

A considerable space is devoted to a consideration of the reduction phenomena which form such a striking feature in the cellular life-cycle of the great majority of animals and plants. But we cannot forbear from protesting against the introduction of what seems to us to be a totally unjustifiable confusion into current terminology. The term "meiotic phase," used to cover the processes connected with "reduction," was introduced to embrace the *two* mitoses which are intimately connected. In the course of the first of these the reduction in the number of the chromosomes is accomplished. Mr. Walker, however, speaks of the second meiotic division as post-meiotic, thus obscuring the close relationship that exists between the heterotype and homotype division, a relationship that is, partly at least, due to the fact that in the prophase of the first meiotic (heterotype) division, a fission in the chromosome rudiments takes place which will be consummated during the *second* (homotype) mitosis; this explains the common, though not invariable, absence of the spireme from the second division, and probably is connected with the rapidity with which the two mitoses usually follow on each other. The term post-meiotic should be (as it hitherto has been) reserved for those mitoses, if any, which occur after the completion of the meiotic phase.

The description given of polar bodies is made, doubtless by inadvertence, to read as though these structures only represented nuclei and not cells, whereas, of course, they are each severally homologous with the egg.

The book would be improved by the substitution of a more comprehensive account of the nuclei of the lower organisms for the matter contained in chapters x. and xi., which seems to us to be somewhat out of place in a work of this kind, as well as open to criticism on other grounds.

The addition of an introductory chapter dealing with the development of our knowledge of the cell, and the recognition of its paramount importance, would be useful when there is a demand for a second edition, and at the same time the references which appear at the foot of some of the pages might also be completed.

We have criticised the work somewhat frankly, perhaps, but this has been done not with the intention of condemning it. On the contrary, it possesses many very good qualities, and with some little modification and correction, it will easily rank as an extremely useful text-book of elementary cytology. J. B. F.

*Immune Sera.* By Dr. C. F. Bolduan. Second edition, re-written. Pp. viii+154. (New York: John Wiley and Sons; London: Chapman and Hall, Ltd., 1907.) Price 6s. 6d. net.

THIS book has its origin in a monograph by Wasserman, a translation of which was published by the author in 1904. This second edition has been re-written by the translator. The original chapters are dealt with more fully, and the scope of the book has been widened by the addition of chapters on venins and antivensins, agglutinins, opsonins, and serum-sickness.

The antitoxins are first dealt with, and brief outlines are given of the history of the subject and of the methods of preparing and testing antitoxins. Ehrlich's views on the origin of antitoxin, on the constitution of diphtheria antitoxin, and on the nature of the combination between toxin and antitoxin, are treated in a lucid manner. The views of Arrhenius and of Bordet receive less adequate treatment.

In handling the subject of the agglutinins, the bacteriolysins, the hæmolysins, and the precipitins,

much discrimination has been shown in avoiding a discussion of the more difficult theoretical considerations, and in selecting the fundamental facts and experiments for exposition.

A good account is given of the application of hæmolytic and precipitin methods to practical purposes. Among these may be mentioned methods of great importance in medico-legal work, viz., the biological tests for bloodstains by means of which it is possible to differentiate human blood from the blood of other animals.

The least satisfactory chapters in the book are those on serum sickness, snake venoms, and opsonins. In regard to the last, the author states that the results obtained by most workers in America fail to bear out Wright's claims for his method.

On the whole, this is an excellent little book, and ought to be of service both to those who wish to keep abreast of the main advances in the subject and to those who are attacking these questions for the first time.

*A Guide to the Study of Australian Butterflies.* By W. J. Rainbow. Pp. 272; illustrated. (Melbourne: T. C. Lothian, 1907.) Price 3s. 6d.

THIS is a useful little book intended for beginners taking up the study of Australian butterflies, with special reference to their life-history. Indeed, the author not only tells us in his preface that "much of the material in the way of life-histories is now published for the first time," but also, "Only those species of which something is known of their life-history are included in the present volume." Surely this last resolution is a double mistake. On the one hand it will be a great disappointment to any collector who meets with one of the purposely omitted species not to be able to discover from this book (perhaps the only one on the subject to be found within hundreds of miles) whether his find is known, or probably new; and, on the other, if attention had been directed to imperfectly known species, it would have largely concurred to efforts being made to supply the deficiencies in our knowledge. The book otherwise, however, seems to be very well executed, and is remarkable for being written almost entirely from Australian sources.

The classification followed is taken from Mr. G. A. Waterhouse's "Catalogue of the Rhopalocera of Australia." The frontispiece represents two handsome species of *Delias* and two of *Papilio*, while most of the species mentioned in the book are excellently figured, figures of the earlier stages being frequently added. The introductory chapters deal with transformations, parasites, collecting and preserving, &c., and are also freely illustrated, the figures of wing-neruration on p. 23 being particularly good. Ninety species are included in this little volume, distributed among six families as follows:—Nymphalidæ (sens. lat.), 35; Libytheidæ, 1; Lycinidæ (*sic*), 16; Pieridæ, 12; Papilionidæ, 9; Hesperidæ, 17.

We notice a few peculiarities in the spelling of some of the names, which appear to be not misprints, but intentional, such as *Xenica kluggi*, and *Lycinidæ*.

W. F. K.

*The Theory and Practice of Perspective Drawing.* By S. Polak. Pp. viii+184. (London: University Tutorial Press, Ltd., 1907.) Price 5s.

THIS volume of the "Organised Science Series" has been specially compiled to meet the requirements of the Board of Education's syllabus in perspective, and covers the ground of both sections A and B of that syllabus with their direct and inverse problems.