On the Houston East and West Texas Railway, the sands which really represent the Fayette beds occur around Lufkin, but the exposures on the railroad, where the section was originally made, are so small that they were considered as simply a part of the Yegua beds, which were thereby given a much greater areal distribution than elsewhere and made to include the overlying Frio clay as well.

The contact between the Yegua and Fayette should have been given as just north of Lufkin and the Frio clays should have been shown as occupying the area between Burke and the top of the bluff on the south bank of the Neches River. At this latter point, we have the contact of the sandy limestone containing Jackson fossils, and this is overlain by the Fleming-Burkeville beds, while the Oakville sands appear just south of Corrigan. Similar conditions exist east and northeast of Corrigan to the Sabine River, and it is altogether probable that some of the deposits lying to the west and classed by Kennedy as Navasota beds may belong to this same horizon.

The same section is also shown on the Conchas River in Tamaulipas, Mex., where the Fayette sand, with its characteristic fossil *Ostrea alabamiensis* var. *contracta* is overlain by the Frio clays and these in turn by sandstones with a distinct Oligocene fauna.

It would therefore appear that while the Oligocene was probably laid down entirely across this area, it is now covered in many places by the overlapping Oakville.

E. T. Dumble

THE SIXTIETH MEETING OF THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE, BALTIMORE, MD., DECEMBER 28–JANUARY 1, 1908–9

One of the most successful meetings in the history of the American Association, and in some regards the most successful, was brought to a close Friday evening, January 1, 1909, at Baltimore. Ample provisions for a large meeting were made by the local committee, and the expectations were fully realized. The total registration of the members of the association was 1,088 and the affiliated societies reporting adds 117. The next largest registration to this was at Washington, in 1903, when 903 were recorded. But, as always, many in attendance were not registered, and a conservative estimate would bring the attendance of scientific men up to about 2,000. One striking feature in the attendance was the large number of men from the various government services in Washington, who came over and lent their presence in the meetings of every section.

Great credit is due to the energy and efficiency of the local committee, of which Professor Wm. H. Welch was chairman and Professor Wm. J. A. Bliss secretary. The meeting places, mostly in the buildings of the Johns Hopkins University and Medical School, were ample and convenient, and the hotel accommodations excellent. There was not a hitch in the carrying out of the program; every want was provided for in advance.

The opening session was held in the audience room of McCoy Hall, Johns Hopkins University, at 10 A.M. Monday, December 28, 1908, with the retiring president, Professor E. L. Nichols, of Cornell University, in the chair, who introduced the incoming president, Professor T. C. Chamberlin, of the University of Chicago, who presided. Addresses of welcome were made on behalf of the educational institutions of the city by President Ira Remsen, on behalf of the local committee by Dr. Wm. H. Welch and on behalf of the city of Baltimore by the mayor, Hon. J. Barry Mahool. It was recalled that when the association met in Baltimore fifty years ago, the membership was only 1,000 and the attendance at the meetings only 200, while now the membership has grown to 7,000 and the association has been divided into eleven sections, each devoted to a phase of scientific work, and even sections subdivided, in the case of Section C, chemistry, there being eight subsections, each with large attendance, and papers enough to occupy two or three days in the reading.

The presidential address by Professor E. L. Nichols, of Cornell University, was given in the hall of the Peabody Institute before a large audience of members and citizens of the town. The address was a masterly presentation of the thought that all the material advance of society is based on the discovery of laws and the establishment of principles by research in pure science; that the most of this research and of these contributions up to date have been made in lands across the sea; that our universities are not properly providing for research, and that great improvement along these lines is possible, the recent noble bequest of Senator Vilas to the University of Wisconsin for the endowment of research professorships pointing the way.

After the presidential address a reception to the members of the association and affiliated societies was tendered by President Ira Remsen at McCoy Hall. The reception was largely attended and was a very pleasant affair.

Sectional meetings began on Monday afternoon, and were continued till Friday evening, when all papers were read or otherwise disposed of. Certain of these sectional meetings were favored with record attendance, and with programs of exceptional interest and value. Section B reports the most successful meeting of its history. The joint meeting with the American Physical Society gave a record attendance. It was probably the largest gathering of physicists that has ever occurred in America. Eight sessions were held, and 54 papers presented. The dinner held at the Country Club on Tuesday evening had a attendance of 91 and was voted the pleasantest event in the history of the section.

Section E, in affiliation with the Geological Society of America, held a memorable symposium on "Correlation in Historical Geology." Sixteen papers were presented in this symposium, running through six sessions. A feature was a remarkable series of maps by Mr. Bailey Willis, showing the paleogeography of the continent of North America in many stages of its formation up to the present, showing what was certainly land, and certainly sea, areas sometimes land and sometimes sea, and the areas of uncertainty. Quite significant was the presentation of the logic of correlation by Professor T. C. Chamberlin, the first term in every series of phenomena to be interpreted being shown to be found in diastrophic changes.

The most important event in the week for Section F was the vice-presidential address by Professor E. B. Wilson, on "The Determination and Inheritance of Sex."

Section L reported a very successful series of meetings, thus proving the wisdom of its establishment last year. This section has adopted the plan of devoting each session to the discussion of a single topic. On Wednesday afternoon American College Education was the theme, discussed by Professors Josiah Royce, James H. Tufts and others. In his address as retiring vice-president Commissioner Elmer E. Brown pointed out effectively the chaos that exists in American educational standards, and defined clearly some of the problems that must be solved to bring order out of this chaos. A session was devoted to the discussion of the needs and possibilities of the U. S. Bureau of Education.

The affiliated societies meeting with the association this year were the American Society of Naturalists, the American Society of Biological Chemists, the American Anthropological Association, the American Folk Lore Society, the American Philosophical Association, the American Physical Society, the American Psychological Association, the American Physiological Society, the American Society of Vertebrate Paleontologists, the American Chemical Society, the American Society of Zoologists, the American Nature-study Society, the American Mathematical Society, the American Federation of Teachers of the Mathematical and the Natural Sciences, the American Institute of Electrical Engineers, the American Alpine Club, the Association of American Geographers, the Association of American Entomologists, the Botanical Society of America, the Entomological Society of America, the Geological Society of America, the Society of American Bacteriologists, the Association of American Anatomists, the Southern Society for Philosophy and Psychology, the Sullivant Moss Society and the Wild Flower Preservation Society.

Some actions of the council of the association are of general interest: A resolution was adopted authorizing the permanent secretary to send a letter of greeting to Dr. Martin H. Boyé, of Cooperstown, Pa., the sole surviving founder of the association. It was resolved that the publishers of SCIENCE and *The Popular Science Monthly* be authorized to send *The Popular Science Monthly* in place of *Science* to any members of the association who may specially request it.

An amendment to the constitution was introduced as follows: Amend Article 23, by the omission of the words "and secretary" after the word "vice-president," in the third line, and to insert after the words "preceding meeting," in the fourth line, the following words: "and the preceding secretary, and the presidents and secretaries of those affiliated societies which shall be designated by the council."

One of the pleasantest features of the week was the reception, largely attended, on Tuesday afternoon from 4 to 6:30, by the Maryland Historical Society at its rooms on Saratoga and St. Paul streets.

Quite significant and worthy of attention was the symposium on "Tariff Revision," by Section I on Tuesday afternoon; with papers by Messrs. Farquahar, Hamilton, Orton and Holt, and discussion by Dr. J. Franklin Crowell, of the *Wall Street Journal*, and Mr. Seymour C. Lewis. The recommendation of the last named gentleman, that the laboratory method be introduced into the tariff

management, by establishing a bureau in the Department of Commerce and Labor, composed of experts, who will make scientific studies and recommendations to Congress, so removing the question from partisan politics.

Another valuable meeting was the symposium on "Public Health" in McCoy Hall on Thursday afternoon, with addresses by Dr. Harvey W. Wiley, of the Bureau of Chemistry, Washington, on "The Nation's Pure Food Problem"; by Dr. L. O. Howard, on "The Economic Loss due to Insects that Carry Disease"; by Dr. Horace Fletcher, on "Vital Economics"; by Professor Irving Fisher, of Yale, on "Progress of the Movement for Health Reform"; and by Dr. Walter Wyman, of Washington, on "Public Health Administration." The very great preventable waste of human life, which is going on around us, was forcibly presented, and recommendations made for our government to take an intelligent and earnest interest in conservation of health as our greatest resource.

The crowning feature of the week was the Darwin Centenary Memorial. The entire day, Friday, was devoted to the celebration. The great audience room of McCoy Hall was filled to the doors during the presentation of the papers. The president of the association, Dr. T. C. Chamberlin, presided and opened the session with an address. Then followed Dr. Edward B. Poulton, of Oxford University, England, who spoke very entertainingly of "Fifty Years of Darwinism"; Professor John M. Coulter, of the University of Chicago, spoke on "The Theory of Natural Selection from the Standpoint of Botany"; and Professor E. B. Wilson, of Columbia University, discussed "The Cell in Relation to Heredity and Evolution." In the afternoon session Dr. Daniel T. MacDougal, of the Carnegie Institution, told of the "Direct Effect of Environment"; Dr. S. W. E. Castle, of Harvard University, explained "The Behavior of Unit Characters in Heredity"; Dr. Charles B. Davenport gave an account of "Mutation"; Dr. Carl H. Eigenmann, of Indiana University, discussed "Adaptation"; Professor Henry F. Osborn, of Columbia University, gave "Recent Paleontological Evidence of Evolution." This series of addresses will be issued as a memorial volume a little later in the year.

The close of the week's functions was the Darwin memorial dinner at Lehman's Hall. About 300 sat at table, and after the repast the president of the association, Dr. Chamberlin, presented Professor H. F. Osborn as the toast-master. Professor Osborn gave an interesting reminiscence of his youth, when working in Huxley's laboratory. Darwin visited the place, as the guest of Huxley, and the young Osborn, being the only American present, was introduced to Darwin. He spoke also of the spirit of Darwin and of Huxley which came to Johns Hopkins with Martin and with Brooks, both now gone. Professor Wm. H. Welch was then introduced and spoke of "The Debt of Medicine to Darwin"; Dr. Albrecht Penck, of the University of Berlin, spoke on "The Geographical Factor in Evolution," and Professor Edward B. Poulton, of Oxford, gave a lively and entertaining talk on "The Personality of Darwin." Then Professor Chamberlin closed the meeting with words of thanks and praise for those in Baltimore who so splendidly entertained the association.

At the final general meeting on Friday morning a resolution, introduced by Mr. Edward W. Morley, was passed, as follows:

Resolved, That the American Association for the Advancement of Science sincerely thanks the Johns Hopkins University and the other institutions of the city and also the citizens of Baltimore, for their generous hospitality during our meeting.

At the meeting of the general committee it was voted to hold the next meeting during convocation week, 1909–10, at Boston, and recommendations to following councils favoring successive annual meetings at Minneapolis, Washington, Cleveland and Toronto. It was voted that a summer session in 1910 at Honolulu would be desirable if suitable arrangements can be made.

Officers were elected as follows: President, Dr. David Starr Jordan, of Leland Stanford University; General Secretary, Professor Dayton C. Miller, Case Scientific School, Cleveland; Secretary of Council, Dr. F. G. Benedict, of the Carnegie Institution; Secretary of Section H, Professor George Grant McCurdy, of Yale University; Secretary of Section K, Dr. G. T. Kemp. Vice-presidents of the various sections were elected as follows: Section A, Professor E. W. Brown, of Yale University; Section B, Dr. L. A. Bauer, of the Carnegie Institution; Section C, Professor Wm. McPherson, of Ohio State University; Section D, Mr. J. F. Hayford, of the U. S. Coast and Geodetic Survey, Washington; Section E, Dr. R. W. Brock, director of the Canadian Geological Survey; Section F, Professor W. E. Ritter, University of California; Section G, Professor D. P. Penhallow, McGill University, Canada; Section H, Professor Wm. H. Holmes, chief of the Bureau of Ethnology, Washington; Section I, Dr. Carroll D. Wright, of Clark College; Section K, Professor C. S. Minot, Harvard University; Section L, Dr.

James E. Russell, Teachers College, Columbia University.

J. PAUL GOODE,
General Secretary

UNIVERSITY OF CHICAGO

THE AMERICAN MATHEMATICAL SOCIETY

THE fifteenth annual meeting of the society was held at Baltimore, Md., on Wednesday and Thursday, December 30–31, in affiliation with the American Association for the Advancement of Science. The total attendance at the four sessions was about seventy-five, including fifty-seven members of the society. Wednesday evening was set apart for a dinner, at which forty-five of the members were present.

The sessions opened at 10:30 A.M. and 2 P.M. on each day. President H. S. White occupied the chair, being relieved by Professor Morley and Vice-presidents Miller and Kasner. At the opening of the afternoon session on Wednesday President White delivered his retiring address on "Bezout's theory of resultants and its influence on geometry." The council announced the election of the following persons to membership in the society: Professor G. N. Armstrong, Ohio Wesleyan University; Professor P. F. Gaehr, Robert College, Constantinople; Dr. Frank Irwin, Princeton University; Miss Mary E. Wells, Mount Holyoke College. Six applications for membership were received. The total membership of the society is now 602, including 55 life members.

At the annual election, which closed on Thursday morning, the following officers and members of the council were chosen:

President—Professor Maxime Bôcher.

Vice-presidents—Professors Edward Kasner and E. B. Van Vleck.

Secretary—Professor F. N. Cole.

Treasurer—Professor J. H. Tanner.

Librarian—Professor D. E. Smith.

Committee of Publication—Professors F. N. Cole, D. E. Smith, Virgil Snyder.

Members of the Council to serve until December, 1911—Professors H. B. Fine, O. D. Kellogg, F. R. Moulton, E. J. Wilczynski.

The treasurer's report shows a balance of $6,995.80, including the life membership fund of $3,215.20. Disbursements, including the cost of publishing the *Bulletin* and *Transactions*, were $4,515.97. Sales of publications amounted to $1,385.36. The library now contains over 3,000 volumes. The Annual Register of the society, containing the list of members, constitution and by-laws, annual reports and catalogue of the library, is now in press and will be issued this month.

The following papers were read at the annual meeting:

R. D. Carmichael: "On r-fold symmetry of plane algebraic curves."

R. D. Carmichael: "A general principle of inversion, with applications."

W. R. Longley: "Some sufficient conditions in the theory of implicit functions."

C. L. E. Moore: "Properties of systems of lines in space of four dimensions and their interpretation in circle geometry."

F. R. Sharpe: "The topography of the integral curves of a differential equation."

Joseph Lipke: "Note on isotropic ruled surfaces."

John Eiesland: "On a species of cubic surfaces of the sixth class."

E. O. Lovett: "Integrable problems of three bodies."

J. I. Hutchinson: "On linear transformations which leave an Hermitian form invariant."

H. S. White (presidential address): "Bezout's theory of resultants and its influence on geometry."

Frank Morley: "Plane sections of the Weddle surface."

G. A. Miller: "Finite groups which may be defined by two operators satisfying two conditions."

F. L. Griffin: "Tests comparing the apsidal angles and periodic times for different laws of central force."

E. G. Bill: "Existence 'im Kleinen' of a space curve which minimizes a definite integral."

E. G. Bill: "An a priori existence theorem in three dimensions for the calculus of variations."

J. R. Conner: "Curves and surfaces which admit configurations of the Cayley-Veronese type."

D. D. Leib: "The complete system of invariants for two triangles."

W. A. Granville: "Dual formulas in spherical trigonometry."

C. J. Keyser: "Concerning euclidean geometries without points and lines."

M. E. Sinclair: "The problem of the surface of revolution with two end points variable on circles."

G. A. Bliss: "On the construction of the coordinate system of analytic projective geometry."

C. N. Haskins: "Numerical computation of reaction velocity constants."

Edward Kasner: "The group generated by turns and slides."