Colorimetric Analysis. vol. I, *Determinations of Clinical and Biochemical Significance.* Noel L. Allport and J. W. Keyser. Chapman & Hall, London, ed. 2, 1957 (order from Macmillan, New York). 424 pp. Illus. $9.

Two changes may be immediately noted in this new edition: a junior author (Keyser) has been added, and there are to be two volumes. This volume has been limited to methods used in clinical and biochemical analysis for substances occurring in body fluids and tissues.

The substances selected total 98, of which 82 are organic. The inorganic substances include the cations Ca^{++}, Cu^{++}, Fe^{+3}, H^{+}, Hg^{++}, K^{+}, Mg^{++}, Na^{+}, Pb^{++}, and Zn^{++} and the anions Br^{-}, I^{-}, PO_4^{-3}, SO_4^{--}, SiO_3^{--}, and SCN^{-}. In a number of cases, such as that of hemoglobin, there are several procedures. All of them seem to have been selected on the basis of ease of manipulation and reasonable reliability. Whether the selection is the best possible could be answered only by one familiar with all such methods. Many other methods are cited in references, mostly to biochemical sources, at the end of each section. Also, an appendix lists references, and principles of the methods, for 32 organic substances of biochemical interest which are not described in the text.

For each constituent there is usually a very brief statement of the principle involved in the production of the colored system to be measured. These sections might well be expanded. Next comes a concise, "cook-book" type of statement of the operating technique, including preparation of necessary reagents. The discussion that follows deals with the possibilities and limitations of the method.

There is some divergence in nomenclature from the preferred usage of *Chemical Abstracts.* Examples are *silicofluoride* (*fluosilicate*), *arsenomolybdic* (*molybdoarsenic*), and *α-α′-dipyridyl* (*2,2′-bipyridine*). In general, the book seems to have been carefully done.

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Microwave Measurements. Edward L. Ginzton. McGraw-Hill, New York, 1957. xvii + 515 pp. Illus. $12.

This is an excellent reference book, of professional quality, devoted to microwave measurements. The author was a colleague of the late W. W. Hansen, with whom initial plans for the book were made. Ginzton can claim technical proficiency in this field in his own right, and I mention this fact merely to point out that I feel that there is no less need for such a book now than there was when this one was originally planned, probably soon after World War II.

The author intended this book to be a useful reference volume for those who have more than a routine interest in microwave measurement problems. He has succeeded in this aim, and it is for this reason that I would classify this as a professional reference book. There is general continuity in treatment of the material, so that, unlike a handbook, this book can be used for graduate courses in microwave measurements.

The author assumes that the reader has competence in electromagnetic theory, and he uses what theory he gives in the text itself merely for the justification of certain concepts—for example, the impedance concept. By assuming this initial familiarity with the field, the author is able to delve quite deeply and rapidly into the topics he has decided to cover. Being thus able to deal immediately with the details of the apparatus and the methods used in microwave measurements, Ginzton is able to consider in most cases the quantitative description of the devices and methods used. In other instances he at least discusses qualitatively the operation of the devices.

As can be inferred from the above remarks, this book is not a "cookbook" of recipes for making microwave measurements. Proper attention is given to the basic theory as well as to the apparatus or method being employed. There are, however, in the book explicit and detailed instructions for carrying out the actual measurement operation. For example, in the section referring to the making of standing-wave-ratio measurements with slotted lines, Ginzton discusses the many pitfalls of the method with the tender and loving care of a man who has made measurements himself and who has possibly, at some time in the dim distant past, encountered the very pitfalls he is warning about now. A feature of format which warrants favorable mention is the use of footnotes to develop simple algebraic relationships or proofs referred to in the text. To develop these proofs for himself would frequently demand considerable ingenuity on the part of the reader, and the necessity for doing so would often be annoying. Having them available along with the text is of definite advantage. The topics covered in the book are of broad general interest. The absence of some specialized topics in microwave measurements—for example, measurements in microwave spectroscopy—is no great loss. The topics discussed are generation, detection, and measurement of microwave power; the concept of, and the measurement of, microwave impedances; and the representation of microwave radiation. The book ends with a discussion of the measurement of cavities and of their Q_0 and their R_0/Q_0, or electric field distribution and, finally, of the measurement of attenuation.

The book is well illustrated with line drawings, photographs, and graphs, and the material is documented with an extensive and very useful bibliography.

An obvious attempt has been made to make the material as up-to-date as possible. However, material of transient or specialized interest has not been considered; hence, the material in the book will probably become obsolete very slowly. In a book such as this, where a large number of techniques are covered, there is bound to be a variation in the excellence with which the material is presented. Although all sections of the book demonstrate professional competence, only certain sections are truly authoritative. For example, the chapter on the measurement of wavelength is very well done, while the chapter on the measurement of frequency is adequate but uninspired. I would even quibble about the selection of some of the material—for example, the ammonia maser is discussed from the point of view of a frequency standard, and the cesium beam is not even mentioned.

These are trivial complaints on the whole, and, in summary, the book must be considered as a worth-while contribution to the literature on the microwave field and, especially, as an excellent reference book on microwave measurements.

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Gas Dynamics. Klaus Oswatitsch. English version by Gustav Kuerti. Academic Press, New York, 1956. 610 pp. Illus. + charts. $12.

This volume is an excellent treatment of modern gas dynamics, covering the material usually presented in a first-year graduate course in compressible flow theory. It begins with an introduction to the basic thermodynamic relations and quantities, following which the steady one-dimensional flow of a gas in a duct of varying cross section is considered. Brief introductions to normal shock waves and to the effects of energy addition and friction are included. Next follows a chapter on unsteady one-dimensional flow in ducts of constant cross section and with no friction or energy release. The theory of characteristics is introduced and applied to various special solutions. The interaction of shocks and shock waves in cylindrical and spherical coordinates is also considered.

The next three chapters deal with the fundamental relations for two- and three-dimensional steady flow. Integral theo-