Reviews.

THE CHEMICAL EXAMINATION OF WATER, SEWAGE AND FOODS. J. E. PURVIS, M.A.,
and J. R. HODGSON, M.A. Cambridge University Press. 1922. Price
20s. net.

The first edition of this book was issued in 1914, and the second edition, now being reviewed, contains many additions of importance. It appears to be intended for students desiring degrees or diplomas in public health, and for candidates for certain diplomas granted by the Institute of Chemistry. The subjects are dealt with purely from the chemical point of view, microscopical and bacteriological examinations not being included; neither are there any references to the question of the influence of impurities or adulterants upon health. The issue of works of this character, and they are becoming numerous, raises the question whether there is any necessity for Medical Officers of Health to make a special study of work which falls chiefly within the province of the Public Analyst. As a matter of general knowledge, the Medical Officer of Health has such multifarious medical duties that it would be of immensely greater service to him to be able correctly to interpret the results of analyses made by competent chemists than to obtain them himself, and to devote the extra time to considering the bearing of the results upon health. Very few Medical Officers have laboratories, and, where they have, it is fairly certain that the time devoted thereto could, in the majority of

cases, be better employed in the public interest in the discharge of administrative and medical duties. Even water analysis, which does not come within the duties of Public Analysts, is better left to the skilled analyst, the Medical Officer being trained to interpret the results from his special knowledge of the source of the sample and its surroundings.

A text-book of this character should also be written or compiled by some person or persons of lengthy and varied experience, who, having tried various processes for the determinations they describe, could give opinions as to the best test under varied circumstances, opinions which students and others could depend upon. In this book two or more methods may be described for some given determination, but the reader is left in doubt as to which he should employ. For example, several methods are described for determining the nitric nitrogen in potable waters and sewage effluents, yet the simplest and best, when properly applied, is the only one which is criticised, and the authors say should "be rejected." In an example given of this determination the calculated result is erroneous. In fact, the section on water analysis is the weakest in the whole book, there being scarcely a page which is not open to criticism, from the collecting of the samples to the tabulation of the results, which, by the way, are sometimes given to the third and fourth place of decimals when the accuracy of the first place may be doubtful. Out of the 100 pages devoted to water and sewage some 30 pages are taken up by matter which might have been dealt with in a few lines, with a reference to the original articles, its general interest and utility being so slight.

Food analysis occupies about 160 pages, is brought well up-to-date, and the references are very numerous. These are very useful, as in many cases the originals must be consulted to obtain sufficient detail. Tests are given for the detection of "green butter" in cacao butter, but there is no note on the source of its origin. Most readers would like to know what it is. In the chapter on meat there is no mention of Schryver's method for detecting treatment by formaldehyde, nor is horse-flesh mentioned; yet in the public health laboratory the identification of horse-flesh is not an unusual problem.

There is a chapter on the Analysis of Air and Coal Gas, but Haldane's method of estimating carbonic acid is not referred to. An incursion into the domain of pathological chemistry is made in the heterogeneous chapter on "Rag Flock—Urine." Toxicological chemistry is touched on in the final chapter, and caffeine, quinine and cinchonine are included apparently as poisons. The method for the detection of arsenic only occupies about a dozen lines; a page and a half is devoted to the detection of "Blood," and a few lines to the detection of semen—these in the section on Toxicology. A series of useful tables and a good index bring the compilation to a conclusion.

It is a work which may be useful to the student if supervised by a competent and experienced teacher, and the professional chemist may occasionally find references useful to him, but, on the whole, it can scarcely be said that it adds to the reputation of the University under whose ægis it is published.

JOHN C. THRESH.

REPORTS OF THE PROGRESS OF APPLIED CHEMISTRY. Vol. VI. 1921. Issued by the Society of Chemical Industry. Price 7s. 6d. to members, 12s. 6d. to non-members, post free.

These Reports have now established themselves so firmly as a vigorous annual that there is scarcely call for their review. When it is stated that the high standard set in previous years has been at least fully maintained in the present volume, but little further comment is necessary.

The present issue differs, however, from its predecessors in one particular, which will hardly meet with the approval of the members of our own Society—it contains no separate section dealing with analysis. Whether this is a permanent or only a temporary loss is not revealed. The references made to analytical processes in the different chapters are, on the whole, somewhat fuller than usual, and these, in conjunction with the section on analytical chemistry, compiled by Mr. C. A. Mitchell for the *Annual Report of the Progress of Chemistry for 1921*, published by the Chemical Society, are perhaps regarded as sufficient.

As in previous volumes, the divisions follow mainly the groupings of the abstracts published in the *Journal of the Society of Chemical Industry*. The effects of the prevailing condition of financial strain and general depression on the world's chemical industries and on the output of scientific work connected therewith are referred to by several of the contributors, in some cases in pessimistic vein. In this connection, Dr. Attack's reasoned statement of the position in the dye-making industry is one worthy of careful consideration. That "no fundamental research of importance is in progress with a view to the production of new colours" is not pleasant reading; and so it is cheering to learn from Professor Desch that, although many important plants have been standing idle and projected developments have been postponed, "the scientific study of non-ferrous metals and alloys has been progressing rapidly."

The book will well repay perusal, not only by chemists, but by all works' managers, directors, and the like, connected with chemical industries. It is well printed, has good indexes, and is supplied at a slightly lower price than that issued twelve months ago.

T. H. POPE.

COAL-TAR COLOURS IN THE DECORATIVE INDUSTRIES. By A. CLARKE. Pp. xiii. + 166. London: Constable & Co. 1922. Price 6s.

The object of the book is to deal "with the use of coal-tar dyestuffs in lake-making, and in leather, fur, wood, paper, etc., colouring."

The author quite correctly states "that the general utility of coal-tar dyestuffs and their future possibilities in the decorative industries have not been realised to the full, even by workers engaged in those industries." The general belief that these dyestuffs and their lakes do not resist exposure to light and to weather conditions is chiefly responsible for this.

This objection, however, applies to a limited number only. Among the many coal-tar dyestuffs at our disposal at present, it is by no means difficult to "obtain dyes of excellent fastness and perfectly insoluble lake-pigments," covering

a very wide range of shades. The difficulty which the user will experience is in the selection of the dyestuffs best suited for his special requirements. In this, the examples given in the book should form a very useful guide.

After a short historical sketch and an outline of the application and the testing of dyestuffs and the principal mordants, Chapter III. deals with the manufacture of lakes and pigments. In this the author very clearly describes the preparation of lakes with the basic, the acid, the direct, the eosine, the alizarine and other dyestuffs. Examples and lists of dyestuffs are given in each case from which the user can make his selection.

Testing lakes for fastness and the application of lakes are briefly referred to in Chapter IV., and Chapter V. deals with "fillers," such as starch, china clay, etc., and with the staining and dyeing of wood. The application of coal-tar dyestuffs in the preparation of oil colours, spirit colours and French polishes is discussed in Chapter VI., an outline of the dyeing of paper pulp, of paper staining and of dyeing paper yarn and fabrics is given in Chapter VII. Whilst the last two materials have been fairly extensively used during the war, we do not agree with the statement that "the production of fabrics from this material has assumed very large proportions in Germany."

An introduction to the dyeing and staining of leather and furs is given in Chapter VIII., and in the final chapter the author briefly describes the use of coal-tar dyestuffs in colouring substances such as galalith, horn, ivory, mother of pearl and celluloid, and the dyeing of fibres of minor importance, such as jute, coconut fibre, kapok, etc.

The book is carefully written and is well printed on a good paper. It contains a large amount of useful information, and although the subjects cannot be exhaustively dealt with in the space available, it clearly shows the direction in which profitable work may be carried out.

The investigator will find the short bibliography given after every chapter very useful.

J. HUEBNER.