

STATE ACADEMIES OF SCIENCE

THE annual meeting of the Ohio Academy of Science will be held at Cleveland on May 8, 9 and 10.

THE fortieth annual meeting of the North Carolina Academy of Science will be held on April 25 and 26 at Chapel Hill, under the presidency of Dr. Jasper L. Stuckey, professor of geology at the State College at Raleigh.

THE West Virginia Academy of Science will hold its eighteenth annual meeting on April 25 and 26 at Alderson-Broadbent College, Philippi, W. Va. The exhibit feature will be enlarged this year. There will be about thirty-five scientific and commercial exhibits. Dr. J. E. Judson, professor of biology at the West

Virginia Wesleyan College, Buckhannon, is secretary.

THE spring meeting of the Indiana Academy of Science will be held on Friday and Saturday, May 9 and 10, at Cannelton, Indiana, under the presidency of Dr. Paul Weatherwax, professor of botany at Indiana University. Cannelton is located in a region of considerable historic and geologic interest, and there will be conducted field trips in botany, geology and archeology. There will be a trip to Angel Mounds, where archeological excavation is now in progress.

THE Nevada Academy of Natural Sciences was formally organized at the University of Nevada on February 19, by representative professional and amateur zoologists, botanists and geologists of the state.

SCIENTIFIC NOTES AND NEWS

DR. W. B. CANNON, George Higginson professor of physiology at the Harvard Medical School, will be the first recipient of the Friedenwald Medal of the American Gastroenterological Association, which meets in Atlantic City on May 5. The award is made "in recognition of his pioneer utilization of the x-rays in gastroenterology, and his important contributions to the mechanics of digestion, to the elucidation of the sensations of hunger and thirst, and to the development of the science and practice of gastroenterology."

THE Priestley Medal of the American Chemical Society was presented at the St. Louis meeting to Dr. Thomas Midgley, of Worthington, Ohio, vice-president of the Ethyl Gasoline Corporation and chairman of the board of directors of the corporation. The award was made in recognition of his discovery of tetra-ethyl lead as an anti-knock agent for gasoline and for his work on refrigerants used in air-conditioning.

DR. JOHN R. DUNNING, associate professor of physics at Columbia University, has been awarded the Ernest Kempton Adams Research Fellowship. He will continue his study with the cyclotron of the properties of atomic nuclei and the interaction of neutrons.

THE University of Bristol conferred on April 12 the degree of doctor of laws *in absentia* on Dr. James Bryant Conant, president of Harvard University and head of the American National Research Committee, which has been visiting England.

THE University of Aberdeen will confer the doctorate of laws on Professor Arthur Wellesley Falconer, M.D., principal and vice-chancellor of the University of Capetown, South Africa.

AT the Chicago meeting of the American Association of Physical Anthropologists, Dr. William K. Gregory, curator of ichthyology at the American Museum of Natural History and professor of paleontol-

ogy at Columbia University, was elected president, and Dr. Harry L. Shapiro, associate curator of physical anthropology at the museum, was elected vice-president.

DR. HENRY V. HOWE, professor of geology and petroleum engineering and director of the School of Geology of the Louisiana State University, has been elected president of the Society of Economic Paleontologists and Mineralogists.

OFFICERS of the University of Cincinnati Section of Sigma Xi for the years 1941-43 are: *President*, Dr. Louis Brand, professor of mathematics; *Vice-president*, Dr. Harold Kersten, associate professor of biophysics, and *Secretary-Treasurer*, Dr. S. B. Arenson, professor of inorganic chemistry.

DR. J. P. BAUMBERGER, professor of physiology at Stanford University, has been granted leave of absence. From April 1 to December 31 he will serve as visiting professor in cytology at Washington University and research associate in the Barnard Free Skin and Cancer Hospital, St. Louis.

LAFAYETTE COLLEGE has received a grant of \$2,700 from the John and Mary Markle Foundation to support a study of the viscosity of the blood, which is being carried out under the direction of Professor Eugene C. Bingham, research professor of chemistry, and by Dr. R. R. Roepeke, research assistant.

DR. MAX FARRAND, now seventy-two years old, since 1927 director of the Henry E. Huntington Library and Art Gallery at San Marino, Calif., has resigned, his resignation to take effect on July 1. He plans to devote his entire time to research work and writing.

HENRY L. WARD, since 1902 director of the Neville Public Museum at Green Bay, Wis., has presented his resignation to take effect in May. Mr. Ward was director of the Public Museum of Milwaukee from 1902

to 1920; from 1920 to 1933 he was director of the Kent Scientific Museum. Earlier, from 1891 to 1902, he had been successively division manager and vice-president of Ward's Natural Science Establishment at Rochester, N. Y.

DR. ARNULFO ARIAS has been elected president of the Republic of Panama. He had previously held the posts of director of the department of hygiene and of minister to Italy, France and England.

DR. JOHN T. TATE, professor of physics and dean of the College of Science, Literature and Art of the University of Minnesota, and Dr. Louis B. Slichter, professor of geophysics at the Massachusetts Institute of Technology, members of the National Defense Council, were passengers on the Clipper of the Pan American Airways that left for Lisbon on April 7. It is understood that they will join the group of American scientific men now studying defense methods in England.

COMMANDER DONALD B. MACMILLAN will leave on June 20 for his nineteenth expedition to Greenland. The expedition is sponsored by the New England Museum of Natural History, for which he will make a collection of Arctic birds. The party will sail from Boothbay Harbor, Me., and it is expected that it will return on September 1.

DR. HUGH H. SMITH, Dr. Arnold P. Meiklejohn and Dr. William D. Robinson have been appointed members of the Rockefeller Foundation Health Commission, which carries on war work in the field of public health, and will sail for Europe on April 19. Dr. Smith and Dr. Meiklejohn will be attached to the British Ministry of Health, the former serving in the general public health field and the latter in nutrition investigations. Dr. Robinson will proceed to Madrid to take part in the commission's studies of nutrition in Spain.

THE Monday evening lecture of the National Academy of Sciences, which is meeting in Washington on April 28, 29 and 30, will be given by Dr. R. A. Millikan, Dr. H. Victor Neher and Dr. William H. Pickering, the California Institute of Technology. The subject of the lecture is "Testing in India a Theory of the Origin of the Cosmic Rays."

THE Franklin Medal Lecture of the American Philosophical Society, Philadelphia, will be given on the evening of Thursday, April 24, by Dr. Hugh S. Taylor, David B. Jones professor of chemistry at Princeton University. His lecture is entitled "Large Molecules through Atomic Spectacles."

DR. TRACY J. PUTNAM, professor of neurology at the College of Physicians and Surgeons, Columbia University, spoke on "The Surgical Treatment of

Athetosis and Paralysis Agitans" at the initiation banquet on April 7 of the Cornell University Medical College Chapter of the Alpha Omega Alpha Society.

DR. C. H. GOULDEN, senior agricultural scientist, of the Dominion Rust Research Laboratory, Winnipeg, gave the tenth series of Frank Azor Spragg Memorial Lectures, from February 25 to 28, at the Michigan State College. The memorial lecture was entitled: "The Fundamentals of Experimentation." The four daily lectures had as their general theme, "The Design and Analysis of Experiments."

DR. ADOLPH KNOPF, Sterling professor of geology at Yale University, delivered the tenth annual James Arthur Lecture on "Time and Its Mysteries" on April 16. The title of the lecture was "The Geologic Records of Time." Since 1906 Dr. Knopf has been a member of the staff of the U. S. Geological Survey, since 1912 as geologist. The Arthur lectureship was established in 1931 by a bequest of the late James Arthur, Brooklyn manufacturer, who had previously presented to the university a collection of more than 1,800 clocks and watches demonstrating the evolution of timekeeping. Other lecturers have been Drs. Robert A. Millikan, John C. Merriam, Harlow Shapley, James Henry Breasted, Daniel Webster Hering, W. F. G. Swann, John Dewey, Arthur H. Compton and Henry Norris Russell.

A JOINT meeting of the four honor societies, Sigma Xi, Tau Beta Pi, Alpha Omega Alpha and Phi Beta Kappa, was held in Detroit on April 2. Addresses were made on "Mental Attitudes for National Defense" by Fred M. Zeder, of the Chrysler Corporation; William J. Cameron, of the Ford Motor Company, and Dr. Charles F. Kettering, of the General Motors Corporation.

A SYMPOSIUM on "Nutrition in Defense of Democracy" was held on April 15 by the Chicago Branch of the American Association of Scientific Workers presided over by Professor Anton J. Carlson, at which the following papers were presented: "Nutrition in the United States To-day," by Dr. Hazel K. Stiebeling, Bureau of Home Economics, U. S. Department of Agriculture; "Nutrition in the Armed Forces," by Dr. Paul E. Howe, colonel of the Sanitary Corps, U. S. Army, and "Nutrition in the United States—a Plan for the Future" by Dr. Russell M. Wilder, of the Mayo Clinic, chairman of the Committee on Nutrition and Foods of the National Research Council.

THE Baskerville Chemical Society, the undergraduate society of students of chemistry at the College of the City of New York, will hold "Open House" on May 9 and 10. On Friday evening the chemistry building will be open to the public and demonstrations

depicting the work of the students will be shown. On Saturday morning at 11:00 A.M., there will be a student seminar, dealing with various phases of chemistry, at which papers will be presented by students representing the various metropolitan and city colleges. There will be an award for the best paper. On Saturday afternoon a parchment scroll, appropriately inscribed, will be presented to Professor Enrico Fermi, of Columbia University, by the Baskerville Chemical Society. After the presentation, Professor Fermi will speak on a phase of his work.

THE second American Congress on Obstetrics and Gynecology will be held in St. Louis from April 6 to 10, 1942. Dr. Fred L. Adair, professor of obstetrics and gynecology and chairman of the department at the University of Chicago, is president of the congress. Dr. E. D. Plass, professor of obstetrics and gynecology and head of the department at the State University of Iowa, is chairman of the program committee. The general plan for the program will be much the same as that of the first congress, which was held in Cleveland in 1939, with sectional meetings for the various groups (nurses, public health, administrators, educators and physicians), general sessions for all members attending the congress and round tables. There will be evening sessions open to the general public.

THE forty-third annual meeting of the Medical Library Association will be held at the University of Michigan Medical School, Ann Arbor, on May 29, 30 and 31, under the presidency of Colonel Harold W. Jones, of the Army Medical Library, Washington, D. C. Hotel headquarters will be at the Michigan Union. The program will include papers on the cooperation of libraries, union catalogues, medical history and industrial medicine.

THE twelfth annual meeting of the Eastern Psychological Association will be held on April 18 and 19. It is announced that the annual dinner will be given on Friday evening at seven o'clock, after which Professor Walter S. Hunter, of Brown University, president of the association, will deliver an address on "Professional Training of Psychologists."

THE thirty-sixth annual meeting of the Southern Society for Philosophy and Psychology was held at Washington, D. C., from April 10 to 12 under the presidency of Dr. John Paul Nafe, professor of psychology and head of the department at Washington University, St. Louis. The address of the president entitled "The Quantification of Psychology" was given after the banquet on Friday evening.

THE thirteenth annual science and engineering fair will be held at the American Museum of Natural His-

tory from April 27 to May 4. Exhibits will be on display from public and private schools, science clubs and independent groups. Prizes, amounting to \$3,000, based on age groups, will be awarded to the students in biological, physical and engineering sciences.

THE organization meeting of a Metropolitan Section of the Mathematical Association of America will be held on April 19 at Queen's College, Flushing, N. Y. There will be technical sessions both in the morning and in the afternoon. Professor F. H. Miller, of Cooper Union, will preside in the morning and Professor T. Freeman Cope, of Queen's College, in the afternoon. Dr. Paul Klapper, president of the college, will make an address of welcome at the opening of the afternoon session.

THE organization meeting of a Southeastern Division of the American Meteorological Society will be held in cooperation with the University of Miami on May 7, 8 and 9. There will be a Symposium on Tropical Cyclones presided over by Gordon E. Dunn, of Chicago, in which the speakers will be Dr. Sverre Petterssen, director of the meteorological division of the Daniel Guggenheim Aeronautics Laboratory of the Massachusetts Institute of Technology; Ivan R. Tannehill, chief of the division of synoptic reports and forecasts of the U. S. Weather Bureau, Washington; Dr. Patrick J. Harney, of Mount Washington Observatory; Willard F. McDonald, of the U. S. Weather Bureau, Washington, and R. J. Minser, chief meteorologist for the Trans-Continental Western Airways at Kansas City. In connection with the assembly there will be an official staff meeting of the U. S. Weather Bureau presided over by Dr. Francis W. Reichelderfer, chief of the bureau, and scientific visits to the radiosonde laboratory and to the forecasting division of the Pan American Airways. Social events are being arranged. Admission to all sessions will be provided by registration at the meeting. The program can be obtained from E. S. Ellison, chairman of the Seminar Board, Box 1058, Lakeland, Florida.

THE Bulkley Gold Medal of the Garden Club of America for artistic, horticultural and educational achievement was awarded to the Brooklyn Botanic Garden at the International Flower Show in the Grand Central Palace. The medal was awarded in recognition of an exhibit of seventy-six varieties of ivy.

JEFFERSON HOSPITAL, Philadelphia, will receive \$330,522 from the estate of the late Mrs. Emily Barton Pendleton to be used for the treatment of cancer and tuberculosis and for research into their causes.

DR. ARTHUR D. HASLER, director of the Lake Ge-

neva Institute of Natural Science, announces a gift to the institute of \$500 from the Lake Geneva Property Owners Association for the study of lake nuisances and limnological sequences resulting from pollution. A \$300 fellowship to study fishery biology in Lake Geneva, Wisconsin, has been established by Frank W. Schwinn. Applications for this fellowship for the summer of 1941 should be sent to Dr. Hasler, Department of Zoology, University of Wisconsin.

THE *Journal* of the American Medical Association reports that Meharry Medical College at Nashville is making a campaign to raise more than two million

dollars for an endowment fund. The General Education Board, which has been contributing toward the annual operating budget of the college, has announced that it will not continue this subsidy after this year. The board has offered conditionally, however, to make endowment grants amounting to \$3,700,000 if the college can collect \$1,700,000 from other sources. Of this amount \$1,500,000 must be raised by July 1. The current endowment is about \$800,000. A committee representing medical, educational and journalistic activities is sponsoring the campaign. Dr. Abraham Flexner is national chairman of the endowment program.

DISCUSSION

THE AGE OF JURASSIC DINOSAURS

A RECENT number of *Natural History* contains¹ a very interesting account of the discovery and collection of footprints of a gigantic Sauropod dinosaur identified as those of *Brontosaurus*, from the Glen Rose formation near Glen Rose, Somervell County, Texas. The American Museum, we are told, is installing these footprints under their excellent mounted *Brontosaurus* in the new Jurassic Hall. *Brontosaurus*, *Diplodocus*, etc., come from the Morrison formation of Colorado. The age of the Morrison was decided to be Jurassic by the late O. C. Marsh, largely because of his belief that the English Wealden was Jurassic, which has long since been disproved. In a great many parts of the world there exist continental beds of greater or less chronological magnitude between the latest marine Jurassic and the earliest marine Lower Cretaceous, and these always have given rise to differences of opinion and more or less controversy as to their age.

To those unfamiliar with Texas geology it may be said that the Glen Rose formation near Glen Rose from which the tracks were collected is thinner than it is farther east, and I am assured by Dr. E. H. Sellards that the tracks actually occur at a horizon which is rather late in Glen Rose time.

The age of the Lower Cretaceous of Texas has been the subject of much misconception in the past, largely from the ill-advised attempts of text-book writers, such as Chamberlin and Salisbury, to substitute the provincial term Comanchean as an independent system (period) co-extensive with the Lower Cretaceous of Europe. This is contrary to the conclusion of students of Cretaceous stratigraphy and paleontology, both American and European.

The Glen Rose is the middle formation of the Trinity group and the base of the Trinity in Texas is now considered younger than the Neocomian of Europe.

In 1911 I correlated it² with the late Barremian and

Aptian of Europe (*vide* Douville, Kilian, Suess, etc.) correlating the overlying Fredericksburg with the European Albian on the basis of the faunas, and the Washita or upper Comanchean with the European Upper Cretaceous (Cenomanian).

All this leads into the question of the age of the Morrison. I have expressed my opinion long ago,² and wish merely to raise the question in the present connection, that if a Jurassic dinosaur (vertebrate chronology) makes footprints at a horizon near the middle of the marine Lower Cretaceous (invertebrate chronology) where do we go from here?

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OSMOTIC PRESSURE FOR THE PLANT PHYSIOLOGIST

SOME time ago¹ these columns carried a suggestion that the basic definition of osmotic pressure emphasize its function as the cause and not the result of osmosis. Unfortunately the writer based his argument on the erroneous premise that diffusion pressure and osmotic pressure are identical. Subsequently a student of both physiology and physical chemistry has called attention² to the chemist's concept of fugacity as a sound basis for understanding osmotic pressure. In line with this concept but worded in explicit terms more commonly used by biologists as a whole, the following statement is offered as a brief exposition of osmosis and the way it works in plant tissues with particular reference to osmotic pressure as the cause of osmosis:

When water molecules are free to diffuse in an aqueous solution or in pure water, they have a certain diffusion pressure. When they move through a differentially permeable membrane as the result of a difference in diffusion pressures on the two sides of the membrane, this special

² E. W. Berry, Maryland Geol. Surv. Lower Cretaceous, 1911 (correlation chart).

¹ H. C. Eyster, *SCIENCE*, 92: 171-172, 1940.

² S. C. Brooks, *SCIENCE*, 92: 428-429, 1940.

¹ R. T. Bird, *Nat. Hist.*, 47: 2, 74-81, February, 1941.