

9 determinations of evaporation; 4 series of atmospheric-electric observations by eye-readings, each throughout 24 hours, and 23 complete 24-hour photographic electrograms of potential gradient. The vessel left Papeete on March 20 for Apia, Western Samoa, where she is due about the end of the month. She will also make a short stop at Pago Pago, American Samoa.

THE annual report of the council of the Institution of Chemical Engineers, London, shows an increase in both membership and income. According to a notice in the London *Times*, the council, it is stated, has continued to emphasize the need for more fundamental education in chemical engineering in universities and colleges, and welcomes the announcement of courses in chemical engineering, which have been arranged at King's College, London University. Gratification is also expressed that, as a result of the institution's efforts in this direction, classes are being organized by the London County Council at the Hackney Institute. The appointments bureau of the institution is reported to have had a particularly successful year. The growing demand for chemical engineers is evidenced, it is stated, by the difficulty of filling the large number of junior posts available. It has been decided to establish awards of medals in connection with the work of the institution. The first award of the Osborne Reynolds medal for the most meritorious contribution to the progress of the institution during the year has been made to Sir Alexander Gibb. Two awards of the Moulton medal to commemorate the name of the late Lord Moulton will be made for papers on chemical engineering subjects. The senior medal in gold will not be confined to members of the institution, but for the junior award only graduates and students of the institution will be eligible.

ACCORDING to the British *Geographical Journal*, the Tidal Institute at the University of Liverpool and the Liverpool Observatory, Bidston, were amalgamated to form the Liverpool Observatory and Tidal Institute. It is controlled by a joint committee of the Mersey Docks and Harbour Board and of Liverpool University. Professor J. Proudman is the director, with Dr. A. T. Doodson as assistant director. This amalgamation is planned to enable the work done by both institutions in the past to be greatly extended. All communications concerning meteorological and geophysical observations, analyses and predictions of tides, etc., should be addressed to The Director, The Observatory, Birkenhead.

THE Institute of Chemistry of Great Britain and Ireland has awarded the Meldola medal for 1928 to Dr. J. A. V. Butler and the Sir Edward Frankland medal and prize to Cyril Fryer.

THE former Secretary of Agriculture, William M. Jardine, in a report to the House, stated that it is feasible to adopt a ten-year cooperative program for the control of predatory animals within the United States. He recommended the adoption, whenever the financial policy of the government will permit, of a ten-year control plan, calling for annual appropriations of \$782,500 for control of stock-killing wild animals and \$596,200 for control of rodents, during the proposed ten-year period. This would mean annual appropriations of \$1,378,700 during the ten years. The annual toll taken by the stock-killing animals in the United States is estimated anywhere from \$20,000,000 to \$30,000,000, most of which is from depredations of coyotes. Some idea of the destructiveness of rodents may be gained from the fact that in Idaho, according to 4,037 signed statements by farmers, there would have been an annual loss of \$2,087,742 from ground squirrels in farm crops on 638,971 acres if nothing had been done toward control. Midland County, Texas, alone, it is stated, records a loss of \$95,000 this year from reduced cotton yield caused by rabbits. A conservative estimate of annual loss because of rat depredations in the United States would exceed \$200,000,000. Secretary Jardine said that the proposed annual appropriation of \$1,378,700 under the proposed ten-year period would be an increase of \$812,066 over funds now available.

UNIVERSITY AND EDUCATIONAL NOTES

LEGISLATIVE appropriations for the support of Kansas State Agricultural College for the two years beginning July 1, 1929, amount to \$2,607,000. The appropriations include \$40,000 for new equipment for scientific laboratories, \$10,000 for continuing the soil survey, \$10,000 for animal abortion investigations, \$12,000 for soil experimental fields, \$106,500 for branch experiment stations, \$10,000 for a study of shipping fever among live stock and \$6,000 for remodeling experimental greenhouses.

EDWARD S. HARKNESS has given \$1,000,000 to the Near East College Association. The gift is conditional on the completion of the fund of \$15,000,000 by July 1, and with other conditional gifts amounting to \$530,000 leaves \$2,500,000 to be raised.

THE school of nursing of Western Reserve University, Cleveland, has received the endowment made five years ago by Mrs. Chester C. Bolton, which now amounts to \$1,500,000.

DR. CHARLES SUMNER HOWE, president of the Case School of Applied Science since 1903 and previously

professor of mathematics and astronomy, has presented his resignation effective at the close of the present college year. Dr. William E. Wickenden, director of investigation for the Society for the Promotion of Engineering Education, has been elected to succeed Dr. Howe.

DR. HERMAN G. JAMES, dean of the college of arts and sciences and dean of the graduate college of the University of Nebraska, has been elected president of the University of South Dakota, Vermillion.

ACCORDING to press despatches, Dr. Max Meyer, since 1900 professor of experimental psychology, and Dr. Harmon O. DeGraff have been dismissed from the faculty of the University of Missouri, owing, it is said, to their having assisted students in a course in sociology to prepare and distribute among the students a questionnaire on sex problems. Professor Meyer was unanimously elected president of the Southern Society of Philosophy and Psychology, in annual session at the University of Kentucky on March 30.

THE University of Chicago announces the following foreign professors as members of the faculty for the coming summer quarter: P. W. Bryan, lecturer on geography, University College, Leicester, England; Karl Bühler, professor of psychology, University of Vienna; Werner Heisenberg, professor of theoretical physics, University of Leipzig; Charles Edward Spearman, professor of psychology, University of London, and George Struve, professor of astronomy, University of Berlin.

DR. ERNEST M. HALL has been appointed professor of pathology and bacteriology in the school of medicine of the University of Southern California.

DR. MYRA M. SAMPSON has been promoted to a full professorship of zoology at Smith College and has been appointed chairman of the department.

DISCUSSION

CLASSIFICATION OF THE PLEISTOCENE OF CALIFORNIA

ONE of the great problems of North American geology is the interpretation of the Pleistocene history of the regions south of the ice sheets of the glacial epochs. Pertaining to this problem is the subject of the proper interpretation of the Pleistocene history of our southern border regions, including those of the deposits along the Texas and California coasts and of the origin and denudation of the intervening high-

land regions between them. The problems are perhaps too great for any single observer to solve, and their ultimate interpretation depends upon the compilation of many observations already made or which are to come.

Many contributions to the knowledge of the Pleistocene epoch have already been made in Southern California. No one can overlook the monumental work of the Arnolds, father and son. This work up to date, however, has been largely paleontologic. The physiographic aspects and the study of continental deposits, which, in my opinion, are of equal importance as means of interpretation, have as yet received but little consideration. The stratigraphic section, founded upon paleontology, for which the term Wilmington group may be appropriately used, has hitherto included the Lower San Pedro, Upper San Pedro and Cerritos stages of Arnold, or their equivalents.

It has generally been assumed that this group of strata with marine invertebrate fossils represented the totality of the Pleistocene time. Although knowledge has existed of the remarkable Pleistocene invertebrate fossils of the La Brea pits, no well-defined means has been presented for locating their position in the Pleistocene time column.

In recent publications I have called attention to the fact that a line of hills between the Balboa and Westwood hills constituted a mountain range to which I applied the term Dominguez Range, and which perhaps is one of the newest ranges in our country. The physiographic evidence is that this range was upfolded and the alternating valleys downwarped in the latter half of Pleistocene time. Inasmuch as the strata containing marine invertebrates of the Wilmington group are folded up into the structure of the hills which compose this range, it is evident that they must represent time subdivisions prior to the origin of the range. The fact that the La Brea vertebrate fossils occur in formations which were later deposited in the structural trough made by this upfolding is proof that the age of the fauna is later than that of the Wilmington group and the beginning of the Dominguez Range epoch of folding. Thus it is that the physiographic and structural history decidedly proves that the Wilmington group of strata originated before the time of the Dominguez folding and therefore must represent the earlier half of Pleistocene time, instead of the whole, as hitherto inferred.

If these deductions be true, then the latter half of the Pleistocene should be represented by land conditions in Southern California and we should seek elsewhere than in the marine fauna for the records