ture is not apparent under natural conditions is because the refractive properties of the crystalloidal substances so nearly resemble those of the associated colloidal substances. Aven Nelson publishes his fourth 'Contributions from the Rocky Mountain Herbarium,' dealing with Chenopodiaceæ, *Cratægus*, and a number of miscellaneous species. A number of new species are described and a new genus allied to *Argemone* is proposed. Alexander W. Evans describes a new liverwort (*Diplophylleia apiculata*) from the eastern United States.

SOCIETIES AND ACADEMIES.

THE AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

THE fifty-second annual meeting of the American Association for the Advancement of Science, and the first of the Convocation Week meetings, will be held in Washington, D. C., December 27, 1902, to January 3, 1903. The retiring president is Professor Asaph Hall, U.S.N., and the president elect, President Ira Remsen, Johns Hopkins University. The permanent secretary is Dr. L. O. Howard, Cosmos Club, Washington, D. C., and the local secretary, Dr. Marcus Benjamin, Columbian University, Washington, D. C. President Roosevelt is honorary president of the local committee. The preliminary program with information in regard to hotel headquarters, railway rates, etc., will be found in the issue of SCIENCE for November 21. The following scientific societies will meet at Washington in affiliation with the Association:

The American Anthropological Association will hold its first regular meeting during Convocation Week in affiliation with Section H of the A. A. A. S. President, W J McGee; secretary, George A. Dorsey, Field Columbian Museum, Chicago, Ill.

The American Chemical Society will meet on December 29 and 30. President, Ira Remsen; secretary, A. C. Hale, 352A Hancock street, Brooklyn, N. Y.

The American Folk-lore Society will meet in affiliation with Section H of the A. A. A. S. President, George A. Dorsey; vice-presidents, J. Walter Fewkes, James Mooney; secretary, W. W. Newell, Cambridge, Mass.

The American Microscopical Society will probably hold a business meeting on December 29. President, E. A. Birge, Madison, Wis.; secretary, H. B. Ward, University of Nebraska, Lincoln, Nebr.

The American Morphological Society will meet on December 30 and 31. President, H. C. Bumpus; vice-president, G. H. Parker; secretary and treasurer, M. M. Metcalf, Woman's College, Baltimore, Md.

The American Philosophical Association will meet on December 30 and 31 and January 1. Secretary, H. N. Gardiner, Northampton, Mass.

The American Physical Society will meet in affiliation with Section B of the A. A. A. S. President, Albert A. Michelson; secretary, Ernest Merritt, Cornell University, Ithaca, N. Y.

The American Physiological Society will meet on December 30 and 31. President, R. H. Chittenden; secretary, F. S. Lee, Columbia University, New York, N. Y.

The American Psychological Association will meet on December 30 and 31 and January 1. President, E. A. Sanford; secretary and treasurer, Livingston Farrand, Columbia University, New York, N. Y.

The American Society of Naturalists will meet on December 30 and 31. President, J. McK. Cattell; vice-presidents, C. D. Walcott, L. O. Howard, D. P. Penhallow; secretary, R. G. Harrison, Johns Hopkins University, Baltimore, Md.

The Association of American Anatomists will meet on December 30 and 31. President, G. S. Huntington; vice-president, D. S. Lamb; secretary and treasurer, G. Carl Huber, University of Michigan, Ann Arbor, Mich.

The Association of Economic Entomologists will meet on December 26 and 27. President, E. P. Felt; secretary, A. L. Quaintance, College Park, Md.

The Astronomical and Astrophysical Society of America will meet during Convocation Week, in affiliation with Section A of the A. A. A. S. President, Simon Newcomb; secretary, George C. Comstock, University of Wisconsin, Madison, Wis.

The Botanical Society of America will meet on December 31 and January 1. President, B. T. Galloway; secretary, D. T. MacDougal, New York City.

The Botanists of the Central and Western States will meet on December 30. Committee in charge of the meeting, John M. Coulter, University of Chicago; D. M. Mottier, University of Indiana, Bloomington, Ind.; Conway MacMillan, University of Minnesota, Minneapolis, Minn.

The Geological Society of America will meet on December 29, 30 and 31. President, N. H. Winchell; vice-presidents, S. F. Emmons, J. C. Branner; secretary, H. L. Fairchild, University of Rochester, Rochester, N. Y.

The National Geographic Society will hold a meeting during Convocation Week. President, A. Graham Bell; vice-president, W J McGee; secretary, A. J. Henry, U. S. Weather Bureau, Washington, D. C.

The Naturalists of the Central States will meet on December 30 and 31. Chairman, S. A. Forbes; secretary, C. B. Davenport, University of Chicago, Chicago, Ill.

The Society of American Bacteriologists will meet on December 30 and 31. President, H. W. Conn; vice-president, James Carroll; secretary, E. O. Jordan, University of Chicago, Chicago, Ill.; council, W. H. Welch, Theobald Smith, H. L. Russell, Chester, Pa.

The Society for Plant Morphology and Physiology will meet during Convocation Week. President, V. M. Spalding; vice-president, B. D. Halsted; secretary and treasurer, W. F. Ganong, Smith College, Northampton, Mass.

The Society for the Promotion of Agricultural Science will meet during Convocation Week. President, W. H. Jordan; secretary, F. M. Webster, Urbana, Ill.

The Zoologists of the Central and Western States will meet during Convocation Week. President, C. B. Davenport, University of Chicago.

THE GEOLOGICAL SOCIETY OF WASHINGTON.

AT the 132d meeting of the society, held in Washington, November 12, the following papers were presented:

'A Deposit of Titanic Iron Ore from Wyoming,' by W. Lindgren.

Recent and very valuable studies of deposits of titanic iron ores have been contributed by Kemp and Vogt. A perusal of these works led to the publication of the following note on Iron Mountain, Wyoming, which locality I visited in 1896.

Most of the deposits of titanic iron ore form irregular masses or fairly sharply outlined streaks in gabbro, or still more commonly in anorthosite (labradorfels). Distinct dikes, undoubtedly indicating separate igneous injection of molten magma of titanic iron ore, have, however, also been described by Kemp from the Calamity Brook district in the Adirondacks, and by Vogt from near Ekersund, Norway, and the locality in Wyoming is chiefly interesting as belonging to this type.

Iron Mountain is situated in the southeastern part of Wyoming, about forty miles north of Cheyenne, and in the foothills of the Laramie Hills. It is eight miles west of the railroad station of Iron Mountain. The rocks prevailing here are chiefly Paleozoic limestones and sandstones, in rolling folds, and these continue for six or seven miles up Chugwater Creek. The dips here become steeper and the underlying pre-Cambrian rocks appear. As far as my observations went they consist exclusively of a labradorite rock of coarse grain which forms rough gray outcrops. The rock can scarcely be called a gabbro, for the pyroxene grains are very sparingly distributed. It contains very little magnetite or ilmenite. Going up one mile farther, the chief deposit is encountered; it crosses the canyon of the Chugwater as a solid dike 100 to 200 feet wide, and can be seen extending up several hundred feet in elevation on both sides of the creek. The mass is said to be traceable for half a mile north and south of Chugwater Creek. The amount of iron ore in sight is most remarkable. The contacts are not exposed to best possible advantage, but have the appearance of being sharp and well defined. The black titanic iron ore seems entirely pure and free from accompanying minerals; at least a search along the base of the outcrop revealed no other constituents of the mass.

About 400 feet below the main deposit there is exposed in the southern wall of the canyon a smaller dike only about ten feet wide. The contacts are well exposed and show a medium grained gray labradorite rock abutting sharply against the dike of titanic iron ore. The dike does not continue on the north side of the canyon, the bottom of which is filled with considerable débris. The greater part of the width of the dike is composed of massive titano-magnetite; but adjoining the western contact the iron ore for a width of one or two feet contains large, imperfect crystals of olivine imbedded in a cementing mass of the black mineral. This association of olivine

and titano magnetite is somewhat unusual; Professor Vogt, in fact, declares that it is not known to occur (*Z. f. Prakt. Geol.*, 1900, p. 292) in the differentiated ores. The black mineral immediately adjoining the olivines contained, upon qualitative test, a large amount of titanium.

This locality has been described by Mr. Arnold Hague in Vol. II. of the 'Reports of the Survey of the 40th Parallel,' pp. 12–16, but the county rock as described by him is a reddish granite, an analysis of which is given. Evidently the points where Mr. Hague saw the deposit were not the same as the locality here described, for the dike, as noted, extends over a considerable distance. The only granitic rock observed at the place described was a small, dike-like mass of fine-grained biotite-granite on the north side of the canyon, nearly opposite the smaller dike of iron ore.

A review of the available facts relating to this interesting locality, which merits further investigation, is to be found in J. F. Kemp's 'Brief Review of the Titaniferous Magnetites' in *School of Mines Quarterly*, Vol. XX., No. 4, 1899.

The analysis of the titano-magnetite by J. P. Carson (F. V. Hayden, U. S. Geol. Surv. Terr., 1870, p. 14) gives the following result:

SiO_2	.76
TiO_2	23.49
Al_2O_3	3.98
Cr_2O_3	2.45
Fe_2O_3	45.03
FeO	17.96
MnO	1.38
MgO	1.56
CaO	1.16
P_2O_5	Tr.
S	1.44
ZnO	.47
	99.78
Fe	45.49%

Noteworthy is the large percentage of sulphur, indicating the presence of sulphides, none of which was, however, observed in the specimens. Further, the notable percentage of zinc, a metal very unusual in the titano-magnetites. There is also an unusually large amount of Cr_2O_3 present.

Mr. Alfred H. Brooks presented a paper entitled 'A Reconnaissance in the Mt. McKinley Region, Alaska,' which was the preliminary announcement of the results of an exploration made during the past season.

Alaska is divisible into the same four geographic provinces as those of western Canada and the United States, which are the Pacific Mountain System, the Central Plateau Region, the Rocky Mountain System, and the Arctic Plain Region. The area investigated lay in the first of these two provinces.

The Pacific Mountain System is made up of a number of distinct ranges, of which the rugged Alaskan lies farthest inland and is the highest, embracing Mt. McKinley, the highest peak on the continent. It extends in a northeasterly and easterly direction from the vicinity of Lake Clarke to the Tanana River, separating the Cook Inlet drainage on the south from the Kuskokwim and Yukon waters on the north. The crest line of the range lies near its western and northern side, where the mountains fall off abruptly to a gravel-covered plateau which slopes down to the Kuskokwim lowland. The southern slope of the range also rises rather abruptly from the Sushitna Valley lowland.

A journey of some eight hundred miles was made on foot, while a pack train of twenty horses was employed to transport the provisions and equipment of a party of seven men. The expedition left Tyonok, Cook Inlet, on June 1, and, taking a northerly course, reached the mouth of the Keechatna a month later; then turning westward, crossed the Alaskan Range by an unmapped pass to Kuskokwim waters. Thence the route northeastward, along the western base of the great Alaskan Range, was traversed to the Cantwell River. An exploration of the headwaters of the left fork of the Cantwell was made and then the party turned northward across the Tanana and reached the Yukon at Rampart on September 15.

The continuous instrumental survey of the whole route forms a connecting link between a number of reconnaissance surveys which had been made in previous years by the Geological Survey. Much interesting and val-

uable data were obtained in regard to the northern and western front of the Alaskan Range, which had not previously been explored. The position and altitude (the latter with a probable error of not over 100 feet) was determined by Mr. D. L. Reaburn, topographer of the expedition. It is of interest to note that Mt. McKinley is definitely determined to be over 20,000 feet and Mt. Foraker 17,000 feet.

The notes and specimens having not yet been studied, but few statements can be made in regard to the bed-rock geology, which is complex and embraces terranes from the Silurian to the Carboniferous.

The oldest terranes were found in the northern part of the area, and consist of a metamorphosed conglomerate, often having a gneissic phase. The lowest member of this series is not distinguishable from a true Archæan gneiss and it possibly belongs to a crystalline basal complex. Overlying the conglomerate, a slate and phyllite series was found, succeeded by limestones and slates and arenaceous beds carrying Ordovician fossils. Devonian limestones were found widely distributed. The Paleozoic rocks are intensely folded and faulted. At least one, and probably two, unconformities occur within the Paleozoic, one near the base of the Devonian and a second probably in the Silurian.

In the southern part of the area there is a vast thickness of shales, slates, grits and sandstones, in which Jurassic fossils were found. These were, in the section studied, well exposed across the range. This series thins out to the northward, and near the Tanana is entirely wanting. It is overlaid unconformably by sandstones, conglomerates and shales, which carry coals. The plant remains from these beds, studied by Dr. F. H. Knowlton, show it to be of Arctic Miocene or Eocene age. These Tertiary beds have a limited development in the southern part of the belt, but thicken to the northward. On the Cantwell a section of 3,000 feet was measured. The only other consolidated beds found in the region were some lignitic bearing friable sandstones, which were found in the southern part of the belt. These aggregate probably not over 200 feet and are probably of late Tertiary age.

Among the plentiful intrusive rocks there are two important lines of granite, one east of the mountains along the axis of the Sushitna Valley, and a second along the axis of the Alaskan Range, where the highest peaks, such as Mt. McKinley and Mt. Foraker, are probably chiefly made up of granite. Various other granular rocks occur as dikes and stocks.

Extrusive rocks are found along both flanks of the range, but do not seem to compose the range itself. They are mainly of post-Eocene age. The active volcanoes of the Aleutian Islands and the Alaskan Peninsula do not extend into the region under discussion, though some of their ejecta are found mingled with the recent alluvial deposits.

Evidence of glaciation is abundant in the region south of the Tanana Valley. Glacial till and erratics were found along the western shore of Cook Inlet, and are closely associated with stratified sands and gravels. The foothills of the main range, 2,000 feet high, forty miles inland, were found glaciated, and, going westward into the mountains, the upper limit of glaciation was found at an altitude of about 4,000 feet. On the north side the base of the mountains is glaciated and the valleys up to 4,000 or 5,000 feet wide. On both sides of the range there are heavy gravel deposits, which mantle the base of the mountains. These are interpreted as overwash deposited during the retreat of the ice. Remnants of this greater ice sheet are to be found in the glaciers which now occupy many of the higher valleys, on both slopes of the Alaskan Range.

Alfred H. Brooks,
Secretary.

Biological Society of Washington.

The 361st meeting was held on Saturday, November 29.

William Palmer discussed the 'Variation of the Downy Woodpecker in Eastern Maryland and Virginia.' The speaker showed the extent of variation of the white markings of the wing coverts of the two subspecies found in the above region, as well as that of intergrading individuals. *Dryobates pubescens*

and *Dryobates pubescens medianus* were stated to intergrade along the western side of tide water in the region named, and the range of *medianus* was extended from South Carolina to this section.

Vernon Bailey spoke of 'Sleepy Grass and its Effects on Horses,' stating that this grass grew luxuriantly in some sections of the California Sierras. Horses eating this grass were rendered very drowsy for several days, and it was reported that in some instances they were temporarily too sleepy for use. The effects gradually wore off, and it was said that horses or cattle having eaten this grass would not do so a second time.

F. V. Coville described 'The Use of Sagebrush among the Klamath Indians of Oregon' and illustrated by experiment the manner in which it was employed to make fire by friction. The reason that sagebush was particularly adapted for this purpose was due to the fact that the rings of growth were not of uniform texture, some being soft, others hard. Owing to this the end of a piece of this wood did not wear smooth, but remained rough, causing continued friction, and eventually producing enough heat to light the very dry bark employed in place of tinder.

O. F. Cook presented a paper on 'The Function of Latex in the Central American Rubber Tree,' presenting incidentally much information as to the habits of the tree and the production of rubber. It was stated that, while the tree throve in moist climates, this was not favorable to the yield of rubber, which was greatest after a dry season, and lack of acquaintance with this fact led to the attempt to cultivate rubber trees in unsuitable localities. From observation of this and plants with similar sap it was inferred that an important function of the latex was to check evaporation.

F. A. LUCAS.

THE RESEARCH CLUB OF THE UNIVERSITY OF MICHIGAN.

THE Club met on the evening of November 19 and listened to papers by Professors John A. Fairlie and S. L. Bigelow.

Dr. Fairlie discussed the Ohio situation in the relation of legislative enactments for municipal government; and Dr. Bigelow spoke on 'The Passage of a Direct Current through an Electrolyte when the Electromotive Force Applied is Small.' The speaker stated that every attempt to determine Le Blanc's decomposition points shows that small currents pass before such a point is reached. Attempts to account for these currents by means of polarization phenomena, including the idea of electric 'double layers,' by Nernst's osmotic theory, and by Helmholtz's 'convection currents,' were shown to be unsatisfactory. A new theory was suggested: that a gas (hydrogen or oxygen) on dissolving becomes differentiated to a certain extent into molecules with plus charges and molecules with minus charges which then act as carriers of electrical energy. Facts already known and new experimental evidence were adduced in favor of this view. It was further proposed to apply Thompson's corpuscular theory to solutions, a justification for this being found in the close analogies known to exist between substances in dilute solution and in the gaseous condition, and Thompson's theory was considered preferable to the theory of electrons as stated by Nernst. It was pointed out that this theory would account for the currents passing at low voltage, and possibly for conduction in solutions whose boiling and freezing points fail to indicate corresponding dissociation. It was expressly stated that this new idea does not conflict with the dissociation theory, but rather serves to support it, offering a plausible explanation of some apparent exceptions.

The article will appear in the December number of the *Journal of Physical Chemistry*.

FREDERICK C. NEWCOMBE,
Secretary.

DISCUSSION AND CORRESPONDENCE.

THE CARNEGIE INSTITUTION.

TO THE EDITOR OF SCIENCE: Munificent as is the endowment of the Carnegie Institution, it is safe to assume that most of the good things proposed for science in the official plans will be enjoyed only by future generations; important results can be attained on the probable income, but not results in many directions. It may be, too, that some of the