scale calibration curves made with spectral lines of different intensities are parallel only when reciprocity failure is absent (i.e., $p=1$), whereas this parallelism requires only that p be constant over the exposure range covered. This is, in fact, implicit in some of the author's statements.

The section on the origin of spectra is an excellent example of skill in concentrating a large field into a small space by making every sentence count. The presentation, although semiquantitative in many places, is a model of tight organization and effective use of diagrams. The section on the excitation of spectra is brief; it includes a summary of Kaiser and Wallraff's classic paper on spark discharges and the generation of disruptive discharges. The emphasis is very properly placed on the current flowing in the discharge, rather than on the circuit parameters. No specific mention is made of the Pfeilsticker-Sventitskii low-voltage triggered arc.

The "practices" section of the book contains detailed discussions of certain exposure and sample preparation techniques selected to illustrate principles, rather than to provide laboratory directions. Presparking, electrode shapes, fractional distillation, the use of standard samples, and other topics are discussed in terms of specific techniques for analyzing liquids and solids. A section on preliminary chemical separation methods for trace analysis is accompanied by much good and heartfelt advice on chemical "asepsis" derived from the author's long experience in this field.

This book would serve as an excellent basis for a course in spectrochemistry.

CYRUS FELDMAN

Oak Ridge National Laboratory

An Introduction to Nematology: Anatomy, Sect. I. Rev. ed. B. G. Chitwood and M. B. Chitwood. Washington, D. C.: B. G. Chitwood, Box 104, Catholic University, 1950. 213 pp. $10.00.

After being out of print for several years this source book on nematodes, Section I, Parts I, II, and III, is again available, in one volume. It is intended for zoologists, helminthologists, agriculturists, and research workers in any field dealing with roundworms.

A historical résumé in Chapter I reminds us of the importance of nematodes, which annually exact a 10% toll from all crops in the United States. As parasites of domestic animals they cause a yearly loss of $500,000,000.

Chapter II outlines the classification of free-living and parasitic nematodes, in which the class Nematoda is given the rank of a phylum. This arrangement, together with the subdivisions, makes the entire classification more comprehensible and available to the nonspecialist in taxonomy.

Chapters III to XII illustrate and discuss fully the details of the finer anatomy of some 439 species and 357 genera of both free-living and parasitic nematodes, from the cuticle to the ova. The same excellent text figures, 145 in all, are retained from the original printing, with slight rearrangement and changes in pagination. Each chapter is supplied with a well-chosen bibliography brought up to date. It is significant, however, that few great contributions have been made since 1941; consequently, there are no large additions to the general content of the text.

The final chapter—XIII—discusses nemic relationships, origins, and evolution and gives a tabular comparison with other groups. A page and a half of abbreviation symbols and four and a half pages of an index to illustrations complete this excellent volume on nematodes.

LYELL J. THOMAS

Department of Zoology
University of Illinois

Botany: An Evolutionary Approach. R. Darnley Gibbs. Philadelphia: Blakiston, 1950. 554 pp. $6.00.

One difficulty that a reviewer of a textbook always faces is to judge the book from the position of the students for whom it is written. Even if the reviewer is a teacher, it is hard for him to remember how much and how little beginners in a particular field may know. It is even harder to judge whether the author's presentation of the material is explicit enough for the students to obtain the concepts and facts that were intended. It seems to this reviewer that Dr. Gibbs has been very successful, on the whole, in incorporating the information and the viewpoint that he set out to give. It is his contention that the best way to lead students into botany is to start with a discussion of the simplest plants and to work gradually through an evolutionary sequence to the study of the flowering plants. As he points out in the preface, this approach is not currently popular and serves in part, at least, as a justification for putting on the market yet another introductory botany text.

Prospective users of the book will have to decide whether they agree with the author that the evolutionary approach to plant science is best for beginning students. There can be no doubt that this approach should be available for advanced students and for general readers. The modern concepts of plant evolution have not been presented frequently enough in as clear and well-developed a manner as Gibbs achieves. This reviewer believes, however, that college freshmen and sophomores may have trouble in maintaining an interest in their botany course when they fail to learn about the familiar, conspicuous seed plants until late in the book—this despite the fact that in all the earlier chapters there are references to the usefulness or the harmfulness to man of many of the "lower" plants. Gibbs argues that students are not familiar with seed plants and are not especially interested in them. He is right that they are not familiar with them, but they think they are, and this feeling of familiarity serves to make them more interested in acquiring some knowledge of them than in learning about primitive plants first. Gibbs may be able to hold the attention of his students, for any good teacher can carry students into any field he is enthusiastic about. It is the belief of this reviewer, however, that Gibbs's *Botany* may be a hard book for many teachers to use successfully with first- or second-year college students. It should be an excellent text for advanced students.

The emphasis on evolution as the basis for organizing

present-day knowledge of plants does not mean that physiological, cytological, genetic, and taxonomic viewpoints are not well presented. In fact, a fair knowledge of biochemistry is needed to get the full import of some paragraphs—and especially the chapter on "Plant Products and their Utilization by Man." The first chapter, "The Content of Botany," lays out the whole field of plant science, but a beginning student may well not have enough understanding of the way scientific knowledge has to be organized to get much out of this in the first reading assignment. Much of its content might better be developed at the end of the book, although, of course, some introductory clue as to what botany is all about should be given.

The illustrations used are excellent and well selceted; most of them are original. The photographs are good and show what they purport to. The diagrams display evidence of having been designed by a teacher who knows what students need to be shown. The format of the whole book is pleasing, and the typography is most satisfactory. Why the text figures and the plates are not numbered in one series so that they can be found more easily needs explanation. A spot check of the index indicates that it is adequate, although it would have been helpful to have the pages where illustrations are found designated. The idea of having questions for further thought and study and a list of good reference books is commendable.

HARRIET B. CREIGHTON

Botany Department
Wellesley College

Scientific Book Register

Maize in the Great Herbals. John J. Finan. Waltham, Mass.: Chronica Botanica; New York: Stechert-Hafner, 1950. 191 pp. $3.00.

Industrial and Safety Problems of Nuclear Technology. Morris H. Shamos and Sidney G. Roth, Eds. New York: Harper, 1950. 368 pp. $4.00.

The Mammals of Victoria and the Dental Characteristics of Monotremes and Australian Marsupials. National Museum of Victoria, Handbook No. 1. C. W. Brazenor. Melbourne, Australia: Brown, Prior, Anderson Pty., 1950. 125 pp. 7s. 6d., Australian.

Sir Thomas Browne: A Doctor's Life of Science & Faith. Jeremiah S. Finch. New York: Schuman, 1950. 319 pp. $3.50.

The "Why" of Man's Experience. Hadley Cantril. New York: Macmillan, 1950. 198 pp. $2.75.

Antipyrine: A Critical Bibliographic Review. Leon A. Greenberg. New Haven, Conn.: Hillhouse Press, 1950. 135 pp. $4.00.

Personality and Psychotherapy: An Analysis in Terms of Learning, Thinking, and Culture. John Dollard and Neal E. Miller. New York-London: McGraw-Hill, 1950. 488 pp. $5.00.

Microbiology: With Applications to Nursing. Catherine Jones Witton. New York: McGraw-Hill, 1950. 692 pp. $4.50.

Feelings and Emotions. The Mooseheart Symposium in cooperation with The University of Chicago. Martin L. Reymert, Ed. New York: McGraw-Hill, 1950. 603 pp. $6.50.

Structural Carbohydrate Chemistry. E. G. V. Percival. New York: Prentice-Hall, 1950. 246 pp. $5.50.

Adventure into the Unknown: The First Fifty Years of the General Electric Research Laboratory. Laurence A. Hawkins. New York: Morrow, 1950. 150 pp. $3.50.

An Autobiography. Sir Arthur Keith. New York: Philosophical Library, 1950. 721 pp. $4.75.

The Microtomist's Vade-Mecum: A Handbook of the Methods of Animal and Plant Microscopic Technique. 11th ed. J. Brontë Gatenby and H. W. Beams, Eds. Philadelphia: Blakiston; London: J. & A. Churchill, 1950. 753 pp. $8.50.

Chemistry: Visualized and Applied. Armand Joseph Courchaine; M. Cordelia Cowan, Ed. New York: Putnam, 1950. 687 pp. $5.50.

Chymia: Annual Studies in the History of Chemistry, Vol. 3. Henry M. Leicester, Ed. Philadelphia: Univ. Pennsylvania Press, 1950. 250 pp. $4.50.

Medical Entomology. 4th ed. of "Medical and Veterinary Entomology." William B. Herms. New York: Macmillan, 1950. 643 pp. $9.00.

Electrical Engineers' Handbook: Electric Communication and Electronics. 4th ed. Harold Pender and Knox McIlwain, Eds. New York: Wiley, 1950. 23 sections. $8.50.

Water, Land, and People. Bernard Frank and Anthony Netboy. New York: Knopf, 1950. 331 pp. $4.00.

Principles of Nuclear Chemistry. Russell R. Williams. New York: Van Nostrand, 1950. 307 pp. $3.75.

Applied Mycology and Bacteriology. 3rd ed. L. D. Galloway. London, Eng.: Leonard Hill, 1950. 184 pp. 12 s.

Fundamentals of Optics. 2nd ed. Francis A. Jenkins and Harvey E. White. New York: McGraw-Hill, 1950. 647 pp. $7.00.

Negative Ions. 2nd. ed. H. S. W. Massey. New York: Cambridge Univ. Press, 1950. 136 pp. $2.50.

Introductory Nuclear Physics. David Halliday. New York: Wiley; London: Chapman & Hall, 1950. 558 pp. $6.50.

Current Trends in the Relation of Psychology to Medicine. Wayne Dennis *et al.* Pittsburgh, Pa.: Univ. Pittsburgh Press, 1950. 189 pp. $3.75.

The Sea and Its Mysteries. American edition. John S. Colman. New York: Norton, 1950. 261 pp. $3.75.