cases, sometimes flat contradiction; but it is safe to say that wherever Dr. Berger gives his individual estimate of ancient wayfarers along the road to knowledge, he has formed his opinion from profound and conscientious study.

The subject-matter of the work is arranged chronologically according to authors, and as the latter are generally occupied with a surprising variety of topics, the historical continuity of certain lines of investigation becomes obscured by this method of presentation. A remedy for the defect would have been to summarize in special chapters the progress made in the study of particular phenomena, such as the cosmical relations and movements of the earth, volcanic activity, tides, petrifactions, and the like. Tozer's 'History of Ancient Geography' is arranged partially after this fashion, and is excellently adapted, by the way, as an introduction to the work above considered.

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BOTANICAL NOTES.

THE STUDY OF PLANT DISEASES.

An interesting pamphlet comes from the antipodes under the title of 'Letters on the Diseases of Plants,' by N. A. Cobb, of the Department of Agriculture of New South Wales. In somewhat over a hundred and thirty pages the author has brought together the substance of a great number of letters written in reply to correspondents. He has recast the matter so that the epistolary form has been obliterated, and he has added a large number of cuts in the text, and a dozen full-page plates (some colored). Here in compact form is to be found a great deal of information in regard to many plants, stated in such non-technical English as to render it easily comprehensible by any intelligent person. There is first a long discussion of ripe rot, the fungus of which (*Glœosporium fructigenum*) attacks the fruits of many different plants. The results of many interesting experiments are given in detail. Banana seab (*Phoma* sp.), stigmonose (due to insect punctures), mouldy core of the apple (*Penicellium, Mucor* and others), quince rots, peach curl (*Exoascus deformans*), lemon and orange diseases, diseases of the passion vine, potato diseases, root-rots and timber rots, are among the topics more or less fully treated in this valuable publication.

THE STUDY OF WOODS.

Another book on the structure and uses of the woods of commerce has made its appearance in England under the title of 'The Timbers of Commerce, and their Identification.' It is from the hand of Herbert Stone, F.L.S., and is issued by Rider & Son, of London. It constitutes a neat volume of about 350 pages, and is beautifully illustrated with 186 photographs showing the grain of cross and longitudinal sections of wood. There is a general introductory chapter on the structure of wood, and following this are the descriptions of 247 different species. These descriptions are very concise, a short paragraph (or line) being given to each of the following topics: Natural order, synonyms, sources of supply, alternative names, physical characters, grain, bark, uses, etc., authorities, color, pores, rays, rings, soft tissue, pith, radial section and tangential section. There is a good deal of similarity between this book and the one prepared by Professor Snow last year under the title of 'The Principal Species of Wood,' and noticed in these columns (Science, July 3, 1903), at the time of its appearance. The American book takes up only about half as many species as the English book, and its descriptions are shorter, covering fewer points, yet the much better arrangement and the careful selection of species in the former make it by far the more useful for the American student or artisan.

COMPARISON OF EASTERN AND WESTERN FLORAS.

The recent publication of two local floras permits a comparison between an eastern rocky area with one consisting of typical prairie conditions. George G. Kennedy's 'Flora of Willoughby, Vermont,' originally published in *Rhodora* for June, 1904, takes up the plants of Willoughby Mountain, Willoughby Lake and the vicinity, in northern Vermont. The elevation of the lake above the sea is 1,060 feet,

while the summit of the mountain is 2,650 feet. The list includes 570 native and 120 introduced species.

R. S. Cratty's 'Flora of Emmet County, Iowa,' enumerates the plants of a prairie area in northern Iowa. Here the surface is gently rolling, and there are no rock exposures within the county. The general surface has an elevation of about 1,500 feet above the sea, and its latitude is within a couple of degrees of that of the area covered by Mr. Kennedy's list. Mr. Cratty's list includes 532 native and 58 introduced species. Comparing the two we find that there are 42 species of trees in the Willoughby flora, and 31 in Emmet County. The representation of the principal families and larger groups is as follows (introduced species are given after the plus sign (+)):

	Willoughby.	Emmet.
Pteridophytes	63	9
Gymnosperms	9	1
Naiadaceæ	8	13
Vallisneriaceæ	1	2
Gramineæ	40+22	54+9
Cyperaceæ	76	53
Juncaceæ	11	6
Liliaceæ	15+3	15+1
Orchidaceæ	27	5
Salicaceæ	12	11
Betulaceæ	8	2
Fagaceæ	2	2
Ulmaceæ	2	3
Polygonaceæ	4+8	13+2
Chenopodiaceæ	1+1	2+2
Caryophyllaceæ	1+1	3+3
Nymphæaceæ	3+1	2
Ranunculaceæ	14+4	21
Cruciferæ	7+10	10+7
Rosaceæ	19	15
Pomaceæ	6+1	5
Drupaceæ	4	3
Cæsalpiniaceæ	0	1
Papilionaceæ	2+7	23+6
Euphorbiaceæ	0+1	2
Aquifoliaceæ	2	0
Hypericaceæ	5+1	2
Violaceæ	11+1	3
Umbelliferæ	6+3	11+2
Cornaceæ	4	5
Ericaceæ	22	0
Gentianaceæ	2	5
Asclepiadaceæ	1	8
Boraginaceæ	1	4+1
Verbenaceæ	0	3
Labiateæ	10+7	14+2
Solanaceæ	1	3+2
Scrophulariaceæ	3+3	14+1
Rubiaceæ	6	5
Caprifoliaceæ	10+1	6
Campanulaceæ	4+1	4
Compositæ	64+21	70+10

The small representation of Pteridophytes, Gymnosperms, sedges, orchids, violets and Ericaceæ, in Emmet County, and the larger numbers which it has of Naiadaceæ, native Gramineæ, native Polygonaceæ, Papilionaceæ, Verbenaceæ, Solanaceæ, and native Compositæ, are remarkable.

TREES AND SHRUBS IN CANADA.

A RECENT bulletin (47) issued by the Canadian Department of Agriculture contains the results of a large number of trials of trees and shrubs which have been planted at the experimental farms at Brandon and Indian Head, situated respectively in the provinces of Manitoba and Assiniboia. These farms are on the Great Plains of Canada, near latitude 50° north. After sixteen years of testing a large number of species, the following are the more important trees and shrubs which have proved quite hardy: box elder, Tartarian maple, western June-berry, paper birch, Siberian pea-tree, Siberian dog-wood, red-osier dog-wood, hazel-nut, hawthorns (several species), broom, Russian olive, green ash, honeysuckles (several species), balsam poplar, cottonwood, black poplar, aspen, western wild cherry, pin-cherry, Canada plum, Siberian crab-apple, mountain ash, bur-oak, buckthorn (several species), smooth sumach, roses (several species), willows (several species), buffalo berry, spiræas (several species), snowberry, lilacs (several species), white elm, white spruce, black spruce, Engelmann's spruce, blue spruce, jack pine, stone pine, Scotch pine, Riga pine and tamarack. The bulletin must prove most useful for Canadian planters.

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A NOTE ON WESTERN FARM VALUES.

NORTHERN and eastern Iowa comprise one of the most highly developed agricultural dis-