

a. The continuous showing of static demonstrations during the scientific sessions. Explanation of such demonstrations may be given on multigraphed sheets distributed at the place of demonstration or verbally according to a time schedule posted at the demonstration. Demonstrators will be required to supply this information, but the demonstrations will be identified on the program.

b. Motion picture demonstrations, also identified on the program, will be shown by an operator in a projection room at the Armory several times during the sessions according to a schedule to be announced. Special periods will be provided each day when the operator will repeat showings on request. Demonstrators should provide multigraphed sheets in explanation if needed and if they can not be present to give verbal explanations.

Only 16 mm. films will be shown. No provision will be made for sound projection or for the showing of films which require a licensed operator or which do not conform to the 'usual underwriters' conditions for home exhibitions.

Those proposing to show static demonstrations or motion pictures as above should communicate with Dr. Chandler M. Brooks (motion pictures), the Johns Hopkins Medical School, or with Dr. D. C. Smith (static demonstrations), department of physiology, University of Maryland Medical School, before February 15, giving titles and brief descriptions.

With the consent and approval of Dr. Philip Bard, chairman of the local committee, provision may be made for laboratory demonstrations requiring special material or apparatus. Dr. Bard should be consulted before February 15.

THE THIRD INTERNATIONAL NEUROLOGICAL CONGRESS

THE Third International Neurological Congress will be held during the last week of August, 1939, in Copenhagen, under the presidency of Professor Viggo Christiansen with Dr. Knud H. Krabbe, Copenhagen, as secretary-general. Dr. H. A. Riley, New York, has been designated a vice-president for the United States; Dr. Gordon Holmes, London; Dr. B. Sachs, New York; Sir Charles Sherrington, Oxford, have been elected honorary presidents. Among the honorary members are: Professor Harvey Cushing, United States; Professor H. Marcus, Sweden; Professor M. Nonne, Germany, and Professor K. Schaffer, Hungary.

Three symposia have been agreed upon for special presentation.

1. Autonomic Nervous System, in charge of Professors von Bogaert and Pette;

2. Heredo-familial Disease, in charge of Professor Guillaín, and

3. Avitaminoses, with Especial Reference to the Peripheral Nervous System, in charge of Professor Monrad-Krohn.

RECENT DEATHS AND MEMORIALS

DR. HENRY HERBERT DONALDSON, member of the Wistar Institute of Anatomy, Philadelphia, and professor of neurology at the University of Pennsylvania, died on January 24 in his eightieth year.

DR. JOHN KUNKEL SMALL, director of research and curator of the New York Botanical Garden, died on January 20 at the age of sixty-eight years.

PROFESSOR WILLIAM HENRY PICKERING, director of the astronomical observatory established by Harvard University at Mandeville, Jamaica, died on January 16 at the age of seventy-nine years.

ERNEST EDWARD AUSTEN, from 1927 to 1932 keeper of the department of entomology of the British Museum, an authority on the tsetse fly and tropical diseases, died on January 16. He was seventy years old.

DR. OTTO WARBURG, the botanist, an authority on tropical plants, at one time lecturer at the University of Berlin and professor in the Berlin Oriental Seminary, later president of the World Zionist Organization, died on January 10 at the age of seventy-nine years.

THE centennial of the first public demonstration of the telegraph invented by Samuel F. B. Morse was observed on January 23 in the auditorium of the Washington Square College of New York University. A dramatization of the life of Dr. Morse, professor at the university at the time he invented the telegraph, was broadcast over the WJZ network and the first public demonstration of the instrument was reenacted. Dr. John H. Finley, director of the Hall of Fame, was one of the principal speakers.

ACCORDING to the London *Times* a bronze plaque in memory of William Henry Hudson, the naturalist, known for his work in Argentina, will be placed on the house in which he died on August 18, 1922. The plaque was designed by Señor Luis Perloti, the Argentine sculptor.

A MONUMENT has been erected in Rio de Janeiro to the memory of Professor Miguel Conto, who was for twenty years president of the National Academy of Medicine.

SCIENTIFIC NOTES AND NEWS

THE gold medal of the Royal Astronomical Society, London, was awarded on January 14 to Dr. William H. Wright, director of the Lick Observatory of the

University of California, in recognition of his studies on the spectra of gaseous nebulae and novae, and for his work in the photography of planets.

THE Society of Chemical Industry, London, has awarded the Messel Medal for 1938 to Dr. Leo Hendrik Baekeland, president and founder of the Bakelite Corporation and honorary professor of chemical engineering at Columbia University. This medal is given every two years "to the individual who has secured meritorious distinction in the science or literature of chemistry, or in the chemical industry." The only other American who has received the medal is Dr. Robert A. Millikan, of the California Institute of Technology. It will be presented to Dr. Baekeland at the annual meeting of the Society of Chemical Industry in Ottawa on June 21.

DR. ARNO B. LUCKHARDT, professor of physiology at the University of Chicago, received the dental fraternity Alpha Omega achievement medal at the annual convention in Chicago. This medal is awarded annually to "an outstanding scientist for meritorious services to dentistry or allied arts." The recipient of this award in 1936 was Dr. LeRoy M. S. Miner, dean of the dental school of Harvard University and formerly president of the American Dental Association.

AMONG the degrees conferred at the installation of Dr. Rufus C. Harris as president of Tulane University were the doctorate of laws on Dr. Alexander G. Ruthven, president of the University of Michigan; on James M. Robert, dean of the College of Engineering at Tulane University, and the doctorate of engineering on Dr. William E. Wickenden, president of the Case School of Applied Science. The doctorate of humane letters was conferred on Dr. Walter Smith Leathers, dean of the School of Medicine of Vanderbilt University, and on Dr. Alphonse Mary Schwitalla, S.J., dean of the School of Medicine, St. Louis University.

THE dedication of the first unit of a \$9,000,000 pulp mill as part of exercises marking "Florida Industries Day" was made on January 15. Honor was paid to Dr. Charles H. Herty, by whose research in a small laboratory in Savannah the processes of manufacture were discovered. A bronze plaque dedicating the plant to him was unveiled by Walter P. Paepcke, president of the Container Corporation of America, for which the mill was built. Besides Dr. Herty, the speakers included Governor Fred P. Cone, Senator Claude Pepper and Daniel C. Roper, Secretary of Commerce. Dr. Herty was the guest of honor in the evening at a dinner in Jacksonville, given by Governor Cone, in which about a hundred industrialists, financiers and federal and state officials participated.

THE Council of the Geological Society, London, has made the following awards: The Wollaston Medal to Professor Maurice Lugeon, of the University of Lausanne, in recognition of the value of his researches

on the mineral structure of the earth, particularly in respect of the geological structure of the Alps and of mountain building. The Murchison Medal to Dr. Henry Howe Bemrose, in recognition of his researches upon the igneous rocks of the Lower Carboniferous of Derbyshire and also upon the Pleistocene fauna of the same area. The Lyell Medal to Dr. John Pringle, for his services to paleontological science and particularly in recognition of his work in connection with the Geological Survey and Museum.

DR. NIELS BOHR, professor of physics in the University of Copenhagen, has been elected a correspondent in the section of general physics of the Academy of Sciences, Paris, and Dr. Georges Denigès, formerly professor of biological chemistry in the University of Bordeaux, has been elected a correspondent in the section of chemistry.

THE French Minister of Education, according to the *Journal* of the American Medical Association, has conferred the title of honorary professor on three members of the faculty of the Paris Medical School: M. Roussy, who recently was elected rector of the University of Paris; M. Brindeau, obstetrician, and M. Sergent, phthisiologist. The last two have reached the age limit.

DR. PHILIP E. SMITH, professor of anatomy at the College of Physicians and Surgeons of Columbia University, has been created a Knight of the French Legion of Honor.

THE annual meeting of the Franklin Institute was held on January 19, when the following officers were elected: *President*, Philip C. Staples; *Vice-presidents*, Walton Forstall, W. Chattin Wetherill and S. S. Fels. Dr. Harold C. Urey, professor of chemistry, Columbia University, New York City, spoke on "Concentration of Isotopes by Chemical Means." It was announced that the statue of Benjamin Franklin, which will be erected in Franklin Hall, will be unveiled by President Roosevelt during the dedicatory exercises, which will be held on May 19, 20 and 21.

THE Society of Economic Geologists has elected for the year 1939: *President-elect*, Arthur C. Veatch, New York City, and *Vice-president-elect*, Dr. Elwood S. Moore, of the University of Toronto. Dr. Donald H. McLaughlin, of Harvard University, was installed as president at the Washington meeting.

OFFICERS of the Pathological Society of Philadelphia for 1938 are: Dr. Baxter L. Crawford, pathologist to the Jefferson Hospital, *president*; Dr. Jefferson H. Clark, director of the Laboratories of the Philadelphia General Hospital, *vice-president*, and Dr. Herbert L. Ratcliffe, department of pathology, University of Pennsylvania, *secretary-treasurer*.

At the December elections of the Academy of Medicine of Washington, D. C., the following officers were chosen: *President*, Dr. Carl Voegtlin; *Vice-president*, Dr. Sterling Ruffin; *Treasurer*, Dr. Daniel L. Borden; *Secretary*, Dr. Errett C. Albritton; *Directors*, Drs. Prentiss Willson, Merle A. Tuve, Matthew W. Perry, Earl B. McKinley and Lyman J. Briggs. At its winter meeting on January 29 the academy will have as guest speaker Dr. Frederick Parker Gay, professor of bacteriology, College of Physicians and Surgeons, Columbia University, who will speak on "Medical Logic."

At West Virginia University, Dr. F. D. Fromme has resigned as dean of the College of Agriculture and director of the Agricultural Experiment Station and Extension Division, effective on February 1, to accept appointment as principal experiment station administrator in the Office of Experiment Stations, U. S. Department of Agriculture. Dr. C. R. Orton, professor of plant pathology, succeeds him as dean and director of the station, and J. O. Knapp becomes acting director of extension.

Dr. J. C. Warner, associate professor of metallurgy at the Carnegie Institute of Technology, Pittsburgh, has been appointed professor of chemistry and head of the department of chemistry, the appointment to become effective on July 1. Dr. Warner will succeed Dr. J. H. James, who will retire at the end of this session. Dr. James is on leave of absence this year, and Dr. Thomas R. Alexander is acting head of the department during the interim.

Dr. Edward William Wallace, recently of the staff of the National Institute of Health, Washington, D. C., has been appointed assistant professor in the department of pharmacology at the University of Cincinnati College of Medicine.

At the Harvard College Observatory Dr. Annie Jump Cannon has been appointed William Cranch Bond astronomer and curator of astronomical photographs; Dr. Cecilia Payne Gaposchkin has been appointed Phillips astronomer. They have been members of the observatory since 1897 and 1927, respectively.

Dr. Ivor Griffith has been appointed dean of pharmacy of the Philadelphia College of Pharmacy and Science to succeed the late Dr. Charles H. LaWall. Dr. Griffith, who prior to this election held the position of assistant dean of pharmacy and professor of theory and practice of pharmacy of the college, is editor of the *American Journal of Pharmacy*.

Dr. C. H. Mahoney, research associate in horticulture at the Michigan State College, has been appointed professor of olericulture at the University of Mary-

land. He will be in direct charge of teaching, extension and research of the vegetable work at College Park.

Dr. A. T. Bazin, professor of surgery at McGill University, has been appointed dean of the department of surgery.

Arthur B. Recknagel, professor of forestry at Cornell University, left on January 11 to assume his work as exchange professor of forestry at the University of British Columbia, Vancouver. He will teach forest management and forest products and marketing and will study forest practice in the Douglas fir region.

Dr. Leonard P. Schultz, assistant curator in the Division of Fishes of the U. S. National Museum, has been appointed curator.

Dr. Hans Stille, professor of paleontology at Berlin, has been elected secretary of the Prussian Academy of Sciences.

Dr. Fritz von Wettstein, director of the Kaiser Wilhelm Institut für Biologie, Berlin-Dahlem, is a guest investigator at the Department of Genetics of the Carnegie Institution of Washington at Cold Spring Harbor for the months of January and February. He plans to visit institutions on the Pacific Coast during March and then to return to Germany by way of the Panama Canal. Dr. Åke Gustafsson, docent at the University of Lund, is spending the year at the Department of Genetics on an international fellowship of the Rockefeller Foundation.

The *British Medical Journal* reports that the League of Nations has sent a medical mission to the Far East to take measures to prevent or control the spread of epidemics. The mission is headed by Inspector-General Lasnet, of the Academy of Medicine, Paris, Dr. Hermann Mooser, representing Germany, and Dr. Robert Cecil Robertson, representing Great Britain. The mission will first visit Hong Kong and continue its work in South China.

Dr. F. R. Moulton, permanent secretary of the American Association for the Advancement of Science, gave an address before the Washington Academy of Sciences on January 20. His subject was "Celestial Sciences."

Professor W. C. Allee, of the department of zoology at the University of Chicago, will give six lectures on the Norman Wait Harris Foundation of the Northwestern University on "Group Action among Animals and its Social Implications."

The fourth lecture in the Smith-Reed-Russell series for this year at the School of Medicine of the George Washington University was held on January 11, when

Dr. Edwards A. Park, head of the department of pediatrics of the Johns Hopkins Hospital, spoke on "Various Types of Bone Diseases in Children."

THE seventh International Congress of Genetics will meet in Edinburgh in 1939, probably from August 23 to 30. Professor F. A. E. Crew, of the Institute of Animal Genetics, University of Edinburgh, has been appointed general secretary to the congress.

THE Eta Chapter of California of Phi Beta Kappa was installed at the University of California at Los Angeles on January 14. Dr. Robert Andrews Millikan, chairman of the Executive Council of the California Institute of Technology, acted as installing officer, and Dr. Charles B. Lipman, dean of the Graduate Division of the University of California, delivered an address on "A Proposed New Rôle for Phi Beta Kappa in American Education." The faculty officers of the chapter are: *President*, Dr. Alexander Green Fite; *First Vice-president*, Dr. Bennet M. Allen; *Second Vice-president*, Dr. Margaret Sprague Carhart; *Third Vice-president*, Dr. Frederick C. Leonard; *Secretary*, Dr. Paul H. Daus; *Treasurer*, Dr. Herbert Benno Hoffleit.

TRENDS in medical education and medical practice will be discussed by medical men at the symposium on higher education in the South which has been arranged as a feature of the installation ceremonies of Chancellor Oliver C. Carmichael, of Vanderbilt University, on February 3, 4 and 5. Among the speakers are: Dr. Irvin Abell, professor of surgery at the University of Louisville, president-elect of the American Medical Association, who will discuss "Significant Trends in Medical Practice"; Dr. Thomas Parran, Surgeon General of the United States Public Health Service, will speak on "A Forward Look at National Health"; Dr. Wilburt C. Davison, professor of pediatrics and dean of the School of Medicine of Duke University, will speak on "A Survey of Medical Education in the South"; Dr. William D. Cutter, secretary of the Council of Medical Education and Hospitals of the American Medical Association, will deliver an address on "Trends in Pre-Medical and Medical Education."

THE Midwestern Psychological Association will hold its annual meeting at the University of Wisconsin, on April 22 and 23, under the presidency of Dr. Arthur G. Bills, of the University of Cincinnati. The title of his presidential address will be "Changing Views of Psychology as Science." A special feature of the meeting will be the celebration of the fiftieth anniversary of the founding of the psychological laboratory at the University of Wisconsin by Joseph Jastrow.

IN December, 1937, the Duke University Medical

Society was organized to facilitate the presentation of current medical problems before the students, the staff and other interested persons in the university and professional community. Meetings are held monthly during the academic year, and the programs usually consist of short case presentations and discussions followed by a description of some staff or student research project. Occasionally, guest speakers from other institutions are invited to participate in the programs. The first meeting was held on December 7, at which Dr. Wiley D. Forbus gave the introductory talk, and Dr. D. T. Smith spoke on "Experimental Canine Blacktongue." At the second meeting, held on January 11, Dr. Ralph W. G. Wyckoff, of the Rockefeller Institute, Princeton, N. J., was the guest speaker, his subject being "The Ultra-centrifugal Study of Macromolecules."

IN the will of Arthur S. Lea, formerly a member of the publishing firm of Lea and Febiger, Philadelphia, who died two weeks ago at the age of seventy-nine years, large bequests are made to educational, religious and charitable institutions. Besides receiving outright bequests, Harvard University, from which Mr. Lea was graduated, and the University of Pennsylvania each will have 40 per cent. of the residuary estate, and the Children's Hospital of Philadelphia 20 per cent. No estimate of the probable amount was available. Princeton University will receive \$150,000 in trust for the establishment of a professorship in history, preferably medieval. A gift of \$52,500 to the University of Pennsylvania provides for printing and publishing the works of the testator's father, Henry Charles Lea, the historian. The university museum also receives \$10,000 for general use. Other bequests include \$50,000 to the following institutions: the Jefferson Medical College for research in streptococcus infection; the Pennsylvania Hospital, the College of Physicians of Philadelphia, the Drexel Institute, the Southeastern Pennsylvania chapter of the Red Cross, the National American Red Cross, the Academy of Natural Sciences of Philadelphia, the Franklin Institute, the Philadelphia Zoological Gardens and the Library Company of Philadelphia.

THE new building for the School of Medicine of Indiana University, erected at a cost of \$475,000, was recently dedicated. It houses the departments of anatomy, hygiene and physiology and contains the combined libraries of the three departments. Speakers at the dedication included M. Clifford Townsend, governor of Indiana; United States Senator Sherman Minton, and Dr. Fred C. Zapffe, secretary of the Association of American Medical Colleges.

ACCORDING to an Associated Press dispatch from

Berne the Swiss Government has inaugurated a weather bureau station on the Jungfrau, which rises 13,672 feet above sea level. Dr. Philippe Etter, Min-

ister of the Interior, was the principal speaker at the ceremonies. The project was financed largely by private scientific and Alpine organizations.

DISCUSSION

THE CLIMATIC HYPOTHESIS IN GEOGRAPHY

A SURVEY of geographic literature shows coherent development of the data of landscape in terms of climate. Caution, however, is desirable, because of the uncertainty of the meteorological material upon which "climate" as such has been based. Unless stability of meteorological conditions over periods long enough to make averages meaningful can be demonstrated, the whole framework of climate based upon statistical averages will have to be abandoned. The researches of Sears and of the other pollen-analysts have shown rather profound changes in climatic conditions to have been taking place during the past three to five hundred years.¹ The analyses of Douglas, working on tree rings in connection with archeological investigations in the southwestern part of the United States, have shown that throughout the reconstructable period of the ancient pueblos climatic irregularity has characterized the yearly progress of atmospheric conditions.² For longer periods, Antevs in the United States and DeGeer in Sweden by the study of varves have demonstrated the fluctuations of climate in immediately post-Pleistocene times and for considerable periods since.³ C. E. P. Brooks has collected much evidence of the history of climate.⁴ The view which must emerge from the consideration of this evidence is that climate is in a state of continuous fluctuation and change. It is not static; it varies from year to year, from decade to decade, and from millennium to millennium, though perhaps with measurable cycles and epicycles upon possible longer cycles from glaciation to glaciation.

Recently Koeppen and others have constructed climatic systems on the basis of averages of meteorological data.⁵ These systems are utilized more or less widely in the "regional" organization of geographical data and in conjunction with the more detailed study of small "regions," perhaps more in the United States than in Europe.⁶ Geographers have been able to organize the data of landscape more successfully in terms

of climate than in any other way. Alexander von Humboldt foreshadowed the way in which geography was to develop when he described the domain of plant geography in the *Kosmos* and when he invented the isotherm. The publication of "The Origin of Species" started a combing of the world for evidence of natural selection, of which search zoogeography was a by-product, though its first phases had been illuminated by Buffon. Wallace's "Geographical Distribution of Animals" rests philosophically on a foundation of climatic difference. Davis, in his physiographic work, found it necessary to introduce modifications of his system in the case of arid regions, and had his observational experience been wider he would perhaps have worked out systems for the humid tropics and for the polar regions of frozen soil.

If climate has history, if it consists of continuously varying combinations of the meteorological elements, as was presented above, it would seem impossible to measure it in terms of averages; its data are too elusive. As a consequence it will be necessary to abandon the various schemes which have been proposed and to proceed with the investigation of climate along other lines. Furthermore, the distribution of vegetation, to take but one element in the "geographic complex resting on climate," is not determined by the distribution of average meteorological conditions (whether measurable or existing, or not), but rather, probably, by extremes of temperature or of rainfall or of some other factor occurring in certain unascertainable combinations during certain, perhaps ascertainable, critical periods in the lives of the individuals and species making up the vegetation of the world.

If the regional organization of geographic material is impossible in the tradition of von Humboldt, Wallace and Koeppen, if the serviceability of climatic maps expressed in terms of isotherms, isohyets and isobars is open to question because of the defect of averages, what remains for the climatic hypothesis which has proved so useful in geography? It is probable that landscape should be considered as a system of variables—climate varies in time, as we have seen; the geologic "base" of landscape varies also, diastrophically. Landscape as a variable has been summed up diagrammatically by Sauer,⁷ and it is the complex pattern there expressed to which geographers should devote themselves. If climate, though not alone, work through time to produce "forms" of the "natural landscape" and if climate be variable, it becomes necessary to study somehow the ways in which the other variables

¹ *American Anthropologist*, 34: 610-622, 1932.

² Carnegie Inst. of Wash., Pub. No. 289, 1919-26, 2 vols.

³ Ymer, 45, 1925; Carnegie Inst. of Wash., Pub. No. 352, 1925.

⁴ "Climate through the Ages," London, 1926; "The Evolution of Climate," London, 1925.

⁵ "Grundriss der Klimakunde," etc., Koeppen-Geiger, "Handbuch der Klimatologie," et al.

⁶ *Univ. Calif. Pub. in Geog.*, 2 p. 272; *Papers*, Mich. Acad., 1932, p. 248; *Annals*, A.A.G., 26, 1936, p. 159. These papers are cited as samples, and are not necessarily bad in themselves otherwise.

⁷ *Univ. Calif. Publications in Geog.*, 2, p. 41.