

for which there is no justification. It must lead to confusion, and the authors have fallen into their own trap, for instance, in writing Jonidium for Ionidium (*ἰον-ιδ-ιον*). And why Raphanus instead of the Linnaean "Raphanus," and on the other hand Raphia and Rigiostachys (*ραφίς* and *ρίγιος, στάχυς*) instead of Raphia and Rhigiostachys? There is everything to be said in favour of rendering ρ throughout by "rh"; but if this rule is not adopted, it would be better to adhere to the original spelling of the authors.

Those who have watched the nomenclatoric movement of the 'nineties and the first years of the present decade with some apprehension lest the continuity and uniformity of botanical nomenclature should be seriously impaired will be greatly relieved in finding on the examination of the "Genera Siphonogamarum" that this danger is practically averted. The book was finished up to the "Index," when, in 1905, the Vienna Congress adopted the new rules concerning the nomenclature of phanerogams; but in as far as these rules coincide in all essential points with the so-called Berlin rules which governed the nomenclature of the "Natürliche Pflanzenfamilien," the generic nomenclature of the "Genera Siphonogamarum" may well be considered as a practical and comprehensive test of the working of those rules. This being so, it is highly gratifying to see that the concord in generic nomenclature of the two leading schools of systematic botany, the older Kew school and the younger Berlin school, is practically absolute. Out of the total of, roundly, 10,000 genera, there are only 86 in regard to which the nomenclatoric standard of the "Genera Siphonogamarum" and the Kew practice, judged by Penham and Hooker's "Genera Plantarum" and the "Index Kewensis," differ, and most of them are small genera, with few exceptions affecting none but purely scientific interests. Moreover, most of these discrepancies admit of easy correction, and where there is any serious doubt it may be left for the next International Botanical Congress to decide. This surprising concord in the generic nomenclature of the phanerogams is a veritable triumph of common sense which, it may be hoped, in the interest of science, will in time also conquer the opposition of the American school, which still holds out for a nomenclature of its own.

OTTO STAFF.

SCIENCE IN THE TEXTILE INDUSTRIES.

The Structure of the Cotton Fibre in its Relation to Technical Applications. By Dr. F. H. Bowman. Pp. xx+470. (London: Macmillan and Co., Ltd., 1908.) Price 8s. 6d. net.

THE manufacture of a textile fabric mainly consists of a series of mechanical processes whereby the raw fibrous material is transformed first into a coherent thread and finally into a complex structure. As might be expected, therefore, the introduction of scientific method into the textile industries has mainly shown itself on the mechanical side, that is, in the improvement of the machinery used in the various

stages of manufacture, much of which has been developed to a high state of perfection.

There are, however, many other directions in which scientific investigation can be directly brought to bear in textile manufacture, and the author of the book under review was a pioneer in one such direction thirty years ago, when he first investigated the microscopical structure of the cotton and wool fibres in relationship to the various processes of spinning, weaving, dyeing, and finishing.

The present volume, dealing with the cotton fibre, is the first of a series of three, and those to be subsequently issued will deal with wool, silk, &c. It comprises a very full account of the origin and development of the cotton fibre, its microscopical structure, and the chemistry of cotton cellulose and its derivatives. These chapters are followed by others giving details regarding the strength and variation of the fibre and of spun yarns of various counts and twists. Other less satisfactory sections deal with the various theories of dyeing and with dyeing processes, and in a final chapter the methods of detecting various fibres and of analysing a mixed fabric are described. Of the eighty illustrations and diagrams with which the book is illustrated, many are coloured, and, like the paper and type, are excellent. An exhaustive table of contents and trustworthy index add to the value of the book, and the introduction of a glossary shows that the author has spared no trouble to make the book complete. Some of the definitions in the latter would, however, bear revision, e.g. "Complementary colour—the remaining colours in a beam of light which are necessary to make white light." "Hydroxyl—the substance produced by the union of a single atom of hydrogen and oxygen."

One of the first duties of a reviewer is considered to be that of pointing out errors and omissions in the book with which he is dealing. This at any rate has the advantage of indicating that he has read the book with some care; and it may be mentioned therefore that there are misprints on line 1, p. 57, and on line 4 of the table on p. 150. Also that incorrect formulæ are given for cellulose on pp. 144 and 145, and for nitrobenzoic acid on p. 407.

Perhaps the most valuable feature of the work is to be found in the record which it contains of the author's laborious and long-continued investigation of the microscopical structure of cotton both during growth (for which purpose he cultivated cotton plants in a greenhouse), when fully matured, and at all subsequent stages of manufacture. Dr. Bowman's sketches showing the structure of fibres have been long accepted as standards, and have been reproduced in nearly all modern works on spinning, dyeing, &c.

Another highly commendable feature is the insistence upon due regard being paid to the interdependence of the various processes of manufacture. This is a point the importance of which is frequently overlooked, but one which, as the author states, is essential to perfection of result.

The issue of the remaining two volumes of the series will be looked forward to with much interest.

WALTER M. GARDNER.