

dispensable, whatever they may think of it as an *ecology* text.

There are some 26 pages of references and a 35-page index. There seems to be an unnecessarily large number of typographical errors, especially in proper names; this should be taken care of in the next printing.

JOEL W. HEDGPETH
*Pacific Marine Station,
College of the Pacific*

Environmental Sanitation. Joseph A. Salvato, Jr. Wiley, New York; Chapman and Hall, London, 1958. xiii + 660 pp. Illus. \$12.

This new text is the first, to my knowledge, that comprehensively treats the sanitation problems associated with the satellite communities that are flourishing in the rapid expansion of the suburbs. In his preface, the author acknowledges that many excellent texts are available which present the theory of sanitation practice appropriately for classroom and reference use. Most of these stress applications common to cities and towns with more than 5000 population. Others, under the general heading of "rural sanitation," lay stress on the individual farm household. First-hand experience with the activities and administration of sanitation services at the local-health-department level have added strength to the organization and content of this text.

An important aspect of this publication is the effort that is made to cover the everyday problems of the sanitary engineer and the sanitarian that arise in the course of their dealings with local government units. Such features include guidance on filling out forms for reporting on disease outbreaks, procedures for cement-grouting in the protection of wells, form letters on the design of private sewerage systems, check lists for inspection of food establishments, suggestions on how to serve as an expert witness during enforcement procedures, and information in a wide variety of administrative mechanisms.

A rather broad coverage of communicable diseases occupies the first chapter; this is followed by a brief presentation on steps to be taken in planning a facility. The remainder of the text is about equally distributed among seven chapters, covering water supply; sewage and waste treatment and disposal; swimming pools and bathing beaches; food; insects, rodents, and noxious weeds; housing; and environmental sanitation administration. The four appendixes present definitions of terms used in the text, excerpts from the "Public Health Service Drinking Water Standards" (1946), regulations relating to bottled

water (California), and a most helpful grouping of miscellaneous data on weights, measures, computation of power requirements, and fluid flow and cost comparisons.

Generous use of illustrations, graphs, and charts adds to the utility of the presentation. Examples of design computations provide a ready guide to the proper use of formulae and design data. The generous number of footnotes for bibliographic reference will be of aid in more intensive study of specific items.

It is surprising that there is only passing reference throughout the text to the problems of radiation protection. As with most first editions of such a text, there are also some lesser errors of omission that will require supplementation when the book is used in teaching. An example is the reference to the advantages of positive-displacement pumps without any notation of the need for pressure-relief valves to protect such systems from excessive pressures. These defects are minor, however, and the author is to be complimented for undertaking to bring together so much material that many of us had to learn by the trial-and-error method.

F. K. ERICKSON
*Office of Engineering Resources,
U.S. Public Health Service*

The Effects of Radiation on Materials. J. J. Harwood, Henry H. Hausner, J. G. Morse, W. G. Rauch, Eds. Reinhold, New York; Chapman and Hall, London, 1958. v + 355 pp. Illus. \$10.50.

In March 1957 a colloquium on "The Effects of Radiation on Materials" was held at Johns Hopkins University, in Baltimore; sponsors were the Office of Naval Research and the Martin Company. This book is a compilation of the talks delivered at the conference, plus an extensive bibliography (nearly 800 references) concerning the effects of irradiation on solids and liquids.

It seems that the organizers of the conference have been rather successful in their aim to bring together a number of contributions which appeal to such different groups as physicists, chemists, engineers, manufacturers of structural components, and students of nuclear engineering. This does not mean that the collection is particularly homogeneous; it is obvious that bridges between the different areas of interest still have to be built.

The standard introductory article by Dienes presents the necessary theoretical background on different kinds of defects, number of displaced atoms, threshold energy, and so forth, and compares the

theory with some experimental data. J. C. Wilson discusses radiation sources and experimental techniques, with emphasis on reactor facilities. The extent to which corrosion and surface properties of metals and alloys can be affected by radiation is discussed by M. T. Simnad.

Irradiation effects in different classes of solids are surveyed in three chapters, on metals and alloys (Billington), dielectrics (Smoluchowski), and semiconductors (Fan). The last two papers show clearly that an understanding of the mechanism of radiation damage in a particular material can be obtained only as a result of extensive research on the behavior of defects in such a substance (for example, alkali halides and germanium).

These papers are followed by two contributions devoted somewhat more specifically to engineering. C. E. Weber deals with the behavior and performance of core components (for example, fuel elements), while G. R. Hennig discusses radiation effects on a variety of reactor materials, including liquid and solid moderators.

The final chapters are devoted to organic substances. The status of radiation chemistry of organic compounds is reviewed by M. Burton; radiation effects on polymers and graft copolymerization induced by radiation are discussed by A. Charlesby and by A. J. Restaino, respectively.

To sum up, this collection of papers gives a reasonable picture of our present knowledge (and ignorance) in the rapidly moving field of radiation. One might hope, however, that in the near future a single author will muster the courage to review this field from a central point of view.

H. P. R. FREDERIKSE
*Solid State Physics Section,
Atomic and Radiation Physics Division,
National Bureau of Standards*

Current Concepts of Positive Mental Health. Joint Commission on Mental Illness and Health, Monograph Series, No. 1. Marie Jahoda. Basic Books, New York, 1958. xxii + 136 pp. \$2.75.

The first monograph resulting from the three years of intensive investigation and research of the ambitious Joint Commission on Mental Illness and Health is a noteworthy publication for two reasons. It contains as clear and authoritative a discussion of the nature of mental health as we are likely to get for several years. It also discloses the wide divergence in points of view of many psychiatrists and physicians, who think of mental health as absence of disease, and of a smaller

group of psychiatrists and many members of other disciplines, who consider mental health a combination of various constructive qualities.

Jahoda is a proponent of the idea that mental health is not synonymous with the absence of mental illness and that it is not the equivalent of normality. Instead she views it as a positive quality, to be approached in any one person by considering attitudes of the individual toward himself, the degree to which he realizes his potentialities through action, unification of function in the individual's personality, the degree of independence of social influences which he has achieved, the manner in which he sees the world around him, and his ability to take life as it comes and master it. A person may be mentally healthy in some ways but not in others.

Walter Barton, in a dissent from the views expressed by Jahoda, looks upon mental health and mental illness as a continuum, with illness as the point of departure and health as the goal. He believes that efforts devoted to improvement of total mental health in the community should be concentrated on preventing or treating major and minor mental illness.

No single definition of mental health can be satisfactory to all workers, nor is such a definition necessary for effective action.

This book is required reading for all who are seriously interested in improving mental health. It sets a high standard—one which it is hoped the nine subsequent monographs of the commission can maintain.

DANA L. FARNSWORTH
University Health Services, Harvard
University and Radcliffe College

General Cytochemical Methods. vol. 1. J. F. Danielli, Ed. Academic Press, New York, 1958. xi + 471 pp. Illus. \$12.80.

The first of a proposed biennial series, this volume deals with some of the methods applicable to *in situ* characterization of subcellular structures. The nine chapters give varied treatment to the editor's outline calling for presentation of theory, instrumentation and procedure, critique of the method, illustrative results, appendices, and references. The topics covered are as follows: "Weighing of cellular structures by ultrasoft x-rays," by A. Engström and B. Lindström; "Determination of mass and concentration by microscope interferometry," by H. G. Davies; "Ultraviolet microspectrophotometry," by P. M. B. Walker; "Quantitative determination of DNA in cells by Feulgen microspectrophotometry," by C. Leuchtenberger; "Autoradiography as

a cytochemical method," by S. R. Pelc; "Cytochemical demonstration and measurement of sulfhydryl groups by azo-aryl mercaptide coupling," by H. S. Bennett and R. M. Watts; "Indigogenic staining methods for esterases," by S. J. Holt; "Fluorescent antibody methods," by A. H. Coons; and "Calcium phosphate precipitation method for alkaline phosphatase," by J. F. Danielli.

All of these topics have been reviewed elsewhere at fairly regular intervals. The present volume is well written throughout by outstanding contributors and aims at rounded presentations. Most of the text originated at King's College, London, and in it the emphasis is primarily on physical instrumentation. Prior reviews are carefully indicated. Unifying accounts supplementing the existing literature are given, and there are fresh approaches to theoretical aspects.

Davies' chapter on the interference microscope is the longest in the book (107 pages) and an important major reference. Walker, in his article on ultraviolet microspectrophotometry, describes newer objectives, testing procedures for equipment, and errors due to the biological specimen, and he comments on items of apparatus in 11 short appendices. Pelc's presentation ignores Fitzgerald's earlier review and deals primarily with C_{14} and S_{35} . Both Coons and Holt include convenient appendices on synthetic procedures for their reagents. Leuchtenberger gives operational details for her particular instruments. The principal expositions of theory pertain to the physical instruments described by Engström and Lindström, who emphasize procedures for dealing with systematic errors in relation to x-ray wavelength. All the authors give brief reviews of recent applications of the methods to biological material.

In a succinct review of that hardy perennial commonly known as the Gomori method, Danielli calls attention to the application of interferometry to the estimation of alkaline phosphatase. It is unfortunate that a definitive review of a technique which has been examined "more critically than any other cytochemical technique" should not have avoided the elementary interpretive pitfall contained in the statement, "The amount of phosphatase present in a cellular site varies with . . . [the] substrate used."

Cytochemical methodology furnishes a good field for examination of the popular thesis that the value of a scientific method is dependent on its ease of application and the generality of its adoption by investigators. Referring to the vast preponderance of literature in visual microphotometry over that in the ultraviolet, Walker states that it "may not be a disadvantage since those who have been prepared to surmount the greater tech-

nical difficulties might be expected to be well aware of the difficulties of interpretation and of the many other hazards of inaccuracy." On the chemical side Bennett notes that his "mercury orange cytochemical method has not enjoyed the popularity which has fallen to the Barnett-Seligman method in spite of the lack of specificity which the latter method can display." It is evident throughout that the methods which require the greatest appreciation of theory of instrumentation have generated the least controversy and also have been least widely adopted. On the other hand the widely adopted tinctorial methods have generated some classic polemics, often in inverse proportion to the degree of mathematical formulation required for interpretation.

WILLIAM L. DOYLE
Department of Anatomy,
University of Chicago

Miscellaneous Publications

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

The North American Species of Hesperus Fauvel, with Descriptions of Two New Species (Coleoptera; Staphylinidae). Transactions, vol. XII, No. 18. Ian Moore. San Diego Society of Natural History, San Diego, Calif., 1958. 8 pp.

The Marine Molluscan Fauna of Guadalupe Island, Mexico. Transactions, vol. XII, No. 19. 12 pp. *A New Mollusk from San Felipe, Baja California.* Transactions, vol. XII, No. 20. 2 pp. E. P. Chace. San Diego Society of Natural History, San Diego, Calif., 1958.

The Customs and Religion of the Ch'iang. Misc. Coll., vol. 135, No. 1. David Crockett Graham. Smithsonian Institution, Washington, D.C., 1958. 110 pp.

Making the Most of Your Years. Pamphlet No. 276. Evelyn Hart. 28 pp. \$0.25. *What's in the Air?* Pamphlet No. 275. Hazel Holly. 20 pp. \$0.25. Public Affairs Committee, New York, 22 E. 38 St., New York, 1958.

International Medical Research. A compilation of background materials. Prepared for the Committee on Government Operations, U.S. Senate, and its Subcommittee on Reorganization and International Organizations. 85th Congress, 2nd Session. Superintendent of Documents, GPO, Washington, D.C., 117 pp. \$0.45.

Science and History. An inaugural lecture delivered at University College, London, 22 May 1958. Douglas McKie. Lewis, London, 1958. 17 pp. 2s. 6d.

Aviation Medicine. An annotated bibliography. vol. 2. 1953 literature. Arnold J. Jacobius et al. Aero Medical Assoc. 2642 University Ave., St. Paul, Minn., 1959. 360 pp. \$5.

Photochemical Secondary Reactions in Urban Air. Rept. 24. Philip A. Leighton and William A. Perkins. Air Pollution Foundation, San Marino, Calif., 1958. 214 pp. \$6.