie to the east and north of London. There is no indication as yet of any tendency for the disease to extend its virulent range westwards. Severe local outbreaks do occur, but they are usually very restricted, and over the greater part of England it is doubtful if the casual observer would be aware of the presence of the disease.

The progress of those trees in which evidence of continued die-back is no longer visible is being carefully watched, according to the *Times*. The number of such "recoveries" is still large, but the fungus usually remains dormant in the wood of the branches. A renewed onset of the disease has already taken place in some of these trees, so that recovery is by no means assured. A limited number of cases are known where all trace of the fungus has gone and the tree appears perfectly normal.

With regard to preventive measures, lopping is only successful if the disease is taken at a very early stage, and even then there is always the possibility of reinfection. Apart from the removal of dead and fallen trees, successful measures have not yet been devised for keeping in check the elm bark beetles, which act as chief carriers of the disease.

Although there is still no definite record of the elm disease in Scotland, some laboratory work has been done on the sickly elms found during last year's survey in that part of the country. Various fungi have been isolated, and work on these is proceeding.

## CENTER FOR POLAR RESEARCH AT CAMBRIDGE, ENGLAND

ACCORDING to a wireless dispatch to *The New York Times,* the new center for polar research was opened at Cambridge, England, on November 16 by Stanley Baldwin, Lord President of the Council, in the presence of many veteran Arctic explorers.

Designed as a memorial to Captain Robert Falcon Scott and as an information center for future explorers, the new building will house the School for Polar Research, which has been in existence at Cambridge for several years. In the words of the director, Professor Frank Debenham, it will make exploration "easier, less expensive and more valuable."

Mr. Baldwin said in part:

This building has been erected as a testimony to aspirations common throughout the world—a desire for adventure, knowledge and research into the secrets of nature.

Every continent and island in the world has its own tales of heroism and fortitude—tales which have come down from generation to generation to stir the hearts of men. Names like Frobisher, Hudson, Perry and Franklin are still a trumpet call to all those whose heart-strings vibrate to the inner call of adventure.

In the South the two names of Shackleton and Scott stand out supreme, but let us never forget the many others whose names have not lived after them, but whose courage and endurance were as great. Arctic and Antarctic exploration is a prolonged war which needs strategy and carefully laid plans for its successful prosecution. The new building provides a venture in study and research for all those going out into the partly known and unknown.

On the front of the building is a bust of Scott executed by his widow. Above it on the frieze are the words, "Quaesivit Arcana Poli Videt Dei"—"He went seeking secrets of the Poles and he sees God." In the forecourt stands a symbolic statue given by Lady Young as a memorial to the five who died with Scott on his last strategic expedition, among them Captain Oates, "a very gallant gentleman."

The facilities of the building include a library, map room, research room, museums and archives containing all available log books, diaries and weather records kept by polar expeditions.

Polar veterans who attended the dedication ceremony, according to the *Times,* included Dr. Jean Baptiste Charcot, leader of two French expeditions to the Antarctic; Dr. Ejenar Mikkelson, Danish Greenland explorer; Admiral Sir George Egerton, who first went to the Arctic almost sixty years ago; Daugard Jensen, head of the Greenland Administration Board; Vice-Admiral Sir Reginald Skelton, chief engineer of Scott's first expedition, and others who served under Scott or Shackleton in Antarctic adventures.

## RESEARCH IN ENGINEERING AT HARVARD UNIVERSITY

THE following is a list of some of the more important contributions which the Harvard Engineering School has recently made through its research activities as given in *The Harvard Alumni Bulletin:*

(1) The investigation of the properties of steam as part of a rational project, with the experimental work carried out in three institutions. This work has been accepted and is now in course of being embodied in the international standardization of accepted values for the properties of steam. It has been the basis for the design of modern high-pressure and high-temperature steam machinery.

(2) The investigation of fans for mixing large vol-

umes of air. This has been an exploration in a field of great technical importance, but of little exact knowledge. The work already done has had considerable influence on existing practise.

(3) Studies of dielectrics and high-voltage cables. These have led to the discovery of new laws relating power loss and power factor to voltage, frequency, and temperature in dielectrics; and to the determination and rationalization of the laws of ionization loss in high-voltage cables. As a result of these researches, improvements in manufacturing and in testing dielectrics and high-voltage cables have occurred, and the life of properly designed cables has been materially increased.

(4) Fundamental studies of the flow of water through sand and other filtering materials. This work is aiding engineers in the exploitation of ground waters and in the interpretation of the behavior of water filters.

(5) Studies of the effect of corrosion on the carrying capacity of water pipes composed of different materials. These studies evaluate in hydraulic terms the destructive effects of water on the metallic conduits through which it is distributed.

(6) Studies of the factors governing the destruction of the complex organic substances contained in municipal wastes. These have paved the way for more economical design and operation of waste treatment plants.

(7) Studies of the control of dust generation in the construction industries (in cooperation with the School of Public Health). This work is leading to the development of non-hazardous drilling operation.

(8) Fundamental studies of age-hardening in steels and non-ferrous alloys; of the graphitization process in cast iron; and the hardness of the adjacent parent metal, and of the secondary and mosaic structure of single metal crystals. Work in the development of the "Reflex-Laue" method of x-ray crystal analysis. These studies have been of great importance to the metal industries.

## THE MANGAREVAN EXPEDITION OF THE BERNICE P. BISHOP MUSEUM

THE Bernice P. Bishop Museum welcomed on October 28 the members of the Mangarevan Expedition returning to Honolulu aboard the specially designed sampan *Islander* from six months' field work in southeastern Polynesia. The *Islander* brought home the natural history party: Dr. C. Montague Cooke, Jr., malacologist and leader; Dr. Harold St. John, botanist; Mr. Elwood Zimmerman, entomologist; Mr. Donald Anderson, assistant malacologist; and Mr. Raymond Fosberg, assistant botanist. Still at work in the field is the anthropological party, Dr. Peter H. Buck, Kenneth P. Emory and J. Frank Stimson, aboard the cutter yacht *Tiare Tahiti* which will be released at Papeete, Tahiti, about January 1.

The Mangarevan Expedition was organized for the exploration of little-known islands and atolls in extreme southeastern Polynesia. Of the thirty-one islands and many atolls and reefs on which the party landed, particular attention was given to Anaa, Napuka, Tatakoto, Hao, Mangareva, Timoe, Pitcairn, Henderson, Oeno, Rapa, Raivavae, Rurutu and Rimatara. Surveys supplementing those made by Bishop Museum in previous years were conducted at Tubuai, Tahiti, Raiatea, Huahine and Borabora.

The program of the expedition stressed investigations in botany, ethnology, malacology and entomology, with incidental attention to geography, geology and marine zoology—a procedure that guided the selection of the professional personnel and numerous assistants.

To gain access to atolls and cliff-bound volcanic islands a ship of high power and shallow draft was designed, and to permit the party to divide its forces for particular kinds of work a transfer ship and power launches were provided. The expedition was made possible by generous grants from the Rockefeller Foundation and from institutions and individuals in Hawaii.

Regarding the results of the expedition Professor Herbert E. Gregory, director of the museum, states that: "Under the experienced leadership of Dr. C. Montague Cooke, ably supported by Captain William Anderson, of the *Islander*, the program of the expedition was carried out with marked success. The collections, which include some 15,000 sheets of plants, 40,000 insects, 160,000 land shells and representative series of other animals, is sufficient to give a fairly complete picture of the land fauna and flora of the southeastern Pacific, and to indicate the relation of the oceanic islands to South America. The expedition practically completed the general survey of the ethnology and natural history of Polynesia which has been the chief interest of the museum since 1920."

## THE INTERNATIONAL PHYSIOLOGICAL CONGRESS FUND FELLOWSHIPS

THE International Physiological Congress Fund Fellowships were established by the Federation of American Societies for Experimental Biology following the session of the thirteenth International Physiological Congress in Boston in 1929. The committee for the congress presented the surplus of the funds collected, to the federation, with the suggestion (1) that if and when another International Physiological Congress was held in this country the principal be used for the promotion and support of that congress, and (2) that the income of this fund be appropriated triennially, in units of $250, to defray the expenses of promising young American workers in the field who would not otherwise be able to attend International Physiological Congresses abroad and who had creditable papers to read before the congress. Membership in the federation is not a necessary condition for the award of a fellowship.