that of Miller on the constitution of ephedrine; the researches of Paul and Cownley on the alkaloids of ipecac; and those of Fischer, Schlotterbeck and others on various alkaloids, which have been published in the past few years in the *Proceedings of the American Pharmaceutical Association.* The physiological properties given in connection with some of the alkaloids might well be omitted in a work of this kind, particularly as a few of them are not entirely accurate. The index would be more helpful if the plant names were included in all cases, in addition to the names of the alkaloids derived from them. An enlargement on the parts dealing with physical properties and important chemical tests would add to the value of the book and make it appreciated by a larger number.

HENRY KRAEMER.

SCIENTIFIC JOURNALS AND ARTICLES.

THE June number (volume 10, number 9) of the *Bulletin of the American Mathematical Society* contains: Report of the April Meeting of the Chicago Section of the Society, by T. F. Holgate; 'The Heine-Borel Theorem,' by Oswald Veblen; 'On Self-Dual Scrolls,' by C. H. Sisam; 'On Some Tendencies in Geometric Investigations,' by Corrado Segre; Reply to Professor Snyder's Review of Study's Geometrie der Dynamen, by Eduard Study, with Note by Virgil Snyder; 'Notes'; 'New Publications.'

The July number of the *Bulletin* contains: Report of the April Meeting of the Society, by F. N. Cole; Report of the April Meeting of the San Francisco Section, by G. A. Miller; 'On Linear Homogeneous Difference Equations and Continuous Groups,' by Saul Epsteen; Review of Warren's Experimental and Theoretical Course of Geometry, by R. E. Moritz; a number of 'Shorter Notices'; 'Notes'; 'New Publications'; 'Thirteenth Annual List of Published Papers'; Index of Volume 10.

A general index of the *Bulletin,* from 1891 to 1904, is in preparation.

The American Journal of Science for July contains the following articles:

H. A. BUMSTEAD: 'Atmospheric Radio-activity.'

T. HOLM: 'Studies in the Cyperaceæ.'

C. E. BEECHER: 'Note on a New Permian Xiphosuran from Kansas.'

C. BASKERVILLE and G. F. KUNZ: 'Kunzite and its Unique Properties.'

R. O. E. DAVIS: 'Analysis of Kunzite.'

E. H. KRAUS: 'Occurrence of Celestite near Syracuse, N. Y., etc.'

L. F. WARD: 'Famous Fossil Cycad.'

H. A. PERKINS: 'Comparison of Two Ways of Using the Galvanometer.'

H. E. MEDWAY: 'Further Work with the Rotating Cathode.'

H. L. BRONSON: 'Transverse Vibrations of Helical Springs.'

D. B. STERRETT: 'New Type of Calcite from the Joplin Mining District.'

J. TROWBRIDGE and W. ROLLINS: 'Radium and the Electron Theory.'

J. P. ROWE: 'Pseudomorphs and Crystal Cavities.'

SOCIETIES AND ACADEMIES.

THE TORREY BOTANICAL CLUB.

THE club met in the morphological laboratory at the New York Botanical Garden, March 30, 1904.

The first paper on the scientific program was 'Notes on the Cytology of the Aquatic Fungi,' by Dr. Cyrus A. King. Schroeter's classification of the Phycomycetes was reviewed and attention called to the fact that the conidia of the Peronosporineæ resemble sporangia since they germinate by forming internal zoospores. In the Saprolegniaceæ, according to Trow, the eggs are at first multinucleate, all except the sexual nucleus in each egg being disposed of by digestion. Dr. King's researches have shown that in the Leptomitaceæ, as far as known, the oogonia are at first multinucleate and the supernumerary nuclei are disposed of by migrating to the periphery of the cell where they are cut off in a distinct periplasm. In *Araiospora* the peripheral nuclei surround themselves with cell walls in such a way that the ooplasm is surrounded by a layer of periplasmic cells. In *Sapromyces* there is also a periplasm in which the nonsexual nuclei are cut off; it is, however, reduced to a very thin layer. The formation of a body in the center of the egg

of *Araiospora* by the coalescence of several small cytoplasmic patches from various parts of the ooplasm was described. The body probably is an attraction center for the sexual nuclei. A similar structure was not found in *Sapromyces*. *Rhipidium* was also briefly described. The presence of a periplasm and the migration of the nuclei from the developing egg indicates that the Leptomitaceæ are more closely allied to the Peronosporineæ than to the Saprolegnineæ. Photomicrographs were shown from Dr. King's preparations showing the facts brought out and showing also indirect nuclear division in the oogonium and zoosporangium of *Sapromyces*.

An interesting discussion followed.

The second paper of the afternoon was by Mr. B. C. Gruenberg and was entitled 'Chemical Investigations on *Hæmatoxylon*.' Hæmatoxylin is one of the most valuable of commercial dyes and the business of supplying the wood from which it is made forms an important industry in some of the West Indies. Considerable annoyance has been caused by the fact that some of the logwood or *Hæmatoxylon* trees contain little or no dye, whole shipments even having been condemned on this account. The so-called 'bastard logwood' is not always to be distinguished at the time of cutting. It is either lighter in color or if dark at first it can be recognized by not becoming still darker on seasoning for some months as does the good wood.

Professor Earle investigated the disease in the field and concluded that the lack of pigment was not due to external conditions, or to disease, or to immaturity, but that the logwood is a variable plant and the bastard form is a variety or subspecies.

The percentage of carbon in the ash-free material was determined for different samples with somewhat varying results, but showing that the good wood contains a slightly higher percentage, due probably to the carbon in the pigment.

Analysis of leaves, stems and roots of one-year-old plants showed that the bastard plants contained slightly more ash and water, but the difference was very slight.

Extracts of the pigment were made with a number of different solvents from varying samples of wood. The extracts with different solvents did not give parallel results as indicating the amount of pigment. In diluting the extracts chemical changes occurred. Alkalies increase the color of extracts of the good wood but not extracts of the bastard wood. Acids have a parallel effect.

Results on the soluble substances in the wood were not satisfactory on account of decomposition on drying. There are probably several pigments.

After a discussion of the paper the meeting adjourned.

William T. Horne,
Secretary pro tem.

THE ACADEMY OF SCIENCE OF ST. LOUIS.

At the meeting on April 4, Dr. C. Barck read a paper on 'The History of Spectacles.'

The essayist divided the subject into two parts, the development of the industrial art, and the evolution of the scientific selection. In regard to the former, it is an open question whether the Chinese invented glasses prior to the Europeans. Of the ancient nations of western Eurasia, we possess only one relic, namely, a convex lens of rock crystal which was discovered among the ruins of old Nineveh by Sir Layard. To the Egyptians, Greeks and Romans glasses were unknown. The latter assertion does not agree with the common opinion, as expressed in the belief that Nero was near-sighted and used glasses. But this is due to a misinterpretation of a passage of Pliny, as proved at length by the reader of the paper. During the first twelve centuries of the Christian era there is no mention of spectacles; they were invented at the end of the thirteenth century by two Italians, Armati and Spina, either independently or conjointly. This is proved by a number of documents. The essayist then dwelt upon the gradual spread of their use, and the improvement of the frames and lenses. At first only convex lenses were used, concave ones being employed about two centuries afterwards. Cylindrical lenses for the correction of astigmatism, which had been discovered by Thomas Young in 1801, were devised by the astron-

omer Airy in 1827. Bifocals were invented and first used by Benjamin Franklin, 1785. As to the selection of the appropriate lenses, this was at first done by the peddlers who sold them. Physicians for a long time paid no attention to it. Even after the epochal work of the astronomer Kepler had opened a new era in optics by demonstrating the physiology of the act of vision, 1604, physicians maintained their reserved attitude and considered it below the dignity of their profession to have anything to do with the selection of glasses. It was only in the middle of the last century that the change took place. This was due mainly to the labors of Helmholtz and Donders, who laid the foundation for the adjustment of lenses according to mathematical and optical principles. The invention of the ophthalmoscope, by which the refraction can be determined objectively; of the ophthalmometer, which measures the astigmatism of the cornea; and the introduction of remedies, by which the accommodation can be paralyzed followed in rapid succession. By means of these instruments and methods of precision, the medical adviser is governed by well-established laws in the selection of spectacles, and this now belongs to the domain of science. The lecture was illustrated by a number of copies of old paintings and by drawings.

DISCUSSION AND CORRESPONDENCE.

GEO-BIOLOGICAL TERMS.

THE fundamental idea of *bios* is not conveyed by the new terms proposed by Dr. Dall in SCIENCE (No. 494) for indicating collectively 'land and fresh-water organisms.' By analogy with Leibnitz's protogæa, or the primordial world, epigæa would apply to the superficies of the earth, and the literal meaning of namatogæa is 'stream-world.' Correctly formed substantives are geobios and limnobios, proposed by Haeckel as the equivalents of terrestrial and fresh-water faunæ respectively. These may be readily combined in GEO-LIMNOBIOS; or, if an adjective form is desired, AQUA-TERRESTRIAL, or compounds of *terrestris* with *mare, fluvius, lacus*, etc., suggest themselves. *Aqua* having the general significance of fresh water (*aqua pluvia, aqua fontana, aqua cœlestis*, etc.) as opposed to salt, the distinction between aqua-terrestrial and marino-terrestrial is sufficiently obvious. Shorter than any of these, however, is the Greek adjective form, GEO-LIMNOUS.

Those who are in the habit of following the discussion of neologisms in SCIENCE may recall the sprightly flow of opinion that continued for some time in these columns (Vols. V. and VI.) in regard to certain physiographic extravaganza, such as 'Shickshinnies' for synclinal valleys, 'remolino' for pot-hole, 'cuesta' for hill-slope, etc. If we may be forgiven for appearing ironical, it deserves to be pointed out that some of the more euphuistic of the terms proposed about that time are preoccupied. For instance, a round dozen of soft Spanish exotics were imported by Arthur Schott upwards of fifty years ago (*Proc. A. A. A. S.*, 1856, p. 33), but for some reason they failed to germinate. Priority, strictly enforced, might quicken them with new life; then pot-hole, or 'remolino,' would acquire the chastened form of *tinaja*, the homely but expressive 'sink' would give way to *charco*, and base-level to *loma*. The first of these is defined as 'a water-hole in solid rock, usually met with in crevices and ravines of rocky mountains.' *Charco* is a name given to "water-pools found usually in lower and level places. They are formed either by the decay of rocks or by washing out of beds of clay." *Loma* is 'a long narrow mountain or hill-ridge, with a level horizon.'

C. R. EASTMAN.

HARVARD UNIVERSITY.

A REPLY TO CERTAIN CRITICISMS OF PROFESSOR GIARD RESPECTING THE BOPYRIDS.

PROFESSOR ALFRED GIARD, a master in the knowledge of the Bopyridæ, has done me the favor to examine and criticize the results of my recent studies on that group.* Professor Giard has aptly affirmed that a copy of Bonnier's volume 'Contribution à l'étude des Bopyridæ' (*a*)† ought to be found in Wash-

* See *C. R. Soc. de Biologie*, LVI., 1904, April 22, pp. 591–594.

† The letters in parentheses refer to the bibliography at the end of the article.