from the classical, dilute case to that of complete degeneracy, with many comparisons between theory and experiment. It is hoped that such a chapter will appear in a later edition. Current solid state theory has been so profoundly affected by semiconductor progress in the last decade that the lack of a chapter on semiconductors is, in my opinion, a regrettable omission.

It is a little strange to find the statistical thermodynamics of radiation, including Planck's law, compressed into a few pages and treated as a digression sandwiched between the Einstein and Debye theories of crystal properties. Perhaps I am sentimental, but I cannot help feeling that Planck's law should be set to better advantage in any complete treatment of statistical thermodynamics.

The four chapters of the last part (on theory of liquids, 173 pages) are devoted to pure liquids, solutions of nonelectrolytes, strong electrolytes, and solutions of macromolecules. Cooperative theories of melting, theory of free volume, critical points, orientation effects, and Debye-Huckel theory are among the topics discussed. A mathematical appendix concludes the book.

JEROME ROTHSTEIN
Edgerton, Germeshausen & Grier, Inc., Boston, Massachusetts

Oeuvres de Lavoisier. Correspondance. Fascicule II. René Fric, Ed. Michel, Paris, 1957. 285 pp. Illus.

Fascicle I of this work was reviewed in *The Scientific Monthly* [**83**, 211 (1956)]. It was there pointed out that the correspondence of the great French chemist Antoine-Laurent Lavoisier (1743–1794) is now being published as a supplement to the standard six-volume 19th-century edition of his collected writings. Hence, fascicle II may be considered to constitute pages 251 to 536 of volume VII of the *Oeuvres de Lavoisier* (the pagination is continuous with that of fascicle I). These pages contain 162 documents, emanating from the six years 1770 to 1775, inclusive. The costs of issuing fascicle II were contributed in part by certain outstanding French business firms and by the University of Delaware.

Here, as in fascicle I, we see Lavoisier tirelessly striving to wrest from nature a few of its tenaciously guarded secrets. In this connection we are given a photocopy of the famous memorandum which he wrote with his own hand and deposited under seal with the secretary of the French Academy of Sciences, on 1 November 1772, for the purpose of fixing the date of a discovery about combustion that he was not yet ready to announce publicly (pages 388–389). The foresight shown on this occasion is so characteristic that it is surprising to see him ask one of his correspondents to return his letters for several days because he wanted copies made of them (page 268); evidently even the methodical Lavoisier sometimes neglected to preserve the preliminary drafts of his messages, so that after the latter had been sent off, he had no permanent record of what he had written.

In these days of intensive specialization it is particularly interesting to catch fleeting glimpses of Lavoisier's manifold scientific activities outside the field of chemistry proper. His correspondence shows him observing astronomical phenomena, accumulating meteorological data, conducting a geological survey, and investigating the optical properties of mirrors and lenses.

In these days of hot and cold wars it is well to be reminded by the editor that when one of Lavoisier's French colleagues, who had been sent to help in the American Revolution, was captured by the British, he was released in recognition of his scientific attainments (page 335).

Another valuable service rendered by the editor consists of his inclusion of biobibliographical sketches of the scientists prominent in Lavoisier's correspondence. But here and there the editor has blundered. For example, Patrick D'Arcy began his studies in France in 1739, not 1769 (page 480). Charles LeRoy, a nonresident member of the Academy of Sciences, was designated correspondent of Jean-François-Clément Morand on 16 February 1774, not 19 February 1752 (page 416). The assertion (page 359) that Newton belonged "to the Unitarian sect" rests on flimsy evidence. In the list of Guyton de Morveau's publications, his 1782 memoir on chemical nomenclature appears twice (page 405). Document No. 281, dated 16 November 1775, should precede No. 280; the latter is misdated 28 October 1775 (page 508), although the correct date (28 November 1775) appears in the provisional index, which is supplied as a separate sheet not bound with fascicle II.

In like manner, Nos. 145 and 146 should come before No. 144. On 26 November 1770 Lavoisier wrote four letters, two of them (Nos. 145 and 146) from Charleville, and the other two (Nos. 144 and 147) from Stenay, a small town about 30 miles away from Charleville. While he was still in Charleville, he began No. 145, with the statement, "In a moment, sir, I shall enter the carriage to go to Stenay." Obviously, then, No. 144 (written at Stenay) is later than Nos. 145 and 146, which were composed at Charleville prior to Lavoisier's departure from that city for Stenay.

Three other documents (Nos. 173 to 175) form a related group, all undated. But the first two (Nos. 173 and 174) contain only the opening words of a section which appears in full in No. 175. Would it not have been better editorial judgment, then, to place No. 175 in front of Nos. 173 and 174?

An "errata" sheet rectifies some of the typographical errors in fascicle II. While we are all grateful to the editor for making available to us the correspondence of his eminent fellow-countryman, we may be permitted to hope that the forthcoming fascicles will maintain a level of excellence fully worthy of their subject.

EDWARD ROSEN
Massachusetts Institute of Technology

Craig and Faust's Clinical Parasitology. Ernest C. Faust and Paul F. Russell. Assisted by David Richard Lincicome. Lea & Febiger, Philadelphia, ed. 6, 1957. 1078 pp. Illus. $15.

This sixth edition of Craig and Faust's textbook of the same title has two new authors, Paul F. Russell and David L. Lincicome, who rendered editorial assistance. It is thoroughly revised, the text now exceeding that in the fifth edition by about 75 pages. There has been little change of emphasis in this edition; the greatest emphasis is still upon helminthic disease. The section on arthropods has been increased by about 14 pages, but that on protozoology has been reduced. In keeping with current needs, there has been greater emphasis on toxoplasmosis and visceral larva migrants. The book still retains the high standard of excellence of the earlier editions.

CLAY G. HUFF
Naval Medical Research Institute, National Naval Medical Center

Theories of Nuclear Moments. R. J. Blin-Stoyle. Oxford University Press, London, 1957. 89 pp. $1.40.

This monograph, *Theories of Nuclear Moments,* by R. J. Blin-Stoyle is the first to appear in a series aimed at the postgraduate reader. Within the short compass of 75 pages, the subject of nuclear moments is covered under the following chapter headings: "Electromagnetic multipole moments," "Measurement of nuclear moments," "Exchange currents and velocity dependent forces," "Nuclear moments of H^2, H^3 and He^3," "Nuclear models," "Magnetic dipole moments of odd A nuclei," "Electric quadrupole moments of odd A nuclei," "Magnetic dipole and electric quadrupole moments of odd-odd nuclei," "Moments of excited states of nuclei," and "Nuclear

magnetic octupole moments." There are also two appendixes, one on angular momentum states in quantum mechanics, the other on the observed and calculated moments of odd A nuclei.

Because of the very substantial progress of the subject of nuclear moments during the past decade, a monograph in this field is timely. This book serves to point out that "tho' much is taken, much abides" in the field of nuclear moments. As the title of this book aptly points out, there is at present no complete theory. The graduate student, and the post-Ph.D. graduate who wants to catch up with the developments in this neighboring field, will obtain from this book a summary of the accomplishments to date. However, without going to the original articles (which are listed in a very useful bibliography), the graduate student will find it difficult to obtain a thorough understanding of the present theories of nuclear moments.

As a summary of the observed moments of nuclei, this book is probably not to be strongly recommended. However, since the purpose of the book was to discuss the theories of nuclear moments, and since the predictions of the different models may differ appreciably, it might have been argued that precise statements of the observed values were not in question. Notwithstanding this, the observed values are often given in this monograph with expressions of accuracy. For instance, to take one case, the magnetic moment of cobalt-58 is given in Table 5 as 3.5 ± 0.3 and in Table 4, as 4.0 nuclear moments. In fact, the latest accurate determination given by Jeffries *et al.* is 4.052 ± 0.011 nuclear moments. In such a short monograph it is clearly impossible for the author to cover everything in the subject field, and Blin-Stoyle has taken here for his subject the theories of nuclear moments. Of these, this monograph provides an excellent summary, and it serves as an appropriate guide to further intensive investigations.

R. D. Hill

University of Illinois

Quantum Field Theory. H. Umezawa. North-Holland, Amsterdam; Interscience, New York, 1956. 364 pp. Illus. $9.75.

The difficulty in writing a book on quantum field theory lies in the rapidly changing nature of the subject; moreover, such changes are sometimes fundamental additions to our knowledge and sometimes quite ephemeral enthusiasms for a particular point of view. Quantum electrodynamics has reached the stage of making very accurate quantitative predictions, very high energy physics is still at the stage of classification, while pion physics is somewhere between these extremes. A text which attempts to deal with all aspects of quantum field theory is to be expected, therefore, to be of a rather uneven character in its material, and this is the case here.

H. Umezawa starts his book with a discussion of relativistic wave equations, and then there are two chapters on the quantization of free fields and three on interacting fields. The perturbation solution is discussed, and after the idea of renormalization has been introduced, the predictions of quantum electrodynamics are given in some detail. The book ends with four chapters on, respectively, the general theory of renormalization, damping theory, S matrix theory, and the theory of propagators. Since the book was written, new work has made part of it incomplete, and parts of the last four chapters are likely to become unfashionable, their permanent place being as yet unassured. But anyone wanting to understand relativistic quantum theory must know almost all of the material in this book and will find it a good mentor. There are many examples worked in the text, and it is also a valuable reference book. It is definitely a theorists' book—in particular, there is no discussion of pion experiments and their interpretation; but within these limitations it contains much material which is not to be found in any of the other books in English.

S. F. Edwards

University of Birmingham, England

Mosses of Indiana. Winona H. Welch. Bookwalter, Indianapolis, Ind., 1957. 478 pp. Illus.

This earnestly and conscientiously compiled manual will be helpful to advanced students and to serious amateurs in Indiana. The fact that most of the mosses found in Indiana are widely distributed throughout eastern North America makes this treatment appear more prosaic and less highly original that it otherwise might. The alphabetical listing of names of up to 75 counties for weedy and ubiquitous species that unquestionably occur in every county—and township—of Indiana occupies space that could better have been used for original observations and interpretations by the author. The uncritical listing of counties for the handful of truly interesting species does not offer much help for the reader interested in ecology and geographical distribution, since he must first find the counties on a map and then draw his own conclusions.

The great majority of the illustrations used in this book appeared originally in Sullivant's *Icones Muscorum,* in Bruch, Schimper and Gümbel's *Bryologia Europaea,* and in contributions to journals by many different authors; yet these original sources, surprisingly, are acknowledged neither in the introduction nor in the text.

In spite of the limitations mentioned, most of which, fortunately, will be taken seriously only by professional bryologists, this manual will take its place among the better moss floras of individual states.

William C. Steere

Stanford University

Scientific and Technical Translating. And other aspects of the language problem. United Nations Educational, Scientific and Cultural Organization, Paris, 1957 (order from Columbia University Press, New York). 282 pp. $4.20.

"Fifty percent of scientific literature is in languages which more than half the world's scientists cannot read." This generalization from the introduction of UNESCO's study of the language problem in the sciences would be hard to prove or disprove with fragmentary statistical evidence, but it does serve to explain UNESCO's concern with a vast intercultural problem.

The study is essentially a compendium of comments on a draft prepared for UNESCO by three national editors—Italian, French, and British—together with additional material supplied by the UNESCO secretariat. Its scope is large; the array of opinion, kaleidoscopic. There are comments and discussions on the statistics of scientific journals and on the language skills of scientists and techniques for improving them. The editors have devoted attention to the working problems of translating, to translating organizations and services, and to the status of machine translation, as well as to linguistic problems, including those of international languages and scientific lexicons. The book closes with extensive bibliographies, lists of contributors, and proposed solutions for one or more aspects of the problem.

The work is essential for those concerned with international scientific communication, yet the multitude of perspectives (preponderantly European) revealed in the comments on the UNESCO draft tend to hinder rather than assist in formulating the problem. Perhaps this is inevitable; the long shadow of the Tower of Babel follows even those who would escape it.

Scott Adams

National Institutes of Health