

logical aspect is not dealt with; cell-lineage, a branch of cytology inseparably coupled with Conklin's name, is naturally treated exhaustively. To explain the old question of cellular differentiation, Conklin assumes the presence of differential factors of development lying outside the nucleus, such areas being themselves the immediate result of the interaction of the cytoplasm of the nucleus at an earlier stage. Such an assumption certainly explains partly some forms of development, but not all, and the main question is still unanswered.

In the last two chapters we have an account by McClung of the modern aspects of the chromosome theory, and another section by Morgan dealing with his wonderful work on Mendelian heredity. The recent English work on sex-reversal and the so-called suppression of the sex-chromosome is not properly dealt with, and should be included in the next edition.

Some of the sections gain, others suffer, from the personal theories of the authors. On the whole, the bibliographies are as complete as could be desired, and the illustrations are a feature of the work. The book begins with an introduction by E. B. Wilson, the best-known living cytologist, whose work on "The Cell" has been the students' standby for so many years. In a footnote, Prof. Wilson mentions that he is bringing out a new edition of his work. "General Cytology" is a splendid testimony to the high standard of American science, and cytologists on the eastern side of the Atlantic should be full of admiration and properly grateful for such a splendid volume.

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General Chemistry.

(1) *Introduction to General Chemistry*. By Prof. William Foster. Pp. vii + 643 + 29 plates. (Princeton: Princeton University Press; London: Oxford University Press, 1924.) 17s. 6d. net.

(2) *A Laboratory Manual in General Chemistry*. By Prof. William Foster. Pp. ix + 205. (Princeton: Princeton University Press; London: Oxford University Press, 1924.) 10s. net.

(1) PROF. FOSTER'S volume was printed in an experimental form two years ago and used by nearly 1000 students before being finally revised for publication. It is a very crowded volume, but at the end of each chapter there are references to the sources of the material, which the student is recommended to read for fuller information. It is no small compliment to English authors that the books cited for this purpose are in the great majority of cases the standard works used in Great Britain. This statement applies, not only to the larger text-books, such as those of Roscoe

and Schorlemmer, of Mellor and of Friend, the first of which must have provided the materials for scores of smaller works, but still more frequently to the recent single-volume text-books of Lowry and of Partington, which are repeatedly cited in this way.

The chief fault of the book is its extreme compression, which gives the whole volume the appearance of a reprint of a student's notes on lectures, rather than of the lectures themselves; an independent reader would therefore find the book very tiring, but a student already attending a course of lectures could use it with comfort to supplement his own notes, and to recall in a more authoritative form what he had already been taught by word of mouth. The author has, however, been quite lavish in certain directions, notably in supplying 26 full-plate illustrations of distinguished chemists; these are admirably reproduced, and are in marked contrast to the rough line-drawings in the text, and to the printing, which is on paper of such transparency that it is often possible to read words which are printed on the other side of the sheet, with the result that the pages give the impression of being smudged. In two other cases the text is fuller than in the majority of similar books, since statistics of production are given, for example, for steel and copper, where the United States are at the head of the list; and, in connexion with the metallurgy of copper, the author has allowed himself two full-page photographs and a full-page diagram, in addition to two pages of text, to illustrate the smelting and refining of the metal.

The earlier chapters are, as a rule, provided with a summary, and exercises on the chapters are given throughout, culminating in a series of more than 200 problems at the end of the volume. The diligent student may therefore be expected to have acquired considerable skill by the time that he has completed the course; but the book is designed for "high pressure" work, and "low pressure" readers would probably prefer to choose some less strenuous compilation.

(2) Prof. Foster has also compiled a Laboratory Manual, the material for which has been secured during nearly twenty years of actual teaching, and revised from year to year in such a way as to anticipate every possible misunderstanding on the part of the student. The book concludes with an ingenious "preliminary exercise" on the separation of the metals into groups, in the course of which 24 test-tubes of solutions, arranged in alphabetical order, are attacked successively by the familiar group-reagents. The work of compilation has been done well, and the work will be helpful to other teachers who are responsible for practical classes in elementary chemistry.