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-

rems are established, Prandtl-Meyer flow is presented, and the hodograph and other transformations are introduced. There follows a chapter on steady, ideal, plane, and axisymmetric subsonic flow. This chapter contains a detailed treatment of linearized theory, the Prandtl-Glauert rule, and the methods of Rayleigh-Janzen and Karman-Tsien. Numerical relaxation methods are treated briefly.

The next chapter deals with steady, ideal, plane, and axisymmetric supersonic flow. Linearized theory is presented, followed by consideration of the oblique shock and applications of the method of characteristics to nonlinear isentropic flow. Specific applications are given to airfoils, nozzles, jets, cascades, and bodies of revolution at incidence. There is a brief discussion of hypersonic flow. The next chapters deal with transonic flow and with miscellaneous unsteady multidimensional flow situations. There is a brief chapter summarizing some of the more important results for compressible boundary layers, laminar and turbulent jets, separation, stability, and shock-wave thickness.

The volume closes with a survey of some of the more standard experimental techniques. There are no exercises. The bibliography is somewhat brief. There are brief tables and charts for the dynamic relations of various gases.

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The North American Deserts. Edmund C. Jaeger. Stanford University Press, Stanford, 1957. x + 308 pp. Illus. $5.95.

Edmund C. Jaeger, curator of plants at the Riverside Municipal Museum, is a student of desert ecology, acquainted with animals as well as plants. He is also a competent expositor and illustrator, whose knowledge and talents have been put to effective use in what adds up to a very convenient guidebook to the deserts of North America. Peveril Meigs has provided a good chapter on desert weather and climate, and the author acknowledges generous assistance from numerous other collaborators.

After a general discussion on deserts and the chapter by Meigs, five great desert areas—the Chihuahuan, Sonoran, and Mohave deserts, the Great Basin, and the Painted Desert—are described. The account of one of them, the Sonoran, is broken up into six subdivisions. Physical conditions, flora, fauna, and human cultures are dealt with in a manner that should be appreciated by professional worker and layman alike; both popular and scientific names are given for all organisms. Helpful travel hints are also included. This portion of the book is well illustrated with maps and photographs.

It is followed by some 130 pages of plates and brief descriptions of desert insects, reptiles, birds, mammals, and plants, by a page on the euphonious Spanish names, so indispensable in the Southwest, and by a good index.

Apart from their intrinsic interest and beauty and the growing pressure to convert them into something "useful," deserts are becoming of increasing interest from a scientific standpoint. In Inner Mongolia, Spain, and our own Southwest, the sediments of former lakes are revealing records of climatic change extending back through the Pleistocene and beyond, giving a continuity not possible within the glaciated region itself. Scientists who will, in increasing numbers, be engaged in such studies owe a debt of gratitude to Jaeger and his collaborators, since the desert is not likely to be a familiar environment to many of them.

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New Books

Artificial Stimulation of Rain. Proceedings of the first Conference on the Physics of Cloud and Precipitation Particles. Held at Woods Hole Oceanographic Institution, Woods Hole, Mass., 7–10 Sept. 1955. Pergamon Press, New York and London, 1957. 443 pp. $15.

Forest Fertilization. A bibliography, with abstracts, on the use of fertilizers and soil amendments in forestry. Compiled by Donald P. White and Albert L. Leaf. State University College of Forestry, Syracuse University, Syracuse, N.Y., 1957. 303 pp. $3.

Instinctive Behavior. The development of a modern concept. Translated and edited by Claire H. Schiller. International Universities Press, New York, 1957. 347 pp. $7.50.

No and Yes. On the genesis of human communication. Rene A. Spitz. International Universities Press, New York, 1957. 182 pp. $4.

Surgery in World War II. Ophthalmology and *Otolaryngology.* John Boyd Coates, Jr., Ed. Medical Department, U.S. Army, Washington, 1957 (order from Supt. of Documents, GPO, Washington 25). 628 pp. $5.

Manual of Microbiological Methods. Society of American Bacteriologists, Committee on Bacteriological Technic. McGraw-Hill, New York, 1957. 325 pp. $5.50.

Deafness, Mutism and Mental Deficiency in Children. Louis Minski. Philosophical Library, New York, 1957. 90 pp.

The Volunteers. Means and ends in a national organization. David L. Sills. Free Press, Glencoe, Ill., 1957. 340 pp. $6.

Human Histology. A textbook in outline form. Leslie Brainerd Arey. Saunders, Philadelphia, 1957. 346 pp.

Atomic Power, an Appraisal. Including atomic energy in economic development. Corbin Allardice, Ed. Pergamon Press, New York and London, 1957. 151 pp. $3.50.

Cytochemical Methods with Quantitative Aims. Biophysical and biochemical approaches. Experimental Cell Research, Supplement 4, 1957. Proceedings of the symposium, 27–29 Sept. 1956, Institute for Medical Cell Research and Genetics, Karolinska Institutet, Stockholm, Sweden. Academic Press, New York, 1957. 296 pp. $9.50.

Miscellaneous Publications

(Inquiries concerning these publications should be addressed, not to Science, *but to the publisher or agency sponsoring the publication.)*

Federal Funds for Science. VI. The Federal Research and Development Budget, Fiscal Years 1956, 1957, and 1958. National Science Foundation, Washington, 1957 (order from Supt. of Documents, GPO, Washington 25). 60 pp. $0.40.

Education Associations. Part 4 of Education Directory 1956–57. Office of Education, U.S. Department of Health, Education, and Welfare, Washington 1957 (order from Supt. of Documents, GPO, Washington 25). 79 pp. $0.30.

American Museum of Natural History, Eighty-Eighth Annual Report, July 1956–June 1957. The Museum, New York, 1957. 77 pp.

The Age of Space. Proceedings of a nontechnical conference on missiles, rockets, and space travel—and their impact on our times. 16 May 1957. Southern Research Institute, Birmingham, Ala., 1957. 43 pp.

Scientific Resources of the San Francisco Bay Area. International Science Foundation, Golden Gate Park, San Francisco, 1957. 96 pp. $5.

Hydrography of the Faroe-Shetland Channel, 1927–1952. Scottish Home Department, Marien Research, 1957, No. 2. John B. Tait. Her Majesty's Stationery Office, Edinburgh, 1957. 309 pp. £5 5s.

Enuresis. A clinical and genetic study (*Acta Psychiat. et Neurol. Scand.*, vol. 32, Suppl. No. 114). Bertil Hallgren. Munksgaard, Copenhagen, Denmark, 1957. 159 pp.

Étude Théorique des Oscillations Libres (Seiches) du Lac Tanganika. Exploration hydrobiologique du Lac Tanganika, 1946–1947. vol. II, fasc. 3, *Resultats Scientifiques.* F. Servais. Institut Royal des Sciences Naturelles de Belgique, Bruxelles, 1957. 311 pp.

Inventions Wanted by the Armed Forces. U.S. Department of Commerce. National Inventors Council, Washington 25, 1957. 34 pp.

Polemoniacae of Nevada. Edgar T. Wherry. *Ipomopsis and Gilia Sect. Arachninon* contributed by Verne Grant and Alva Grant. Contributions toward a Flora of Nevada, No. 43. Plant Industry Station, Beltsville, Md., 1957. 103 pp.

Ecological Life History of the Warmouth (Centrarchidae). Survey Bulletin, vol. 27, art. 1. R. Weldon Larimore. Illinois, Natural History Division, Urbana, 1957. 84 pp.