

quite impossible to carry out the logical method consistently, and at the same time cover any but the most elementary parts of the subject; the only question is as to the nature of the compromise.

Dr. Newell has attempted to cover a very wide field, with the result that a large amount of matter has been inserted which is beyond the range of an elementary student and of little use to the more advanced. His method is one that is excellent in theory, but in practice easy to carry to excess. To the title of a treatise on elementary chemistry the book lays no claim; it is nothing more than a guide-book for use in the laboratory, and must be supplemented by others for detailed information; while as a work of educational value it is by no means the most efficient that could be devised. Elementary students, however, will doubtless find portions of it of considerable assistance, for the experiments are carefully described, and the illustrations clear.

*The Elements of Darwinism, a Primer.* By A. J. Ogilvy. Pp. 160. (London: Jarrold and Sons, 1901.) Price 2s. 6d.

THE object of this little book is, as the author states in the preface, to give the ordinary non-expert reader an intelligent notion of the theory of natural selection. There is no doubt that there is scope for such a work, for even at the present time it is remarkable how widespread are the ignorance and misapprehension of Darwin's teaching among the general public. Mr. Ogilvy divides the subject into three parts: general statement, consisting of eleven chapters; illustrations, consisting of seven chapters; and a third part consisting of nine chapters. Although keeping fairly well within the limits of Darwin's teaching, the author shows some originality of treatment, and has not slavishly followed the custom so prevalent at one time of simply rearranging the facts collected by our great master and dishing them up as an original contribution to science. Several new illustrations of Darwinian principles are introduced, some of them appropriate and forcible, others less appropriate and in some cases altogether questionable. In the chapter on flight, for example, the author attempts to define two kinds: "Now some birds fly chiefly by muscular, some by nervous power." The condor and the albatross are quoted as examples of the former, and the partridge as an example of the latter. The principles which have governed the author in classifying the contents of the various chapters are not in all cases clear, and a rearrangement might have been made in some instances with advantage. One other very obvious defect is the too facile exposition of evolutionary steps which are at present difficult to understand, and of which the course is confessedly obscure. The kind of reader for whom Mr. Ogilvy has written his book is just the person upon whom such treatment would produce an impression of dogmatic security. In spite of these defects, however, any one previously ignorant of the subject who carefully reads the volume cannot fail to acquire a fairly sound idea of Darwinism, and this is all that the author claims to have had in view. It should be added that the manuscript has been read by Dr. Alfred Russel Wallace, who does not, however, hold himself responsible for all the statements. R. M.

*La Betterave à Sucre.* Par L. Malpeaux. Pp. 206. (Paris: Masson and Gauthier-Villars. No date.) Price fr. 2.50.

THIS small volume, one of the series known as "l'Encyclopédie scientifique des Aide-Mémoire," is prefaced by a few general considerations upon the importance of the sugar beet. In the opening chapter the history and the present state of cultivation, as well as the future of the

sugar beet, are dealt with. As regards the future it is interesting to note that as the supply already meets or even exceeds the demand, the only hope held out to the cultivator is an increase in the consumption of sugar. The second chapter treats shortly of the production of sugar in the plant. A brief description of the different varieties of beet is followed by a chapter on the production of seed. This is perhaps the most interesting portion of the volume before us. In it the methods of selection, physical, chemical and genealogical, the culture of seed plants and the analysis of the roots are given at some length. Then follow chapters on the influence of climate and soil and manures. The important fact that the beet removes from the soil very little else than carbon, hydrogen and oxygen, and therefore the manures supplied to it benefit the crops which follow, is duly insisted on. Two short chapters on sowing, hoeing and thinning are followed by one on diseases, insect and other pests. Although a number of remedies, such as sprinkling with copper arsenite, &c., are mentioned, proper cultivation is upheld as the most important factor in preventing and overcoming such diseases and insect ravages. The remaining pages are devoted to the harvesting and storage, the marketing, and, in connection therewith, the analysis of the juice and the cost of cultivation.

The illustrations are clearly drawn and the curves showing annual production of roots, &c., are a valuable feature of the book. A bibliography of the subject, in which French authors only are mentioned, is attached. The addition of an index would add to the value of this useful monograph. J. E. M.

*Assimilation chlorophyllienne et la Structure des Plantes.* By Dr. Ed. Griffon. Pp. 106. (Paris: Georges Carré et C. Naud.) Price 2 francs.

*L'Evolution du Pigment.* By Dr. G. Bohn. Pp. 96. (Same publishers.) Price 2 francs.

THESE two manuals belong to the biological section of the valuable "Scientia" series, each volume of which contains authoritative descriptions of subjects in which progress is being made.

Dr. Griffon's brochure deals with a subject which has engaged the attention of many physiological botanists. Numerous determinations have been made of the physico-chemical properties of chlorophyll; and the experimental methods employed to measure the changes resulting from the action of its functions have been so much improved in recent years that valuable results are frequently obtained. But there is a matter which has almost been left in the background, namely, the influence of the structure of plants on the decomposition of carbon dioxide. It is true that important data have been obtained upon this subject, but they are chiefly from special points of view, and no general conclusions have been reached. Dr. Griffon reviews the work which has been done upon this subject, both as regards plants which naturally differ among themselves in anatomical characters and plants of the same species of which the structural differences are due to varying conditions as regards light, heat, hygrometric state, presence of various mineral salts, &c. A chapter upon the nature and measurement of assimilation in plants precedes this treatment, and one on the principal factors determining the rate at which carbon dioxide is decomposed concludes the book. Dr. Griffon succeeds in presenting a connected account of researches and results of interest to all students of botany.

Dr. Bohn's book opens with a general statement of cell structure, bacteria and pigmentary bodies. He then deals in succession with the constitution and biology of pigments, modifications of pigment in organisms, evolution of pigment in various groups of animals, and utilisation of colour in nature for protective and other purposes.