thors have placed us under obligation by adding a considerable number of facts to our knowledge of the Omaha, notably on the subject of societies. They have not accomplished the task of giving us a definitive study of Omaha ethnology. We feel grateful for the new data presented by them, but we are also very grateful for the fact that they have had for their predecessor so sane, conscientious and competent an ethnographer as the late Rev. J. O. Dorsey.

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BOTANICAL NOTES

NOTES ON RECENT BOOKS AND PAMPHLETS

GEORGE F. ZIMMER'S "Popular Dictionary of Botanical Names and Terms" (Dutton) is intended mainly for botanists, horticulturists and others who have to deal much with plant names. The little book of 122 pages is a little different from the usual type of botanical dictionaries, more attention being given to the meanings of specific names, and this will commend it to many students who are somewhat deficient in their knowledge of Latin. For those it would have been well to have at least indicated the accent for each name.

The little books brought out by Dr. Gustav Lindau, of Berlin, under the general title of "Kryptogamenflora für Anfänger" promise to furnish models which might well be followed by American makers of similar books. Already three books have appeared, namely: "Die höheren Pilze"; "Die mikroskopischen Pilze"; and "Die Laubmoose." Bound in substantial cloth, and containing about 250 pages, these books commend themselves to us as admirably adapted for their purpose—namely, that of helping beginners in the systematic botany of the lower plants.

Bergen and Caldwell's "Practical Botany" (Ginn) aims to relate the study of plants in the secondary schools to everyday life more "than is usually done." Accordingly the book is distinctly of the informational rather than the scientific type, and for this reason will appeal to many principals and boards of education. The present reviewer is not in sympathy with the notion that science must always be related to "everyday life" (whatever that may imply), but he finds much to commend in the book. The authors know the science, and pedagogics so well that they have made a useful book, whose faults are due to the underlying theory rather than to any shortcomings on their part. This theory is accountable for the chapters on Timber, Forestry, Plant Breeding, Plant Industries, Weeds, which contain much that is certainly interesting, but that is just as certainly *not botany*. It would be much better for the botanists to allow these applications and extensions of botany to be taken up by foresters, agronomists, horticulturists, agriculturists, etc., a task for which they are entirely competent. We should respect the boundary lines between a science and its applications.

Winkler's "Botanisches Hilfsbuch" (Hinstorff) gives interesting data regarding about twelve hundred plants (mainly tropical) that have economic value. Although primarily designed for tropical planters, merchants, officials and explorers, it will be found to be a useful book in every botanical library.

The Dudley Memorial Volume published by Stanford University contains papers, appreciations and contributions in memory of the late Professor William R. Dudley who died June 4, 1911. In addition to the memorial addresses and papers and lists of Professor Dudley's pupils (covering 32 pages), the volume includes eight scientific papers. The first of these—"The Vitality of the *Sequoia gigantea*"—was prepared by Professor Dudley himself. The others are "The Morphology and Systematic Position of *Calycularia radiculosa*," by D. H. Campbell; "Studies of Irritability in Plants," by G. J. Peirce; "The Gymnosperms growing on the Grounds of Stanford University," by LeRoy Abrams; "The Synchytria in the Vicinity of Stanford University," by James McMurphy; "The Law of Geminate Species," by D. S. Jordan; "Some Relations between Salt Plants and Salt Spots," by W. A. Cannon; "North American

Species of the Genus *Amygdalus*," by W. F. Wight. The volume constitutes a fitting tribute to the botanist whose life it commemorates.

Burman's "Flora of Manitoba," which was printed two years ago, contains in a small 30-page pamphlet a general discussion of the vegetation of the province of Manitoba followed by a list of the species of flowering plants and ferns. It is the only available guide to the plants of that part of Canada.

Stone's "List of Plants Growing without Cultivation in Franklin, Hampshire and Hampden Counties, Massachusetts" (1913), reminds one of the previous classical lists by Hitchcock and Tuckerman which appeared many years ago under similar titles, and dealing with the flora of the Connecticut Valley. It contains 1,493 species of ferns and flowering plants, 1,190 of which are native, the remaining 303 being naturalized.

Meier's "School and Home Gardens," while dealing with plants, is not botanical, though of interest to many botanists. It is designed primarily to help in the commendable effort to interest children in the planting of seeds and the growing of such plants as may be grown in the windows of school buildings or out of doors, under ordinary care. It can be commended most heartily.

Allied to the last is E. Benjamin Andrews's "The Call of the Land" (Judd) dealing largely with out-of-doors, and the things that grow there. While not botanical, it breathes of flowers, and grasses and growing crops, and of the shrubs and trees that make for comfort and beauty and happiness. It is a book distinctly worth while.

A recent number of the *Missouri Botanical Garden Bulletin* includes descriptions of the laboratories in the garden, accompanied by four half-tone plates from photographs. Accompanying the descriptions is a general discussion containing many suggestive sentences, as "Botanical laboratories are the workshops of those who study plants scientifically." "It is to be remembered that the important botanical gardens of the world are educational institutions." "In the broadest sense these laboratories must represent the possibility of using apparatus and chemicals, books and herbarium specimens, live material from garden or field, and cultures of microscopic organisms."

A recent circular (113) of the Bureau of Plant Industry contains a suggestive paper on soil bacteriology, by K. F. Kellerman, in which he shows that it is "a subject of almost bewildering complexity, but very intimately associated with the normal physiology of all crop plants." In a later circular (120) the same author has a short paper on nodule-forming bacteria (*Bacillus radicicola*) which should be helpful to those attempting to inoculate the soil with these organisms.

Recent numbers of the *Botanical Magazine* (Tokyo) contain Makino's "Observations on the Flora of Japan," Matsuda's "List of Plants Collected in Hang-chou" (both in English), and Koidzuma's "Morphology, Systematik and Phytogeography of Cupuliferæ" (in Japanese), with other shorter articles.

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SPECIAL ARTICLES

PRELIMINARY NOTE ON THE RELATIVE PREVALENCE OF PYCNOSPORES AND ASCOSPORES OF THE CHESTNUT-BLIGHT FUNGUS DURING THE WINTER[1]

In studying the dissemination of the chestnut-blight fungus during the past winter the writers obtained some results that showed that, contrary to the generally accepted opinion, pycnospores are produced in enormous numbers and washed down the diseased trees during every winter rain.

The production of pycnospores was tested by what we have termed pycnospore traps. A part of the rainwater flowing over a canker was conducted down a glass slide and through a mass of absorbent cotton. After each rain the cotton of the traps was brought to the laboratory and a quantitative determination

[1] Investigations conducted in cooperation with Office of Forest Pathology, U. S. Department of Agriculture.