SCIENCE:

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Attention is called to the "Wants" column. All are invited to use it in soliciting information or seeking new positions. The name and address of applicants should be given in full, so that answers will go direct to them. The "Exchange" column is likewise open.

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AMERICAN GEOLOGICAL SOCIETY.

THE annual meeting of this society began Dec. 26, in the new building of the American Museum of Natural History in this city. The result of the election of officers was announced as follows: president, James D. Dana; vice-presidents, John S. Newberry and Alexander Winchell; secretary, John J. Stevenson; treasurer, Henry S. Williams; executive council, J. W. Powell, George W. Dawson, and Charles H. Hitchcock.

Fifteen new fellows of the society were announced as having been elected, and they are as follows: Frank Dawson Adams, lecturer at McGill College, Montreal; Albert Smith Bickmore, American Museum of Natural History; Aaron Hodgman Cole, Hamilton lecturer on natural history at Madison University; Thomas Sterry Hunt of New York City; R. D. Lacoe of Pittston, Penn.; Alfred Church Lane, Houghton, Mich., assistant on Geological Survey of Michigan; Alexander Richard Cecil Selwyn, Ottawa, Canada, director of the Geological and Natural History Survey of Canada; Bailey Willis, Washington, D.C., United States Geological Survey; J. E. Wolff, Cambridge, Mass., instructor of petrography at Harvard; Lorenzo G. Yates, Santa Barbara, Cal.; Victor C. Alderson, Englewood, Ill., teacher of geology; Henry M. Ami, Ottawa, Canada, Geological Survey of Canada; Ezra Brainerd, Middlebury, Vt., president of Middlebury College; Daniel Webster Landon, jun., Cincinnati, O., geologist of the Chesapeake and Ohio Railway; George Clinton Swallow, Helena, Mont., inspector of mines of Montana.

T. C. Chamberlin of Madison, Wis., read a paper upon "Some Additional Evidences bearing on the Interval between the Leading Glacial Epochs," and W. J. McGee of the United States Geological Survey replied briefly. Professor N. S. Shaler of Harvard spoke on "The Tertiary Deposits of Eastern Massachusetts." In his paper, Mr. Shaler endeavored to show that in that district there had been, since the miocene age, a large amount of true mountain-building action at Gay Head, on Martha's Vineyard. The evidence of this had been distinguishable for a long time; but about a year ago it was uncovered, so that it could be better seen than at any previous time, by a most violent rain-storm somewhat in the nature of a cloud-burst. In two hours' time, five and one half inches of water had fallen, and the cliffs at Gay Head had been washed so much that opportunities for investigation were better than ever before. A remarkable instance of dislocations had been exposed, and the formation of the cliffs made plainly visible. The evidences of mountain-building were plain, and it was of a comparatively late period. The same thing could be seen on Block Island. Its limit to the north was sharply defined, for the greensands of Marshfield, Mass., had been examined by Mr. Shaler, and they were perfectly horizontal, and not disturbed. To the south and west investigations had not been pushed: so the extent of the mountain-building in that direction was unknown. Mr. Shaler said further that the evidences of glacial action were plain, and that it must have taken place after the upheaval or mountain-building age.

The second day's session was opened with an address by the present president, Professor James Hall, geologist of the State of New York. Professor Hall's address was a sketch of the earlier geologists, and was directed chiefly to the younger members of the society present. He paid tributes, among others, to Agassiz, Sir Charles Lyell, Professor Logan, the royal geologist of Canada, and William Smith, and closed with a reference to his colleague, Professor Dana.

Professor Edward Orton, State geologist of Ohio, considered the "Origin of the Rock-Pressure of Natural Gas in the Trenton Limestone of Ohio and Indiana." The gas is the product of ages, which has been accumulated in the porous limestone of Ohio and Indiana. It has been produced so slowly that when once exhausted it will take many thousands of years for it to again accumulate in sufficient quantities to be used, even if the elements necessary for its production were present, which he thought was not at all probable. The pressure which forces the gas out with such tremendous power that it sometimes reaches 1,000 pounds pressure per square inch is not due to the pressure of the gas itself, but to the hydrostatic pressure brought to bear by the column of salt water that enters the porous stratum of rock containing the gas, at the sea-level, and which by its weight tends to force the gas out. To the explanation and elucidation of this phenomenon, Professor Orton's paper was more especially devoted. The men who are engaged in the practical development of gas and oil fields, said he, made great account of rock-pressure. It is the first fact they inquire after in a new gas-field. They appreciate its importance, knowing that the distance of the markets they care to reach, and the size of the pipes they can employ, are entirely dependent upon this element. After discussing the theories of its origin, he expressed the opinion that the gas-supply could not be of very long duration. This fact he regarded as of the greater importance on account of the vast extent to which natural gas had become a factor in Western manufacture and development. He said that 400,000 people in north-western Ohio and central Indiana alone depended upon it for fuel and illumination, and that a large proportion of their manufactures depended upon it. The supplies were being wasted in a vandal fashion, and he thought that nine years at most would mark its duration in this region. Artificial gas he believed preferable.

The next paper was by Professor William B. Clark of Johns Hopkins University, his subject being "The Tertiary Deposits of the Cape Fear River Region."

Professor Andrew C. Lawson of Ottawa, Canada, next read a paper entitled "Note on the Pre-Palæozoic Surface of the Archæan Terranes of Canada." Professor William M. Davis of Cambridge, Mass., presented the fourth paper, on "The Structure and Origin

of Glacial Sand Plains." "Glacial Features of Parts of the Yukon and Mackenzie Basins" was the title of the paper submitted by Professor R. G. McConnell of Ottawa, Canada. Professor J. B. Tyrrell of Ottawa, Canada, read a paper on the "Post-Tertiary Deposits of Manitoba and the Adjoining Territories of Canada." Professor G. Frederick White of Oberlin College, Ohio, followed with a paper on "Terminal Moraine in Ontario;" Professor W. J. McGee of Washington, one on the "Southern Extension of the Appomattox Formation;" and Professor Charles D. Walcott of Washington defined the value of the term "Hudson River Group" in geologic nomenclature.

At the concluding sessions on Dec. 28 the number of speakers was so large that a general curtailment was necessary, and papers were withdrawn by the following members: Joseph P. Iddings and George H. Eldridge, Washington, D.C.; C. R. Van Hise, Madison, Wis.; Frank L. Nason, New Brunswick, N.J.; W. O. Crosby; Professor J. E. Wolff of Harvard University; Professor J. F. Kemp, Cornell University; F. J. H. Merrill, New York; H. M. Crump, Persifor Frazer, E. D. Cope, Philadelphia; and Peter McKellar, Ontario.

The paper which provoked the most discussion was read by Professor Alexander Winchell of Michigan University, Ann Arbor, the title of which was "Some Results of Archæan Studies." Those who took part in the discussion were Professor C. H. Hitchcock of Dartmouth, Professor Emerson of Amherst, Professor A. C. Lawson of Ottawa, Canada, and Professor C. R. Van Hise of Madison, Wis.

The first paper of the day was read by Professor H. S. Williams of Cornell, who set forth a new method of illustrating the relation of the history of different regions by graphic representation of the oscillation of sediments, and urged the study of fauna to bring out the relation of local fauna to their ancestors.

Professor G. H. Williams of Johns Hopkins University exhibited and described some specimens highly metamorphosed, but still containing fossils, collected in Norway. C. D. White of Washington claims to have found fossils showing rock on Martha's Vineyard to be middle cretaceous in place of middle tertiary, as supposed. J. S. Diller of Washington projected upon the screen photographs of dikes in California. In some cases the dikes were five feet wide and twenty feet high. Professor A. S. Richmond then projected some Alaskan views, and a diagram of the buildings that would be erected on the museum ground for the world's fair of 1892.

Professor C. H. Hitchcock of Dartmouth read an interesting paper on "Granitoid Oval Areas in the Laurentian," and Professor B. K. Emerson of Amherst spoke on "Porphyritic Granite." Professor A. C. Lawson of Ottawa read a paper on the "Archæan of Central Canada." Then followed papers by Professor Warren Upham, President James Hall, and F. J. H. Merrill.

The next meeting of the society will be in Indianapolis, Ind., August, 1890.

BOOK-REVIEWS.

Scientific Papers of Asa Gray. Selected by CHARLES SPRAGUE SARGENT. 3 vols. Boston and New York, Houghton, Mifflin, & Co. 8°. $3 per vol.

THE general public will, we are sure, be much surprised to learn that Professor Gray was so voluminous a writer as these volumes show him to be. Indeed, Mr. Sargent, in his introduction, states that his contributions to science were so numerous and varied as to astonish those of his associates who were most familiar with his intellectual activity, his various attainments, and that surprising industry which neither assured position, the weariness of advancing years, nor the hopelessness of the task he had imposed upon himself, ever diminished. His first scientific paper was published in 1834, and his last was written in 1887, but a few weeks before his death. During this half-century it may truly be said that his pen was never idle. In the selection of Professor Gray's writings for republication, Mr. Sargent omits those contributions which are devoted to descriptive botany, and many of which form the best textbooks in the English language; nor does he attempt to reproduce the philosophical essays which grew out of the discussion of the Darwinian theory. Reviews, biographical notices, and a few essays upon subjects of general interest to botanists, all of which have long been out of print, form the greater part of the volumes before us. It was doubtless a most difficut task to select from so much material that which was most desirable to publish. More than eleven hundred bibliographical notices and reviews, all of them from the hand of such a critic as Asa Gray, must indeed have been an *embarras de richesses.* Mr. Sargent's plan has been to present in his selection, as far as possible, a history of the growth of botanical science during a period which has been marked by the gradual change of ideas among naturalists upon the origin and fixity of the species which has broadened the field of all biological investigation, by the establishment and systematic arrangement of vast herbaria gathered from all parts of the world, by the introduction of improved and more philosophical methods of investigation in the laboratory, and by the growth of popular appreciation for the value of scientific training. The task which Mr. Sargent set out for himself was a most arduous one; but so well has he performed it, that the whole scientific world has been made his debtor. The future reputation of Asa Gray will be enhanced by the presentation of his writings; and the editor of them will always have the satisfaction of knowing that he has in no inconsiderable degree assisted in preserving the lustre of the name of Asa Gray.

AMONG THE PUBLISHERS.

ON Saturday, Feb. 1, 1890, the Illustrated American Publishing Company (New York) will issue the first number of a weekly news magazine, which, it is claimed, will "rival the most artistic periodicals of England, France, and Germany, and surpass those produced in this country." The illustrations will be the picturesque chronicling of contemporaneous history. A colored supplement will be the most conspicuous feature of every number. It will be a facsimile, in color, of the masterpiece of some celebrated painter, in the preparation of which the discoveries in the art of reproduction will be employed. *The Illustrated American* is designed for the home. It will be unsectarian, and free from political discussions and heavy debates. The serial novel and short stories will be illustrated, and other matter will be selected to afford amusement, entertainment, and valuable information.

— *St. Nicholas* for January is a second Christmas number. Walter Camp's foot-ball paper deals with the great games at the Polo Grounds, and is re-enforced by a study of "The Drop-Kick," contributed by Yale's famous expert, W. T. Bull, whose kicks won Yale a championship. A story of New-Mexican life, by Charles F. Lummis, gives the legend of the now inaccessible "Enchanted Mesa," upon which, tradition says, there is a deserted village just as it was left hundreds of years ago. A photograph of the mesa from nature is one of the illustrations.

— Messrs. Macmillan & Co. will shortly publish the first part of Professor Eimer's work on "Organic Evolution as the Result of the Inheritance of Acquired Characters according to the Laws of Organic Growth," translated by J. T. Cunningham, M.A., F.R.S.E., late fellow of University College, Oxford, England.

— After Mr. Gladstone, Pope Leo XIII. is the most vigorous man of his age of the day, says Edward W. Bok, in the January *Ladies' Home Journal.* The routine of his work would kill an ordinary man. There is no detail too small for him to pass over; and from daybreak until after midnight he devotes his time to the church and literature. Those who surround him know when he is particularly tired or worn out, for then he takes down a volume of Dante, and reads with the avidity of a school-girl enjoying her first novel. Of all the authors, Dante is the Pope's favorite, and it has been remarked that in physique he is not unlike the accepted idea of that great Italian. He reads Dante for pleasure; but, for keeping himself well informed on all that is happening out of the church as well as in it, he reads not only American books, but newspapers and magazines; and it may surprise American readers to know that he is well informed on all the topics of the day, political, religious, and social. He has taken a deep interest in the cause of labor in the United States, and reads every thing bearing on that