Rico Anemia Commission, died on November 1, aged sixty-one years.

DR. LUCILE B. WHITCHER, associate professor of organic and physiological chemistry at Skidmore College, died on October 16 at the age of thirty-seven years. She had been at Skidmore College for eleven years.

SCIENTIFIC EVENTS

THE NEW BUILDING FOR ZOOLOGY AT THE UNIVERSITY OF CAMBRIDGE

A CORRESPONDENT of the London *Times* writes: "The old zoological lecture rooms and laboratories, familiar to generations of students of medicine and natural sciences at Cambridge, have ceased to function. They had served their purpose, in some cases from the days of Newton and Francis Balfour, but became no longer adaptable to current demands. If zoology was to grow with the times new buildings, extra endowment and more staff were needed. The means for fulfilling such aspirations were ultimately made available through the generosity of the Rockefeller Trustees, aided by state and private benefactions, and this afternoon the new zoology building, erected at a cost of £80,000 under a committee with the University Treasurer (Mr. T. Knox-Shaw) as chairman will be open for inspection."

The building, as described in the *Times*, is an L-shaped structure of steel and concrete, and for the most part faced with brick. With a frontage on Downing Street and Corn Exchange Street, it measures 292 feet long, with a breadth of 43 feet. The architect has designed a building of a strictly utilitarian type combined with a certain grace of line and proportion. In some ways it resembles the best type of modern factory construction, the narrow pillars in the walls being 6½ feet apart; except for these, the walls above bench level are entirely of windows, thus providing the maximum amount of natural lighting. Adaptability to possible future requirements is a special feature in the planning; the walls between adjacent rooms are easily removable, while the furniture is of uniform design, allowing the maximum interchangeability.

The building consists of a basement and four floors. In the basement are heating and service supplies, together with rooms for marine and freshwater aquaria. There are also four differentially heated constant-temperature rooms. The ground floor is given over to elementary teaching: it contains a well-designed lecture theater, with seating for over 200 students, and, close at hand, an exceptionally large and well-appointed elementary laboratory. The first floor contains an advanced laboratory and lecture room, the professor's room, and general offices, a staff room, and private rooms for 12 research workers, together with the departmental library.

The whole of the second floor is given over to experimental zoology, which has a large teaching laboratory and 14 rooms available for research. Each room is provided with water, gas, direct and alternating current, and compressed air. Complete provision is made for keeping animals under suitable environmental conditions; there are also several dark rooms, a chemical laboratory, and well-fitted workshops. The chief rooms are provided with means for maintaining them at a steady temperature, often below that of the main building. The third floor is given over to entomology, with rooms for the staff and nine other workers. A large incubator room for studying the effects of temperature and humidity on insect growth is provided. There is also a room for other types of experimental work, an aquarium room, dark room, stores and a small workshop.

The Rockefeller scheme also provided for an entomological field station, which has been erected on the University Farm. It includes laboratory accommodation for advanced students, differentially heated insect houses and out-of-door rearing houses. Adjoining these buildings is an area of about two acres of experimental ground, affording ample means for observing insects under natural conditions.

The Department of Zoology, as rebuilt and reorganized, provides full provision for all grades of teaching and complete facilities for research. There are places for 60 post-graduate workers (including the staff), and 58 have come into occupation. The reorganization planned by Professor Stanley Gardiner has been rendered possible owing to considerable allocations being made for income purposes. This has enabled provision to be made for the upkeep of the subdepartments of entomology and experimental zoology and for the necessary additional staff.

A PROFILE OF SHOAL WATER DEPTHS BY ECHO SOUNDING

CAPTAIN R. S. PATTON, director of the U. S. Coast and Geodetic Survey, has announced a recent improvement in the apparatus to obtain depths by echo sounding. The equipment, now being used in surveys off the Virginia coast, takes 20 soundings a second in depths from 6 to 120 feet, with an accuracy of about one inch. At a cruising speed of ten miles per hour, a sounding is therefore obtained every ten inches along the bottom.

This instrument, known as the "Shoal Fathometer," is a further development of the deep water fathom-

eter, an invention of a commercial company, which has been used by the Coast and Geodetic Survey in hydrographic surveying for over nine years. The deep water fathometer has been of great value for depths of about 15 fathoms (90 feet) to 3,000 fathoms (18,000 feet), the deepest water so far surveyed by the bureau. Not built primarily for surveying, a small variation in depth indication was found to obtain in the apparatus. Having a nearly constant value, this produces a larger percentage of error in shallow water than in water of greater depths. After using the deep water fathometer for nearly a decade as a surveying instrument, the shoal fathometer was developed for the required accuracy for the shallow depths ordinarily covered by means of leadline sounding.

The general method of measuring depths by all fathometers is to produce a sound in the water at the bottom of the ship. This sound travels to the bottom and returns as an echo, picked up by a hydrophone, or electrical ear, in the bottom of the vessel. The fathometer measures precisely, and translates automatically into depth, the elapsed time from the sound production to the return of the echo, and indicates this depth by means of a neon-tube flash on a rotating disc graduated in fathoms. In the shoal fathometer, supersonic frequencies are used for the sound production; that is, a note produced electrically, too shrill for the human ear to detect.

Since sound in sea water has a velocity of about 4,800 feet per second, some idea may be had of the accuracy of the time element in this newly developed instrument, which must measure the elapsed time for the sound to travel, for example, a depth of 12 feet to the bottom and return, a total distance of but 24 feet, requiring only five one-thousandth of a second for the round trip. As the instrument is designed to measure this depth within one tenth of a foot, its accuracy of measurement of time elapsed must be within four one-hundred-thousandth of a second.

When sounding by the old "handlead" method, at a cruising speed of some 5 knots, say in 10 fathoms (60 feet), it is possible to get one sounding every 30 seconds, for it takes that long to heave the lead and haul it in again. That represents one sounding for every 254 feet. A survey ship equipped with a shoal fathometer can travel twice as fast, securing 20 soundings every second. As this represents one sounding every ten inches, it furnishes an almost continuous profile of the bottom.

WORK IN PROGRESS AT THE WISTAR INSTITUTE OF ANATOMY

AT the regular October meeting of the Board of Managers of the Wistar Institute of Anatomy the director in his report described as follows the research work in progress at the Philadelphia laboratories and of the six laboratory guests of the Morris Biological Farm:

Dr. Donaldson is engaged in a study of the growth of the eye under normal conditions—the eye is characteristic of the strain; on the senescence of the nervous system; on the changes in the mutant albino from Dr. King's colony and, in collaboration with Dr. King, on a study of the effects of captivity on the wild gray rat.

Dr. King is continuing her work on the genetics of the rat, including mutations and with special reference to the effects of captivity on growth, fertility, longevity and sex ratio.

Dr. Coghill has resumed his work on the growth of the sensory nervous system by the quantitative method of counting the nerve cells in the spinal ganglia and correlating the facts with physiological function.

Dr. Angulo is working on the embryological differentiation of the nervous system in relation to the increase of physiological activity.

In addition to members of the institute's staff regularly engaged in scientific work at the Morris Biological Farm there were present during all or a portion of the summer the following laboratory guests:

Dr. Edward L. Corey, assistant professor of physiology, University of Virginia. Dr. Corey made a detailed study of the foetal heart of the albino rat by analysis of kymographic records. Records of more than 200 rat foetuses were made and forty-one young rats were recorded under various experimental conditions.

Dr. Arnold A. Zimmermann, assistant professor of anatomy, University of Illinois, College of Medicine, devoted his attention to the development of the lymphatics in the opossum. He was able to examine some thirty series of sectioned opossum embryos and found on the eleventh day of gestation the most important part of the developmental history of the lymphatics.

Dr. O. Larsell, professor of anatomy at the Medical School of the University of Oregon, completed his study of the cerebellum of the opossum. Dr. Larsell followed the growth of the cerebellum from the earliest recognizable stage to the adult form. He found the opossum brain at birth typically reptilian.

Cooperating with Dr. McCrady experimental studies were made on pouch young to determine when and what part of the vestibular portion of the ear first begins to function.

Dr. G. Mackmull, formerly instructor in histology and embryology, Jefferson Medical College, is making a study of the absorption of carbon by body tissues when implanted in capsules or injected into the body cavity of the axolotl.

Dr. A. R. Moore, professor of general physiology, University of Oregon, and lecturer in general physiology at the Hopkins Marine Station, California, was engaged in a study of the physical constitution of plasmodium. In cooperation with Dr. Larsell, Dr. Moore was also engaged in a study of the modification of structure and function of living nerve elements following centrifugation with the ultra-centrifuge.