cal systems will therefore find in Boyd's volume on the subject a useful compendium on the properties of photographic emulsions, dealing with both their virtues and their ailments, and a detailed description of histological and photographic techniques best adapted to the study of diverse types of biological tissues. This section of Boyd's book should prove invaluable to investigators approaching the subject with a feeling of timidity and will prove a *vade mecum* to the experienced darkroom adept.

The book contains a comprehensive bibliography of the biological and medical literature containing descriptions of autoradiographic techniques. This section is rendered particularly useful by means of supplementary analytic indexes, which classify the several hundred publications according to the identity of the radioactive isotope employed and the nature of the tissue and animal studied. The book is well printed and handsomely illustrated with numerous autoradiographs.

HERMAN YAGODA
Laboratory of Physical Biology, National Institutes of Health

Organic Solvents: Physical Properties and Methods of Purification. vol. VII of *Technique of Organic Chemistry.* Arnold Weissberger, Ed. Interscience, New York–London, ed. 2, 1955. vii + 522 pp. $8.50.

The appearance of the revised and second edition of the book on organic solvents is, indeed, a welcome addition to the reference literature of organic chemistry. The first edition, although ably compiled and presented, has long been out of date, and this second edition increases the usefulness of the reference material. The collaboration of an organic and a physical chemist in the presentation of the material on organic solvents greatly enhances the usefulness of the volume.

Following a simple classification according to organic chemical principles of the compounds indicated as solvents, the authors present a discussion of the properties and criteria of the physical properties and purity of the solvents in question. An adequate discussion is given of the boiling point, vapor pressure, density, refractive index, viscosity, surface tension, heat of vaporization, critical temperature and pressure, freezing-point constant, electric properties, flash point, and spectroscopy as well as the toxicology of the solvents. There then follow the complete data on 254 organic compounds utilizable as solvents under various conditions. Following this, there are tables arranged according to boiling point, freezing point, dielectric constant, and dipole moment. A useful series of indexes based on increasing boiling points, freezing points, dielectric constants, and dipole moments are included. This type of cross reference will be of considerable help to the researcher.

There next follows a chapter on the criteria of purity of solvent and the drying and determination of water. This will be especially useful for the practicing organic and physical chemists as well as those engaged in industrial work. The chapter containing the methods of purification for the compounds described is again a reasonably complete compilation of the literature. Although no completely critical evaluation of methods for purification have been attempted, there being several references to each compound, there is sufficient information given so that the researcher can consult the original literature. Of equal importance with the data presented in the book is the complete bibliography at the end and before the index. The whole worth of the book may be summarized in the words of the original author, "the aim of this book is to make readily accessible the abundant material which has been accumulated by chemists and physicists in recent years."

CARLETON W. ROBERTS
Department of Chemistry, Purdue University

Fluoridation as a Public Health Measure. American Assoc. for the Advancement of Science, J. H. Shaw, Ed., Washington, D.C., 1954. v + 232 pp. Illus. $4.50; AAAS members, $4.

This monograph is opportune and timely. Many of the questions raised by certain opponents of fluoridation have been ably answered with incontrovertible evidence. Twenty-one different scientists from the fields of chemistry, dentistry, engineering, and medicine have collaborated in this effort.

Two chapters—one a 10-year study of the medical aspects of an excessive fluoride intake from a water supply, the other a long-term medical study of a population using a fluoridated water supply—provide valuable information on the frequently posed question of complete medical studies. In other chapters, such subjects as the metabolism of inorganic fluorides, the magnitude of the dental benefits, the public health aspects of water fluoridation, the relative merits of various fluoridation vehicles, and the engineering and water chemistry phases of fluoridation are capably discussed by workers with years of experience in their respective fields. One chapter is devoted to the external action of fluorides on teeth, the so-called "topical application," of much interest to that portion of the population not using a public water supply.

The book has been carefully edited, and these diverse subjects have been blended into a coherent whole. It is written in an easily readable style of interest to scientists, public health workers, civic officials, and interested laity alike. A second printing would seem to be assured.

In the closing words of the preface, the editor states ". . . through the providence of nature, no other public health procedure in the annals of history has been so thoroughly tested in field trials under the widest variety of controlled circumstances." This monograph ably summarizes this evidence.

H. TRENDLEY DEAN
American Dental Association

Manganese. Metallurgy of the rarer metals, No. 3. A. H. Sully, Academic, New York; Butterworths, London, 1955. xiv + 305 pp. Illus. $6.50.

This book, the third in a series, is a summary of the literature on one of the so-called "rarer metals," manganese. Personnel engaged in research or plant operation will find it a well-written and comprehensive reference book.

The book opens with a description of the history of manganese and the worldwide occurrence and distribution of its ores. Following this, the metallurgical processes for obtaining manganese from its ores are discussed. Included are the blast and electric furnace processes for preparing high- and low-carbon ferromanganese and also the electrolytic process for the commercial production of high-purity, 99.3 percent, manganese. Methods for the recovery of manganese from furnace slags and low-grade ores are described.

Research workers will find the chapter pertaining to the physical properties of manganese of much use. The section on the four allotropic modifications of this metal contains data on the crystal structure, lattice constants, and transition temperatures. The published data on melting point, vapor pressure, specific heat, thermal expansion, electric resistivity, magnetic and other properties of manganese have been compiled and reviewed.

For many years manganese has been used extensively as a minor alloying element in ferrous and nonferrous materials. The commercial production of high-purity manganese has extended its use