

REVIEW.

A TREATISE ON APPLIED ANALYTICAL CHEMISTRY. Vol. II. By VITTORIO VILLAVECCHIA, Director of the Chemical Laboratories of the Italian Customs. Translated by T. H. Pope, B.Sc., A.C.G.I., F.I.C. Pp. xv+536. London: J. A. Churchill, 1918. Price 25s. net.

This book forms the second volume of Professor V. Villavecchia's "Applied Analytical Chemistry," and deals in sixteen chapters with the application of chemistry to the analysis of the commoner industrial and food products.

The Director has been assisted by several well-known Italian collaborateurs, who have done their best to compress the very large subject into one volume. This has been rendered more difficult inasmuch as mineral colours, which should have been dealt with in the first volume, occupy 35 out of the 528 pages. This volume contains an index to both.

The first chapter is devoted to meat and its preparation, and, after dealing with the usual physical observations, gives in full detail methods for determining preservatives, colouring matter, horseflesh, casein, starch, and nitrogen in its various forms. The portion on meat extracts is particularly well done, and collects in a small space the various analytical standardising processes which the analyst must ordinarily obtain with great expenditure of labour from the more lengthy textbooks on the subject. The chlorine and bromine determinations for gelatin are omitted, as is also the Gunning-Arnold-Kjeldahl modification.

Milk and its products is the subject next dealt with. The more antiquated methods of analysis are entirely omitted, and great prominence is given to Gerber's volumetric estimation of fat, which is now the standard commercial process adopted for this estimation. Special tests, such as that for reductases, cryoscopic index, Cornalba's constant (total soluble matter), and others, are very briefly, but concisely, treated, as well as their modifications, which are required when testing butter, cheese, condensed milk, and margarine.

The table on the variation in the composition of milk in various towns in Italy is scarcely of interest to the British student.

The third chapter treats the very debatable subject of flour, starch, and their derived products. Here the same definiteness is maintained as with the other chapters, and very useful hints on the microscope and its use in this connection are given. Methods for the detection of foreign and injurious seeds, wood-meal, mineral substances, chemical treatment, and baking tests are also given.

The next chapter—that on sugars and products containing them—is one of the longest in the book. Besides the usual sugar estimations, the processes used in testing the prime materials of the sugar industry are described, as well as the modifications of these processes which are necessary when an opinion is required on such products as jams, preserved fruit, chocolate, and other sweetmeats.

Beverages are very exhaustively treated. Three chapters—one for beers, one for wine, and another for spirits and liqueurs—give all the processes commonly required for their manufacture and standardisation, together with the most recent tables which are necessary in this connection. The chapter on beer has been mainly rewritten for this English edition, as this beverage is not the natural drink of Italy, and its manufacture there is not so highly developed as it is in this country. The new Original Gravity Tables for Beer is included.

Another very important chapter in the book is that dealing with colouring matters. These are divided into two sections—inorganic and organic. The inorganic colours are collected under the individual colours—*i.e.*, all the whites are treated together, then all the reds, yellows, greens, blues, and greys. With each particular colour the method of analysis is given, together with the estimation of the more common impurities present. The organic colours are further subdivided into the natural and synthetic colours. Various methods of identifying the latter are given with tables.

The remainder of the chapters in the book are short, and deal with essential oils, turpentine and its products, varnishes, rubber and gutta-percha, tanning products, inks, leather and textile fibres, yarns, and fabrics.

The book, like its predecessor, Vol. I., is one for reference, and not for study. It contains information which is indispensable for the analyst, and for this reason should find a place in every laboratory bookshelf.

S. RIDEAL.
