this year falls on Wednesday, April 10, to visiting laboratories, informal social gatherings and discussions.

The Hotel Statler will serve as headquarters. All scientific sessions, except the demonstrations on Friday afternoon, April 12, will be held in the Masonic Temple. The demonstrations will be given in the School of Nursing and Hygiene of the Henry Ford Hospital. The Masonic Temple is within walking distance of the Hotel Statler. Special bus service will also be provided. The program is as follows:

On April 10, there will be held meetings of the executive committee of the federation and of the councils of the societies and the annual meeting of the American Institute of Nutrition at the Masonic Temple. The laboratories of the following Detroit institutions will hold open house for the federation on Wednesday and during the remainder of the week: The Henry Ford Hospital, Grand Boulevard and Hamilton Avenue; The Children's Fund of Michigan, 660 Frederick Street; The Wayne University College of Medicine, 1521 St. Antoine Street; Parke Davis and Company, foot of McDougall Avenue; Frederick Stearns and Company, 6533 E. Jefferson Avenue.

On Thursday, April 11, there will be scientific sessions of the societies in the morning, and in the afternoon scientific and business sessions of the societies will be held.

On Friday, April 12, scientific and business sessions of the societies will be held in the morning and joint demonstrations in the School of Nursing and Hygiene of the Henry Ford Hospital will be shown in the afternoon. Tea will be served later in the Clara Ford Nurses' Home. In the evening the annual dinner of the federation will be in the grand ballroom of the Hotel Statler.

On Saturday, April 13, the scientific sessions of the societies will be concluded. In the afternoon there will be a joint session of the federation.

There will be a special registration and information bureau which will be located on the mezzanine floor of the Hotel Statler.

A reduced fare on the "Certificate Plan" of one and one third fares for the round trip to and from Detroit will apply to members and associate members of the Federation of American Societies for Experimental Biology (and their dependent families).

The local committee in charge of arrangements consists of Dr. F. W. Hartman, *chairman;* Dr. Icie G. Macy, *secretary;* Dr. Oliver Kamm, Dr. Thomas L. Patterson, Dr. O. M. Gruhzit, Dr. O. H. Gaebler, Dr. Arthur D. Emmett, Dr. Arthur W. Dox, Dr. Daniel A. McGinty, Dr. Melville Sahyun, Dr. Nelles B. Laughton. Further information about the meeting can be obtained through Dr. H. A. Mattill, *secretary,* The State University of Iowa, Iowa City, Iowa.

SCIENTIFIC NOTES AND NEWS

DR. LAFAYETTE B. MENDEL, Sterling professor of physiological chemistry at Yale University, has been awarded the Conne Medal of the New York Chemists Club for 1934 for his "outstanding chemical contributions to medicine."

THE 1934 Lamme Medal of the American Institute of Electrical Engineers has been awarded to Henry E. Warren, president of the Warren Telechron Company, Ashland, Mass., "for outstanding contributions to the development of electric clocks and means for controlling central station frequencies." The medal will be presented to Mr. Warren at the summer meeting of the institute, which will be held at Cornell University from June 24 to 28.

DR. WILLIAM P. MURPHY, of the Harvard Medical School and the Peter Bent Brigham Hospital, has been awarded the Order of the White Rose by the President of Finland with the rating of Commander of the First Rank. He was also made a member in December, 1934, of the Kaiserlich. Leopold.-Carolin. Deutsche Akademie der Naturforscher.

PROFESSOR FRANK D. ADAMS, of McGill University, has been elected a foreign member of the Royal Swedish Academy of Science, and an honorary member of the Academia Asiatica of Teheran, Persia.

SIR GEORGE SEATON BUCHANAN, senior medical officer of the British Ministry of Health, was presented on January 25 with the Jenner Medal of the Royal Society of Medicine.

THE Progress Medal of the Royal Photographic Society of Great Britain has been awarded to Harold Dennis Taylor, in recognition of his inventions, research and publication in optical science, which have resulted in important advances in the construction of photographic lenses and in the development of photography.

PROFESSOR A. VON EISELBERG, president of the Medical Society of Vienna, has been nominated doctor *honoris causa* of the University of Paris.

DR. THOMAS BARBOUR, professor of zoology at Harvard University and director of the Museum of Comparative Zoology and the University Museum, has been elected a member of the board of trustees of the Carnegie Institution of Washington.

DR. P. W. WHITING will have charge of the work in genetics during the present term at the University

of Pennsylvania, where he is a guest lecturer in zoology.

DR. HOWARD WALTER FLOREY, of Magdalen College of the University of Oxford, has been appointed professor of pathology.

DR. LEO ROGIN, lecturer in economics at the University of California, who has been acting chief of the food products division of the Labor Advisory Board, has been made chief of the division.

DR. H. J. FRASER, of the department of geological research of the International Nickel Company, Ltd., is spending some months in the laboratory of Dr. L. C. Graton, professor of mining geology at Harvard University, on special microscopical investigations of the Sudbury ores.

DR. ALBERT F. BLAKESLEE, acting director of the department of genetics of the Carnegie Institution of Washington at Cold Spring Harbor, was elected on January 28 a corresponding member of the Academy of Sciences of the Institute of France. He takes the place in the section of botany made vacant by the death of Professor Chodat, of the University of Geneva. The other foreign correspondents in the botanical section are Professor Ikeno of Japan and Professor De Vries of Holland. According to the last published records, the correspondents in this country from the other biological sections of the French Academy are the following: Dr. Alexis Carrel, of the Rockefeller Institute for Medical Research, Dr. Simon Flexner, director of the Rockefeller Institute, and Professor T. H. Morgan, of the California Institute of Technology and research associate of the Carnegie Institution of Washington.

ALFRED KNIGHT, fellow of the Royal Astronomical Society and formerly vice-president of the Fleischmann Company, was elected president of the American Institute of the City of New York on February 14. The other officers elected were Dr. Oscar Riddle, *vice-president;* L. W. Hutchins, *secretary,* and H. T. Newcomb, *treasurer.*

DR. CHARLES E. DECKER, professor of geology at the University of Oklahoma, has been elected president of the Oklahoma Academy of Sciences.

AT its meeting on February 6, the executive committee of the American Geophysical Union appointed a special committee on continents and continental evolution as follows: W. T. Thom, Jr. (*chairman*), L. H. Adams, N. L. Bowen, W. Bowie, R. T. Chamberlin, E. Cloos, M. Ewing, R. M. Field, J. A. Fleming, W. R. Gregg, B. Gutenberg, N. H. Heck, M. K. Hubbert, E. S. Larsen, F. W. Lee, L. D. Leet, J. B. Macelwane, L. B. Slichter and H. R. Wanless. The object of this committee is to apply geophysical methods and technique to the solution of the geological problems of continental genesis and evolution, and its work will integrate closely with that of the union's special committee on geophysical and geological study of oceanic basins. The special committee on continents and continental evolution therefore includes men from the following fields: Chamberlin, structural geology; Wanless, stratigraphic geology; Field, particularly because of his chairmanship of the special committee on geophysical and geological study of oceanic basins; Larsen, volcanology; Cloos, Ewing, Hubbert, Lee, Leet, Slichter and Thom, general geophysics and applications to geology; Bowen, geochemistry; Adams, physics of rocks; Bowie, gravity and isostasy; Gutenberg and Macelwane, seismology; Heck, seismology and terrestrial magnetism; Fleming, terrestrial magnetism and electricity; Gregg, meteorology. The union feels that the simultaneous application of geophysics and geology in an attack upon the major problems of earth composition and evolution can not fail to lead to great advances in earth science.

THE George Fisher Baker non-resident lecturer in chemistry at Cornell University for the second term of the academic year, 1934–35, will be Professor Farrington Daniels, professor of chemistry at the University of Wisconsin. His lectures on "Chemical Kinetics" will be given in Baker Laboratory on Tuesdays and Thursdays at 12 o'clock.

PROFESSOR E. WIGNER, of Princeton University, addressed the Physics Colloquium of the University of Pennsylvania on the subject of "Free Electrons and the Metallic Bond" on January 24.

DR. WILLIAM K. GREGORY, professor of paleontology at Columbia University and curator of comparative and human anatomy at the American Museum of Natural History, delivered a lecture entitled "The Study of Human Evolution: A Plea for a More Synthetic Approach" before the University of Maryland Biological Society in Baltimore on January 29.

DR. SAMUEL ALFRED MITCHELL, director of the Leander McCormick Observatory of the University of Virginia, will give an illustrated lecture on "Solar Eclipse Problems" at the meeting of the American Philosophical Society on March 1.

PROFESSOR ARTHUR B. RECKNAGEL, professor of forestry at Cornell University, spoke before the Canadian Society of Forest Engineers at the University of Toronto on January 21 on "Applied Forest Management under the Lumber Code in the Northern States." On January 25 he read a paper on "American Conservation Measures and Rules of Forest Practice" at a meeting of the Canadian Pulp and Paper Association in Montreal.

DR. GUSTAV EGLOFF recently gave a series of lectures as follows: On January 17, before the Northwest Petroleum Association in Minneapolis, on "Modern Products from Petroleum"; on February 7, at a conference on fuel oil and oil burners at the University of Wisconsin, on "Production, Competitive Uses and Future Supply of Fuel Oil"; on February 7, at a meeting of the Northeast Wisconsin section of the American Chemical Society, on "The Cracking Process and Its Products"; on February 14, before the Ohio Petroleum Marketers Association, Inc., Columbus, Ohio, on "Modern Gasoline and Lubricants."

DR. WOLFGANG KÖHLER, professor of psychology at the University of Berlin, lectured on the subject, "Biology and Physics," before the Rutgers University chapter of the Sigma Xi on January 21.

ON January 17, Dr. James E. Ackert, dean of the division of graduate study and professor of zoology at the Kansas State College, addressed the University of Kansas chapter of Sigma Xi on the subject, "Host Resistance to Parasitism."

JAMES I. HAMBLETON, of the Bee Culture Laboratory of the U. S. Department of Agriculture, and Dr. Ronald Bamford, of the department of botany of the University of Maryland, have been recent speakers before the Western Maryland College chapter of Beta Beta Beta. Mr. Hambleton spoke on November 27 on "The Bee as a Honey-maker," and Dr. Bamford on January 29 on "Some Chromosome Problems."

FRANS BLOM, director of the department of middle American research at Tulane University, left on February 12 on an archeological expedition to Honduras. He was accompanied by Jens Yde, of the Danish National Museum.

DR. ARTHUR A. ALLEN, professor of ornithology at Cornell University, on February 13 left for an expedition through the South and West to record and study bird songs. The expedition is under the auspices of the American Museum of Natural History and Cornell University and will be in the field until August 1.

MEMBERS of the committee appointed to organize the celebration of the three hundredth anniversary of the founding of the chemical industry in America, to be held in connection with the meeting of the American Chemical Society in New York from April 22 to April 26, are: Dr. Francis P. Garvan, president of the Chemical Foundation, *honorary chairman;* Dr. Arthur W. Hixson, professor of engineering at Columbia University, *general chairman;* Dr. Lawrence W. Bass, director of research of the Borden Company, New York, N. Y., *vice-chairman;* Dr. D. P. Morgan, chemical economist of Scudder, Stevens and Clark, New York, N. Y., *secretary-treasurer.*

WILLIAM H. TYERYAR, of Frederick, Maryland, has contributed to the Western Maryland College his collection of butterflies and moths, containing over 2,000 specimens, all caught in Frederick and Carroll counties, Maryland.

A GRADUATE of the University of Kansas, whose name is withheld, has recently given $60,000 for the construction of the first unit of a Children's Hospital for the Kansas University School of Medicine. Construction will begin at once.

COLUMBIA UNIVERSITY has announced the following gifts: $5,300 from the Josiah Macy, Jr., Foundation for work in pathology; $3,150 from E. R. Squibb and Sons for fellowships in the departments of biological chemistry and anatomy; $2,000 from the Emergency Committee in Aid of Displaced German Scholars for the salaries of visiting scholars; and $1,500 from Mrs. Elsie Clews Parsons for research in anthropology.

A NEW quarterly, devoted to the publication of mathematical research and sponsored by Duke University, will appear shortly under the title *Duke Mathematical Journal.* The editors are A. B. Coble, University of Illinois; D. V. Widder, Harvard University; and J. M. Thomas, Duke University, the last named being managing editor. The associate editors are H. E. Bray, L. W. Cohen, L. R. Ford, J. J. Gergen, R. E. Langer, C. C. MacDuffee, J. A. Shohat and G. T. Whyburn. The first number will be dated March, 1935.

THE National Research Council announces that a limited number of fellowships in the physical sciences, namely, physics, chemistry, astronomy and mathematics, will be available for use during 1935–1936. Applications must be filed on or before March 1, on forms obtainable from the secretary of the fellowship board in physics, chemistry and mathematics of the National Research Council. A year-book describing the fellowships, stipends, conditions and tenure may be obtained upon application to the secretary.

AN enlarged program of teaching and research in mathematical statistics is being undertaken at Columbia University this year. Research under the auspices of the Carnegie Corporation is being conducted with Professor Harold Hotelling as director, with a view to clarifying the foundations of statistical methods and extending their scope, and particularly in the development of tests of significance and criteria of accurate estimation. For this work Dr. Joseph L. Doob has been appointed research associate, and Margaret H. Richards and William G. Madow research assistants. Professor Felix Bernstein, founder and formerly

head of the Göttingen Institute of Mathematical Statistics, is at Columbia this year as visiting professor of mathematics. A course of training in mathematical statistics has been arranged by the coordination of courses in the departments of mathematics, economics and astronomy to dovetail together without overlapping. This work is designed for students familiar with calculus and higher algebra. It includes probability, taught by B. O. Koopman; statistical inference, by Harold Hotelling; mathematics of heredity and evolution, by Felix Bernstein; training in the use of card-tabulating and calculating machines, interpolation and finite differences, by W. J. Eckert; mathematical economics, by Harold Hotelling, and a seminar in advanced mathematical statistics. In addition there are at Columbia University numerous other courses in statistics designed for students in particular fields.

WE learn from the Associated Press that the Haskell Laboratory of Industrial Toxicology has been established by E. I. du Pont de Nemours and Company. The laboratory was opened on January 22 on the grounds of the experimental station of the company near Wilmington. The new laboratory has been established because of the growth of the chemical industry in this country. It will be housed in a three-story building planned in thirty units, and has been named for Vice-President Harry G. Haskell. The function of the laboratory will be to study the effects of new products upon the health of employees during manufacture, and, prior to these new products being placed on the market, to study their possible effects on public health. Dedication of the laboratory took the form of a scientific meeting presided over by Frank C. Evans, director of the service department of the du Pont company.

DISCUSSION

UPTHRUST—A GEOLOGIC TERM

IN a recent, discriminating review of "Geologic Structures,"[1] the reviewer unwittingly gave the senior author of that manual special satisfaction by singling out for commendation certain chapters written by the junior author, but he also criticized a lack of definition in the use of the term *upthrust*, for which the senior is responsible. Webster gives the definition: "Upthrust, n. An upward thrust; specif. Geol., an uplift of part of the earth's crust." That might be regarded as adequate, but the writer has allowed the word a certain freedom to be verb or adjective, as well as noun. He has designated an upthrust mountain, the Sierra Nevada of California, for instance, an upthrust. The fault which characterizes its eastern face he has called an upthrust fault or an upthrust in that connotation. He might refer to the movement itself as an upthrust or upthrusting. And he would defend each of these uses or any others in which the connection showed clearly in what sense the word was used. He holds that precise definitions deaden style and often obscure meaning; sometimes indeed they cloak ignorance. He would preserve for English words the freedom in which they have grown up. He opposes placing them in solitary confinement, in the narrow cell of a scientific strait-jacket; better that Greek or Latin supply the victims. However, the reviewer wants a definition. His question is: What is an upthrust fault? In response one may say: *An upthrust fault is a high-angle fault on which the displacement involved the demonstrable elevation of one side (or both) above its former position with reference to sea level.* The designation "high-angle" implies that the dip of the fault plane exceeds 45°. It is usually between 70° and 90°. *Upthrust* is thus distinguished from *overthrust*, which is the term applied to displacements on planes dipping less than 45°. It will be noted further that the definition does not include the direction of dip of the upthrust fault, whether toward the upthrow or the downthrow. In fact the dip may be toward either or in different parts of the same displacement, here toward one and there toward the other, for such fault surfaces are frequently curved. An upthrust fault may thus be either normal or reverse or may be a hybrid of both types. Considering the forces involved in such displacements it is clear that gravity is one and that an anti-gravity stress must also act. If the latter is the more effective there is upthrusting; if the former prevails there is subsidence, *i.e.*, gravity faulting, aided possibly by a downward directed stress. In large structures both effects may be represented, as for instance in the case of the Dead Sea Trough. There the Judean Peneplain or Matureland is elevated in the high plateaus and also depressed below sea level in the trough. The fault between the two segments is a high-angle fault, approaching 90°. With reference to the plateaus it is an upthrust or ramp; with reference to the trough it is a gravity fault or downthrust. It may be either normal or reverse, according to the direction of dip in any particular section. Upthrusts and upthrust faults are of common occurrence in mountain ranges and plateaus and they are also of many types. Let us keep the generic term free to serve us in the many

[1] SCIENCE, 80: 2085, 562, December 14, 1934.