land; M. B. Kinnear, of London, and Ernst Mayr, of Berlin.

Five members elected were: Clinton G. Abbott, San Diego; O. L. Austin, Jr., North Eastham, Massachusetts; W. W. Bowen, Philadelphia; B. H. Christy, Sewickley, Pennsylvania, and Mrs. M. M. Nice, Columbus.

The Brewster Medal, awarded biennially for the most meritorious work on American birds, was awarded this year to Mrs. Florence Merriam Bailey for her "Birds of New Mexico."

On Friday, October 23, the members visited the Jack Miner Sanctuary, at Kingsville, Ontario, and after luncheon proceeded to Point Pelee National Park, where the afternoon was spent in observing the birds.

MEETING AT THE MISSOURI BOTANICAL GARDEN IN HONOR OF JULIUS SACHS

ACCORDING to a statement issued by Dr. George T. Moore, director of the Missouri Botanical Garden, the one hundredth anniversary of the birth of Julius Sachs occurs October 2, 1932. In view of the proximity of this date to the meeting of the American Association for the Advancement of Science in New Orleans, it seems suitable that some recognition be given to this anniversary during the holidays. Accordingly, the Missouri Botanical Garden is planning to keep "open house" on Sunday, December 27, for botanists who are planning to attend the meetings at New Orleans.

Guides will be on hand for the outside gardens and conservatories, and will leave the main gate at Tower Grove Avenue and Flora Place on the hour from 9 A. M. until 12 noon. The library and herbarium will be open during the morning and members of the staff will be in attendance to furnish information or assistance. There will be a special exhibit of books of historical interest relating to the development of plant physiology. Luncheon will be served in the conference room of the administration building at 1 P. M.

There will be a program of scientific papers in the lecture hall of the old museum building at 2 P. M.:

"Plant Physiology as Sachs Found It," by Dr. Ernest S. Reynolds, Washington University.

"The Contributions of Sachs to Plant Physiology," by Dr. Charles F. Hottes, University of Illinois.

"Progress in Plant Physiology since Sachs," by Dr. D. T. MacDougal, Carnegie Institution.

The best train for New Orleans leaves at 6:30 P. M., Sunday, arriving at New Orleans at 6 P. M., Monday. The program will be completed in ample time to admit of taking this train. Tickets can be purchased from St. Louis to New Orleans over the Missouri Pacific Railroad. A representative of the railroad will be at the garden to arrange sleeping car reservations, for which ample space will be reserved.

THE THOMAS CHROWDER CHAMBERLIN SCIENCE LIBRARY

ON October 20 Beloit College dedicated a new science library to the memory of Dr. Thomas Chrowder Chamberlin, graduate of Beloit College in 1866 and later a member of the faculty. This library has been built around Dr. Chamberlin's private library which was given to Beloit by Dr. Rollin T. Chamberlin in 1930 and has been named the Thomas Chrowder Chamberlin Science Library. Professor Chamberlin also sent $1,000 to supplement this collection of books in the field of geology.

The disposal of this gift brought home to the college the advantages which might be obtained by organizing a science library to be housed in the Pearsons Hall of Science, and to be administered as a branch of the Beloit College Library. Through the kindness of the heirs of the late William E. Hale, a gift of $11,404 was used for the reconstruction of the small auditorium in Pearsons Hall of Science, the sloping floor being replaced with a cement floor and the entire surrounding brick walls being made more nearly fireproof. The basement below was walled up and the construction was so carried out that the lifting of a cement slab will later, with the growth of the library, make possible an extension of stacks into the lower floor. In the reconstruction, a modern double sky-light was installed and ventilation was secured through the installation of several univent units. Library equipment, including approved metal stacks, attractive oak tables and Windsor chairs, suitable periodical and display book racks, with complete card index files, have been secured.

The library already contains 13,000 volumes. It makes possible an ideal relation between laboratories and reference books through its nearness to the various scientific laboratories.

SCIENTIFIC NOTES AND NEWS

THE Penrose Medal of the Geological Society of America, given for outstanding service in the advancement of geological science, has been awarded to Dr. William Morris Davis, professor emeritus of geology of Harvard University. Presentation will be made on December 30 at the annual dinner of the

society to be held in Tulsa in connection with the forty-fourth annual meeting. The medal was founded in 1926 by the late Dr. R. A. F. Penrose, Jr.

THE Rockefeller Institute for Medical Research on November 20 honored Dr. Theobald Smith, member emeritus of the institute and vice-president of its board of scientific directors, at a dinner which was held at the department of animal and plant pathology near Princeton, New Jersey. The dinner marked the formal opening of the Theobald Smith House, which was for many years the residence of Dr. and Mrs. Smith while he served as the director of the department and has recently been remodeled to serve as a staff house for the scientific workers. Dr. Simon Flexner, director of the Rockefeller Institute, presided. In addition to Dr. Theobald Smith, speeches were made by Mr. John D. Rockefeller, Jr., and Dr. William H. Welch.

DR. WILLIAM KELTNER ROBBINS, known for his work on textile coloring, died at Manchester, N. H., on November 26, aged seventy-six years. Dr. Robbins was chief chemist of the Amoskeag Manufacturing Company.

DR. GEORGE WILLIAM MYERS, professor of the teaching of mathematics and astronomy at the College of Education of the University of Chicago from 1901 until 1929, died on November 23 at the age of sixty-seven years.

THE death in the Crimea, near the Nikitsky Gardens, is announced of Dr. S. Kostychev, known as an authority in plant physiology.

MAJOR GENERAL SIR DAVID BRUCE, distinguished for his work on tropical diseases, president of the British Association for the last Toronto meeting, died on November 27 at the age of seventy-six years.

MEDALS of the Royal Society were awarded at the anniversary meeting on November 30 as follows: Royal Medals to Sir Richard Glazebrook, for his distinguished work in experimental physics, and to Professor W. H. Lang, for his work on the anatomy and morphology of the fern-like fossils of the Old Red Sandstone; the Copley Medal to Sir Arthur Schuster, for his distinguished researches in optics and terrestrial magnetism; the Davy Medal to Professor A. Lapworth, for his researches in organic chemistry, particularly those in connection with tautomerism and the mechanism of organic reactions; the Sylvester Medal to Professor E. T. Whittaker, for his original contributions to both pure and applied mathematics, and the Hughes Medal to Professor W. L. Bragg, for his pioneer work on the elucidation of crystal structure by x-ray analysis.

OFFICERS of the Royal Society have been elected as follows: Sir Frederick Hopkins, *president;* Sir Henry Lyons, *treasurer;* Dr. H. H. Dale and Sir Frank Smith, *secretaries;* Lord Rayleigh, *foreign secretary; other members of council.*—Dr. J. A. Arkwright, Professor G. Barger, Professor W. L. Bragg, Professor E. P. Cathcart, Mr. A. C. G. Egerton, Mr. R. H. Fowler, Professor E. S. Goodrich, Professor G. H. Hardy, Professor W. N. Haworth, Professor C. E. Inglis, Professor O. T. Jones, Sir Thomas Lewis, Dr. N. V. Sidgwick, Professor A. G. Tansley, Professor G. I. Taylor and Professor D'A. W. Thompson.

PROFESSOR K. FUJII, of Tokyo; Professor Victor Grégoire, of Louvain, and Professor O. Rosenberg, of Stockholm, have been elected honorary fellows of the Royal Microscopical Society.

THE Royal Society of Sciences in the Dutch Indies has elected as foreign corresponding members the following: Dr. A. Ernst, Zurich; Dr. A. Lacroix, Paris; Dr. T. Wayland Vaughan, La Jolla, Calif.; Dr. J. Boden Kloss, Singapore; Professor G. Elliot Smith, London; Mr. J. B. Scrivenor, Natu Gajah, F. M. S.; H. Tanakadate, Sendai, Japan; M. F. Blondel, Hanoi, Indo-China, and Dr. J. Wanner, Bonn. The total number of corresponding members permissible in the society is thirty. The number was brought up to nineteen at the election in December, 1930.

PROFESSOR HUBERT GREGORY SCHENCK, of the department of geology of Stanford University, has been elected to membership in the Geological Society of France.

THE annual Chilean Nitrate of Soda Nitrogen Research Award was made at the annual meeting of the American Society of Agronomy in Chicago to Dr. W. H. Pierre, of the University of West Virginia, and Dr. Hans Jenny, of the University of Missouri.

DR. WILLIAM PENN BROOKS, Amherst, Massachusetts, professor of agriculture emeritus and formerly director of the Massachusetts Agricultural Experiment Station, celebrated his eighty-first birthday on November 19.

PROFESSOR ALBERT EINSTEIN has been appointed the Rouse Ball Lecturer at the University of Cambridge for the year 1931–1932 by the faculty board of mathematics.

DR. HARRY H. PLASKETT, professor of astrophysics at Harvard University, has been appointed Savilian professor of astronomy at the University of Oxford and director of the observatory to succeed the late Professor H. H. Turner. The appointment dates from January 1. Professor Plaskett will not, however, assume the professorship until June as he is completing arrangements for a new sixty-inch tele-

scope in South Africa and supervising the construction of a spectrograph in Cambridge.

ASSOCIATE PROFESSOR OTTO STRUVE, of the University of Chicago, has been appointed assistant director of the Yerkes Observatory. Professor Frost has been making a satisfactory recovery from recent illness at the Billings Hospital, and expects to resume his duties as director within a short time.

F. W. HODGE will terminate his service with the Museum of the American Indian, New York City, at the close of the present year to assume the directorship of the Southwest Museum at Los Angeles, California.

AS visiting professors at the Johns Hopkins University for one year there have been appointed Dr. Georg Tischler, professor of botany at Kiel; Dr. William J. Cooper, U. S. Commissioner of Education, and Professor Edward L. Thorndike, of Teachers College, Columbia University.

DR. FREDERIC M. HANES will be acting professor of medicine and head of the medical service in Duke Hospital while Dr. Harold L. Amoss is this year visiting professor of medicine in the Peiping Union Medical School in China.

M. F. MILLER, assistant dean of the College of Agriculture and chairman of the department of soils of the University of Missouri, has been designated acting dean and director during the six months' absence in Europe of Dr. F. B. Mumford for a study, mainly in England, France and Germany, of world conditions affecting American agriculture.

DR. SAMUEL VAN VALKENBERG, of Detroit City College, has been appointed associate professor of climatology and regional geography at Clark University, succeeding Dr. Charles F. Brooks, who assumes the directorship of the Blue Hill Observatory in February. Dr. Van Valkenberg was a member of the faculty of Clark University from 1927 to 1929. Dr. Wallace B. Atwood, son of President Wallace W. Atwood, has been appointed assistant professor of physiography and regional geography.

JOHN WAGNER, JR., civil engineer, industrial agent of the Reading Company, has been elected president of the Wagner Free Institute of Science, Philadelphia, succeeding his father, Mr. Samuel T. Wagner, who died on August 7.

H. C. DIEHL, senior physiologist, U. S. Department of Agriculture, has been placed in charge of the frozen pack investigations of the department, with headquarters at Seattle, Washington, where the Bureau of Plant Industry has established a laboratory designed for research in the freezing preservation of fruits and vegetables. Mr. Diehl was formerly in charge of the maturity handling and storage investigations of the department with headquarters at Wenatchee, Washington.

THE following appointments have been announced at Tulane University: Dr. Francis H. Wilson, formerly associate professor of botany, University of Richmond, assistant professor of zoology; Dr. Dorothy W. Seago, formerly associate professor of psychology at North Carolina College for Women, assistant professor of psychology at Newcomb College; Dr. Bruce P. Webster, formerly instructor in medicine at the College of Physicians and Surgeons, Columbia University, assistant professor of medicine; Dr. William H. Perkins, instructor in medicine, has been promoted to a professorship of preventive medicine and head of the department in the School of Medicine.

AT the annual meeting of the American Society of Agronomy held in Chicago on November 19 and 20 the following officers were elected for the coming year: *President,* Dr. P. E. Brown, Iowa State College, Ames; *First Vice-president,* Dr. S. A. Waksman, Agricultural Experiment Station, New Brunswick, N. J.; *Second Vice-president,* Professor George Stewart, U. S. Forest Service, Ogden, Utah; *Third Vice-president,* R. I. Throckmorton, Kansas State Agricultural College, Manhattan, Kansas; *Fourth Vice-president,* Dr. M. A. McCall, Bureau of Plant Industry, Washington, D. C.; *Secretary-Treasurer,* Dr. F. B. Smith, Iowa State College; *Editor,* Professor J. D. Luckett, Agricultural Experiment Station, Geneva, New York.

AT the meeting held on November 12 the Washington Section of the American Chemical Society elected the following officers: *President,* E. Wichers; *Secretary,* J. H. Hibben; *Treasurer,* O. E. May; *Councilors,* S. F. Acree, B. H. Carroll, R. E. Gibson, H. T. Herrick, P. E. Howe; *Executive Committee,* M. S. Anderson, J. H. Bruun, J. F. Couch, R. Gilchrist, R. M. Hann and A. R. Merz.

Nature reports that at the annual statutory meeting of the Royal Society of Edinburgh held on October 26 the following council was elected: *President,* Sir E. A. Sharpey-Schafer; *Vice-presidents,* Professor F. G. Baily, Professor T. J. Jehu, Professor J. H. Ashworth, Dr. A. Logan Turner, Dr. J. B. Clark, Professor James Ritchie; *General Secretary,* Professor R. A. Sampson; *Secretaries to Ordinary Meetings,* Professor C. G. Darwin and Professor F. A. E. Crew; *Treasurer,* Dr. James Watt; *Curator of Library and Museum,* Professor D'Arcy W. Thompson; *Councillors,* Professor James Drever, Mr. A. H. R. Goldie, Dr. R. A. Houston, the Hon. Lord Sands, Dr. Murray Macgregor, Dr. A. Crichton Mitchell, Pro-

fessor P. T. Herring, Sir Thomas H. Holland, Professor James Kendall, Professor T. M. MacRobert, Professor Godfrey H. Thomson, Dr. Malcolm Wilson.

THE Committee on Scientific Research of the American Medical Association has extended to Dr. Timothy Leary, of Boston, a grant-in-aid for a study of the influence of alcohol and of insulin upon the deposition of cholesterol in the animal body.

A GRANT of $600 has been made to Dr. Reginald D. Manwell, of the department of zoology in the College of Liberal Arts in Syracuse University, by the National Research Council for the continuation of studies on the chemotherapy of avian malaria. This is the second grant made by the council to Dr. Manwell for this purpose.

PROFESSOR DOUGLAS JOHNSON, of Columbia University, devoted part of the past summer to a reconnaissance study of coastal terraces along the Atlantic and Gulf Shores, under the joint auspices of the American Geographical Society, the Carnegie Institution and Columbia University. In September he attended the International Geographical Congress in Paris as president of the Section of Physical Geography.

VILHJALMUR STEFANSSON, associate in anthropology at Harvard University, will give at Wellesley College in the near future a series of lectures on his archeological expeditions to Iceland, Eskimo life in the Mackenzie Delta, and other topics dealing with his explorations.

DR. HARRY N. HOLMES, professor of chemistry and head of the department of chemistry, Oberlin College, on November 14 delivered an address before the Royal Canadian Institute entitled "The Applications of Colloid Chemistry."

DR. WILLEM DE SITTER, of the Leiden Observatory, Holland, lectured at the Perkins Observatory, Delaware, Ohio, on November 23, on "The Size of the Universe." The lecture was the second of the series held on the affiliated program between the observatory and the Graduate School of Ohio State University.

THE Third International Congress for Light will be held in Copenhagen from August 15 to 18, 1932. The president is Professor Axel Reyn, of Copenhagen. The chairman of the American Committee is Dr. Alfred F. Hess, of New York. The main subjects for discussion will be: (a) "The Rôle of Pigment in Light Biology"; (b) "The Systemic Action of Light in Tuberculosis"; (c) "Heliotherapeutic and Climatologic Research in Relation to Public Health."

THE annual meeting of the National Council of Geography Teachers will be held at State Normal College, Ypsilanti, Michigan, on Monday and Tuesday, December 28 and 29.

THE fourth national organic chemistry symposium of the American Chemical Society will be held in the Sterling Chemistry Laboratory of Yale University from December 28 to 30. Sixteen papers will be presented by the following: Professor Roger Adams, University of Illinois; Professor H. B. Adkins, University of Wisconsin; Professor M. T. Bogert, Columbia University; Professor H. T. Clarke, Columbia University; Dr. W. H. Carothers, research chemist, du Pont Company, Wilmington, Del.; Professor J. B. Conant, Harvard University; Professor L. F. Fieser, Harvard University; Professor R. C. Fuson, University of Illinois; Professor H. Gilman, Iowa State College; Professor C. S. Hudson, National Institute of Health, Washington, D. C.; Professor J. R. Johnson, Cornell University; Professor T. B. Johnson, Yale University; Dr. P. A. Levene, Rockefeller Institute, New York City; Professor C. S. Marvel, University of Illinois; Thomas Midgley, Jr., Worthington, Ohio, and Dean F. C. Whitmore, Pennsylvania State College. Dr. Levene will address an evening session. Another evening meeting will be in charge of Professor Fieser.

THE U. S. Civil Service Commission announces open competitive examinations for the position of associate physicist (sound, or any other specialized branch of physics) and assistant physicist (any specialized branch of physics). Applications for the positions must be on file with the U. S. Civil Service Commission at Washington, D. C., not later than February 2. The examination is to fill vacancies in various services. The entrance salary for associate physicist is $3,200 a year and for assistant physicist is $2,600 a year. Competitors will not be required to report for examination at any place, but will be rated on their education and experience, and on a thesis, reports or published writings.

MRS. FLORA FULLERTON MAXWELL, who was killed recently in an automobile accident, left half of her estate, estimated at $250,000, to Yale University. The gift will be known as the Flora Fullerton Maxwell Fund and the income will be paid annually to worthy young men studying in Yale College.

A DECREE has been passed on the motion of the warden of Wadham College, University of Oxford, to record the grateful thanks of the university to Professor J. Mark Baldwin for a gift of £1,000 for the capital endowment of the Edward Bagnall Poulton Fund, which was established by Professor Baldwin in

1920 in honor of his friend, the present Hope professor, with the purpose of promoting the study of evolution.

THE League of Nations has accepted the proposal of the Brazilian Government to erect, at Rio de Janeiro, an international institution for the investigation of leprosy.

THE buildings of the Medical Faculty at Seville have been almost entirely destroyed by fire entailing a loss of about two million pesetas.

DISCUSSION

GARDINER ON CORAL REEFS

AFTER "thirty-five years of interest in the problems of coral reef formation," including "five years' work on the actual reefs," the author of the great monograph on the Maldive and Laccadive archipelagoes has at last given the hoped-for summary of his views concerning reefs, structures which are important not only in themselves but even more for their relation to the physical properties and history of the earth as a whole.[1] While making the essentials of the subject clear to any educated reader, this admirable volume is full of meat for professional biologists and geologists. Most of its pages are devoted to giving a remarkably complete picture of the marine and dry-land biology. The present note does not attempt an abstract of the wealth of observations made by the distinguished professor at Cambridge on reef organisms, but is limited to an outline of his conclusions specially significant to geologists.

(1) While Professor Gardiner agrees that nullipores are essential to reef-strength, he points out that the dominant builders below the depth of four to six fathoms are corals, and therefore considers the old name, coral reef, quite justified, especially for the Indo-Pacific region.

(2) The islets of atoll and barrier reefs are chiefly composed of organic material deposited below sea-level and became dry land through a relatively recent, general, negative shift of sea-level. This was not greater than about 20 feet, but probably varied somewhat from region to region in the tropical belt.

(3) True reefs are geologically young. "There is no proof of any atoll or barrier reef having originated previous to the Pleistocene" (p. 151) or "late tertiary" (p. 115). The indigenous fauna and flora of atoll islets "give no support to the idea that they were ever increased from those of larger lands, which have disappeared. . . . Indeed, there is not a single constituent of the fauna and flora of atoll islets that gives evidence for their existence for more than a few hundred years" (p. 44). Like Mayor, Professor Gardiner is convinced that reefs grow rapidly enough to permit belief in the late-Glacial or post-Glacial origin of those now visible (p. 66).

(4) Atoll reefs rest on plateaus that had been prepared at depths of fifty fathoms, or somewhat less, below sea-level (pp. 143–144). They "form over 90 per cent. of coral structures in island groups of the Indo-Pacific" (p. 16).[2]

(5) Some lagoons show moderate enlargement by solution of their calcareous walls.

(6) Those basins are not being filled at an important rate by detritus washed over the encircling reefs. "There is no such general filling in of lagoons by coral growth and by sediment as suggested" by the Darwin-Dana theory of subsidence—a fact that "kills" the theory (p. 146). Nor, in the reviewer's opinion, does it favor Molengraaff's explanation of atolls by the independent, isostatic sinking of volcanic cones.

(7) The fronds of the shallow-water *Halimeda*, dredged from depths of hundreds of fathoms, had been dragged thither by wave, current and gravity, and do not indicate subsidence of adjacent reef structures. This statement should give pause to those who believe that the discovery of shallow-water foraminifera in the deeper part of the bore-hole inside the Great Barrier Reef of Australia proves subsidence for the Australian shelf.

(8) After much study of the core of the famous Funafuti boring, Professor Gardiner concludes that it penetrated talus, not a sunken reef of corals in place, and hence does not prove subsidence.

(9) Though the origin "of the isolated mountains and of the mountain ranges of the Indo-Pacific is still left beyond the limits of our knowledge" (p. 159), he adopts the prevailing theory that the "atoll-crowned mountains of the Pacific" are volcanoes (p. 162).

(10) The Glacial-control theory "accounts for the underlying Indo-Pacific reef-platforms even to details."

(11) But, he adds, "If we regard the question of

[1] "Coral Reefs and Atolls," being a course of lectures delivered at the Lowell Institute at Boston, February, 1930, by J. Stanley Gardiner (*xiii* + 157 pages of text, 15 plates, 33 text figures). Price in the United States (The Macmillan Company), $4.25, too high for ready sale!

[2] Professor Gardiner does not mention the relatively recent evolution of the reef-building species of corals. Before this late epoch in earth-history, perhaps as far back as Archean time, volcanic cones and other lands, emerged, one after another, in the tropical belt of the ocean and suffered wave-planation during many millions of years. The reviewer knows of no fact that forbids one to assume such pre-Cretaceous abrasion as important in the formation of many atoll-bearing, submarine plateaus, especially those of the Pacific region.