

from a more philosophical viewpoint. Such general problems as senescence in plants, inhibitions to development, polarity, abnormal cell divisions, cell fusions and necrosis are considered on the basis of definite facts. The examples cited include anything from "involution" forms of bacteria to abnormal reduction divisions and the splitting of tissues by frost. As regards the *Entwicklungsmechanik* of pathological tissues, the causes discussed are classified as mechanical, osmotic, chemical, radiant energy and correlation. Under the latter head brief reference is made to gigantism and polyploidy, while Haberlandt's theory of wound hormones also receives consideration.

The final section deals "ecologically" with such topics as the healing of wounds, formation of aerenchyma and hydathodes, and with functional adaptation of tissues. The book is a most useful reference work for botanical laboratories, for one frequently finds the facts of pathological histogenesis considered from an unstereotyped point of view.

R. R. GATES.

*Practical Chemistry by Micro-Methods.* By Prof. Egerton Charles Grey. Pp. ix + 124. (Cambridge: W. Heffer and Sons, Ltd.; London: Simpkin, Marshall and Co., Ltd., 1925.) 4s. 6d. net.

Forty years have now elapsed since the appearance of Haushofer's "Microscopic Reactions," and the science of qualitative microchemical analysis, of which it was the sign and portent, seems to have remained indigenous to Central Europe. Behren's "Introduction to Microchemical Analysis," the first edition of which was published in 1899, has become almost a classic, and the text-books of Schoorl and Emich have also achieved a well-earned reputation. Prof. Grey's elementary introduction to microchemical work is, we believe, the first English book to deal with this subject, and in extending a welcome to it, we hope that it will be the means of spreading the use of the microscope in chemical work.

Microchemical reactions are for the most part more decisive than the ordinary microscopic tests; they necessitate greater cleanliness and entail greater economy in time and material. Notwithstanding these facts, we cannot agree with the author that microchemical analysis should be substituted for ordinary analysis in our schools and colleges, though we grant that, at the appropriate stage, nearly every student would gain from such a course as he prescribes. It is a trite criticism that many secondary schools attempt work which is much better left to the university; here is a subject which pupils in their last school year could pursue with great advantage, and with this manual in hand they could work with very little supervision from the teacher. The low price of the book is also a recommendation, and prompts the question if it heralds a new dawn of cheap—and good—printing and publication.

*Elements of Physical Biology.* By Dr. Alfred J. Lotka. Pp. xxx + 460. (Baltimore, Md.: Williams and Wilkins Co.; London: Baillière, Tindall and Cox, 1925.) 25s. net.

For a long time methods analogous to those of statistical mechanics have been applied to animal and plant communities. But just as in physical chemistry these methods soon become intolerably cumbrous and may generally be replaced by thermodynamical calculations which ignore the individual molecule, so in the book

before us the author has applied to biological problems a treatment of the type familiar in chemical statics and kinetics. These methods are applied to the growth of populations, whether of bacteria, insects, men, or railway engines, and to relationships between different species, for example, between a parasite and one or more hosts. The author has the problem of evolution always before him, and considers analytically the effect on population of a change in the behaviour of individuals.

It must not be supposed, however, that the book is a mere formulation of theories. It contains a vast amount of facts unattainable within the same compass elsewhere. For example, the account of the circulations of hydrogen, carbon, nitrogen, and phosphorus in Nature is the most satisfactory known to the reviewer, and accounts are given of the experimental work of Pearl and his pupils on animal populations, and the statistical results of Willis and Yule on "age and area." No biologist conversant with mathematics can possibly read this book without coming upon many ideas which will be new to him, and many mathematicians will find in it applications and problems of a refreshing novelty.

*The Folklore of Fairy-Tale.* By Macleod Yearsley. Pp. xiii + 240. (London: Watts and Co., 1924.) 7s. 6d. net.

In his brief preface, Mr. Yearsley modestly denies himself any claim to originality. His object is to bring together in a concise and popular form the salient points in the science of fairy-tales. He confines himself, where possible, to those tales which are current in the British Isles or have been introduced and popularised by British writers. His material, therefore, is largely drawn from Grimm and Perrault. In discussing the scarcity of the indigenous *märchen* type in Britain, he follows Hartland in attributing its suppression to the influence of Evangelical Protestantism. On this point he might have enlarged to the advantage of his readers. Hartland's suggestion indicates an important contributory cause; but it by no means entirely explains the facts. Why, for example, do British *märchen*, with one or two exceptions, survive especially in the areas in which revivalism usually flourishes? Mr. Yearsley illustrates his argument throughout with numerous examples and parallels. As many of the sources from which he draws his material are out of print or too technical for the ordinary reader, his book adequately serves the purpose for which it is intended.

*An Elementary Chemistry.* By E. J. Holmyard. Pp. viii + 424. (London: Edward Arnold and Co., 1925.) 5s.

MR. HOLMYARD'S book covers the syllabuses for the various First School Certificate and the London Matriculation Examinations. It is brightly written with a modern outlook, and should appeal to young students. Questions for exercise and useful "Revision Notes" (at the end of the book) are provided. Interesting historical notices, some portraits of famous chemists, and reproductions of manuscripts and pages of famous books enliven the text, and the whole treatment may be commended. The author has evidently appreciated the common difficulties and mistakes of young students, so that his experience may also be of assistance to teachers.