

of so much French cytological work could be published in the United States despite the collapse of France. The preface states that Dr. J. Dufrenoy, who is well known to many English and American botanists and who was at one time an associate of Prof. Guillaiermond, is now in the United States and assisted with the preparation of the book for the press. May we express the hope that a free interchange of ideas between the botanists of England and France may soon return, meanwhile English readers will welcome the latest summary in English of the work of French cytologists on the cytoplasm of plant cells.

F. C. STEWARD.

## ANALYSIS OF MODERN STEELS

The Chemical Analysis of Ferrous Alloys and Foundry Materials

Modern Practice and Theory. By E. C. Pigott. Pp. xv+362. (London: Chapman and Hall, Ltd., 1942.) 28s. net.

THE increasing use of alloy steels has produced difficulties necessitating modifications in the methods used in the analysis of plain carbon steels described in the older text-books; and in addition, considerable research has been required in order to simplify the estimation of the various additions, which now include many of the less common elements. The author, in the volume under review, has attempted to remedy the deficiency.

The scheme of the book is conceived on somewhat original lines. Each element is treated separately, and after describing its chemical and physical properties, and its role in steel manufacture, a consideration of the methods of analysis is given. This is followed by complete directions. An admirable feature is a very useful section dealing with the chemistry involved. This section, in particular, makes clear to beginners the fundamental principles underlying the various methods. This is too frequently disregarded in text-books of analysis. Many of the sections give evidence of careful investigation of various methods, more particularly those in which disputes are frequent. The chapter on the estimation of aluminium may be cited as an example; no reference is made, however, to the method in which most of the metals are removed by electrolysis using a mercury cathode.

The book also contains sections on the analysis of aluminium alloys, copper alloys and refractories. In none of these has the author been so successful. In the section on the analysis of aluminium alloys, it is perhaps incorrectly assumed that all the zinc is extracted by treatment with caustic soda. The silica estimation must also be made in nickel or platinum vessels, and not porcelain, since the attack by strong soda is by no means negligible. The estimation of iron and aluminium in copper alloys by precipitation with ammonia would also lead to high results for the latter element, due to the presence of zinc, if only one precipitation is made.

The method suggested for the analysis of refractories is in many respects open to criticism. The ignition of alumina requires a temperature of at least 1,100° C. and not 900° C. as specified. The single precipitation of magnesium as phosphate in the presence of such an excessive amount of sodium salts must lead to an erroneous result.

There are few adverse criticisms to make on the other portions of the book. The photograph of the carbon apparatus, however, is not marked with the letters used in the description, with the result the details are difficult to follow. In a future edition, the table on p. 345 could be extended with advantage by giving suggested methods for various types of steel.

The author has produced a most useful treatise which should prove of great assistance to all analysts who are already experienced in the methods of analysis of the older steels.

## CHEMISTRY IN CLINICAL MEDICINE

Manual of Clinical Chemistry

By Miriam Reiner. Pp. xv+296. (New York: Interscience Publishers, Inc.; London: H. K. Lewis and Co., Ltd., 1941.) 3 dollars; 18s. net.

METHODS of precision play an important part in modern medicine: they constantly seek, by the plain accuracy of scientific statement, to clarify clinical findings, to reinforce judgment, and to place opinion on a stable basis. Their proved value, proved by the work of an older generation, has broadened and amplified their place and scope, growth rapidly pushing forward with each new and accepted success. The present generation has in the physical, such as X-rays, and the chemical, such as the numerous tests whereby the intimate functions of the body metabolism can be observed, become familiar with new weapons which are now as much clinical necessities as a thermometer or a stethoscope. So far the field of value of such measures remains largely diagnostic and prognostic; the therapeutic application, without degrading the place of the exact control observations possible in many diseases, still rather lags behind.

Miss Reiner's little volume on the technique of the many chemical methods in everyday use comes from the Mount Sinai Hospital, New York, and certainly fulfils the standard which would be expected from a product of that institution. The book is first of all a manual, that is to say, it is a volume compact in make-up, but bold in print; systematic in arrangement but complete in adjuvant details; and of a size convenient to be propped up on a laboratory desk or thrust into a peripatetic pocket. The whole subject is fully, indeed generously, covered, ranging from specifications, indicators and measures to tests for the common poisons, vitamins and hormones. Adequate and proportionate space is given to the various function tests, gastric analyses, urine and cerebro-spinal fluid examinations, etc., the section on blood analysis being—and rightly so—the largest.

The method of statement of the procedure to be followed gives to each step of detail its corresponding line, thus gaining on one hand clarity of presentation and on the other being practical and time-saving. It is pleasing to note an insistence on exactitude of measures and times and on the technical details of the preparation of reagents.

Miss Reiner's book is obviously intended for an American audience and suffers, therefore, in trivial details in presentation to a British. With this slight reservation, the book can be cordially commended as a competent and careful piece of work fulfilling in every sense its aim. The bibliography has been wisely cut down to one or two references pertinent to each item.

JOSEPH GEOGHEGAN.