

where educational and scientific institutions are making extraordinary advances. Pittsburg was recommended as the place of meeting in 1902. The president was elected by a unanimous vote of the general committee. It was the opinion of all that no one so well deserved this honor as Professor Charles Sedgwick Minot, of the Harvard Medical School, eminent in the great group of sciences now first recognized by the Association, as well as in his labors on behalf of the Association.

PROCEEDINGS OF THE ASSOCIATION.

THE forty-ninth annual meeting of the American Association for the Advancement of Science began with the meeting of the Council at the Hotel Majestic at noon on Saturday, June 23d, and the first general session of the members was held at Columbia University at 11 o'clock on Monday, June 25th. The meeting was called to order by the retiring president, Mr. G. K. Gilbert, of the U. S. Geological Survey, who introduced the president-elect, Professor R. S. Woodward, of Columbia University. President Low welcomed the Association to New York City and to Columbia University and Professor Woodward replied. These addresses are published in this number of SCIENCE. Governor Roosevelt having telegraphed that he was unable to be present owing to important engagements, the Hon. James Wilson, Secretary of Agriculture, was called upon, and made an address emphasizing the importance of applied science, to which the Department of Agriculture is contributing so much.

On the adjournment of the general session, the sections organized and in the afternoon the addresses of the vice-presidents were given. There were only five of these, the addresses by Mr. J. A. Brashear, Professor C. B. Davenport, Mr. A. W. Butler and Professor C. M. Woodward having been postponed until next year in accordance

with the plan that will hereafter be followed of having the addresses given by the retiring, instead of by the incoming vice-presidents. The addresses given at New York, now in course of publication in this JOURNAL, are as follows:

Section of Mathematics and Astronomy: 'The Teaching of Astronomy in the United States,' by Professor Asaph Hall, Jr.

Section of Physics: 'The Kathode Rays and some related Phenomena,' by Professor Ernest Merritt.

Section of Chemistry: 'The Eighth Group of the Periodic System and some of its Problems,' by Professor Jas. Lewis Howe.

Section of Botany: 'Some Twentieth Century Problems,' by Professor William Trelease.

Section of Geology: 'Precambrian Sediments in the Adirondacks,' by Professor J. F. Kemp.

On Tuesday evening the members of the Association were welcomed to the American Museum of Natural History by President Jesup, and Mr. Gilbert gave the address on 'Rhythms and Geologic Time' published in the last number of this JOURNAL.

The scientific work of the meeting was presented before the nine sections of the Association and the fifteen affiliated societies meeting with it, and will be reported fully in subsequent issues of this JOURNAL.

The number of members and fellows in attendance at the time of the last general session was 447, which during the day was probably increased to slightly over 450. Different sections of the country were represented as follows: New York by 184 members; District of Columbia, 47; Massachusetts, 46; Pennsylvania, 32; Ohio, 22; New Jersey, 17; Indiana, 13; Connecticut, 12; Wisconsin, 10; Michigan, 9; Illinois, 8; Rhode Island, 7; Maryland, 6; New Hampshire, 5; Virginia, 4; three each from Canada, Missouri and North Carolina; two each from Iowa, Kentucky, West Virginia, Maine, Mississippi, Florida, Minnesota and Colorado; one each from Alabama, Tennessee, Kansas, Louisiana, South Dakota, California, Texas, Nebraska, Delaware and South Carolina.

Two hundred and fifty-nine new members were elected at the meeting, which, including those elected at previous meetings of the Council, makes a total of 331 new members since the Columbus meeting. It was announced by the Permanent Secretary at the close of the meeting that the membership list numbers 1900.

Seventy-seven fellows were elected as follows :

H. C. Lord, Ohio State University, Columbus, O.
E. S. Crawley, University of Pa., Philadelphia.
George A. Hill, U. S. Naval Observatory, Washington, D. C.

William J. Humphreys, Charlottesville, Va.

Miss Mary W. Whitney, Vassar Observatory, Poughkeepsie, N. Y.

Paul S. Yendell, Dorchester, Mass.

Arthur L. Foley, Indiana University, Bloomington, Ind.

Oscar M. Stewart, Cornell University, Ithaca, N. Y.

Barry McNutt, Lehigh University, South Bethlehem, Pa.

C. E. Mendenhall, Williams College, Williamstown, Mass.

Chas. F. Cox, Grand Central Station, New York, N. Y.

John F. Mohler, Dickinson College, Carlisle, Pa.

D. B. Brace, University of Nebraska, Lincoln, Nebr.

Wallace C. Sabine, Harvard University, Cambridge, Mass.

Chas. F. Scott, Westinghouse Co., Pittsburg, Pa.

Chas. T. Knipp, University of Indiana, Bloomington, Ind.

Chas. A. Perkins, University of Tennessee, Knoxville, Tenn.

A. DeF. Palmer, Brown University, Providence, R. I.

Frank A. Wolff, Jr., Columbian University, Washington, D. C.

George F. Stradling, Central High School, Philadelphia, Pa.

James S. Stevens, University of Maine, Orono, Maine.

R. W. Wood, University of Wisconsin, Madison, Wis.

Augustus Strowbridge, University of Michigan, Ann Arbor, Mich.

C. E. St. John, Oberlin College, Oberlin, Ohio.

Herschel C. Parker, Columbia University, New York, N. Y.

Thomas Clarke, Chapel Hill, N. C.

Miss Mary E. Pennington, Woman's Medical College, Philadelphia, Pa.

W. R. Whitney, Mass. Inst. Tech., Boston, Mass.

M. T. Bogert, Columbia University, New York, N. Y.

E. C. Franklin, Kansas State University, Lawrence, Kansas.

J. B. Weems, Iowa Agr. College, Ames, Iowa.

Samuel Bookman, Pathological Institute, New York, N. Y.

C. W. Moulton, Vassar College, Poughkeepsie, N. Y.

J. A. Deghueue, Brooklyn, N. Y.

A. W. Smith, Case School, Cleveland, Ohio.

C. W. Dabney, University of Tennessee, Knoxville, Tenn.

A. P. Saunders, Hamilton College, Madison, N. Y.

F. A. Genth, Lansdowne, Pa.

A. J. Hopkins, Amherst College, Amherst, Mass.

L. H. Orleman, Military Academy, Peekskill, N. Y.

W. O. Crosby, Mass. Inst. Tech., Boston, Mass.

F. P. Gulliver, St. Marks School, Southboro, Mass.

J. V. Lewis, Clemson College, S. C.

Edward Orton, Jr., Ohio State Univ., Columbus, Ohio.

W. G. Tight, Granville, Ohio.

S. Prentiss Baldwin, Cleveland, Ohio.

G. H. Barton, Cambridge, Mass.

S. W. Beyer, Iowa Agric. College, Ames, Iowa.

A. P. Brigham, Hamilton, Madison Co., N. Y.

H. C. Bumpus, Brown University, Providence, R. I.

Mrs. S. H. Gage, Cornell Univ., Ithaca, N. Y.

W. H. Welch, Medical School, Johns Hopkins Univ., Baltimore, Md.

Dean C. Worcester, U. S. Commissioner, Manila, P. I.

C. Hart Merriam, Dept. Agric., Washington, D. C.

E. B. Wilson, Columbia Univ., New York, N. Y.

G. S. Hopkins, Cornell University, Ithaca, N. Y.

Outram Bangs, Boston, Mass.

Frank Smith, Univ. of Illinois, Urbana, Ill.

A. G. Mayer, Museum Brooklyn Institute, Brooklyn, N. Y.

L. Schoney, New York, N. Y.

C. L. Edwards, Trinity College, Hartford, Conn.

W. F. Ganong, Smith College, Northampton, Mass.

Wm. L. Bryan, Indiana Univ., Bloomington, Ind.

G. G. MacCurdy, Yale Univ., New Haven, Conn.

J. Walter Fewkes, Bureau of Ethnology, Washington D. C.

A. F. A. King, Washington, D. C.

F. R. Rutter, Dept. Agric., Washington, D. C.

George A. Hoadley, Swarthmore College, Swarthmore, Pa.

W. M. Stine, Swarthmore College, Swarthmore, Pa.

H. J. Webber, Dept. Agr., Washington, D. C.
 Frank Wm. Rane, Agricultural College, Durham,
 N. H.

S. A. Beach, Agl. Exp. Station, Geneva, N. Y.
 B. M. Duggar, Cornell University, Ithaca, N. Y.
 A. D. Selby, Agl. Exp. Station, Wooster, Ohio.
 Grace E. Cooley, Ph.D., Wellesley, Mass.
 Oscar Loew, U. S. Dept. Agr., Washington, D. C.
 John Muir, Martinez, Cal.

The more important transactions of the Council are the following:

A committee was appointed consisting of Professor Simon Newcomb, Mr. G. K. Gilbert, Professor R. S. Woodward, Professor Jas. Lewis Howe and Dr. L. O. Howard, to report upon the relations of the Association and the journal *SCIENCE*, and drew up the following resolution, which was unanimously adopted by the Council:

That the Council accept the proposal of The Macmillan Company to furnish the journal *SCIENCE* to all members of the American Association in good standing, at the rate of two dollars per year each; to take effect for one year from January 1, 1901, the total amount of the subscription at this rate to be paid by the permanent secretary from funds in his hands, and the members to receive the journal free of charge to themselves on the following conditions: That to the words of the title of the journal be added the words, 'Publishing the official notices and proceedings of the American Association for the Advancement of Science,' and that the price to all non-members of the American Association for the Advancement of Science be maintained at five dollars per annum.

That the President of the Association, the Permanent Secretary and one other member to be appointed by the chair be a committee with power to arrange details with The Macmillan Company.

The Committee composed of G. K. Gilbert, R. S. Woodward, F. W. Putnam, J. McK. Cattell and L. O. Howard, appointed at the April meeting of the council to consider the organization of an American branch of the International Association for the Advancement of Science, Arts and Education reported as follows:

That the Committee approves the idea of international co-operation in the field of science and recommends that the council designate a delegate to a national conference looking to that end.

The Committee on the disposal of back volumes of proceedings, consisting of G. K. Gilbert, L. O. Howard and T. H. Norton, reported as follows:

Your committee appointed at the New Haven meeting to consider the disposal of accumulated back numbers of proceedings, having given the matter due consideration, report the following recommendations:

1. That the back volumes now in storage in Cambridge be transported to New York and stored in the Columbia University at no storage cost to the Association.

2. That 50 complete sets be reserved for sale only in sets at 50 cents per volume.

3. That other back volumes, not less than five years old be sold to members for 50 cents each.

4. That volumes published within five years be sold at \$1.50 each with the usual trade discount of 25 per cent.

The Library Committee reported and two of the members, Drs. T. H. Norton and Alfred Sprenger, resigned. A committee on the disposition of the Association library was appointed, consisting of W. J. McGee, B. F. Thomas and L. O. Howard.

A committee, consisting of John M. Clarke, W. J. McGee, J. McK. Cattell, Chas. H. Hitchcock and Theo. Gill was appointed to report on the erection of a bronze tablet to mark the house in Albany where the geologists of New York in 1838 met to make arrangements for the Association of American Geologists, the parent-body of the American Association for the Advancement of Science.

The committee of Section H, on the teaching of anthropology, was made a standing committee of the Association. It consists of W. J. McGee, G. G. McCurdy, Frank Russell, Franz Boas and W. H. Holmes.

Dr. Thomas Wilson reported progress on behalf of the Committee appointed to obtain legislation looking to the protection and preservation of many articles of archaeological, ethnological and anthropological interest and value.

The action of the American Chemical

Society strongly recommending the establishment of a National Standardizing Bureau in Washington by the government was endorsed.

At the request of Section G, the following was adopted :

Resolved, That the American Association for the Advancement of Science, recognizing the importance of the preservation in its original condition of some portion of the hard-wood forests of the Southern Appalachian region, respectfully petitions Congress to provide for the establishment in that region of a National Forest Reserve.

The action of the same section in adopting the resolution given below was approved :

WHEREAS, the Pacific Coast redwood forests (*Sequoia Sempervirens*) are now practically all in the hands of private owners, who hold them for lumbering purposes ; and

WHEREAS, this species occupies a certain coast-range belt of remarkable climatic characteristics, the study of which ought to be of profound interest to science ; and

WHEREAS, the only other living *Sequoia* (usually known as *Sequoia gigantea*) which the redwood rivals in its proportions as well as in its interest to travellers and to men of science, has already received protection in part from the United States, by the establishment of the Sequoia National Park and the General Grant National Park, in the Sierra Nevadas ;

Resolved, that the Botanical Section of the American Association for the Advancement of Science strongly approves the recent efforts of the several societies, clubs, colleges, universities and private citizens in California to create a public opinion that will result in the purchase and permanent preservation as a public forest park, of a tract of over 25,000 acres, largely made up of the primeval redwood forest, situated in the Santa Cruz mountains, forty miles southeast of San Francisco and fifteen miles south of the Leland Stanford Jr. University.

The reports of those to whom grants for research were made at the Columbus meeting, approved by the proper sections and accepted by the Council, were as follows :

REPORT OF THE COMMITTEE ON THE STUDY OF THE WHITE RACE IN AMERICA.

The Committee on the study of the white race in America report that in accordance with the plans pro-

posed at the Columbus meeting they have made arrangements to carry out physical and mental tests on members of the Association at the present meeting, and these are now being made. A report on this work and on work of an anthropometric character, done under the auspices of this committee and elsewhere has been made to Section H at its Christmas meeting and at the present meeting, and it need here only be remarked that the measurements of our members will be of special interest when compared with those of members of the British Association. In view of the fact that instruments were at hand at the place of meeting this year it was not necessary to purchase them, but if the work is continued it will be necessary to secure a set of instruments that will be the property of this Association and can be sent from place to place. We ask for this purpose an appropriation of \$50 to be added to the similar appropriation made last year. We ask that the name of the Committee be changed to Anthropometric Committee, thus limiting and defining more exactly its scope. We ask that the vacancy on the Committee caused by the death of Dr. Brinton be filled by the appointment of Professor Joseph Jastrow.

J. McK. CATTELL.

F. BOAS.

W J MCGEE.

REPORT OF THE COMMITTEE ON THE QUANTITATIVE STUDY OF BIOLOGICAL VARIATION.

The Committee has held two meetings. The first took place at New Haven during the Christmas recess, Drs. Boas, Cattell and Minot being present. At this meeting it was planned to prepare a report on the course of study which should be pursued in preparation for quantitative work in variation, and on the instruction now given in variation in colleges. It was proposed also to present a report on the history of the development of the quantitative study of variation. This report has been prepared by the recorder and read before Section F. The second meeting of the Committee was held at the Hotel Majestic, New York, June 25, 1900. Present, Drs. Cattell, Eigenmann and Davenport. At this meeting a summary of the results got by Mr. C. C. Adams, to whom the grant of \$50 was made, was received. The full report of Mr. Adams is to be presented to Section F. As Mr. Adams has not yet completed his studies it was voted : To recommend that, if possible, one hundred dollars be appropriated to the Committee on the Quantitative Study of variation to aid Mr. C. C. Adams in his further researches on the variation of the genus *Io*. In case it is not feasible to appropriate so large a sum the Committee recommends that so much as possible be granted.

The Committee asks to be continued.

F. BOAS,
C. S. MINOT,
J. McK. CATTELL,
C. H. EIGENMANN,
C. B. DAVENPORT, *Recorder*.

REPORT ON THE INVESTIGATION OF THE BLIND VERTEBRATE FAUNA OF NORTH AMERICA.

In the absence of a committee I beg leave to make the following personal report on the grant of \$100 made me for investigation of the blind vertebrate fauna of North America.

1. Collections of typhlogobins were made at the foot of Point Loma, Cal.

2. A collection of 12 *Rhineura* was secured through dealers.

3. Mr. E. B. Forbes visited southwestern Illinois and secured a series of chologasters at what I had supposed to be their breeding time.

4. Six trips were made to Mitchell, Indiana, caves to secure embryological material.

5. One trip was made to the Mammoth Cave region in Kentucky.

6. A visit was made to the San Marcos, Texas, wells and caves.

7. In most cases the railroad companies granted either passes or half rates to the points mentioned. The total expenses of these trips chargeable to the appropriation were \$139.66. An appeal was made to the Trustees of the Indiana University to pay as liberal an amount of these expenses as possible. An appropriation, the amount of which I have not yet ascertained has been granted by them so that a balance of the Association grant is still available.

The results obtained during the year were embodied in the paper presented during the meeting of of Section F on June 26th.

To assist in the continuation of the work in hand I will recommend that a committee be appointed to direct the work. I hope that a small additional grant be made for the use of the committee during the year.

C. H. EIGENMANN.

The Committee on Grants made the following recommendations to the Council and they were adopted:

1. That a grant of \$50 be made to the Committee on anthropometry.

2. That a grant of \$50 be made to the Committee on the study of blind vertebrates.

3. That a grant of \$100 be made to the Committee on the quantitative study of biological variations.

4. That a committee be appointed to study the re-

lation of plants to climate, and that a grant of \$33 be made to such committee.

5. That if practicable an allotment of \$17 be made to the last named committee from the funds in the hands of the permanent secretary.

The two new committees to which grants were made were appointed as follows:

'On the Study of Blind Vertebrates': Theodore Gill, *Chairman*; A. S. Packard, S. H. Gage, C. O. Whitman, H. C. Bumpus, C. H. Eigenmann, *Secretary*.

'On the Relations of Plants to Climate': W. M. Trelease, D. T. McDougal, J. M. Coulter.

The Treasurer in his report for the year ending December 31, 1900, showed that the permanent funds in his hands at the beginning of the year were about \$6083, which were increased during the year by about \$2733, making the total about \$8817. The receipts represented \$1000 from Mr. Emerson McMillin as patron, \$500 from fees of deceased life members, \$1000 in addition from the permanent secretary and about \$233 interest. The permanent secretary in his financial report showed a balance from his preceding account of \$3723.90 and a balance carried forward to the new account of \$4228.33. The receipts were \$6216 from members and \$172.49 from miscellaneous sources. The expenditures in addition to the \$1500 handed over to Treasurer were: Publications, part of Boston volume, \$1003.33; Expenses, Columbus Meeting, \$427.54; General Office expenses, including expressage and postage on Proceedings, \$931.19; Salaries, \$1970; Miscellaneous disbursements, \$52.

The general session met daily. It passed resolutions in memory of Dr. Edward Orton, who died during his term of office as president, and adopted amendments to the constitution establishing a Section of Physiology and Experimental Medicine and extending the term of office of the treasurer to five years. Amendments to the Constitution, which lie over until next year, were proposed, making the presidents and secretaries of the affiliated societies members of

the Council, establishing a section of Commerce and Manufactures, and giving the Council, under certain conditions, power to change the place and time of meeting.

At the last general session it was announced that the general committee had elected officers for next year as follows:

President.

Professor Charles Sedgwick Minot, Harvard Medical School.

Vice-Presidents.

Mathematics and Astronomy: Professor James McMahon, Cornell University.

Physics: Professor D. D. Brace, University of Nebraska.

Chemistry: Professor John H. Long, Northwestern University.

Mechanical Science and Engineering: Professor H. S. Jacoby, Cornell University.

Geology and Geography: Professor C. R. Van Hise, University of Wisconsin.

Zoology: President D. S. Jordan, Leland Stanford Jr. University.

Botany: B. T. Galloway, U. S. Department of Agriculture, Washington, D. C.

Anthropology: J. W. Fewkes, Bureau of Ethnology, Washington, D. C.

Economic Science and Statistics; John Hyde, Department of Agriculture, Washington, D. C.

Permanent Secretary.

L. O. Howard, U. S. Department of Agriculture, Washington, D. C.

General Secretary.

Professor William Hallock, Columbia University, New York.

Secretary of the Council.

D. T. McDougal, New York Botanical Gardens.

Secretaries of the Sections.

Mathematical and Astronomy: Professor H. C. Lord, Ohio State University.

Physics: J. O. Reed, University of Michigan.

Chemistry: Professor W. McPherson, Ohio State University.

Mechanical Science and Engineering: William H. Jacques, Boston, Mass.

Geology and Geography: Dr. R. A. F. Penrose, Pierce, Arizona.

Zoology: Professor H. B. Ward, University of Nebraska.

Botany: A. S. Hitchcock, Manhattan, Kansas.

Anthropology: G. G. McCurdy, Yale University.

Economic Science and Statistics: Miss C. A. Benson, Cambridge, Mass.

Treasurer.

Professor R. S. Woodward, Columbia University.

Denver was selected as the place of meeting for next year, and Pittsburg was recommended for 1892. The meeting next year will begin with the session of the council on Saturday, August 24th, and the scientific work will begin on Monday, August 26th.

CHARLES BASKERVILLE,

General Secretary.

ADDRESS OF WELCOME.

PRESIDENT Low, of Columbia University, said: Mr. President and Members of the American Association for the Advancement of Science: It gives me very much pleasure to welcome this Association to the City of New York and to Columbia University. It is thirteen years since this Association met in the City of New York, although it met I believe in 1894 in the City of Brooklyn which has since become a part of this city. In that interval of thirteen years there has been a profound stirring of the scientific spirit in this vast community. Witness, if you please, the foundation of the Botanical Garden of New York by the co-operation of the City and of private organizations, after the pattern which has shown itself so effective in the case of the Metropolitan Museum of Art and of the American Museum of Natural History. Witness again, the formation of the New York Zoological Garden which is projected upon a scale entirely worthy of this great metropolis; witness the establishment by the City authorities of the Aquarium; witness the enlargement, until it is three-fold its size of thirteen years ago, of the American Museum of Natural History; all of these things being done either by the City itself as in the case of the Aquarium, or by the City in co-operation with private agencies as in all the other cases. The Universities of