PUBLICATIONS REVIEWED.

Californian Polemoniaceae. By Jessie Milliken. Univ. Cal. Publ. Botany 2, 1-71. t. 1-11. May, 1904.

Miss Milliken has taken in hand a family of plants abundantly represented in the flora of the state, so that it has a particular interest to Californian botanists, and they especially will appreciate the convenience of having, under one cover, descriptions of the older species and of these more recently proposed. Six genera are recognized, namely: Polemonium, with 6 species; Navarrettia, with 32; Gilia, with 36; Linanthus, with 31; and Phlox, with 9 species. In generic distinctions the stress is laid on characters drawn from the calyx. Few new species are proposed, these from the southern counties being Gilia traskiæ, from Santa Catalina Island; G. davyi, common in the Mojave Desert, and Linanthus pacificus, from Palomar. Field students will note with satisfaction the reduction of Gilia floccosa and G. filifolia to varieties of G. virgata, and the suppression of Linanthus pharmaceoides. The reduction of L. brevicula to a variety of L. androsacea appears to be less happy. Three species of Southern California—Gilia bella, G. leptantha, and G. tenuifolia—have escaped the author's notice. Gilia jonesii is credited to Lower California, "and probably within our borders". The type was collected at Needles. Gilia setorissima is cited only from Arizona, "and will therefore probably be found in the desert region of Southern California". The plant is by no means rare in the Mojave desert, where it has been collected by several botanists. The common form is that having punctate corollas, which is figured and described in the Death Valley Report, as variety punctata. Oversights such as these are to be regretted in a paper otherwise commendable.

S. B. P.

Circular No. 20, Bureau of Chemistry, U. S. Dept. Agric., is an extract from proceedings of the Association of Official Agricultural Chemists. It is gratifying to learn that chemists have finally awakened to the crying need of uniformity in reporting analytical results. A vast amount of immensely valuable and painstaking work has been all but wasted because of the great labor necessary to put the results into shape for ready comparison. A committee of five has been appointed "to consider the whole question of unifying the terms in which analytical results are reported." The Committee on Recommendations of Referees have carefully gone over in detail the methods of analysis and other suggestions made to them, embodying their conclusions in a paper which has been published in the form of this circular.

The Chemical Composition of Apples and Cider has undoubtedly more to do with a wide range of questions physical, chemical, biological, social, political, industrial and even moral and intellectual, than will appear at first glance. These matters are not considered in the Bulletin before us, but they are suggested by the variations in composition of many samples of cider analyzed and by varying results of fermentation in different varieties of apples under a considerable range of treatment in fermentation. In commercial samples of cider tested "the fluctuations in sugar content from nothing to 13.56 per cent, and in alcohol content from nothing to 6.87 per cent", indicate very loose and ignorant notions among producers of what actually constitutes a true cider. The researches now under way in the Department of Agriculture at Washington are but a beginning of those contemplated, which are to include physical and cultural and other investigations. Eventually it is hoped that adequate knowledge upon these subjects may enable fruit growers to

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intelligently breed, cultivate and utilize the nation's important apple crop in a more scientific manner than has heretofore been regarded as among attainable results.

The Centrifugal Method of Mechanical Soil Analysis, as minutely described and discussed in comparison with other methods in use, has interest just now from the claim of certain members of the Association of Official Agricultural Chemists that the plan pursued by the Bureau of Soils of the Agricultural Department does not yield equivalent results to those obtained by the analytic process used at the several Experiment Stations. No real settlement of the controversy appears imminent; but the Association has appointed a committee "to consider the matter and to consult with the Secretary of Agriculture with a view to bringing about greater harmony", etc.

Recent papers of the Bureau of Animal Industry have developed interesting facts relating to the production of butter and cheese, the results of investigation being too technical to present understandingly in limited space.

The Ontario Agricultural College has been doing good work in the study of obscure causes of some plant diseases. The destructive pear blight, for instance, has been credited to no less than fourteen sources by different writers. Dr. T. J. Burrill, of the University of Illinois, did thorough work in 1878, proving that bacteria were responsible for the ravages of the blight. Later, Dr. J. C. Arthur, Botanist of the N. Y. Experiment Station, confirmed this fact and isolated the Bacterium amyloverum as the sole cause. The Bacteriological Department of Ontario Agricultural College has worked out the development of a bean blight, due to another bacterium, and still other Bacteriums have been found responsible for soft rots of cabbage, cauliflower, celery and turnips. Very complete investigation of the cauliflower disease at Toronto by Mr. F. C. Harrison, has yielded results of vast importance. Certain varieties are immune and preventive measures have been devised. The papers are well illustrated.

Bulletin No. 108 of the Maine Agricultural Experiment Station sounds a note of warning against the Brown-tail moth, which has obtained foothold in that State. We quote from a glowing red circular issued by Chas. D. Woods, Director:

"Since it can readily be fought in orchards the danger to them is not so great as to the forests and to the health of citizens. The poisonous effects of the hairs are worse than "ivy" poisoning. If the pests become established their presence will tend to diminish the number of summer visitors to the State, destroy our hard wood forests, and threaten our fruit industries."

Perhaps one who begrudges the dime which it costs an average taxpayer to support the whole scientific work of the government, may realize from this statement how much intrinsic value is sure to ensue from his trifling investment, even to his individual benefit.

The two late Bulletins of the University of Tennessee Agricultural Experiment Station are examples of applied science, but both are valuable. The issue for July is a concise, fully illustrated treatise on the pruning and training of trees and vines, giving practical instructions, with a clear statement of the rationale of the advice given.

Part I, Transactions Mass. Horticultural Society, 1904, is something like the suggestion of its title, but very much more than this. The speech of its President-elect, Dr. Henry P. Walcott, informs us that the society celebrates its seventy-fifth year of remarkable usefulness. Its indirect accomplishments, which have given to Boston many exemplary institutions, make a proud record and evince a kind of public spirit much needed hereabouts. Among the dozen papers of interest and value in

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this volume, several deserve wide circulation and careful reading. Mrs. Cora S. Stuart Jones, of Roxbury, contributes a very strong article on "Practical Nature Study for the Public Schools". The important work performed by the Arnold Arboretum is clearly portrayed by John G. Jack, Jamaica Plain. Hints on the culture of Orchids, by Wm. N. Craig, North Easton, is well written. Dr. G. P. Clinton, New Haven, presents a succinct history of "The Study of Parasitic Fungi in the United States". "The Protection of Native Plants", by Robert T. Jackson, Cambridge, also merits more attention than our space permits. The gladiolus and peonies are treated by authorities and the volume closes with a long and fully illustrated paper by Robert T. Jackson, on "John Richardson; His House and Garden". Of these, the author remarks: "He was a rare old man, it was a rare old house, and a rare old garden," etc., and the text and engravings fully bear out the statement.

Annals of the Pittsburgh Carnegie Museum, Vol. III, No. 1., Dec., 1904, contains four valuable papers, besides interesting notes of progress in museum work. The death of Mr. J. B. Hatcher, who had charge of the Department of Paleontology, is a serious loss to science, as well as to the Museum. A quaint historical document is the "Minute or Order Book of the Court for Ohio Co., Virginia," at Black's Cabin (now West Liberty, W. Va.) from 1777 until 1780, the period just before the end of Virginia's jurisdiction over a part of Pennsylvania. Two articles on Paleontology, well illustrated, are furnished by Percy E. Raymond and O. P. Hay, the former on "The Tropidoleptus Fauna at Canandaigua Lake, N. Y.," the other "On Two Species of Turtles From the Judith River Beds of Montana". The closing paper is by P. Modestus Wirtner, giving "A Preliminary List of the Hemiptera of Western Pennsylvania".

Mining Magazine for January has a good array of timely articles. A sketch of John Hays Hammond, with portrait, by Dr. Leonard Waldo, is followed by Robt. H. Postlethwaite's contribution on "Gold Dredging and Prospecting", which is a fair review of the subject, well illustrated. C. W. Purington treats of "The Saving of Alluvial Gold in Alaska and the Klondike." Emile Guarini reviews "German Electrical Installations for Mine Drainage and Ventilation". Waldemar Lindgren briefly outlines the working of the "Deep Leads of Victoria". Dr. H. Bradley, Jr., likewise presents "Mining in Bolivia", and Enrique Laroza "Gold and Copper Mining in Peru". All these papers are from authorities and the illustrations are excellent, much better than in earlier issues of the Magazine. The Mining Digest this month is very full, covering thirty-five pages.

A valuable and interesting monograph is Baron Kikuchi's quarto publication (for private circulation only) which has come to us through the esteemed courtesy of the Japanese Imperial Commissioner at the World's Fair, St. Louis. From it we learn that nearly 1,400 earthquakes are recorded annually in Japan, averaging one each week in Tokyo alone. But, in a circular accompanying the volume, Professor Kikuchi asserts that "only once or twice a year at most, do people in Tokyo have occasion to feel even temporary and slight alarm, and yet Tokyo is the most disturbed region of Japan". It is simple justice to say that one cannot do justice to this important scientific contribution within the limits here prescribed. It is a clear, methodical, and eminently readable treatise, well and lavishly illustrated, and should open the eyes of such as dream that Japan is dreaming in the realm of the constructive and inductive sciences. We consider this brilliant publication a model well worthy of emulation in its literary quality and its orderly presentation of well digested information.

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