is, in consequence, no division of the centrosomes.

The cell wall, arising after division, is apparently built upon the walls of those meshes of the reticulum that come to lie in what corresponds to the equatorial plane. From the author's statement, however, it is not improbable that a more or less rudimentary phragmoplast really exists.

*Das kleine botanische Practicum.* Von Eduard Strasburger. Jena, Gustav Fisher. 1897. Pp. 246, with 121 illustrations.

In the third edition of this excellent handbook, the subject-matter has been largely added to, chiefly on the subjects of microtomy, manipulation and Bacteriaceæ. The remainder of the text is essentially the same as in the second edition. It is quite superfluous to call attention to the originality and authoritativeness of the text, and to the excellence of the illustrations. The book has been long enough before botanists to be thoroughly and favorably known. It is inexplicable that, with such an adequate text accessible, each year should see the publication of text books which serve to overcrowd an already well-filled oblivion. In all cases it may not be possible, for lack of time, to offer so thorough an elementary course as that outlined in the Practicum. In such instances, it would be practicable to omit a certain amount of detail without detracting from the integrity or thoroughness of the work. At all events, the system is one that, from the kind of training it involves, should be generally in vogue.

Frederic E. Clements.

The University of Nebraska.

*Stones for Building and Decoration.* By George P. Merrill, Curator of Geology, U. S. Museum. Second Edition, revised and enlarged. New York, J. Wiley & Sons; London, Chapman & Hall. 1897. 8vo. Pp. ix + 506.

The first edition of this excellent work was based upon the handbook of the same author and his catalogue of the building stones in the United States National Museum at Washington. The treatise here presented consists of the original, with revised and rewritten matter, and well-illustrated text, brought down to date and in various ways improved. Many pages of new matter appear in the new edition and full-page plates have been interspersed in the text. Part I. consists of a discussion of the distribution, the composition and the character of the building stones of the United States, studied from the points of view of the physicist, of the chemist and of the geologist, as well as of the engineer and the architect. Part II. is devoted to 'Rocks, Quarries and Quarry-Regions,' and presents a detailed account and discussion of the several rocks employed in the arts, their composition, their varieties and their special characteristics. This section of the work is its principal portion, covering about 300 pages. Part III. describes the methods employed in quarrying, dressing and shaping stone, stone-cutting machinery, weathering, testing, protection and preservation. Part IV. consists of appendices of tabulated and other data relating to the valuable qualities of the stones, prices and costs, a list of important stone structures with dates of erection, and a bibliography and glossary. Eighteen figures in the text and nineteen full-page plates fully and handsomely illustrate the work.

The position and experience of the author of this treatise give ample guarantee of its accuracy, and an examination of the text will afford confirmation of this conclusion. It is well planned, well executed and exceptionally complete. The publishers have given it admirable form, a plain but neat and satisfactory binding, the press work and paper are good and the illustrations excellent, as a rule. The book has a good index. It will prove helpful to the architects and engineers of the country whenever important stonework is to be erected.

R. H. T.

## *SOCIETIES AND ACADEMIES.*

### ENTOMOLOGICAL SOCIETY OF WASHINGTON.

*January 6, 1898:* Fourteenth annual meeting. The address of the retiring President, Mr. C. L. Marlatt, was upon the subject of 'Old World Entomology.' The author recounted personal experiences and impressions gained during a four months' European tour, in the course of which matters entomological—and particularly as an applied science—were espe-

cially investigated. The aim was particularly to make the personal acquaintance of the men charged with official work in this field, and with the conditions under which work is done in Europe, as a basis for estimating the methods there employed for the new world. The address covered only the places visited and the individuals seen, and laid no claim, therefore, to being a complete review of the subject of applied entomology in Europe. The author discussed the status and condition of entomological museums, the official economic work, both in the central national bureaus and connected with agricultural, horticultural and forestry schools, and also the work carried on by private enterprise. Much attention was given to the forestry conditions, the methods of culture of fruit, etc., and also to the climatic and topographic features as bearing on the abundance of and control of injurious insects. The countries especially discussed were England, France, Switzerland, southern Germany, Austria-Hungary, Italy and Spain. The worst injurious insects of the countries named were particularly studied, and especially those that so far have not reached America, and which, it is extremely desirable, should be kept from gaining lodgment here. In this connection were mentioned particularly two important grape pests, the Cochylis *Tortrix ambiguella*, and the Pyrale *Tortrix pilleriana*; also the olive fruit fly of France, Italy and Spain, *Daucus oleæ*, and some insect enemies of forage crops and grasses. The present status of the gipsy moth in Europe was also particularly investigated.

In summarizing the results of the trip, the author laid stress on the exceptional weather conditions of the season covered (Aug.–Nov., 1897), which, on account of excessive rainfall and unusual cold, led to a great scarcity of insect life, and also to the absence of insect damage, which was almost complete. In fact, with the exception of the olive fruit fly, no serious damage by insects was noted in either forest growth or in the various fruit districts. It was pointed out that the deductions from a single season are, therefore, necessarily unfair and do not apply to normal conditions. The fact, however, that the climate of most of central and southern Europe is unfavorable, as a rule, to the abundant production of insects was strongly urged, and it was asserted that the immunity from insect damage in Europe generally as compared with America is almost solely attributed to this fact rather than to any exceptional efficacy or abundance of parasitic and predaceous insect enemies of the injurious species.

In the matter of the treatment of destructive insects it would appear also that we have little to learn or gain from the study of European methods, for the simple reason that the injury is so much less frequent and less serious that wholesale methods of control, such as are necessary here, are seldom or never employed. This applies especially to the scale insects. The grape must always be excepted, this being perhaps the only crop where the European and American grower meet on equal terms in the matter of insect enemies. The author gave as his belief that the greatest benefit to be derived from the study of applied entomology in Europe is in the ability to more correctly appreciate the facts of climate, forest growth and methods of culture of fruits, etc., pertaining there, without a personal acquaintance with which it is impossible, except in a general way, to determine the applicability of methods of work followed for conditions on this side of the Atlantic, which, while apparently often similar, are altogether different.

*February 10, 1898:* 132d regular meeting. Specimens were exhibited as follows:

By Mr. Ashmead, the male and female of *Hypota pectinicornis* from south Europe; remarkable from the flabellate antennæ of the male.

By Mr. Schwarz, cocoons of *Cactophagus validus*, taken from the trunk of the giant cactus, at Tucson, Ariz., by Mr. Hubbard. In these cocoons in the winter time occur dead and mutilated specimens of an undescribed species of Bothrideres, which are unable to escape and die within the cocoons.

By Mr. Pratt, a specimen of *Lachnosterna inversa*, collected at Keokuk, Iowa, by Dr. Shaffer, and bearing on its thorax two eggs of a dipterous parasite.

By Mr. Fairchild, a Javanese Phyllium closely resembling the guava leaf; also a photo-

graph of a mantid which mimics the coffee flower.

By Mr. Banks, a specimen *Tetragonophthalma dubia*, collected in the District of Columbia, and which is the first species of its family to be found in the local fauna.

By Mr. Schwarz, seeds of the sea grape of Florida, *Coccoloba uvifera*, with specimens of *Pseudomus inflatus* reared from the seeds by Mr. Hubbard.

Papers were read as follows:

By Dr. Smith, a discussion of recent papers on hemipterous mouth parts by Dr. Leon and Dr. Heymons. Dr. Smith showed that in his opinion the points brought out by these writers substantiate his position that the hemipterous beak is a maxillary structure, although both authors start with the assumption that it is labial.

The paper was briefly discussed by Messrs. Cook, Banks, Howard and Gill, all taking issue with Dr. Smith's conclusions.

By Mr. Banks, on Tarsonemus in America, describing *T. pallidus* n. sp., occurring on Chrysanthemum at Jamaica, N. Y., and collected by Mr. Sirrine.

By Mr. Cook, on a new family of Diplopoda from Alabama, describing *Desmonus earli* and the new family Desmonidæ.

L. O. Howard,
*Secretary.*

PHILOSOPHICAL SOCIETY OF WASHINGTON.

The 481st meeting of the Philosophical Society was held at the Cosmos Club at 8 p. m., March 5th. The first paper was by Mr. A. Lindenkohl, of the United States Coast and Geodetic Survey, on 'The Specific Gravity of the Waters of the Northeast Pacific Ocean.' The salient points of the address were as follows:

The discussion of temperatures and densities is mainly based on observations by the 'Challenger,' 'Vitiaz' and 'Albatross.' In the deeper parts of Bering Sea a minimum of temperature of 2°.8 is found in 146 metres depth, succeeded by a maximum of 3°.5 at 410 metres, thence a decrease to 1°.6 at the bottom. The density increases from the surface to the bottom, where it is as great, if not more so than in the open Pacific. The cold zone about the Kuriles is correctly ascribed by Makarof to the upheaval of cold water from lower strata. A feeble drift, the Davidson Eddy, is found along the northwest coast of America, and off the southern coast of California a warm and saline body of water is found in the summer to intervene between the coast and the cold California current. The 'Challenger' soundings indicate a constant sinking to a lower level of the waters of the South Pacific in their advance against the equatorial currents, attended by a rising of the colder waters of the latter towards the surface. The higher temperature and salinity in the greater depths near the Gulf of Panama is ascribed to the same cause. The greatest surface density thus far found is by the 'Vitiaz,' viz.: 1.0276 in Latitude 23° 50′ North and Longitude 163° 16′ East.

The second paper was by Professor Frank H. Bigelow, of the United States Weather Bureau, who gave a paper on the results of balloon ascensions in determining the temperatures of the air. An account of the several phases of the problem, produced by the different stages of condensation of the aqueous vapor in the atmosphere, and a distinction of the types of the vertical temperature gradient, introduced the subject. Then a recital of the most important voyages, and the statistics derived from them, was made, showing the data we have to work with. Next followed the details of the reduction and combination of the observations, and the method was explained of constructing a network diagram giving the gradients from the ground up to 16,000 metres and the heights of the isotherms throughout the year. The data was subdivided into High Areas, or Clear Weather, and Low Areas, or Cloudy Weather, and the courses of the gradients occurring in the morning and the evening hours, respectivley, were traced out. They diverge in the lower atmosphere, but converge in the neighborhood of 5,000 metres, whence a single line is traced to the upper limit, where the temperature has a nearly total constant fall from the ground in winter and summer. Emphasis was laid upon the fact that good mean results can be obtained from inferior data by the method of construction employed.

E. D. Preston,
*Secretary.*

BIOLOGICAL SOCIETY OF WASHINGTON—288TH MEETING, SATURDAY, FEBRUARY 26.

THE evening was devoted to a 'Symposium on the Teaching of Biology,' in which Messrs. E. L. Morris, W. H. Dall, Erwin F. Smith, Theo. N. Gill, H. J. Webber, B. W. Evermann, C. W. Stiles and E. L. Greene took part. The general consensus of opinion was that there should be more general zoology and botany taught than at present, and more work tending towards a knowledge of the principles of classification and the systematic arrangement of the various groups.

F. A. LUCAS,
*Secretary.*

TORREY BOTANICAL CLUB, FEBRUARY 8, 1898.

THE evening was devoted to the Asclepias, or Milkweed family.

The first paper was by Dr. H. H. Rusby, describing 'A New genus of Asclepiadaceæ from Bolivia.' Dr. Rusby discussed the tribal and generic characters of that family, and exhibited specimens of his new genus, which is a vine of vigorous growth and of pollinial position.

The second paper, by Miss Anna M. Vail, describe a new species of *Acerates*, or green-milkweed, with comparisons of the other species already known. Specimens and illustrations were exhibited, with remarks upon the history of the genus from its earliest species, *A. Floridana*, onward. As distinctive characters of *Acerates*, she mentioned its aspect, its form of hood and its lack of strong horn-like characters. The characteristics were further discussed by Dr. Edward L. Greene, who was present from Washington, and who emphasized the importance of its axillary subsessile umbels and the green color present in its flowers. The varieties of *Acerates viridiflora* were then discussed, especially with reference to their great difference in leaf-form. Miss Vail finds their flowers to be identical. Mr. Rydberg reported finding all four of these forms within one county of central Nebraska on the sandhills, but to the east the broader-leaf only and in western Nebraska a narrow-leaf variety only.

General discussion on the Asclepias family followed, participated in by Professor Greene, Dr. Britton, Dr. Rusby and others. Miss Vail, in answer to inquiries, indicated the difficulties in the way of regarding the horn in that genus as a midrib. It is very variable, often double, differs in character from the still-persistent midrib of the same hood, and in many Western species is replaced by a broad triangular lamina.

Miss Vail described her results when watching plants of *Asclepias Cornuti* last summer. Bees and many small insects directed themselves at at once to the glutinous top of the anther-column. They seemed to neglect the corona, and but little secretion was apparent in it, instead of the copious deposits of honey expected.

Professor Greene queried if the corona in this family might not prove to be the true corolla, and cited the Malvaceæ as similar in adhesion of the corolla to the stamen-tube. He said: "I would exclude from *Asclepias* every species which does not develop a terminal umbel. The only invariable character by which I would distinguish *Asclepias* and related genera is found in the anther-wing. The first index to a new genus is its aspect. It is the part of the systematic botanist to define, if possible, what the significant elements of this habit or aspect are. Habit is often strongly marked, even where clearly-accented characters are difficult to find. It is a nice genus which has both habit and clear characters."

Dr. Britton followed with description and exhibition of a new saltmarsh *Scirpus*, or bulrush, from Connecticut, related to *S. robustus* of Pursh, but with different inflorescence and achene. Dr. Britton also presented specimens of *Triosteum angustifolium* from Stratford, Ct., its previously-known stations northeast of Pennsylvania being only at New Brunswick, N. J., and Glen Cove, L. I. A large supply of roots from Stratford are now planted at the Botanic Garden to exhibit development.

EDWARD S. BURGESS,
*Secretary.*

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*SCIENTIFIC JOURNALS.*

THE second number of the *American Journal of Physiology* opens with a demonstration by Professor W. T. Porter of the compression of the intramural vessels of the heart by the