with an assistant, visited fields in Wyoming, Montana, Dakota, and Nebraska. Over two hundred boxes of excellent material were added to the collections of the State Museum.

A geological expedition for 1900 is already assured by a recent gift, to that end, made by Mr. Morrill to the Board of Regents of the University of Nebraska.

In each instance the Burlington & Missouri River Railroad furnished free transportation for the party and 'outfit' as well as for all material collected. So with free transportation, and the gratuitous service of students of the University of Nebraska and with all expenses defrayed by the Hon. Charles H. Morrill, a maximum amount of material at a minimum cost was massed together. Sets of duplicate specimens have since been donated to 40 accredited high schools, academies, and colleges in the State, and exchanges have been made with the following universities: Ohio, Utah, Kansas, Minnesota, Columbia, Case School of Applied Science and to the Field Columbian Museum, and the National Museum. These collections seem to have unusual exchange value, the demand for them even exceeding the supply. The usefulness then of Mr. Morrill's work has extended beyond the limits of the State, and while contributing to the cabinets of others, his own collections have been so enriched as to fill most of the cases on the main floor of the State Museum and some of the cases on the second floor.

Carrie Adeline Barbour.
The University of Nebraska.

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## *SCIENTIFIC BOOKS.*

*The Cyclopedia of American Horticulture.* By L. H. Bailey and Wilhelm Miller. Comprising suggestions for cultivation of horticultural plants, descriptions of the species of fruits, vegetables, flowers and ornamental plants sold in the United States and Canada, together with geographical and biographical sketches. In four volumes. Illustrated with over two thousand original engravings. New York, The Macmillan Company. Vol. I., A. to D., pp. xxii + 509, figs. 743.

In these days of the rapid multiplication of books no small responsibility attaches to their reviewers. Indeed the reviewer may assume a greater responsibility than either the author or publisher, for to him prospective purchasers and readers turn in the confident expectation that he will so advise them that they shall waste neither their money nor time. In the world of letters, to be sure, it may be an actual merit in a book that a hot summer's day, a monotonous railroad journey, or a number of restless hours at bedtime can be sunken in its perusal. But outside the pastime series, the information conveyed is expected to be accurate and proportionate in quantity and value to the time consumed in getting at it. And it is precisely for advice on this point that the public turn to the columns given over to the reviewer; for the author, as a rule, modestly refrains from sounding the praises of his ware, and the publisher quite as commonly advertises a book for what it ought to be as for what it really is.

One of the first questions that the reviewer faces nowadays, he most frequently leaves unanswered on paper, however he may answer it in his own mind, namely, why the book has ever seen the light. For himself, since the thoughtful publisher has sent him a copy with the compliments of the house and the card of the author, he does not need to decide whether it is worth the cost of purchase, and so he passes by the line of least resistance to the independent discussion of its merits and demerits.

This question of the need for its publication is more readily answered for the 'Cyclopedia of American Horticulture,' than for most books, since it is easier to answer it on the merits of a book alone when the book belongs to a class that does not comprise many titles, than when hundreds of books of about the same scope have been brought out. There are few comprehensive books on Horticulture, and none on American Horticulture which cover the ground mapped out for the new Cyclopedia. A generation or two ago the books of Loudon

and Lindley told, more or less in a nutshell, what was known of economic plants, and the exquisitively conceived little Treasury of Botany of Lindley and Moore has made more intelligent gardeners than perhaps any other one book. Still, when Mr. Nicholson of Kew undertook the compilation of a Dictionary of Gardening nearly a quarter of a century ago, none of these works were sufficiently recent or full to prevent his book from appealing to the horticultural public, for whom it has done very much. But a quarter of a century is a long time as viewed by the gardener whose business shifts from carnations to roses, from roses to chrysanthemums, and from chrysanthemums to cactus-dahlias, and whose need to meet closer competition is often tided over by the introduction of simpler or cheaper methods applied to vast quantities of one thing that must be marketed by thousands before the infinitesimal profits have counted up to the point where they require banking, though beyond this point they may aggregate a very handsome revenue each year if only the business done is large enough; and this has led to the publication, within recent years, of excellent floricultural books, by Henderson, Scott, Hunt, and a host of other men whose business success stands as an endorsement of their teachings.

But these books are limited in their object, and although Nicholson's Dictionary has been able to grow somewhat in the course of a long-drawn-out rendition into other languages than the English, it does not even then give all the information needed to-day about decorative plants; and the newer methods by which success has so largely been achieved in this country, are not to be learned from it. Professor Bailey's book, therefore, aiming at the presentation of the plants and methods of American horticulture to-day, meets a real need in the library and the potting-shed, and it would be just as useful if the year of its appearance did not end in two ciphers, though its historic reference value may possibly be enhanced by the catching circumstance that it presents these facts as they exist at the end of the nineteenth century.

If the entire authorship of such a work had fallen upon one man, Professor Bailey possesses a sufficiently broad knowledge of botany and horticulture to have written it well, and if, as he plans, it shall all appear within a year from the time when we are privileged to open the first volume, he will have shown an administrative faculty, that, in botanical book-making in this country, stands alone, except for Dr. Britton's prompt publication of the illustrated flora of our eastern states, which several times found mention in these columns a few years ago. Of course he would not have been able to effect this prompt publication unaided, and no small credit for the result attaches to his energetic collaborator, Mr. Miller; and well as he might have written it, he would not have done it alone so authoritatively as he has done it with the aid of corps of specialists, comprising the best botanists and the most expert gardeners of the country, whose names occupy several pages of double column matter at the beginning of the book, and behind whom stand still other helpers whose names at their own request do not appear, though his readers get the benefit of their knowledge.

I suppose that it is impossible for the most rational of men to open a book without finding in it more than they expected, or to lay it down without a sigh of regret at the absence of something that they wanted to find. Professor Bailey's book is not different from other books in these respects. Open it where you will, and you find a tasty cut or a catching paragraph which holds your attention and gives you something you had not intended to look for. And yet if you are an every-day gardener and want to distinguish the different varieties of chrysanthemum or carnation, of apricot or cauliflower, you may fail to find there the means of doing so.

Where races differing from one another more than many species do in nature are made to order, almost to drawing and specification, on a few years' notice, it is very difficult either to find space for their description in a book of any reasonable size or phraseology that can supply to the ordinary reader the distinctions that are patent to the eye of the specialist. The editors have therefore, without doubt, done wisely in a very conservative treatment of these necessarily transient forms, which pass from view as a rule almost as suddenly as they appeared with gorgeous lithographic depiction in the catalogues

of dealers. But the editors have done something with them, and they have handled the more lasting forms with a rather surprising fulness of treatment.

Nomenclature, which is a source of some concern and more confusion to botanists, has been conformed, more or less consistently, to the more conservative horticultural and botanical views. It could not give satisfaction in any case, and it has at least the merit of simplicity as it has been handled.

In a word, whatever one would most reasonably look for in a Cyclopedia of American Horticulture, is to be found in Professor Bailey's book. While good things may have been omitted from it, the present reviewer has not found bad things that have been introduced into it; and it is worthy of a place where not only gardeners and botanists, but school-children may see it daily.

WM. TRELEASE.

*La nature tropicale.* By J. CONSTANTIN. Paris, Felix Alcan, Ed. Pp. 315, figs. 166. 1899.

The first chapter of this book is chiefly comprised of selections from the expressions of various naturalists on their first encounter with the forests and jungles of the tropics, and the second analyzes the principle factors in the equatorial climate. Succeeding chapters are devoted to trees and their architecture, foliage, periodicity, flowers and fruits, the tropical forest in previous geological epochs, climbers of all kinds, parasites and parasitic action of flowers, saprophytes and epiphytes, co-operation of ants, influence of the sea, the mangrove, the flora of islands and the final chapter is a singular mixture of fanciful conceptions relative to the earlier history of the earth and the cosmos, with enough of an admixture of mythology and tradition to endear it to readers of tender years. The general style of the book is not unpleasant, and although most of it might have been written a decade since, yet some recent results have crept into the discussions, especially in regard to the more sensational discoveries in botany. A table of contents placed at the end of the book does not redeem the lack of a suitable index.

D. T. MACDOUGAL.

*Fossil Flora of the Lower Coal Measures of Missouri.* By DAVID WHITE. Monographs of the United States Geological Survey, Vol. XXXVII. Washington. 1899. 4to, cloth. Pp. 467; pls. 73.

This work is based upon material collected by Dr. J. H. Britts and by geologists of the Missouri and United States Geological Surveys, in Henry county, Missouri.

It may be regarded from either the point of view of the geologist or from that of the paleontologist, but it is essentially a contribution to paleo-botany in which the facts are utilized for purposes of correlation and comparison between the coals of Missouri and those of the Eastern United States and Europe.

The species enumerated are 124. Of these 10 are gymnosperms, 1 (*Palaeoxyris*) is classed provisionally under 'Animalia?' and the remainder are cryptogams, most of them previously described. The discussion and table of synonomy under each genus and species is exceedingly full and a number of changes in nomenclature are made in order to bring it into harmony with modern ideas on the subject. The systematic arrangement is in accordance with the botanical affinities and sequence of the species and families.

Several innovations may be noted in the matter of illustrations. The figures are mainly reproductions of photographs of the rock containing the species, accompanied by drawings of portions of the species in which details of outline, nervation or fructification, etc., are shown. This method gives a good general idea of the actual appearance of each specimen as a whole together with the particular features which require emphasis, but such plates are not equal, for purposes of exact study, to reproductions from carefully made drawings, as may be seen by a comparison between Plates XL. and XLI. Another innovation which has produced excellent results is in the line of enlarged photographic reproduction, an example of which may be seen on Plate LI.

In the final discussion of the flora there are tables of distribution, for purposes of comparison with other coal floras and the conclusion is reached that the stratigraphic position of the Henry county coals is subsequent to the lower