

describes briefly the technical details of colour analysis in the tricolour camera by means of dichroic mirrors, and various means of colour synthesis at the receiving end. These include the three-tube method using dichroic mirrors, the shadow-mask system with a tricolour phosphor mosaic, and the Lawrence tube which is effectively a linear shadow-mask device. Finally, mention is made of the Valensi system, in which colour discrimination comparable with that of the eye is achieved (possibly more simply for transmission purposes) by treating the chromaticity diagram as a finite number of colour patches instead of a continuum.

The book is admirably illustrated in colour, and is very reasonably priced. It leaves one wishing one could have heard the original lectures.

G. R. NOAKES

DYESTUFFS CHEMISTRY

The Chemistry of Synthetic Dyes and Pigments
 Edited by H. A. Lubs. (American Chemical Society Monograph Series—No. 127.) Pp. xiv+734. (New York: Reinhold Publishing Corporation; London: Chapman and Hall, Ltd., 1955.) 148s. net.

ACCORDING to the publisher's notice on the dust cover, "Here is without question the most authoritative work ever published on the subject of synthetic dyes". It should be authoritative in that it has been compiled by a formidable band of experts in the Du Pont Co., but whether it is the most authoritative is open to question. This is not an easy book to review; in fact, on a first cursory examination, the British reader is liable to form the opinion that something important is missing. It is an American book written primarily from an American point of view, which is not always quite identical with the British or European. There is no internationally agreed nomenclature for dyestuffs and intermediates; that used in America is not precisely the same as that used in Britain or in Germany, and the non-American reader must keep this point clearly in mind. The book has its shortcomings, particularly as a text-book suitable for students. For example, the historical development of the subject, as displayed in the various chapters, each dealing with a specific class of dyestuffs, is of necessity very scanty and may be misleading.

It is not always easy to follow the reasons for the development of a particular line of invention or to get a clear picture of how the chemistry of the subject developed. So much detailed information is given in such a concise form that some chapters tend to become not much more than a catalogue of the dyestuffs under discussion, with the briefest descriptions of how each is made. The literature citations, which are plentiful, may also give a false impression. Recent patent specifications with a tendency sometimes, but not always, to refer to the United States specifications rather than the original, and references to BIOS and FIAT reports predominate; thus the reader is referred mainly to very objectively written recipes for manufacturing particular dyestuffs and intermediates, and the uninitiated reader might conclude that reading dyestuffs chemistry is rather like reading Mrs. Beaton's cookery book.

It is, however, unfair to emphasize these shortcomings because Dr. H. A. Lubs and his collaborators have aimed at presenting a really up-to-date survey

of dyestuffs chemistry, as it is at the present time, within the scope of a single volume. This they have achieved; they have produced a good book, and they are to be congratulated on their performance. As in all the monographs of the American Chemical Society, the printing of the text and the innumerable formulæ is excellent. Why, however, do publishers of such eminence persist in making difficulties for themselves and for their readers by using irregular hexagons in the formulæ of complex polycyclic compounds?

S. COFFEY

A NEW SCHEME OF QUALITATIVE INORGANIC ANALYSIS

Qualitative Inorganic Analysis

A New Physico-Chemical Approach. By Prof. G. Charlot. (Translated from the Fourth French edition by Dr. R. C. Murray.) Pp. xi+354. (London: Methuen and Co., Ltd.; New York: John Wiley and Sons, Inc., 1954.) 42s. net.

MANY teachers feel that the classical method of qualitative analysis is uninteresting. It certainly familiarizes the student with the appearance and chemical properties of a large number of important substances which he might otherwise never see, and if properly taught it can be used to illustrate many aspects of physical chemistry. The use of newer organic reagents in colour reactions suffers from the objection that the student at that stage has no idea of the structure of the reagent or what is happening in the process, and the procedure is empirical in the extreme. Teachers may think that analytical chemistry as taught is too little related to what is done in works laboratories; but each works has its own techniques, and the object of a course in qualitative analysis should be to teach chemistry.

From time to time modified schemes of analysis have appeared, and this book gives one in which group separations are abandoned and detections are by specific reagents in solution. The first part contains a long description of various branches of inorganic and physical chemistry which are at least as well described in separate treatises on those subjects. The methods used depend largely on pH and redox potential control and the formation of complex compounds. Solvent extraction is also used. The practical part of the book goes through a number of groups of elements arranged according to the basis of the scheme. Some less common elements are included. Extensive tables of equilibrium constants and diagrams of solubility products as functions of pH as well as redox potentials are given, and even in the second part of the book the text is interrupted by long digressions on theory.

As an alternative to the usual method, the procedure described in the book is certainly worth a trial. I think, however, that the average student would be bewildered by the book. If given a substance for identification, he would not know where to begin. A book on qualitative analysis should serve as a guide to such an identification and not a text-book of physical or inorganic chemistry. The book should be examined by teachers of qualitative analysis; even if they do not feel disposed to adopt its methods, they will find much in it which will be helpful in other parts of their work.

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