

phism of a group with itself, also a very recent notion, is given a full chapter. The scene then shifts to the graphical representation of groups, exploited by Klein in his treatment of the automorphic functions, and treated separately by Dyck, whose methods are here employed. Cayley's color groups also receive attention. A chapter follows on the linear group, following Jordan's classical discussion. Finally, Sylow's theorem and its derivatives are applied to the determination of the composition of groups whose order are resolved into prime factors.

The book concludes with a useful trilingual table of equivalent technical terms and a still more useful Index. The publishers have done their full duty; the type is large and clear, and the paper gives a good impression. The text would have been improved by the introduction of descriptive section headings, and frequently the reader is not kept comfortably informed of what the author has in view, and must suspend judgment for a too lengthy interval.

The small public to which such a work appeals makes it unlikely that books on the theory of groups should ever become very numerous. It is fortunate, therefore, that in Professor Burnside's treatise we have a work of genuine and permanent value from which many a future student may draw wholesome inspiration.

F. N. COLE.

Elements of Sanitary Engineering. By MANSFIELD MERRIMAN. John Wiley & Sons. 1898.

The book opens with an interesting and, for a student, instructive series of historical notes. This is followed by a section dealing with 'classification of disease,' wherein may be found the novel proposition that 'disease is normal and health ideal—' a view that will call forth much opposition.

The illustrations distinguishing between contagion and infection are good, but the suggestion that goitre is probably due to the use of limestone water is hardly warranted; for, were it a fact, the hard waters of southern England should produce the disease abundantly.

An excellent and timely statement is given in the table on page 17, showing how much more serious is consumption than sundry other

diseases against which we take far greater pains to guard.

The relation of filth to disease is well put, and the illustrations are striking. The chapter on 'drinking water and disease' is in terse form, suitable for class-room work, but the remarks concerning the Hamburg cholera epidemic need to be supplemented by a map of the city, in order to grasp fully what may be learned from that instructive outbreak.

The book is evidently intended for use as a student's text-book, and excellent questions are inserted at frequent intervals, which require the student to make use of a reference library. This is a very valuable feature, and one but rarely found. There is, unfortunately, no index. M.

Bush Fruits: A Horticultural Monograph of Raspberries, Blackberries, Dewberries, Currants, Gooseberries and other Shrub-like Fruits. By FRED. W. CARD, Professor of Horticulture, Rhode Island College of Agriculture. The Macmillan Company. 1898. Pp. xii + 537. Price, \$1.50.

Under this concise and somewhat descriptive title another book is added to the list upon small fruits, from which, in this instance, are excluded the grapes, strawberries and cranberries.

The contents are divided into three parts, namely, (I.) General Considerations, (II.) The Brambles and (III.) The Groselles. The last name is adopted from the French, includes both the currants and gooseberries, and is a convenient term as a heading for a book division, but will scarcely be of much service elsewhere.

Under brambles, of course, the red raspberries, black raspberries, blackberries and dewberries are considered each with its separate chapter.

Part I. deals with the consideration of location, fertilizers, planting, tillage tools, pruning, propagation, thinning, spraying, picking, packing and marketing of fruit, with a few closing pages upon the methods of crossing and the results of such blending of the varieties and species.

Many of the above-mentioned points are again more specifically treated under the chap-