

*Principles and Practice of Aerial Navigation.* By Lieut. J. E. Dumbleton. Pp. vii + 172 + v plates. (London: Crosby Lockwood and Son, 1920.) Price 12s. 6d. net.

ORDINARY navigation may be broadly divided into two kinds: coastal navigation, in which, shaping his course by compass, the mariner verifies his position by cross-bearings of two terrestrial objects, by two objects in transit and the bearing of a third object, and by various other methods; and navigation of the open sea, with no lights or headlands available, so that he has to depend wholly upon celestial observations. With regard to long voyages of the second type, but little progress has been made in air matters, difficulties as to obtaining a satisfactory horizon having so far proved insuperable. It is upon the development of directional wireless that the hopes of the airmen are fixed in connection with long-distance aviation in the immediate future.

It is therefore to navigation of the coastal type that the airman has given special attention, and here it is evident that not only has he availed himself fully of methods already in use, but has also not failed to improve upon these processes.

On p. 90 we have an example of this in the course and distance indicator, an instrument which from a given course and an air speed calculates the course to steer and the ground speed. So also, on p. 64, we have a most useful problem, not to be found in navigation books, for finding by three bearings of the same object the course made over the ground. As presented in the book, to be done by protraction it would seem a little complicated for use in a heavier-than-air machine, but, reduced to the form of a table, it should be of very great utility by sea or air.

The book is clearly written and altogether a highly creditable production, and should prove attractive not only to airmen and seamen, but also to all who take an intelligent interest in the development of aviation on the scientific side.

*Roses: Their History, Development, and Cultivation.* By the Rev. Joseph H. Pemberton. Second edition. Pp. xxiv + 334 + 9 plates. (London: Longmans, Green, and Co., 1920.) Price 15s. net.

THE demand for a second edition of the Rev. J. H. Pemberton's useful book on roses is a welcome sign that there are still a considerable number of keen gardeners who are interested in the genus, not so much on account of its horticultural merits, but rather because of its botanical interest. The various species of the genus *Rosa*, unspoilt by the hybridiser and "improver," are well worthy of cultivation, and it is to be hoped that this book will turn many to the study of the wild species, as well as to the interesting hybrids that have been derived from them.

In garden catalogues of a hundred years ago the "old-fashioned" roses were the pride of the collections, and one would like to see such collections revived, difficult as it may be now to procure some of the earlier forms.

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Few people to-day have seen *Rosa hemisphaerica* in all its glory, nor do they know the beauty of the various forms of the Scotch rose, or of *R. damascena* or *R. indica*. To most, probably, the charming little rose de Meaux (*R. centifolia Pomponia*), given in the list of grandmother's roses, is scarcely known, and the same may be said of the greater number given in this interesting list of old garden favourites.

This second edition does not differ on general lines from its excellent predecessor, but a good deal has been added on the perpetual flowering musk roses, which the author himself has done so much to popularise; and on the hybrid *lutea* roses. Some useful additions have been made to the section dealing with fungus pests and to the chapters on soils and manures.

The appendix, giving a list of selected roses, has been revised, and forms a valuable guide to those who wish to grow the best types of garden roses.

*Pyrometry: A Practical Treatise on the Measurement of High Temperatures.* By Chas. R. Darling. Second edition, revised and enlarged. Pp. xii + 224. (London: E. and F. N. Spon, Ltd.; New York: Spon and Chamberlain, 1920.) Price 10s. 6d. net.

THE publication of the first edition of Mr. Darling's book on pyrometry in 1911 filled a want in English technical literature at a time when the value of a more exact measurement of temperature in industrial operations was being appreciated. Mr. Darling points out in his preface to the new edition that since his book was first issued there has been a great extension in the use of pyrometers in industrial processes and laboratory work, and there can be little doubt that his book has contributed in no small measure to this desirable development. He further refers to the invaluable uses of pyrometers during the war, and it is pleasing to have his testimony that British makers were fully able to meet the demand for instruments. In his revision Mr. Darling has described several instruments of the more recent pattern, and added new material, bringing the book thoroughly up to date. The bulk of the new matter is to be found in the chapter dealing with thermo-electric pyrometry, and valuable and suggestive additions have been made, particularly on the use of base-metal junctions and on protecting sheaths for couples. In the chapter on optical pyrometers there has been considerable extension, especially of the section on colour extinction instruments, the simplicity of which is a strong point.

*Co-education and its Part in a Complete Education.* By J. H. Badley. Pp. 39. (Cambridge: W. Heffer and Sons, Ltd., 1920.) Price 2s. net.

THIS is an address delivered at Cambridge on February 22 of this year to a meeting of the "Socratic" Society by the headmaster of the well-known Bedales School, with the addition of some notes, which appear at length in the appendix,