require independence of thought in the higher geometry, in analysis, and in analytic mechanics, with a good knowledge of the literature of these subjects. (3) The teacher's position is one of honor, recognized in cases of superior excellence by the title of 'Professor,' bestowed by the government, a title with us 'defamed by every charlatan and soiled by much ignoble use.' (4) The teacher has fewer classes per week than the American teacher, and when out of class instead of being set to watch a 'study hall' he has time for recreation and study. (5) Considering the purchasing power of the money, the teacher comes, after a reasonable time, to receive a somewhat better salary than is offered in America, and hence a relatively stronger set of men enter the profession. (6) His countrymen appreciate that the teacher "can do his best only in an atmosphere of financial and mental tranquility. He must himself be continually growing, and if he is embarrassed by financial cares and harrassed by struggles to improve his material position, his growth is retarded and the quality of his work inevitably deteriorates." He is, therefore, accountable to no local authorities; political 'pulls' have no meaning to him; his superiors in law are his educational superiors as well. He works with the assurance that a pension awaits him when the 'rainy day' comes, and yet he is urged to progress by such manifold inducements that he does not stagnate. (7) The school year is longer than in America, the twenty-minute class periods of our lower grades are unknown, and hence the instruction means more when it is being given and is more consecutive than with us. (8) The teacher teaches; he does not merely hear a recitation. Text-books mean little; home study is not a serious matter; but the class period is a time for serious study, rapid work, heuristic teaching and general inspiration. Space does not permit of speaking of other reasons, or of the results of the system as shown by examination tests.

Professor Young does not, however, claim that Germany is all good and America all bad. Neither does he claim that we can adopt their system. He is eminently judicial in his conclusions, pointing out what we can safely use, and where we can unquestionably improve. On the whole, the book is one of the best balanced works on German education that have appeared, and as such is recommended to every American teacher of mathematics.

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SCIENTIFIC JOURNALS AND ARTICLES.

The *Botanical Gazette* for November contains the following leading articles: G. T. Moore has published with three plates his second paper entitled 'New or Little-Known Unicellular Algæ,' giving a detailed account of the life history of *Eremosphæra viridis,* and coming to the conclusion that for the present, at least, the genus should be classed with the Protococcoideæ; and also describing as a new genus a form which has been confused heretofore with *Eremosphæra,* and naming it *Excentrosphæra.* T. C. Frye has published with one plate an account of the development of the pollen in certain Asclepiadaceæ, his investigation having been suggested by the record that in certain members of this family there is no tetrad division. The development of the sporangium was found to be of the general type, the primary sporogenous cells passing over directly into pollen mother cells; these latter divide in the usual tetrad manner, but subsequently through mutual adjustment the four spores are arranged in a linear series. Miss F. Grace Smith has published the results of a large number of observations upon the distribution of red color in vegetative parts in the New England flora. A general conclusion is reached that the statistical observations obtained fit no one theory of color in all particulars. Mr. George A. Shull has published with illustrations the results of observations upon 'Some Plant Abnormalities.' He records instances of fasciation in *Erigeron Canadense* and *Echium vulgare;* abnormal foliage leaves in *Pelargonium* and *Hicoria;* and abnormal floral organs in *Lathyrus odoratus,* as well as in certain species of *Clematis.* Under the head of 'Briefer Articles,' E. B. Copeland has discussed Meissner's paper on evergreen needles, answering certain

criticisms of the author, and presenting new observations; M. L. Fernald publishes a final paper upon the instability of the Rochester nomenclature, being an answer to papers of Messrs. C. L. Polard, L. M. Underwood and N. L. Britton; and Charles Robertson has published a third set of observations of flower visits of oligotropic bees.

SOCIETIES AND ACADEMIES.

NEW YORK ACADEMY OF SCIENCES. SECTION OF GEOLOGY AND MINERALOGY.

THE regular meeting of the Geological Section of the New York Academy of Sciences was held on Monday evening, November 18, with the chairman, Dr. A. A. Julien, presiding. The program of the evening was begun with the reading of a memorial of Dr. Theodore G. White by Professor James F. Kemp, who said in part:

Theodore Greely White was born in New York, August 6, 1872, and was the only child of his parents, both of whom he lost but a short time before his own death. He was graduated from the School of Mines of Columbia University in the course in geology and paleontology as Ph.B. in 1894, as M.A. in 1895 and as Ph.D. in 1898. He was appointed assistant in the department of physics in 1896 and held the position until 1900, being especially in charge of the experimental work in optics. From early boyhood Dr. White was interested in natural science, and while yet an undergraduate he began investigations both geological and botanical. His bachelor's thesis was a description of the geology of Essex and Willsboro towns on Lake Champlain, and he took up the study of the faunas of the Trenton group in the Champlain valley for his doctorate. In the end he extended these faunal studies all around the Adirondack crystalline area. He also carried on work for the New York State Museum under the direction of Dr. F. J. H. Merrill; and, in association with Professor W. O. Crosby, he described the petrographical characters of the Quincy granite. During an excursion to the seashore last summer he became exhausted while bathing in the salt water, and took a cold which developed into pneumonia and caused his death on the 7th of August, after a brief illness. Dr. White was a man of indefatigable industry and of great perseverance. He has left a large circle of sincere and devoted friends who can with difficulty reconcile themselves to his loss.

The second paper was a memorial of Professor Joseph Le Conte by Professor John J. Stevenson. A memorial of Professor Le Conte having appeared in the columns of SCIENCE, an abstract of this paper will not be given here.

The next paper was by Dr. Edmund O. Hovey and was entitled 'Notes on the Triassic and Jurassic beds of the Black Hills of South Dakota and Wyoming.' In this paper the author described, with the aid of a map and a number of lantern slides, the geological characteristics, the stratigraphic relations and the topographic features of the famous Red Valley of the Hills and its inclosing rim of Jurassic shales and sandstones; the observations being, for the most part, a result of a collecting trip made for the American Museum of Natural History during the past summer.

The closing paper was by Dr. Alexis A. Julien and was a discussion of 'Erosion by Flying Sand on the Beaches of Cape Cod.' The author said in part: The physical characters of the beach sand of Cape Cod show, in general, its recent derivation from the adjacent beds of the later Tertiary and especially from sands and gravels of Glacial age. In form the sand grains are mostly angular to subangular with but small admixture of those nearly spherical grains (for which I have proposed the term 'palæospheres') the form of which would indicate long erosion and high antiquity. In constitution the sands differ somewhat from those of the Atlantic coast to the southward, *e. g.*, of Long Island and New Jersey, particularly in a smaller content of iron-oxides and garnet. Through the continual movement of the winds over the peninsula, the sand upon the beaches and dunes is in a state of constant motion. During the frequent winter storms it is even borne along in vast quantities by aërial transport, and commonly with a violence sufficient to produce sharp attrition upon fixed solid objects.