

being gradually surmounted by the provision of roads and railways, and the most recent enterprise of this kind, when finished, will connect by rail Kano, on the edge of the Sahara, with Baro, on the Niger, and Lagos, on the coast, and thus open out an immense area of land, much of which, it is believed, will be suitable for growing cotton of the type required in Lancashire mills. The second obstacle is more difficult to deal with, but there are indications in Mr. Dudgeon's book that advance is being made. Progress in this particular direction can only be accomplished by the provision of agricultural departments, staffed by men who are not only skilled agriculturists by training and education, but possess, in addition, administrative and managing abilities of a high order, and are capable of exercising initiative in face of great natural difficulties. It is fortunate for British West Africa that the days seem to be over when governmental assistance to tropical agriculture consisted merely in the provision of a botanical garden, and that the tendency in British West Africa at least, in recent years, has been to replace such institutions by properly equipped and staffed departments of agriculture, with their necessary complement of experimental stations.

Mr. Dudgeon avoids technicalities as far as possible, and for that reason this book will probably appeal, not only to the tropical agriculturist, but also to the Colonial official, whose interest in these matters it is most important to enlist.

The volume contains five clearly printed and useful coloured maps of the areas dealt with, and is well illustrated by reproductions of photographs of tropical crops and typical native industries.

#### OUR BOOK SHELF.

*Modern Science Reader, with Special Reference to Chemistry.* Edited by Prof. Robert M. Bird. Pp. viii+323. (New York: The Macmillan Co.; London: Macmillan and Co., Ltd., 1911.) Price 5s. net.

IN this country "Readers" are usually intended for young children. In the States the use of "Readers" extends to a later period of study, and in the present instance the book provides a course for "college men" and general readers. It is a compilation of reprints of modern papers and professional addresses, and is the first volume of a series which, it is hoped, will broaden the outlook of the undergraduates for whom it is intended. In every instance, the authors and publishers of the original papers have consented to their republication in this handy form. The selection of subjects has been made with a judicious regard for the taste of the reading public, and as the authors include Crookes, Lodge, Remsen, and Madame Curie, the readers are provided with stimulating fare.

We think that there is a risk that the title "Reader" may militate against the circulation of the book in England. It would be a pity if this should prove to be the case, as all the subjects are worthy of study, and they are very skilfully treated by men who add to eminence as investigators the power of presenting the results of investigation in an attractive, intelligible form. Perhaps the most formidable, though not the least interesting, of the articles is Dr. Howell's address on activators, kinases, and hormones.

The book concludes with suggestions for additional

reading, such as are usually given here to university extension students. Indeed, the book is well suited to those who reap profit from the more advanced extension classes, and is likely to interest a rather wide circle of readers. It would be a good book for a school science library, as it is trustworthy as well as stimulating. Most of the articles made their first appearance within the last three or four years.

(1) *Gardens shown to the Children.* By Janet H. Kelman and Olive Allen. Described by J. A. Henderson. Pp. xii+100+32 coloured plates. (London and Edinburgh: T. C. and E. C. Jack, n.d.) Price 2s. 6d. net. (Shown to the Children series.)

(2) *Roses.* By H. R. Darlington. Pp. xiii+193+8 coloured plates. (London and Edinburgh: T. C. and E. C. Jack, n.d.) Price, double vol., 2s. 6d. net. (Present-day Gardening series.)

(1) As we all know, the love of flowers is with nearly every child almost a passion; there was no need of a book to create or develop that. The object of the authors of this work has been rather to teach children to take an interest in the methods of cultivation, and, by pictures, to broaden their knowledge of hardy plants in general. To write down to the child's mind on such a subject as gardening is no easy task, but if we imagine the authors' audience to be limited to children who have reached their 'teens, we think they may be congratulated on having accomplished it very well. They give sound cultural directions couched in simple, direct language without putting on the omniscient, patronising air that so many authors of serious children's books think it essential to assume. There are thirty-two coloured plates, some of which are very good considering the price of the work; others are decidedly painful—to the adult eye at any rate. But, after all, the best critic of the book is an intelligent member of the particular audience to whom it is addressed. We put our copy into the hands of such a one during the recent holidays, and his opinion, expressed in vigorous schoolboy idiom, was, when translated, found to be distinctly favourable.

(2) The work on "Roses," by Mr. H. R. Darlington, admirably maintains the high standard set by previous authors in this useful series of gardening books. The book is in the nature of a double number, and the price is slightly increased, but no rosarian will grumble at that. The author gives very excellent directions for the propagation, management, and care generally of roses. Especially useful will be found lists of roses for different purposes and situations. There is a pleasant chapter by Mrs. Darlington on "Fragrance in Roses." A rose without fragrance is without half its charm; yet, a short time ago, as one ascertained for oneself at the big rose shows, it seemed as if that half was in fair way of being lost in the rose-raiser's quest for colour and form. Happily the claims of fragrance are being again admitted. The coloured illustrations are some of the best examples of colour-photography hitherto published in this series.

*Elementary Integrals: a Short Table.* Compiled by Dr. T. J. I'a. Bromwich, F.R.S. Pp. 38. (Cambridge: Bowes and Bowes; London: Macmillan and Co., Ltd.; Glasgow: James Maclehoose and Sons, 1911.) Price 1s. net.

THIS is a very compact and serviceable *vade mecum*, suitable both for students of physics and for those who are in the earlier stages of pure mathematics; and it is arranged on a system which ought to make its owner able to find quickly anything that it contains.

The work throughout is very elegant, especially in the treatment of integrals involving quadratic irra-