

Chapter XII. Experimental courses in mathematics. By Raleigh Schorling.

Chapter XIII. Standardized tests in mathematics for secondary schools. By C. B. Upton.

Chapter XIV. The training of teachers of mathematics. By R. C. Archibald.

Chapter XV. Certain questionnaire investigations.

Chapter XVI. Bibliography on the teaching of mathematics. By D. E. Smith and J. A. Foberg.

THE BRITISH COLUMBIA EXPEDITION OF THE UNIVERSITY OF CALIFORNIA

AN expedition sent out by the University of California Museum of Vertebrate Zoology returned from northern British Columbia in the latter part of October. The party consisted of Harry S. Swarth, curator of birds; one assistant, William D. Strong, and local packers. Five months were spent in exploration of the valley of the upper Skeena River and in collecting series of the birds and mammals of the region. Over one thousand specimens were secured.

The summer's work was in continuance of a general plan, under way through a period of years, which has necessitated zoological exploration in various parts of British Columbia and Southeastern Alaska. This work was inaugurated and has been continually supported by Miss Annie M. Alexander, her interest leading her to participate personally in several of the expeditions. It has resulted in the acquisition by the museum of large collections of vertebrate materials and a store of detailed information, much of it new, regarding the animal life of the northwest coast region.

In the localities in which the last two seasons' field work was spent (the valley of the Stikine River in 1919, the Skeena River in 1921), the distribution of animal species is of particular interest. The section represented serves as a meeting ground between the faunas of eastern North America, the Pacific Coast humid strip, and the Yukon region to the northward. It thus affords exceptional opportunities for the study of the geographic behavior of the species involved. Hence, in the field work pursued, stress was laid upon the distribution of species, and collections were made showing the contrasts existing between mountain top and valley, and between coast and interior.

BACHE FUND OF THE NATIONAL ACADEMY OF SCIENCES

DR. HEBER D. CURTIS has been elected a member of the board of directors of the Bache Fund of the National Academy of Sciences in place of Dr. E. B. Frost, resigned. The board is at present constituted as follows: Professor A. G. Webster, Clark University, Worcester, Massachusetts; Dr. Heber D. Curtis, Allegheny Observatory, Pittsburgh, Pennsylvania; and Professor Ross G. Harrison, Yale University, New Haven, Connecticut.

Applications for grants will be considered semi-annually and should be filed with the board not later than April 1 or October 1 of each year.

The following grants have been recently made:

H. Nort, Gouda, Holland, \$200. For counting the stars on the Franklin-Adams Charts.

H. S. Jennings, Johns Hopkins University, \$300. For a study of the cytology of the rhizopods with relation to the genetics and development of these organisms.

H. M. Evans, University of California, \$500. For the investigation of the oestrous cycle in the rabbit and cat.

Carl Hartman, University of Texas, \$500. For the study of the oestrous cycle of the opossum.

William Bowie, U. S. Coast and Geodetic Survey, \$250. For the work of the Ukiah Latitude Station.

SCIENTIFIC NOTES AND NEWS

FRIENDS of Professor Chandler presented in 1910 to Columbia University a sum of money which constitutes the Charles Frederick Chandler Foundation. The income from this fund is used to provide a lecture by an eminent chemist and to provide a medal to be presented to the lecturer in further recognition of his achievements in science. Previous lecturers on this foundation have been L. H. Baekeland, W. F. Hillebrand, W. R. Whitney, and F. Gowland Hopkins. The lecturer this year will be Edgar Fahs Smith, president of the American Chemical Society, formerly professor of chemistry and provost of the University of Pennsylvania. Dr. Smith's subject will be "Samuel Latham Mitchill—A Father in American Chemistry." Mitchill was the first professor of

chemistry at Columbia College and the first senator from the State of New York. The lecture will be in Havemeyer Hall, Columbia University, on March 2, 1922, at 8:15 P. M.

PROFESSOR THEODORE LYMAN has succeeded the late Professor Charles W. Cross as chairman of the Rumford Committee of the American Academy of Arts and Sciences. Applications for grants from the funds at the disposal of the committee should be made to Professor Theodore Lyman, Jefferson Physical Laboratory, Cambridge, Massachusetts.

DR. WILLIAM T. COUNCILMAN, since 1892 professor of pathology in the Harvard Medical School, and Dr. Harold C. Ernst, since 1895 professor of bacteriology, will retire from active service at the close of the academic year.

THE Ambassador of the United States to France has presented Professor Bergonie with the medal and diploma of the Franklin Institute in recognition of his services to science and more particularly for his apparatus employing electricity in the search for and extraction of fragments of projectiles.

THE American Association of Economic Entomologists, at the Toronto meeting, elected Professor James G. Sanders, director of the Pennsylvania Bureau of Plant Industry, Harrisburg, to be president for 1922.

AT the New Haven meeting of the American Society of Biological Chemists, the officers elected for 1922 were: *President*, Donald D. Van Slyke; *Vice-president*, Philip A. Shaffer; *Secretary*, Victor C. Myers; *Treasurer*, Walter R. Bloor; *Councilors*, Stanley R. Benedict, Harold C. Bradley, Albert P. Mathews; *Nominating Committee*, C. L. Alsberg, G. H. A. Clowes, P. B. Hawk, P. A. Levene, H. B. Lewis, E. V. McCollum, L. B. Mendel, J. R. Murlin, R. T. Woodyatt. The president and secretary of the Biochemical Society are this year the chairman and executive secretary of the Federation of American Societies for Experimental Biology, which will hold its 1922 meeting in Toronto.

IN addition to the election, already noted here, of Professor Henry C. Cowles, of the

University of Chicago, as president of the Botanical Society of America, other officers were elected, as follows: *Vice-president*, Margaret C. Ferguson, Wellesley College; *Treasurer*, I. W. Bailey, Bussey Institution; *Secretary*, I. F. Lewis, University of Virginia.

MME. MARIE CURIE on February 7 was elected a member of the Paris Academy of Medicine. It is the first time a woman had been elected a member of one of the French academies. The committee had presented six names as candidates to succeed the late Edmund Perrier. The five men nominated withdrew their names when they found out Mme. Curie's name was on the list, and she obtained 64 votes against 15 blanks.

AT the annual meeting of the Royal Meteorological Society on January 18 the Symons gold medal, which is awarded biennially for distinguished work in connection with meteorological science, was presented to Colonel H. G. Lyons.

ERIC A. LOF, of the power and mining engineering department of the General Electric Company, has been decorated with the Royal Order of Vasa by the King of Sweden, in recognition of services to the Swedish Government.

PROFESSOR C. F. CURTIS RILEY, of the department of zoology of the University of Manitoba, who is carrying on investigations on the ecology and behavior of Gerridae, has been elected a member of the Zoological Society of Tokyo, Japan.

THE Société Française de Physique, at its last meeting in Paris, elected to its membership Professor L. L. Campbell, head of the Physics department of Simmons College, Boston.

THE board of directors of the American Electrochemical Society has appointed Dr. Colin G. Fink, 101 Park Avenue, New York City, secretary of the society to fill the unexpired term of the late Professor Joseph W. Richards.

OLIVER H. GISH, for the past four years research engineer with the Westinghouse Elec-

trical and Manufacturing Company, resigned on January 1, to become associate physicist in the Department of Terrestrial Magnetism of the Carnegie Institution of Washington.

LOUIS J. TROSTEL, who for the past two years has been stationed at the Pittsburgh Station of the Bureau of Mines, engaged on problems relating to industrial gases and dusts, has accepted a position with the Bureau of Chemistry as assistant chemical engineer. He is engaged on chemical problems relating to explosions from starch and other carbonaceous dusts.

DR. J. H. WHITE has been appointed by the Rockefeller Foundation director of the Mexican commission against yellow fever, to replace Dr. T. C. Lyster, who has resigned.

DR. FLORENCE L. MCKAY, recently assistant director of child hygiene, Children's Bureau, U. S. Department of Labor, has been appointed director of the division of child hygiene of the New York State Department of Health.

DR. HAROLD S. DAVIS has resigned from his industrial fellowship at the Mellon Institute of Industrial Research at the University of Pittsburgh to accept a position on the research staff of the Arthur D. Little Company.

A SERIES of five lectures will be given in the University and Bellevue Hospital Medical College under its Herter Foundation on "Interfacial Forces and Phenomena in Physiology" by Dr. W. M. Bayliss, professor of general physiology, University College, London, beginning on Monday, the twenty-seventh of February, 1922, at 4 p. m. and continuing daily at the same hour at the Carnegie Laboratory, 338 East 26th Street. Dr. Bayliss will deliver the seventh Harvey Society lecture at the New York Academy of Medicine on Saturday evening, March 4, 1922. His subject will be "Vasomotor reactions and wound shock."

DR. EDWIN O. JORDAN, professor of bacteriology in the University of Chicago, lectured at the School of Hygiene and Public Health of the Johns Hopkins University, on "Interepidemic Influenza," on January 30. His lecture

is one of the series of the DeLamar lectures on hygiene.

THE schedule for the spring public lectures, to be held at the Brooklyn Botanic Garden at 4 p. m., is as follows:

April 7. The Cultivation of Woodland Flowers: Mr. Norman Taylor, curator of plants, Brooklyn Botanic Garden.

April 14. English Gardens: Miss Hilda Loines, president of the Women's Auxiliary, Brooklyn Botanic Garden.

April 21. American Forests and the Necessity for Regrowth: Professor J. W. Toumey, Yale School of Forestry, New Haven, Conn.

April 28. The Civic Value of Botanic Gardens: Dr. C. Stuart Gager, director, Brooklyn Botanic Garden.

"RESEARCH in Chemistry as related to Medicine" was the subject of an address delivered on February 10 by Dr. Russell H. Chittenden of the Sheffield Scientific School, Yale University, before a joint meeting of the New York sections of the American Chemical Society and the American Electrochemical Society, the American sections of the Société de Chimie Industrielle and the Society of Chemical Industry. The address was followed by a discussion by C. H. Herty, H. T. Bogert and F. P. Garvan.

DR. WILLIAM MCPHERSON, chairman of the department of chemistry at Ohio State University, spoke before the Chicago section of the American Chemical Society, January 20, on his experiences in visiting Italian universities.

A LECTURE on "Dyeing: Ancient and Modern" will be given by Professor A. G. Perkin at afternoon meetings of the Royal Institution on February 16 and 23.

MORTEN P. PORSILD, director of the Danish Arctic station, Disco Island, Greenland, recently delivered lectures at the University of Cambridge on the "Flora of Greenland" and the "Excavations in the old Eskimo culture layers."

PROFESSOR H. E. ARMSTRONG has consented to deliver the first Messel Memorial Lecture at the annual meeting in Glasgow of the Society of Chemical Industry. The medal to be presented to Professor Armstrong will, if practi-

cable, be made from the platinum dish bequeathed to the society by Dr. Messel.

A STATUE of Emil Fischer was recently unveiled on the Luisenplatz, Berlin, opposite the statue of Robert Koch. A bronze bust of the chemist, who died in 1919, was also presented recently to the Chemical Institute by Dr. H. Fischer.

DR. PEARCE BAILEY, of New York City, known for his contributions to neurology and psychiatry, died from pneumonia on February 11 at the age of fifty-six years.

SIR WILLIAM CHRISTIE, astronomer royal from 1881 to 1910, died on January 22, in the seventy-sixth year of his age.

H. J. COTTERILL, for many years professor of applied mathematics in the Royal Naval College, Greenwich, died on January 8, at the age of eighty-six years.

It is stated in *Nature* that at the recent meeting of the Hull Museums Committee the curator reported that when in London recently he heard that the specimens in the museum at the Royal Albert Institute, Windsor, were in rooms which were required for other purposes, and that there was an opportunity of obtaining the collections. He consequently visited Windsor, with the result that the whole of the specimens are now in Hull, and among them are many valuable additions to the antiquities and geological and natural history series already there. Particular mention may be made of some pre-historic Bronze Age and Stone Age weapons, a large collection of Roman lamps and pottery, Greek vases, and a miscellaneous series of medieval antiquities. Otherwise the objects are such as were to be found in museums of this character in the early part of the last century. A handbook to the collections, written by Mr. J. Lundy, was published many years ago.

It is announced that the first five commercial research fellowships instituted by the executive council of the British Empire Exhibition for competition among the chambers of commerce in the United Kingdom have now been awarded. The successful competitors are the chambers of commerce of London, Glasgow, Nor-

wich, Warrington and Oldham, which will each nominate a fellow. The value of each fellowship is not less than £500, and will include a first-class return ticket to the dominion or crown colony to which the selected candidate will proceed. The subjects of research will be: the best means of promoting inter-imperial trade in a selected staple industry and the methods whereby the British Empire Exhibition can further the interests of this trade. The fellow will further investigate the potential resources in raw materials in the dominion or colony visited and the best means for exploiting them in the mutual interest of the dominion and England, and also report on the measures to be taken to insure that these undeveloped resources shall be adequately represented at the British Empire Exhibition and brought to the attention of interested financial and industrial groups.

A COURSE of six public lectures on the "Current work of the Biometric and Eugenics Laboratories" will be given in the department of applied statistics and eugenics, University College, London, February 15, 22, March 1, 8, 15 and 22, 1922. The order of the lectures is as follows: "Sidelights on the evolution of man: from the knee-joint," by Professor Karl Pearson; "On the inheritance of intelligence," by Miss Ethel M. Elderton; "Scheme of anthropometric measurements in the biometric laboratory," by Dr. Percy Stocks; "The relation of caries in the teeth of school children to health and home conditions," by Mr. E. C. Rhodes; "On the inheritance of certain types of blindness," by Dr. Julia Bell; "On occupational mortality," by Dr. M. Greenwood.

WE learn from the Fisheries' *Service Bulletin* that at the second meeting of the International Committee on Marine Fishery Investigations held recently at Boston, the members present were William A. Found and Dr. A. G. Huntsman, representing Canada, and Drs. H. F. Moore and H. B. Bigelow, representing the United States. D. James Davies, the member for Newfoundland, and Dr. R. E. Coker, one of the members for the United States, were unable to attend. Mr. Davies sent a cablegram indicating that Newfound-

land expected to be in position by next summer to cooperate in collecting the desired statistical information. Pursuant to the resolution adopted at the first meeting looking to uniformity in reporting statistics of the off-shore fisheries on the Atlantic coast, the committee adopted a form to be used, beginning with the first of the year 1922, for the recording of data obtained. Another resolution provided for the undertaking at an early date of investigations of the life histories of the cod and the haddock. Subcommittees were appointed for consideration of questions of tagging fish and studying ocean currents by the use of drift bottles. The third Friday in May, 1922, was appointed for the next meeting of the committee, which will be held in Montreal.

In connection with the establishment of funds for scientific research in Norway, grants have now been made for the following purposes: (1) 8,000 kroner for experiments to be made in connection with the use of acetylene gas as motor fuel; (2) 24,000 kroner for the purpose of investigation of vitamins with special reference to cod-liver oil; (3) 6,000 kroner to examine the possibility of employing calcium carbide as a basis for further manufacture in Norway.

THE *London Times* reports that Dr. Mortensen and Mr. Hjalmar Jensen, Danish biologists distinguished, respectively, in zoology and botany, are leading a small expedition to the Kei Islands, west of New Guinea, where, following the advice of Dutch zoologists, they expect to find a suitable site and to draw up plans for the establishment of a permanent station. The plan was proposed some years ago at a Scandinavian research conference in Copenhagen. The Kei Islands lie on a small area of shallow water above the 100 fathom line, but the ocean floor shelves steeply down to the abyssal depths of the Banda Sea. This natural conformation is favorable to scientific work, for some of the fishes, corals and plants, usually to be obtained only by very deep dredging, are believed to ascend to within easy range. The larger island, Great Kei, is of tertiary formation, with mountains and forests; its bird and insect life will repay intensive

study. Little Kei and some of the smaller islands were raised above the sea by volcanic eruption less than a century ago, and there is plenty of clean bottom. The islands lie on the Pacific side of Wallace's line, one of the primitive land and ocean frontiers of the globe.

UNIVERSITY AND EDUCATIONAL NOTES

By the will of Mrs. Dexter Smith, of Springfield, Mass., Wesleyan University receives \$150,000.

ONE hundred thousand dollars has been received by the University of California from the estate of E. P. Kraft, to be held in trust for the purpose of creating at the university scholarships to be known as the "Edward Frank Kraft Scholarships." Under the terms of the trust, the scholarships are to be apportioned among the various colleges except agriculture, for which scholarships have previously been provided out of the estate of George H. Kraft.

THE Committee of the University of Cambridge for Geodesy and Geodynamics has reported in favor of the erection and equipment of a two-roomed observation building near the observatory as a first step towards the institution that the committee ultimately aims at to meet the requirements of international geodesy.

CHARLES RUSS RICHARDS, dean of the College of Engineering and director of the Experimental Engineering Department of the University of Illinois, was elected president of Lehigh University on February 7. Mr. Richards succeeds Dr. Henry S. Drinker, now president emeritus.

THE following appointments are noted in *The Journal of Industrial and Engineering Chemistry*: Mr. James H. Ransom has changed his position as research chemist with the Michigan Smelting & Refining Co., Detroit, Mich., to head of the department of chemistry in James Millikin University, Decatur, Ill. Mr. W. H. Rodebush has been appointed associate professor in charge of the division of physical chemistry, University of Illinois, Urbana, Ill.