

The second edition shows little modification of the original book. The size is increased by eleven pages, and a number of small alterations have been made, either in correction of errors of detail or as representing the superiority of second thoughts to first. The increase of size is due mainly to a discussion of three subjects, described in the preface as the new planet Pluto, the rotation of the galaxy, and the apparent expansion of the universe. It is an eloquent commentary on the present progress of astronomy that, in little more than a year, subjects of this magnitude and importance have either been born or experienced developments of fundamental character. There is only one point in the book to which we might profitably direct attention. The index includes, under the general heading "Quotations", a number of well-known names, but reference to the corresponding pages often shows no obvious quotation. Presumably the reference to George Meredith in connexion with p. 283 arises from the occurrence there, without inverted commas, of the isolated phrases "dusty answers" and "hot for certainties". A 'quotation' from Matthew Arnold, assigned to p. 5, eludes us. If phrases which have passed into current coin of the language are to be dubbed 'quotations', there will be no end to the acknowledgments necessary. One wonders, for example, why "new heavens and a new earth" on p. 331 is not ascribed to St. John, or even why the Psalmist is not given the credit for "down to the sea", on p. 151. The point is a small one, but it is not beneath notice. It is a penalty of reaching a high standard of excellence that small blemishes become unduly conspicuous, and this may serve as a justification for mentioning one of them here.

*Little America: Aerial Exploration in the Antarctic and the Flight to the South Pole.* By Rear-Admiral Richard Evelyn Byrd. Pp. xvi + 422 + 58 plates. (London: G. P. Putnam's Sons, 1931.) 21s. net.

AERIAL exploration has introduced a new kind of book on polar travel. The two-volume account of the daily routine of sledge journey and camp has gone. An aerial journey is so brief that there is little to say beyond comments on the behaviour of the machine. Admiral Byrd made several remarkable flights during his year in the Antarctic and discovered considerable areas of new land; yet the bulk of the volume is descriptive of preparations for winter quarters and the journeys to and from New Zealand. The flight to the Pole and back, which occupied nineteen hours, is described in a single chapter.

The limitation of usefulness of aerial exploration is clearly brought out in this book, and Admiral Byrd wisely supplemented it with ground work where possible. Thus Prof. Goold's examination of the Queen Maud range was one of the most important aspects of the work. Unfortunately, the new land east of King Edward Land was not examined. The expedition had its base at the Bay of Whales on the Ross Barrier, out of sight of land, so that the majority of the large complement of

forty-two men never got a glimpse of Antarctic land. Another innovation in Antarctic exploration was the daily contact by wireless with the outer world and the inclusion of a press correspondent in the staff. The book contains little record of scientific results, which were considerable, but has much information about flying conditions.

*Oxydations et réductions.* Par René Wurmser. (Les problèmes biologiques, Vol. 15.) Pp. xix + 381. (Paris: Les Presses universitaires de France, 1930.) 95 francs.

PROF. WURMSER has produced a really excellent book on oxidation and reduction, of value not only to those interested in the physical and chemical aspects of biology but also to the general scientific reader as well. He commences with the principles of oxidative and reductive processes as illustrated by changes in valency, by electron transfer, and diminution in free energy. The various mechanisms of the operation of both photochemical and thermochemical processes of oxidation and reduction are then developed, and two chapters are devoted to a critical discussion of the hypotheses involving 'activation' of hydrogen and 'activation' of oxygen respectively. According to the author, these theories must not be regarded as rivals, but that processes of oxidation and reduction operate by one or the other mechanism. Attention is then directed to the determination of oxidation, reduction equilibria, including not only those readily reversible but also those which are only partially reversible in systems for which the evidence for reversibility is at present somewhat scanty. The volume concludes with a discussion of experimental technique and a summary of the results obtained in the study of intracellular oxidation-reduction potentials. The book is well written, in that it is a veritable mine of information yet at the same time eminently clear and readable. The printing and binding are both superior to the average text-book of French origin.

E. K. R.

*Foundations of Biology.* By Prof. Lorande Loss Woodruff. Fourth edition. Pp. xvi + 501. (New York: The Macmillan Co., 1930.) 3.50 dollars.

THIS is regarded in many universities as a standard text-book for the student's own reading. It gives the zoologist the necessary essentials of botany, and shows an understanding of the part played by unicellular organisms. The diagrams are simple and admirably selected, many being original. Technical terms are reduced to a minimum, and the student is helped also by an admirable glossary. The new edition is a great improvement, and the more adequate discussion of many themes will make them simpler to the student. The enlargement of the section devoted to human welfare is useful. We ourselves are rather tired of the evolution of the horse; in the next edition the author should explain what a horse is and how it is adapted to its environment, for his students will not know.