most exhaustive, authoritative and generally excellent treatise upon its subject which has yet appeared, and that it must form the foundation-work for all future studies upon matters connected with peat-moors.

W. F. GANONG.

SCIENTIFIC JOURNALS AND ARTICLES.

THE January number of the *Botanical Gazette* contains a paper by Rodney H. True and C. S. Oglevee giving the results of studies on the effect of such insoluble substances as sand, starch grains, filter paper, etc., upon the toxic action of electrolyte and non-electrolyte poisons in aqueous solution. It appears that the insoluble body adsorbs the poison solute, thus diminishing the effective concentration of the latter as though it were taken out of solution.—Burton E. Livingston describes the types of soil and of vegetation in the north-central part of the southern peninsula of Michigan (Roscommon and Crawford counties), and discusses the influence which the soil has in determining the distribution of the various plant societies. He concludes that the amount of soil moisture, determined largely by fineness of soil particles, is the main controlling factor here.—A. D. E. Elmer describes a number of new and noteworthy Californian plants.—Edgar W. Olive discusses the morphology of *Monascus purpureus,* taking up the accounts of Barker and Ikeno and giving certain results of his own observations.—B. M. Davis discusses fertilization in Saprolegniales based upon a recent paper by Trow; and also the sexual organs and sporophyte of Rhodophyceæ based upon a recent paper by Wolfe.

The Journal of Nervous and Mental Disease for January opens with a paper by Dr. F. X. Dercum, giving an exhaustive and careful report of three cases, one being illustrated, which bear upon the question of the relation of syphilis to spastic spinal paralysis and also indirectly upon the question of Erb's form of spinal syphilis. Dr. S. D. Ludlum contributes an article on the 'Possible Relationship of Neuro-fibrillar Changes to Insanity.' He summarizes the literature bearing on the subject, and reports a series of experiments conducted at Friends' Asylum which leads to the hypothesis of a close relationship between fibrils and mental manifestations. An interesting case of tumor of the occipital lobe with an unusual clinical history is reported by Dr. Philip Zenner; also one of carcinoma of the spine following carcinoma of the breast, the spinal disease being characterized by a phenomenally long course, possibly due to removal of the ovaries some four years before the patient's death. The October meetings of the New York Neurological Society and the Boston Society of Psychiatry and Neurology are reported. The 'Periscope' for the month contains abstracts of the following journals: *Monatsschrift für Psychiatrie und Neurologie, Brain, Neurologisches Centralblatt, Revue de Psychiatrie et de Psychologie Expérimentale, Centralblatt für Nervenheilkunde und Psychiatrie, American Journal of Insanity, Journal de Neurologie, Archives de Neurologie,* and selected articles from miscellaneous periodicals. The books reviewed in this number are 'Epilepsy and its Treatment,' by Dr. W. P. Spratling; 'La Mimica del Pensiero Studi e Ricerche,' by Dr. Sante de Sanctis; two volumes of 'The Doctor's Recreation Series,' edited by C. W. Moulton; 'Manuel pour l'Etude des Maladies du Système Nerveux,' by Dr. Maurice de Fleury; 'A Manual of Psychology,' by G. F. Stout; 'Trattato delle Malattie Mentali,' by Professor E. Tanzi; 'Lehrbuch der Nervenkrankheiten für Aerzte und Studierende,' by Professor H. Oppenheim; 'Essentials of Nervous Diseases and Insanity,' by Dr. J. C. Shaw; 'Nietzsche,' by P. J. Möbius; 'Mental Defectives, their History, Treatment and Training,' by Dr. M. W. Barr, and 'The Physician's Visiting List for 1905–1906.' The issue closes with two pages of 'News and Notes.'

SOCIETIES AND ACADEMIES.

THE NEW YORK ACADEMY OF SCIENCES.

SECTION OF GEOLOGY AND MINERALOGY.

AT the meeting of the section held on February 6 the following papers were read by title:

Moissanite, a Carbon Silicide from the Cañon Diablo Meteorite: GEORGE F. KUNZ.

On Zirkon from Lawton, Oklahoma: George F. Kunz.

On Monazite Sand from Idaho: George F. Kunz.

A paper entitled 'The Serpentine and Associated Asbestus Minerals of Belvidere Mountain, Vermont,' was presented by V. F. Marsters, of Columbia University.

Belvidere Mountain lies approximately along the line between the counties of Orleans, Lamoille and Franklin. It is a sharp crested ridge with a maximum elevation of some 2,100 feet above Eden Corners at its southern termination. Three topographic elements are prominent, a sharp crested ridge forming the upper 900 feet of the mountain, a crescentic plateau with a flat top 1,200 feet above the valley floor and rimming the end of the mountain, and lastly a steep lower slope composing the foot of the plateau and extending to the valley bottom.

The upper part with steep slopes is composed of amphibolite. In addition to the hornblende which makes up seventy-five per cent. of the rock, there is also present an inconsiderable amount of epidote and a non-pleochroic colorless mineral regarded as zoisite, together with magnetite and pyrite. Towards the base, garnet becomes a prominent constituent, sufficient to make a well-defined garnet zone. In nearly all cases observed, the garnet is largely altered to penninite, a variety of chlorite. Along the garnet zone the hornblende has also undergone marked alteration in part to serpentine. The nose-like projection forming the plateau is composed of serpentine. In this rock occur the so-called asbestus deposits recently prospected and worked for this product. In thin sections the serpentine appears to be made up largely of a felty and fibrous mass, apparent only under cross nicols. It is typical fibrous serpentine. In thin sections from the upper part of the plateau and in close proximity to the overlying amphibolite, there appear shredded masses presenting the original structure of hornblende as seen in the amphibolite, but mineralogically altered to a fibrous mass with the optical characteristics of anthophyllite. It is not improbable, moreover, that a portion of the hornblende has altered to tremolite. These fibrous constituents form the so-called 'slip-fiber.'

The serpentine belt has also been subjected to peculiar faulting and crushing. The cracks thus produced, even on a microscopic scale, have been filled with these fibrous constituents, and then the whole mass submitted to further slipping. This has caused the slickensiding phenomena on the fracture planes and a consequent stretching of the fibrous content; hence the term 'slip-fiber.' 'Cross-fiber' or true chrysotile is to be found in this area. It is best developed along lines of maximum fracture and minimum lateral thrust. There appears to be two bands of maximum fracture, one extending along the upper portion of the plateau and not far from the garnet zone, the second along the foot of the plateau and best shown on the property of Judge Tucker.

The next paper was by Dr. Charles P. Berkey, on the 'Interpretation of Certain Laminated Clays with their Bearing upon Estimates of Geologic Time.'

Laminated clays of glacial and post-glacial age are abundant in many districts of the northern states and Canada. They are especially abundant about the head of Lake Superior where their origin is intimately related to the closing fluctuations and final withdrawal of the Wisconsin ice sheet.

One of these deposits, at Grantsburg, Wis., exhibits a remarkable uniformity of structure and is so clearly bounded by other accumulations of known significance that its history is readily interpreted. From a detailed analysis of the laminated structure it is argued that this deposit was about 1,700 years in accumulating.

A like interpretation of the similar isolated deposits following the retreating ice sheet would give data for time estimates from an entirely new standpoint. In some areas laminated clays occupy interglacial position and it may be possible to apply the same method to them.

The last paper of the evening was by Professor A. W. Grabau, on the 'Evolution of Some Devonic Spirifers.' *Spirifer mucronatus* (Conrad) is a Linnæan species comprising a large number of mutations. A remarkable fact is

that all mutations pass through a mucronate stage such as is characteristic of the adult mutation after which the species is named. (The term *mutation* is here used in the sense in which it was originally proposed by Waagen, and not in that in which it was subsequently used by de Vries, *i. e.*, for the result and not for the process.) A still earlier stage in development (nepionic) shows the non-mucronate features of the ancestral species similar to *S. duodenarius* of the Onondaga. The mucronate feature is carried to excess in a number of mutations of the Lower Hamilton group. It is especially persistent in the Michigan region. This type of outline is accompanied by a rib in the median sinus and a depression in the fold. In Ontario the primitive mucronate type gives rise upward to a number of mutations which are especially characterized by progressive increase in height without corresponding lengthening of the hinge. The median plication and depression quickly disappear.

Acceleration and retardation in development are the chief principles which explain the development of the great number of mutations. For the principle of retardation the term ***bradygenesis*** (from βραδύς, slow) was proposed, corresponding to the term *tachygenesis* proposed by Hyatt for acceleration.

In the New York province the primitive mucronate type gives rise to high and short-hinged mutations, but these retain the median rib and depression. In form these are tachygenetic; in respect to the surface features, bradygenetic. In the arenaceous beds of the later Hamilton in eastern New York, a mutation with many ribs and moderate mucronations exists. This is in many respects a bradygenetic type. Side by side with extremely accelerated or tachygenetic types in all horizons (*i. e.*, very short-hinged, non-mucronate, high and thick mutations) occur slightly retarded or bradygenetic types which retain in the adult the mucronate character which is typical of the young of all the mutations.

A. W. GRABAU,
Secretary.

COLUMBIA UNIVERSITY.

THE PHILOSOPHICAL SOCIETY OF WASHINGTON.

THE 596th meeting was held February 4, 1905.

Mr. J. F. Hayford, chief of the Computing Division of the Coast and Geodetic Survey, reported briefly on the completion of the reductions of the leveling between Seattle and several points on the Atlantic coast; the apparent difference of level between the two oceans is 187 mm., 0.6 foot. The levels run at Nicaragua gave a difference of zero.

Mr. Bernard R. Green then spoke on 'Public Buildings in Washington,' presenting many lantern views, and outlining the problems that have been forced on his attention during the many years he has been connected with the erection of such buildings. Attention was called to the peculiar far-sighted plan of the city, with its two centers at the Capitol and White House, marked by monumental buildings. The majority of the government buildings, he held, should be expressive of their use and so be of the workshop or office type rather than monumental, and should be well scattered. The future buildings of the monumental class will probably be of the modified classical type, massive, of stone, and relatively low, *e. g.*, eighty feet. The cost of these is high; the State, War and Navy Building cost $1.06 per cubic foot, the Library of Congress sixty-three cents, including decorations. Buildings of the other class may be of the columnar type, a steel skeleton structure which carries the outer walls, and costs twenty-five to thirty cents per cubic foot.

Mr. S. W. Stratton, director of the Bureau of Standards, then spoke on 'The Architectural and Engineering Features of Scientific Laboratories,' exhibiting many views of such buildings and especially the new ones of the Bureau of Standards. The most important conditions to be secured are freedom from vibration and jars, and perfect control of the ventilation and temperature of the rooms. An excavated basement is a great source of trouble; the heating and power-plants and machinery should be in a separate building. Substantial reinforced concrete floors render piers unnecessary in the first story, while in the second story wall-brackets are generally better

than floor supports for apparatus. Numerous other details were considered.

The subject of stability was further discussed by several of the physicists and astronomers present.

Charles K. Wead,
Secretary.

DISCUSSION AND CORRESPONDENCE.

RECENT WASHINGTON RHIZOBIA EXPERIMENTS.*

In 1902 Dr. Geo T. Moore published a paper in which he gave a brief outline of the history of the study of the free nitrogen-assimilating microbes of leguminous plants.† In this paper the author outlines a method for increasing the nitrogen-assimilating power of rhizobia by growing them upon artificial nitrogen-free media, which is said also greatly to increase their tubercle-forming power. According to the paper by Grosvenor, Dr. Moore has continued his experiments along the same line and has patented the process, giving the patent rights over to the government for the sole benefit of the farmer. It is stated that by the use of these nitrogen-hungry rhizobia the yield of any leguminous crop may be increased very greatly (from 40 to 400 per cent.). The results are said to be far superior to those obtainable from the use of the 'Nitragin,' patented by Nobbe and Hiltner of Germany. Instead of bottling the cultures (of nitrogen-hungry rhizobia) in a dry pulverulent state, as did Nobbe and Hiltner, Dr. Moore infiltrates absorbent cotton with the cultures and dries it, whereupon it is ready for shipment to the farmer, at a nominal cost.

If the claims of the paper can be verified by further tests, Dr. Moore deserves credit for having accomplished a work which will prove to be of great benefit to farmers. It will of course not do away with the necessity of crop rotation.

It is regrettable that Dr. Moore did not see fit to contribute the article himself and that it did not appear in some scientific publication rather than a literary magazine. This is not at all intended as a criticism of Mr. Grosvenor's presentation of the work done by Dr. Moore, only the custom prevails for those who do the actual scientific work to also present it to the world first-hand, nor are we in the habit of looking for reports of research work in publications devoted almost wholly to fiction.

Albert Schneider.

* Gilbert H. Grosvenor, 'Inoculating the Ground: A Remarkable Discovery in Scientific Agriculture,' *The Century Magazine*, **68**: 831–839 (October), 1904.

† Geo. T. Moore, 'Bacteria and the Nitrogen Problem,' Year-book of the Department of Agriculture, pp. 333–342, 1902.

SPECIAL ARTICLES.

A NEW CODE OF NOMENCLATURE.

In *The Condor* for January, 1905 (Vol. VII., pp. 28–30), is an abstract of a new code of nomenclature, "which will shortly appear under the joint authorship of Doctors Jordan, Evermann and Gilbert, * * * entitled 'Nomenclature in Ichthyology. A Provisional Code Based on the Code of the American Ornithologists' Union.'" It is said:

> The recent preparation of numerous papers in systematic ichthyology has necessitated the reconsideration of many problems of zoological nomenclature, and as some of these are not covered by any canon in any recognized code, and again, as certain canons in the best considered of the various codes of nomenclature, that of the American Ornithologists' Union, are not available in the study of fishes, we have ventured to draw up a code for our own use in ichthyology. * * * The different canons in this code are based on those composing the code of the American Ornithologists' Union, and so far as possible the language of that admirable document has been followed. We have, however, omitted certain matters which may be considered as self-evident, and we have omitted all reference to groups of higher than family rank.

The points in which the ichthyological code differs from the ornithological are then stated; the text of these parts of the new code is given apparently in full, and relates to six of the canons of the earlier code. As the perfect code has not as yet been devised, all improvements on preceding codes should, of course, be welcomed, but changes from well-established methods of procedure should carry convincing evidence that they are improvements in order to secure adoption.

Not many months ago the American