man; Professor R. E. Kelly, professor of surgery; Dr. Henry Cohen, professor of medicine; Dr. James Chadwick, Lyon Jones professor of physics, Nobel prizeman in physics; Dr. A. Leyland Robinson, professor of obstetrics and gynecology, and Roland H. Thornton, Alfred Holt and Company, chairman of the Associated Voluntary Hospitals Board.

The terms of reference to the commission are to examine and report on the work being done in the Liverpool area in connection with the treatment of cancer and the investigation in all its aspects of the cancer problem; to examine and report on methods of extending and if possible improving this work in the Liverpool area and of giving the maximum effect to all the scientific, clinical and financial resources available therein for these purposes, with particular reference to:

(1) The best use consistent with the welfare of patients of the hospital accommodation and research facilities available in the voluntary and municipal hospitals in the Liverpool area and in particular in the Liverpool Radium Institute and the Hospital for Cancer;

(2) The most promising lines of investigation in regard to cancer (its causes and treatment) capable of being pursued in the Liverpool area.

(3) The feasibility of coordinating, if that should seem desirable, the various activities involved, whether by bringing these activities under some unifying board or authority or by some other method.

The commission will proceed at once with its work and will ask for evidence from all persons who can in their opinion be of service in the inquiry.

INVESTIGATION OF THE PILCHARD FISHERY

A NEW section of the Division of Scientific Inquiry of the Bureau of Fisheries has been established on the Pacific Coast for the investigation of the pilchard fishery. O. E. Sette, formerly in charge of the North and Middle Atlantic Fishery Investigations staff, will head the new section. L. A. Walford will serve as assistant to Mr. Sette and will have charge of certain phases of the investigation.

Headquarters for the investigation have been established at Stanford University. Two junior aquatic biologists, an assistant statistical clerk and a junior clerk stenographer will be appointed.

Dr. Ray Lyman Wilbur, president of Stanford University, has expressed his cordial interest and desire to cooperate in the investigation by furnishing quarters. The State of California will cooperate in the pilchard studies by furnishing statistical data from certain of the fishing areas.

The pilchard fishery at present produces considerably more than a billion pounds annually. Most of the catch is taken by California fishermen. The increased exploitation to which the fishery has been subject during recent years has given rise to fears that the fishing strain may be greater than the fishery can support. It is believed by some investigators that the fishery is taking undue toll of immature individuals, thereby endangering the spawning reserve.

The primary purpose of the current investigation is to determine whether over-exploitation exists and what form of regulation, if any, will be necessary to conserve the resource. The first year's activities will be directed toward measurement of changes in abundance, detection of seasonal and yearly changes in size or age composition of the population and the development of satisfactory methods for determination of age, a problem that has not yet been solved for the Pacific sardine.

Airplanes will be used in an attempt to discover whether unexploited units of the pilchard population exist in waters not frequented by commercial fishermen. It is planned that a fishery observer accompany naval pilots on routine practice flights offshore.

THE FLOODS IN SOUTHERN CALIFORNIA

REPORTS from field engineers of the Water Resources Branch of the Geological Survey in California furnish information about the recent record-breaking floods in southern California. The five-day storm that caused the floods extended from February 27 to March 3 and covered Los Angeles, Orange, Riverside, San Bernardino and Ventura Counties. The depth of precipitation is said to have totaled about 14 inches as an average on the area; the maximum 24-hour rainfall at Los Angeles was 6.25 inches. The total storm rainfall at Mt. Wilson was 26 inches, of which 12.81 inches came in a 24-hour period.

The storm is reported to have been the most severe in southern California in a period extending back at least to 1884. Preliminary information indicates that extraordinarily excessive rates of discharge were experienced in the flooded streams. Flood discharges as high as or higher than 700 second-feet per square mile were common. This compares with rates of 100 to 250 second-feet per square mile, which represent the maximum rates previously recorded on southern California streams. The inflow of San Gabriel River into the reservoir created by San Gabriel Dam No. 1 is estimated as 92,000 second-feet, the drainage area being approximately 200 square miles. This discharge was smoothed by the storage in this reservoir and that in the Morris reservoir next below, to 52,000 second-feet.

The highest previously known flood discharge in San Gabriel River at Azusa at the mouth of the canyon with a drainage area of 214 square miles was 40,000 second-feet in 1916. The flood flow of the Santa Ana River at San Bernardino was estimated as 75,000 second-feet as compared with a previous maxi-

mum of 40,000 second feet in 1916. It appears, therefore, that flood discharges were 2 to 2½ times the maxima recorded in periods extending back at least as much as and probably considerably more than 22 years. The loss of life apparently exceeded 200; and 10,000 or perhaps more were made homeless. The damage along the foothills due to mountain torrents rushing through cities and orchards was very great. Newspaper headlines placed the flood damage at $18,000,000.

In Los Angeles County alone 100 bridges were reported to have been lost. The district engineer reports that the damage to stream measurement stations of the Geological Survey includes ten that were wrecked and twelve or more severely damaged. On March 7 it had still been impossible to reach twelve of the stations.

THE SEVENTH HANCOCK PACIFIC EXPEDITION

THE seventh Allan Hancock Pacific Expedition returned to Los Angeles, Calif., on March 13, with large collections of marine invertebrates, fishes, reptiles, birds and mammals as material for research in the various institutions which have collaborated with the Hancock Expeditions in their accumulation, but particularly in the University of Southern California, at which has been newly established the Allan Hancock Foundation for Scientific Research. According to an announcement made at the time of departure of the seventh expedition, the first project of the foundation will be the erection upon the university campus of a suitable building in which the collections may be deposited and where they may be studied by qualified investigators.

The 1938 expedition sailed from Los Angeles harbor on January 3 aboard the Diesel cruiser *Velero III*, Captain G. Allan Hancock, founder of the expeditions, commanding. The scientific personnel included Messrs. John Garth, Fred Ziesenhenne, Alex Hill and Granville Ashcraft, of the University of Southern California; Dr. George S. Myers, of Stanford University; Dr. Hubert Lyman Clark, of the Museum of Comparative Zoology, Harvard University; Dr. E. O. Palmer, W. Chas. Swett, Hall Funke and Hugh Merrick, of Hollywood; Änker Petërsen, of Beverly Hills, DeWitt Meredith, of Glendale, and Messrs. Karl Koch and Cyrus S. Perkins, of San Diego. The latter two collected and attended to the living animals for the Zoological Society of San Diego, which included by the time San Diego was reached on the return voyage, Peruvian sea lions, a capybara, agoutis, monkeys, marmosets, spectacled bears, an ocelot, a wild dog, an Ecuadorean fox, many species of birds, including Humboldt penguins and the Andean condor, a crocodile, a fer-de-lance, a large tortoise from the Galapagos, and many iguanas from the Galapagos and Panama. Mr. Perkins also secured many reptiles for the Hancock collections, while fishes, of which a large series were preserved, were attended to by Dr. Myers. Birds and mammals were the special interest of Mr. Ashcraft. Messrs. Garth, Hill and Ziesenhenne attended to the invertebrates, chiefly marine, while Dr. Clark concentrated his attention on echinoderms, of which more than 160 species were secured. Dr. Palmer was the invaluable medical officer of the expedition; Mr. Petërsen, artist; Mr. Meredith, scribe, and contact man particularly at the South American ports, while Mr. Funke assisted Chief Officer Swett in the important and continuous photographic record of the expedition. The *Velero III* is completely equipped in every detail for zoological field work and under Captain Hancock's efficient and very wise leadership every possible opportunity is given the field workers and every conceivable need is supplied.

Following the coast of Lower California, Mexico and Central America nearly to Costa Rica, stopping frequently for dredging and now and then for shore collecting, the *Velero III* then turned to the southwest and spent a very profitable two days at Cocos Island, an uninhabited but extraordinarily beautiful island not often visited by zoologists. Tower Island in the Galapagos was the next stop and two weeks were spent in this group, eight of the most interesting islands being visited and much dredging being carried on. The *Velero III* then called at Callao, Peru, and from there followed the coast southward about three hundred miles to San Juan, where the sea lions were secured. A stop at Independencia Bay on the northward voyage yielded penguins for the zoological gardens at San Diego. Then followed a week visiting the famous "bird islands" of Peru, where millions of sea birds find homes and protection. A few days were spent at Guayaquil, Ecuador, while the photographers and some of the zoologists made a three-day excursion into the Andes, returning with the condor and spectacled bear. Between Guayaquil and Balboa, Canal Zone, dredging and shore collecting were done at three well-separated stations. At Balboa opportunity was afforded for a visit to the biological laboratory at Barro Colorado Island. After leaving Balboa four collecting stations for the marine zoologists provided much additional material, but the steady decrease in warmth as the tropics were left behind necessitated haste in getting the menagerie to their destined home in San Diego, where it arrived in good condition on March 11.—*Correspondent.*

RECENT DEATHS

DR. W. L. POTEAT, president emeritus of Wake Forest College, N. C., who held the chair of biology at the college for fifty-four years, died on March 12. He was eighty-one years old.