tinental glaciation, nor is there a correlation of continental glaciations in central and eastern North America. By contrast, the proposed correlations between various areas in Europe and between Europe and North America are quite detailed.

This book deserves, and doubtless will receive, widespread use as an introductory text. Students and professional geologists alike will appreciate Flint's efforts in compiling and succinctly summarizing useful information on nearly every facet of Pleistocene geology. Some readers may feel that the discussions of many subjects are entirely too brief. The fact is, however, that Pleistocene geology has grown so much that anything approaching an exhaustive treatment of the subject would no longer fit between the covers of a single volume.

JOHN P. MILLER
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Functional Neuro-Anatomy. Including an atlas of the brain stem. A. R. Buchanan. Lea & Febiger, Philadelphia, ed. 3, 1957. 362 pp. Illus. $7.50.

This relatively small volume (259 pages of text and text figures) follows previous editions in attempting to present neuroanatomy in terms of functional systems rather than of anatomical levels. Ascending pathways in the spinal cord and brain stem, the special senses and their pathways, the cerebral cortex, voluntary motor pathways, the cerebellum, the basal ganglia, and the hypothalamus are discussed in that order; general introductory and closing chapters on such subjects as functional components of nerves and the blood supply of the central nervous system complete the text.

The book is simply and clearly written, with functional and anatomical aspects nicely interwoven, and is spiced by allusion to clinical conditions and practical applications. Appropriate references to the literature are included. The text figures, almost entirely line drawings, are likewise kept simple, to illustrate particular points rather than the over-all anatomy; they include many diagrams of conduction pathways. As one can expect in a third edition, slips of the tongue and typographical errors are at a minimum. The atlas consists of photographs of sections of one half of the brain stem with the other half shown in line drawing, and labeled; the location and direction of the section are shown on an accompanying diagram.

This is a book written specifically for an introductory course in neuroanatomy, and therefore it does not contain the detail that some teachers may demand in a text on this subject. I feel that the thalamus is somewhat slighted but regard the book as being otherwise well balanced. The student who uses this text should emerge with a clear understanding of the fundamentals of the structure and function of the central nervous system, and for this very basic reason it deserves the consideration of teachers in this field.

W. HENRY HOLLINSHEAD
Mayo Clinic

Surgeons All. Harvey Graham. Philosophical Library, New York, ed. 2, 1957. 459 pp. Illus. $10.

Harvey Graham is the pseudonym of a well-known London physician and editor of medical publications, Isaac Harvey Flack. Another physician, the distinguished writer and poet Oliver St. John Gogarty, provides a foreword, in which he says, "This is the best book on surgery I have ever read. I agree with every word of it except the reasons for the removal of the Amazon's right breast." However, what sort of book it is, the reader might have difficulty in determining from the author's introductory matter, in which he expresses by implication surely the most extraordinary notions of the nature of historiography in his contention that "This is a story book: a story of surgery itself. . . . It is not a history book for it has not a solitary footnote and only the most meagre reference to original works," and "it was never intended for the Olympian few who read and enjoy such things."

Whether the presence of an *apparatus scholastici* or the direction of a work to the residents of Mount Olympus makes a history is immaterial; the fact remains that this work is a history of surgery in popular vein. Consequently, it must be judged by the standards of historical writing. However, I recognize that the point of view of the author is highly personalized, and so I am tempted to accept Graham's designation of the work as a "story" in the modern meaning given by the *Shorter Oxford English Dictionary* ("A narrative of real or, more usu., fictitious events, designed for the entertainment of the hearer or reader"), for the work is well and entertainingly written. Certainly the popular audience for whom it was intended will enjoy the general treatment of the subject, but as a history it is totally unreliable. It suffers, like all such works based almost exclusively upon secondary sources, in that the expressed opinions are based on information obtained at second or third hand, and, further, it tends to repeat the countless errors of detail derived unwittingly from the sources. Upon such foundations are built hagiology and mythology, not history. Dozens of errors of detail are observable, often minor but, in the mass, important. For example, the statement that Fallopius was a pupil of Vesalius is quite incorrect (incidentally on Fallopius' own testimony); this is a minor error, but the implications are important. Likewise, the observation, in reference to William Harvey (page 175), that "England knew nothing of many of the Italian anatomists, and thought but little of those few it had heard of," is absurd, as can easily be shown by reference to the contemporary English literature, and so denies the important influence which the Italian schools, especially Padua and Bologna, had on English developments.

Further, the author is often not well informed. For example, his account of Egyptian medicine is very misleading, since he depends in part on Bryan's translation from the German of Joachim's translation of *Papyrus Ebers*. Now Joachim's translation was made in 1890, as Ebbell has pointed out, at a stage in the development of Egyptology when this was far too risky an enterprise.

But a more serious criticism is the propriety of issuing a work which was published in the United States 18 years ago (as *The Story of Surgery*) without correction. The many errors pointed out by critics of the first edition remain uncorrected, save for a few mentioned in the secondary preface. The only new addition is a postscript which brings the work up to date by an assessment of the period 1939–1956. The author excuses himself on the grounds that, because the plates survived the bombing of London, the work could be reissued, without correction, at a modest price.

Nonetheless, the volume is a fascinating one, for it deals with a fascinating subject.

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The Development & Meaning of Eddington's 'Fundamental Theory'. Including a compilation from Eddington's unpublished manuscripts. Noel B. Slater. Cambridge University Press, Cambridge, 1957. xii + 299 pp. $7.50.

Eddington's posthumous work, *Fundamental Theory,* edited by the late Edmund T. Whittaker, appeared in 1953, nine years after the death of its author. The present work is apparently intended to serve a twofold purpose. To those readers who have attempted to read the original *Fundamental Theory* itself and have not succeeded, it presents a summary and an explanation of Eddington's ideas; it also throws additional light on

that book by drawing on earlier drafts and by reprinting fairly long excerpts where these deviate significantly from the 1953 published version.

Eddington's ideas have not found much favor with most professional physicists, and I must admit that even with the help of Slater's guide and Whittaker's lucid exposition in *From Euclid to Eddington* I find the going exceedingly rough. But Eddington was a man of very great vision indeed, and we cannot be certain that at some later stage in the development of physics we may not come back to some of his conceptions. Accordingly, I consider the publication of this guide worth while. As is stated in the introduction, the publication of Eddington's posthumous papers in this form is a compromise between reprinting his drafts *in toto* and not publishing them at all. Not only would a full reprint have been economically forbidding; it would also have made access to Eddington's principal ideas even more difficult. From what has emerged, it looks as if Slater had proceeded with great dexterity and with a respect for his material and its author that does him credit.

PETER G. BERGMANN
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Microwave Principles. Herbert J. Reich, John G. Skalnik, Philip F. Ordung, Herbert L. Krauss. Van Nostrand, Princeton, N.J., 1957. ix + 427 pp. Illus. $8.75.

Microwave Principles is one of the volumes in the Van Nostrand series in electronics and communications, which is edited by the senior author. As the authors point out in the preface, this book is essentially an abridgment of *Microwave Theory and Technique* (1953), written by the same group of authors. It was apparently felt that an abridged version would be more suitable as a text for a one-semester course for senior-level students in the field of communications. The authors point out that this condensation was accomplished by eliminating the mathematical detail, which they feel belongs more appropriately in a more advanced book. They do feel, however, that adequate treatment of fundamental principles has not been sacrificed by this type of abridgment. Some new material has been added, although no attempt has been made to bring the book totally up to date.

At the outset, I would like to point out that I feel that this book is competently written and that it covers enough of the diverse aspects of the microwave field to be rewardingly informative and continuingly useful and of interest to engineers or physicists practicing in the microwave field. This is certainly a palatable presentation of the body of knowledge which must be encompassed by those hoping to practice effectively in the field. An opinion about the pedagogical effectiveness of this book is not as easily stated or even as easily arrived at.

I feel that the separation of the mathematical techniques from the multitude of detailed descriptions which must be given is, in fact, an advance in presentation. It seems rather unrealistic to attempt to teach details of application along with the mathematics of electromagnetic theory. There is plenty of material for a senior-level student to digest in this book without his having to learn analytical techniques also. In a sense, I feel that the handbook technique, which, essentially, is what is used here, is preferable in that it allows the material to be presented succinctly and in small space, thus giving the student a bird's-eye view of the field. By contrast, the multivolume series of books known as the *Radiation Laboratory Series* gives a presentation of microwave techniques. The two difficulties with the latter series lie in the fact that it is now out of date, by 12 years, and that it occupies too many volumes to be of value to the average microwave practitioner. It would seem, then, that when a considerable amount of detailed material is being presented, the concise "why," together with a fleeting "how," is a preferable presentation.

It should probably also be pointed out that the fact that *Microwave Principles* comes some 12 years after publication of the *Radiation Laboratory Series* is hardly, of itself, sufficient reason for its creation. Nor is the fact that it strives to be up to date (through the early months of 1957) a compelling reason for its consideration. On the contrary, the striking impression to be gained from reading *Microwave Principles* is that so little has changed in the intervening years. This is certainly to the credit of the book, for the writing of a text of this sort with the prime motive of introducing only the new and up-to-date material tends to create a book which has only transient significance. It is the generous amount of space given to basic, timeworn, and, for the most part, even unsophisticated material which will prevent this book from becoming rapidly obsolete.

I picked up my own acquaintanceship with microwave techniques in a thoroughly unorganized fashion — mainly from fundamental papers in the field— but it would be intellectually dishonest of me to say that my own experience was ideal. On the other hand, it would be equally shortsighted to say that the use of any one text, such as *Microwave Principles,* is a proper means of becoming acquainted with the microwave field. Most probably, to study both this text and the reference sources, and to expend much more time in such study than is possible for the average person, is the optimum way to be introduced to the field.

As I have said, the microwave field contains such a body of knowledge that a perfunctory recitation of what this book contains is of little use. Suffice it to say, it considers transmission lines and guides, components for manipulating the fields (such as bends, twists, T's and so forth), impedance matching and general microwave impedance measurements, antennas, resonators, and the sources of microwave power and their properties. Since this is a textbook, problems are presented at appropriate points in the text, and some appropriate laboratory experiments for demonstrating microwave properties and techniques are outlined in an appendix. There are numerous illustrations throughout the text in the form of clearly executed line drawings or photographs. The primary aim of the book is to be descriptive. Good illustrations are a prime necessity, and the ones in *Microwave Principles* undoubtedly increase the value of the book very greatly.

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Chemistry Creates a New World. Bernard Jaffe. Crowell, New York, 1957. xii + 321 pp. $4.50.

Bernard Jaffe is well known for his elementary chemistry texts, several of which have had wide circulation in secondary schools of this country. His present work is designed for a broader distribution. In the author's words, its aim is to meet "the widespread desire of alert and thoughtful people of all ages for a simple basic understanding of chemistry and its major achievements."

The book is interesting and easy to read and manages to get across many of the simpler chemical concepts in an outstandingly clear manner. The first three chapters present the basic facts, history, and theories of chemistry which are minimal for the understanding of modern developments. The eight chapters which follow outline the contribution of creative chemical technology to the material progress of our age. Included are accounts of the applications of chemistry in medicine, food production, and metallurgy; in the production of synthetic gasoline, rubber, and fibers; and in the release of atomic energy. A notable omission is a report on the high-energy fuels which are so significant to rocketry, a field with which the chemical industry