in keeping with the peculiar distribution of these monuments, their comparative nearness everywhere to the sea.

In "The Evolution of the Rock-cut Tomb and the Dolmen," Elliott Smith would derive the Egyptian *mastaba* from the neolithic grave. He cites Reisner to prove how from the simple trench grave of Predynastic times there was gradually developed a type of tomb consisting of (1) a multichambered subterranean grave, to which a stairway gave access; (2) a brick-work super-structure (mastaba) in the shape of four walls enclosing a mass of earth or rubble; and (3) an enclosure for offerings in front of the brick superstructure. During the period of the Pyramid-builders the mud-brick mastaba began to be imitated in stone. Within the masonry of the mastaba, but near the forecourt, is a narrow chamber, usually known by the Arabic name *Serdab*. Here is placed a statue of the deceased, sometimes also of other members of the family and servants. The statue represents the deceased and is in communication with the outside world through a hole connecting with the forecourt, or chapel. According to Elliott Smith the dolmens scattered over the world from Ireland to Japan are but crude, overgrown and degraded Egyptian mastabas, the one feature retained being the serdab, the dwelling of the spirit of the deceased.

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BOTANICAL NOTES

A NEW NATURE BOOK

WE have had many books on "agriculture" and still more on "nature study," all of which have been more or less helpful, while being at the same time more or less unsatisfactory and it has remained for Professor J. G. Needham to prepare a book which directs the attention of the pupil to both subjects in one view with what appears to be a maximum of helpfulness and a minimum of objectionable features. He calls his book "The Natural History of the Farm" (Comstock Pub. Co., Ithaca, N. Y.) and tells in his preface that it deals with "the sources of agriculture," meaning by this the wild plants, wild animals, the virgin soil, the weather, etc., with which we deal. The idea underlying the treatment is good, and must commend itself to every scientific man. We apprehend that there will be some ultra "practical" critics who will demand more agriculture and less natural history, and yet it has been the writer's observation that just such information as is here given, such suggestions as are here made will prove to be the most helpful to the boys and girls in the country schools. Agriculture is no more all cultivation of crops, than is classical culture simply the study of Greek and Latin roots. This book breathes of the farm and of country life, of the wild things, as well as those that we have brought into our fields and stables. It is an attempt to broaden and liberalize agriculture and to bring it into relation with the things in nature. The topics of some of the chapters will show how this is done: Mother Earth, Wild Fruits of the Farm, Wild Nuts of the Farm, The Farm Stream, Pasture Plants, The Farm Wood-lot, The Wild Mammals of the Farm, The Domesticated Mammals, The Lay of the Land, Winter Activities of Wild Animals, Maple Sap and Sugar, What Goes On in the Apple Blossoms, The Clovers, Weeds of the Field, Some Insects at Work on Farm Crops, etc. Surely no boy or girl in the country could use this book without great pleasure and great profit.

A STUDY OF ASTERS

QUITE recently Charles E. Monroe has published in the *Bulletin* of the Wisconsin Natural History Society a paper on "The Wild Asters of Wisconsin," which is of more than the usual interest of local lists, or local discussions of groups of species. In his introduction the author makes some thoughtful suggestions as to "species" in general, and "species" of asters in particular. Thus he says

> The old notion of a species, as something definite, fixed and stable, nowhere breaks down more completely than when an attempt is made to apply it to the different forms of *Aster* as we find them in this country. Different species are so connected by intermediate forms that we often feel like ignoring specific distinctions and grouping two or

more species together under one name. On the other hand, to one of a more analytical bent of mind, the difference between members of a single species may appear so marked that he will be under constant temptation to separate them into still smaller subdivisions and to give to each specific rank. But, whichever course we follow, the different groups into which the genus, or a species, may be divided represent little more than particular tendencies or directions of variation, and the members of each make up a series illustrating the different stages. The word "species," as applied to our North American asters, can hardly be said to have any other significance than this.

It will startle some old-fashioned taxonomists to read the next sentence:

> It does not seem a valid objection that under such a definition a single plant might be conceived as belonging to more than one species.

Notes are made of ten previous lists of Wisconsin asters, and then follows a systematic and critical discussion of the species recognized by the author. This latter is so well done that one is tempted to wish that it might be used as a model by other local botanists.

SHORT NOTES

IMPORTANT phytopathological papers by G. G. Hedgcock have appeared as follows: "Notes on Some Western Uredineae which attack Forest Trees" (*Phytopath.*, III.); "Notes on Some Diseases of Trees in our National Forests" (*Phytopath.*, III.); "Injury by Smelter Smoke in Southeastern Tennessee" (*Jour. Wash. Ac. Sci.*, IV.); "The Alternate Stage of *Peridermium pyriforme*" (privately printed June 12, 1914). In the latter the conclusion is reached that the alternate stage occurs on *Comandra umbellata*.

B. F. LUTMAN contributes an interesting paper on "The Pathological Anatomy of Potato Scab" accompanied with ten text figures, in which he concludes that "The scab is due to the hypertrophy of the cells of the cork cambium" (*Phytopath.*, III.). The same author's "Studies on Club-root" (Bull. 175, Vt. Agr'l Expt. Sta.) will be suggestive to those who are interested in the organisms usually known as slime molds (Myxomycetes). The one here under consideration is *Plasmodiophora brassicae*, and it infests the root cells of cabbages and other cruciferous plants. It gains entrance either through the epidermis or the root-hairs, and produces cellular hypertrophy, especially of the cortical tissues.

> Nuclear divisions in the plasmodium are of two types—vegetative and reduction. The vegetative divisions are peculiar in that a spireme is not formed. . . . The reduction division is one of those preceding spore formation, probably the first.

Six text figures and four plates (with 52 figures) accompany the twenty-seven pages of text.

A SIGNIFICANT feature of the new edition of the "Genera of British Plants," by H. G. Carter (Cambridge, 1913), is the adoption of Engler's system. At the outset it must be remembered that the "plants" referred to in the title are the ferns and flowering plants. The little book (of 139 pages)

> is intended to familiarize students of British vascular plants with Engler's system in its latest form, and thus to habituate British floristic students to the use of a more natural system than that to which they have been accustomed in the British floras that have hitherto appeared.

In carrying out this plan the class, ordinal and family characters are clearly given, while the genera are briefly characterized by means of analytic keys. A similar book for North America would be very useful. However, we can not approve of the use of the terms "apopetalous" and "apochlamydeous" as defined by the author (petals, or perianth "absent by reduction") even though sanctioned by Engler. Certainly "apetalous" and "achlamydeous" are sufficiently definite for the conditions of *no petals*, and *no perianth*, leaving "apopetalous," and "apochlamydeous" for the conditions of *separate petals*, and *separate perianth segments*.

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SPECIAL ARTICLES

THE ALLEGED DANGERS TO THE EYE FROM ULTRA-VIOLET RADIATION

DURING recent years there have been not a few sensational attacks upon modern illu-