

certain number-problems is discussed; we gather that this application is original on Mr. Dudeney's part. Digital properties are but little known to mathematicians, and we hope his example may serve to direct attention to the method: it was freely used by Bidder, the calculating prodigy, and in a certain class of arithmetical problems is of great assistance.

This notice will indicate generally the lines on which the book is written, and on the whole we should say that it is the best miscellaneous collection of the kind with which we are acquainted. The book is profusely illustrated, a marvel of condensation and cheapness, and singularly free from ambiguities and slips. It would be difficult to find a more attractive present for a schoolboy who is interested (as most schoolboys are) in such problems, for wherever he opens it he will find some amusing puzzle which will tax, and in many cases overtax, his ingenuity.

#### FOSSIL BOTANY.

*Fossil Plants: a Text-book for Students of Botany and Geology.* Vol. iii., *Pteridospermeae, Cycadofilices, Cordaitales, Cycadophyta.* By Prof. A. C. Seward. Pp. xviii+656. (Cambridge: At the University Press, 1917.) Price 18s. net.

IN the present instalment of Prof. Seward's well-known text-book on fossil plants the interest of the subject may rightly be said to culminate. For this volume deals exclusively with the groups of fossil gymnospermous plants, and here between its covers the reader will find spread out for the first time in full and proper perspective the significant discoveries and results of the last fifteen years. The fossil Gymnosperms include the great central groups of seed-plants, and of these one-third of the book is devoted to a consideration of the Pteridosperms and their attendant Cycadofilices, another to the Cycadophyta, whilst the rest is divided between the Cordaitæ and a long chapter on fossil seeds. This last feature is a most useful digest of a complicated mass of literature and is a service that will be generally appreciated.

Modern advance, particularly as to the status of the Pteridosperms and the Bennettiales (Cycadophyta), has depended primarily on the study of petrifications derived from Britain, France, and North America, whilst the knowledge thus obtained has been reinforced and extended by a critical consideration of impressions from which is gained a sort of twilight picture of these ancient vegetations. Prof. Seward possesses the indispensable qualification in the writer of a book like the present of a practical familiarity in handling both these sources of information—petrifications and impressions—and when, in addition, the task is performed with such evident sobriety and good judgment, the result is a book of the greatest permanent value. It should be added that never before has the subject-matter of fossil botany received such full and connected

treatment, nor could the marshalling of the facts be bettered.

In the treatment of his subject-matter the author, in large degree, lets the facts tell their own story. Whilst the theories of fossil botanists are adequately displayed, the author resists all temptations to speculate in the field of plant phylogeny. Nevertheless, apart from his own relevant researches, a good deal of unpublished matter is brought into this book, especially minor points collected from all quarters, each by itself, perhaps, insufficient to justify separate publication, yet in the aggregate appropriately included in a book like this.

Turning over the pages of this book, it is remarkable how large a share in the establishment of fossil botany has been taken by this country. Following the older period of description under Williamson came a newer epoch of critical re-description, with correlations of members previously scattered. With the momentary exhaustion of the English coal-balls of Palæozoic age, the interest passed to the Bennettiales from the American Jurassic rocks, once more to cross the Atlantic to Scotland, where new forms of great antiquity and interest are now coming to light. It is to be expected later on that a more intensive and scientific exploitation of our own and the world's coal resources will continue to produce a harvest of fossil plants rich enough to give full occupation to palæobotanists, and at the same time still further to elucidate the scheme of evolution of the vegetable kingdom.

In conclusion it is fitting to mention that this volume is dedicated by Prof. Seward to the memory of the late Prof. C. R. Zeiller, who for so many years was attached to the Ecole des Mines at Paris. Zeiller appealed to workers in this country not only by reason of his lofty character and eminence as a fossil botanist, but particularly because he, more than any other, established and promoted cordial solidarity between the ranks of fossil botanists on either side of the Channel. It is largely on this account that the recent severe and deplorable losses which the fraternity of palæobotanists has suffered in France (including, in addition to Zeiller himself, Lignier, Grand'Eury, and the elder Bertrand) have evoked in this country a wide and sympathetic response which only the loss of personal friends can arouse.

#### OUR BOOKSHELF.

*With the French Flying Corps.* By C. D. Winslow. Pp. 190. (London: Constable and Co., Ltd., 1917.) Price 3s. 6d. net.

THIS short volume contains the experiences of an American volunteer who joined the French Flying Service, and gives a brief account of the various steps of his training. The book can in no sense be called a scientific work; indeed, the use of technical terms is very loose, as, for instance, the definitions of angle of attack and angle of incidence given on p. 30. Statements such as that on p. 26 to the effect that "when two aeroplanes