List of Papers.

A. R. C. Selwyn, On the coals and petroleum of the Crow's Nest Pass, Rocky Mountains; H. P. Brumell, On the geology of natural gas and petroleum in Ontario; H. P. Brumell, Note on the occurrence of petroleum in Gaspé, Quebec; Elfric Drew Ingall, Some features of the phosphate-bearing rocks of Ottawa (read by title); Sir J. William Dawson, Note on sponges found in the Cambro-Silurian at Little Metis, Canada (read in the absence of the author by Mr. F. D. Adams); J. F. Whiteaves, Notes on the Devonian formation of Manitoba and the N. W. Territories; Henry M. Ami, Notes on Cambrian fossils from the Selkirks and Rocky Mountain Region of Canada; Henry M. Ami, On the Potsdam and Calciferous terranes of the Ottawa Palæozoic basin; R D. Salisbury, Distinct glacial epochs, and the criteria for their recognition; J. B. Tyrrell, Pleistocene phenomena in the region southeast and east of Lake Athabasca, Canada; A. P. Low, Notes on the glacial geology of the Northeast Territories; Robert Chalmers, The height of the Bay of Fundy coast in the glacial period relative to sea-level, as evidenced by marine fossils in the boulder clay at Saint John, New Brunswick; W. J. McGee, The Pleistocene history of Northeastern Iowa; Warren Upham, Eskers near Rochester, N. Y.; Warren Upham, Comparison of Pleistocene and present ice-sheets; G. Frederick Wright, The post-glacial outlet of the Great Lakes through Lake Nipissing and the Mattawa River; N. H. Darton, On certain features in the distribution of the Columbia formation on the Middle Atlantic slope; George M. Dawson, Note on the geology of Middleton Island, Alaska (read by R. W. Ells); Waldemar Lindgren, Two Neocene Rivers of California; Robert W. Ells, On the Laurentian of the Ottawa district; Robert Bell, The contact of the Laurentian and Huronion north of Lake Huron; W. H. C. Smith, The Archæan Rocks west of Lake Superior; Alfred E. Barlow, On the Archæan of Sudbury mining district; C. R. Van Hise, The volcanics of the Huronian south of Lake Superior; Charles Rollin Keyes, Some Maryland granites and their origin (read by Mr. U. S. Grant); Charles Rollin Keyes, Epidote as a primary component in granites (read by Mr. U. S. Grant); James McEvoy, Notes on the gold range in British Columbia; Israel C. Russell, A geological reconnoissance in the central part of the State of Washington; R. W. Ells, The importance of photography in illustrating geological structure; J. W. Powell, The work of the United States Geological Survey (read by W. J. McGee); J. S. Diller, Cretaceous and Tertiary rocks of the Pacific States; T. W. Stanton, On the faunas of the Shasta and Chico formations; C. Willard Hayes and M. R. Campbell, Geomorphology of the southern Appalachians; N. H. Darton, Overthrust faults in eastern New York (read by W. J. McGee).

The president's address, on the "Problems of the Continents," was an admirable paper which brings up and introduces a subject of paramount importance. It serves as a preliminary basis for work at the coming meeting of geologists at the International Congress to be held in Chicago this summer.

Mr. W. J. McGee's public lecture was given in the new auditorium of the Normal School, on the subject "A fossil earthquake;" seldom has an Ottawa audience listened to a clearer and more striking bit of inductive reasoning than this lecture. About 300 persons were present, and the lecture was illustrated by stereopticon views. Mr. H. N. Topley kindly assisted the lecturer in this matter.

After the reading of the last papers on the list and programme on Friday evening, three votes of thanks were unanimously passed by the society. The first to the President and Fellows of the Royal Society, for their invitation and attention during the session of the Geological Society. The second to the Governor General for his hospitality and the generous as well as gracious interest he had taken in the meetings. The third to the Logan Club of Ottawa for its exertions in making the meeting a success.

One interesting feature of these meetings was the presence of the Premier of Canada, the Hon. Sir John Thompson, K.C.M.G., and of the Hon. T. M. Daly, Minister of the Interior and Geological Survey Department, when Dr. McGee read the paper prepared by Major J. W. Powell, director of the United States Geological Survey on the work of that survey. At the conclusion of the paper Sir John Thompson, Mr. Daly, M P., and Dr. Selwyn took part in the discussion. The comparative work and usefulness of the Geological Surveys of Canada and the United States was an interesting as well as practical question.

Altogether the meetings were most successful and teeming with interest, and closed with hopes of having another similar one at no distant date.

SEVENTH ANNUAL MEETING OF THE IOWA ACADEMY OF SCIENCE.

The seventh annual meeting of the Iowa Academy of Science convened in the High School Building in Cedar Rapids. Several enthusiastic sessions were held during day and evening of the 27th and 28th. The following papers were read: —

Professor S. Calvin presented a paper "On the Relation of the Woodbury Sandstones and Shales and the Inoceramus Beds of White to the Subdivisions of the Cretaceous proposed by Meek and Hayden," in which he gave a thorough review of the subject and illustrations of various sections bearing upon it. Perhaps one of the most important points of the paper was in regard to the identity of strata differing lithologically at different points, but proven to be the same, and in the view of the author the difference due simply to difference in distance from the shore line of the water in which they were deposited.

In a paper on "The Structure and Probable Affinities of Cerionites dactyloides Owen," Professor Calvin discussed the former views regarding this problematic fossil and showed some very fine specimens and drawings illustrating his view that this is a gigantic Prototozoan or colony of protozoans, a view which, with the evidence presented, seems more reasonable than any hitherto offered.

Dr. C. R. Keyes read a paper "On Natural Gas and Oil in Iowa," in which he maintained that the failure to find these materials in paying quantities so far in this State is not to be taken as proof that they will not be found. He also presented by title two papers, one entitled "Some Mineralogical Notes," and the other "Surface Disintegration of Granitic Masses and Some American Eruptive Granites."

Professor J. L. Tilton, in a paper "From Ford to Winterset," gave a number of carefully determined sections of the various exposures between these towns, and illustrated by a large chart in which they were shown drawn to scale for the entire distance.

Professor C. O. Bates discussed the "Analysis of Water for Railway Engines," giving details of his work in this line and suggestions as to the methods to be used and the results desired in such work.

Professor F. M. Witter, in "Some Observations on Helix cooperi," gave an interesting account of his observations on this mollusk in Colorado and exhibited a number of specimens of different ages.

His paper on the "Absence of Ferns between Fort Collins and Meeker, Colorado," contained a statement of his efforts to secure these plants in that region and discussed the causes for paucity of such material.

Professor Witter also presented a paper entitled "Notice of Stone Implements from Mercer County, Illinois, and Louisa County, Iowa," and accompanied it with exhibition of two very interesting stone implements.

Mr. Gilman Drew discussed "The Frogs' Lease of Life," giving a graphic account of the ability of frogs to survive under adverse circumstances, and showing that it has a very strong vitality. Details of a number of experiments in subjecting frogs to temperatures at varying points below freezing were given, also observations on the vitality of frogs' eggs.

Mr. Drew also remarked upon the inheritance of acquired characters as illustrated in the Honey Bee.

Professor C. C. Nutting, the retiring president of the Academy, took as his subject for presidential address "What We Have Been Doing," and showed in a very exhaustive and pleasing article what the members of the Academy had been engaged in scientifically during the year past. His paper will be an interesting bibliography of the scientific papers published by Iowa men.

Professor Nutting's "Report as Chairman of the Committee on State Fauna" contained a number of additions to the known fauna of the State and notes on varied faunal relations among a number of species heretofore recognized. The additions, which embrace only Vertebrates, include two mammals, nineteen birds, five reptiles, one batrachian, and five fishes.

The "Significance of the Concealed Crests of the Tyrannidae" was the title of another paper by the same author and discussed very elaborately the origin and use of the bright colored crests of different members of the Flycatcher family. Considerable evidence was produced to show that they assist the birds in securing food by alluring insects within easy reach.

Professor L. H. Pammel presented papers on "Phænological Notes for 1892," "Relation of Frost to Certain Plants," "Notes on the Flora of Arkansas and Texas," and "Pollination of Cucurbits."

The second paper contained records of numerous observations on temperatures and effect on different kinds of vegetation. The third contained notes collected by the author during two trips in the region mentioned, and the third, which was accompanied by a number of very fine drawings illustrating the anatomy of the flowers of cucurbits, a number of observations with regard to the pollination of these plants.

Mr. F. C. Stewart presented a paper on "Palisade Cells and Stomata of Leaves," giving record of numerous examinations of leaves of various plants, and especially of different varieties of apple and presenting the conclusion that these factors have little relation to the resistance of the plants to climatic conditions. Mr. Stewart also presented a "Key to the Identification of Weed Seeds."

Mr. H. A. Gossard presented "A List of Insects that have been taken in Clover, in Iowa," with observations on a number of the different species. It includes a large proportion of the species that have been accredited to this plant heretofore and a number of species not hitherto accredited with feeding upon it.

Dr. W. B. Niles presented "Preliminary Observations on a Cattle Disease of Frequent Occurrence in Some Parts of Iowa." In this paper the symptoms of the disease were described, and a statement of efforts to secure cultures of organisms occurring in the diseased animals. Inoculations direct from diseased animals had produced similar symptoms and disease, but inoculations with pure cultures of any of the organisms isolated had so far given negative results.

Mr. F. Reppert presented some "Notes on the Flora of Muscatine," containing record of some plants which appear to be quite out of their normal range. He described the peculiar conditions of the locality where most of these exceptional plants have occurred and suggested that such plants had probably been introduced there by the agency of such birds as ducks or geese.

Mr. F. W. Mally presented a "List of the Tenthredinidæ of Iowa," preliminary to a more exhaustive study of this group in the State.

Professor Herbert Osborn and F. A. Sirrine in "Notes on Aphididæ" presented a list of about forty species that had not hitherto been recognized in the State and notes of the habits of a number of species, also a description of a new species.

Professor Osborn also read a paper "On the Life Histories of Certain Jassidae," giving in detail the life histories of *Deltocephalus inimicus, Deltocephalus debilis*, and some others, and mentioned their relation to economic treatment of these species.

He also presented some notes on the "Catalogue of Iowa Hemiptera," making some additions and corrections to preceding lists.

His talk on a collecting trip to southern Mexico contained observations on various points visited as far south as Isthmus of Tehuantepec and references to the native people and animals observed. The talk was illustrated with lantern views of scenery in the localities visited and views showing costumes of the natives, animals of the region, etc.

The Proceedings of the Academy are now published by the State, a bill for that purpose having passed the last Legislature, and the papers presented at this meeting will be printed as soon as possible.

The officers for the current year are: President, L. H. Pammel, Ames; first vice-president, C. O. Bates, Cedar Rapids; second vice-president, A. A. Veblen, Iowa City; secretary-treasurer, Herbert Osborn, Ames; Executive Committee, the officers and S, Calvin, Iowa City; F. M. Witter, Muscatine, and H. W. Norris, Grinnell.

UNUSUAL ABUNDANCE OF THE GROSBEAK IN EASTERN MASSACHUSETTS.

BY J H. BOWLES, PONKAPOAG, MASS.

ALTHOUGH considerable of a rambler, I have never until this year noticed the Pine Grosbeak (*Pinicola canadensis*) in this vicinity. The unusually cold weather that we have had this winter seems to have thoroughly disturbed them in their northern homes, as, for the last two weeks, they have been around here in great numbers. The first that I noticed was a flock of six, on Dec. 19, which were feeding on cone-seeds in the top of a hemlock tree. Since then I have noticed flocks, almost every day, ranging in numbers from three to seventeen, although small flocks of six or eight are most commonly seen. Only a very few were in the full red plumage, most of them showing it on the head and rump only. Their flight is exceedingly graceful, consisting of dips toward the ground, in the manner of a woodpecker, only not so much exaggerated, in which they utter from time to time a short, mellow whistle. They are seen principally feeding on the buds of maple, walnut, ash, and evergreen trees, and seem to be always hungry, which, I think, in a measure accounts for their extreme tameness, as they will allow a person to approach within a few feet of them without taking any notice. When feeding in the road, which they sometimes do, they will allow a team to come almost on top of them before flying to the side of the road, only to come back again as soon as the team has passed. I cannot help mentioning here that the trait of coming one winter and being absent the next is very common with some birds. The Snow Bunting (*Plectrophanes nivalis*), for instance, although seen in large numbers last winter, has not made its appearance once this year as far as I have heard. Certainly it is not so plentiful, as last winter I saw a large number of flocks of from six to fifty and one flock of about one hundred and fifty. The red-bellied Nuthatch (*Sitta Canadensis*) and the Yellow Red-Poll Warbler (*Dendroica palmarum*) also, which were very common several winters ago, have been completely missing since that time.

NOTES AND NEWS.

FOUR courses of lectures are being given by the Department of Biology of Columbia College, in Room 11, Library Building, on successive Thursday evenings, at eight o'clock, beginning Nov. 10, 1892. They are designed for those who desire to keep abreast of the later advances in biology without entering any of the technical courses. A limited number of tickets for the entire course will be issued to persons not students on payment of a small fee. Application should be made to the Secretary of the President, Columbia College. The course on the History of the Theory of Evolution, by Henry F. Osborn, Sc.D., Da Costa professor of biology, was finished Dec. 15. A course on The Cellular Basis of Heredity and Development, by Edmund B. Wilson, Ph.D., adjunct professor of biology, beginning Thursday, Jan. 12, will consist of: Introduction: Cellular Basis of the Living Body. The Germ-Cells: Sex and Fertilization. Cell Genesis and Division. Egg and Spermatozoön: The Preparation for Development. Physiology of the Individual Cell. Inter-Cellular Dynamics: Theories of Heredity. This course will be of the greatest interest, as the progress during the last two years in our knowledge of the cell is simply marvellous. Courses will follow on The Origin and Evolution of the Fishes, by Bashford Dean, Ph.D., instructor in Biology, and Amphioxus and Other Ancestors of the Vertebrates, by Arthur Willey, B.Sc., tutor in Biology.