of the past as stepping-stones to a general understanding of the historical development of the subject. The recent appearance of the *Disquisitiones Arithmeticae* of Gauss, the reprinting at last of out-of-print English translations from the Greek by Heath, and the continuing publication of eight volumes of the mathematics of Newton provide the kind of source material to which one might add in time general historical and biographical detail to obtain an overall picture such as is given by Boyer, or by Eves, or by Struik in his *Concise History of Mathematics*. Struik now gives us a few additional stepping-stones in the recently published *Source Book*.

One naturally turns at this point to the earlier *Source Book in Mathematics* which first made its welcome appearance in 1929 under the editorship of David Eugene Smith. Commentaries and English translations of mathematical papers produced in the period 1450–1900 were supplied then by various scholars of repute in the history of the subject and by others well known for their contributions to pure mathematics. The new *Source Book*, on the other hand, is the work of the editor alone and as such reflects a uniform strategy of approach and a high level of historical elucidation in introductory commentary and explanatory footnote. It demonstrates the advantages of combining the masterhand of a creative mathematician with the seasoned thought of an outstanding scholar in historical perspectives. If the commentaries were taken by themselves in chronological order they would constitute an abridgment of a concise history of mathematics as Struik once wrote it out.

Mathematical categorizations of selections, similar to those in the Smith volume, are used here too. A few selections are duplicated, but with a difference. This is the case, for example, with Leibniz's "A new method for maxima and minima . . ." from the *Acta Eruditorum*, vol. 3 (1684), which, according to Struik, "opens the modern period in the history of the calculus." Struik supplies his own translation of the paper, which differs in detail from that of Evelyn Walker in the excerpt to which she was limited. Moreover, he corrects a fallacious impression left by the earlier work in that he presents separately the short section in which an integration symbol first appears. He explains that "two years after Leibniz had published his first account of the differential calculus, he published a paper on the inverse tangent problem in which the symbol $\int$ appears. This was done in a rather casual way since the paper was a review of a book by the Scottish pupil of Newton, John Craig." In general where there is a partial duplication of materials, as in Desargues, Recorde, Stevin, Wallis, Pascal, Fermat, and the brachystochrone of Johann and Jakob Bernoulli, the Struik volume excels. It also has the advantage of being a handsome edition with fine photographs of occasional pages from the masterpieces.

The sampling of Descartes' *Géométrie* is more satisfactory by far than that found in other anthologies. Smith gave an overly short excerpt taken from the translation of the whole of Appendix I by himself and Marcia Latham which was published in 1925. Midonick gave an even less adequate account in her *Treasury of Mathematics*, in which she excerpted from the Smith excerpt. It was almost a fashion to treat Descartes so, for the same fragmentation is found in Newman's *World of Mathematics*, where an excerpt from the First Book of the Smith-Latham translation appears. Struik, on the other hand, although basing his translation on the Smith-Latham work, modifies where necessary and dips into three different sections of the *Géométrie* to give the flavor and the meaning of the whole. The first is from Book III. He calls it "Theory of Equations"; in it "the Renaissance algebra of Cardan and his successors" is applied to the theory of equations. The second is "The Principle of Nonhomogeneity," presenting the application of Descartes' "reformed algebra to the geometry of the Ancients," as found in Book I. The third selection is taken from Book II, in which an illustration of the coordinate method is given in finding the *genre* of a curve described in a prescribed way. The Struik presentation is an aid to an understanding of the whole of Descartes' masterpiece and encourages a reading of it. No samples can do complete justice to the mathematical innovation imbedded in the whole of the Appendix I to the *Discours*.

Although the period 1200–1800 has been well harvested in the past, Struik has managed to highlight other important papers hitherto inaccessible to the nonspecialist in the history of mathematics. It is regrettable that the 19th century is not represented, and one hopes for a sequel in which Struik might record insights into the origins of contemporary mathematical activity.

Struik's contribution is an indispensable addition to the anthology section of the bookshelves. One might well file with it a copy of his paper to which he makes reference, "A selected list of mathematical books and articles published after 1200 and translated into English" (*Scripta Mathematica*, vol. 15, 1949). Struik expressed the hope that the final pattern of his book "does give a fairly honest picture of the mathematics typical of that period in which the foundations were laid for the theory of numbers, analytic geometry, and the calculus." In this purpose he has succeeded admirably.

CAROLYN EISELE
Department of Mathematics,
Hunter College, New York City

Endocrinology

The Investigation of Hypothalamic-Pituitary-Adrenal Function. Proceedings of a symposium, London, 1967. V. H. T. JAMES and J. LANDON, Eds. Cambridge University Press, New York, 1968. xii + 311 pp., illus. $13.50. Memoirs of the Society for Endocrinology, No. 17.

Half of this volume deals with basic work and the other half with clinical investigations. Despite the title, there is relatively little here on hypothalamic involvement in pituitary-adrenal function except in the first four articles. These are among the most interesting, although any new information on the isolation, chemistry, or physiology of corticotrophin-releasing factor is conspicuous by its absence.

Motta and her collaborators sum up evidence that the negative feedback of adrenal cortical steroids is exerted via the hypothalamus rather than directly on the pituitary; implants of adrenocorticotrophic hormone (ACTH) in the median eminence also inhibit pituitary ACTH release via a hypothalamic mechanism. Egdahl discusses his hypothesis that the cerebral cortex tonically inhibits ACTH release, probably by secreting an inhibitory "hind-brain factor." Motta *et al.* report actual evidence for such a factor in crude extracts of calf brain. The latter, if confirmed, may explain why removal of all brain tissue to the level of the inferior colliculus results in elevated ACTH secretion. R. Guillemin demonstrates that inhibition of thyroid-stimulating-hormone secretion by stress does not necessarily go hand in hand with increased

ACTH secretion, and there may be competition for release of these two hormones by the pituitary. Thus, in rats, when the pituitary is stimulated to secrete more TSH by administration of TSH-releasing factor, less ACTH is released in response to stress; when the secretion of ACTH is inhibited by dexamethasone and Nembutal, more TSH is secreted in response to TRF.

The clinical reports consider mainly the application of various tests for pituitary ACTH and adrenal cortical function in human patients. These include the use of synthetic ACTH, vasopressin, metyrapone, and pyrogens. The investigations of synthetic corticotrophins are of particular interest, and several derivatives are found to be more potent than the natural product by several criteria of adrenal cortical function. This is probably the first time an anterior pituitary hormone has been structurally altered in the laboratory to increase its biological potency. On the whole, this volume has much to offer to clinical endocrinologists, physicians, and drug houses interested in pituitary-adrenal function.

JOSEPH MEITES
College of Human Medicine, Michigan State University, East Lansing

Organolead Chemistry

The Organic Compounds of Lead. HYMIN SHAPIRO and F. W. FREY. Interscience (Wiley), New York, 1969. xiv + 498 pp., illus. $18. The Chemistry of Organometallic Compounds.

This monograph is the second in the series The Chemistry of Organometallic Compounds, edited by Dietmar Seyferth. It is the announced purpose of the authors to provide a comprehensive and critical review of organolead chemistry since 1954. They have succeeded admirably. The literature through 1966 is reviewed thoroughly and in a readable fashion; many 1967 references are also included. More important, however, is the fact that the authors have evaluated the literature and made judgments where required. An example of this is their discussion of the various electronegativity values that have been proposed for lead and their judgment that Pritchard and Skinner's value of 1.8 is the preferable number.

The contents of the monograph are organized in a manner reminiscent of L. C. Willemsen's *Organolead Chemistry*, which appeared in 1964, but coverage and discussion are much more extensive. Dominating the book is the chapter on tetraalkyl- and tetraaryllead compounds, which accounts for approximately 20 percent of the written text and which contains over 800 references. Contained in this chapter are exhaustive descriptions of methods of preparation and of the physical properties of tetraorganolead compounds; electrolytic syntheses are particularly well described. The chapter also contains a detailed discussion of the pyrolysis reaction of tetraalkyllead compounds, of interest because of their use as motor fuel additives.

The chapter on the physiological and toxicological properties of organolead compounds should be of particular interest, as should the chapter on the analysis of these compounds. The latter chapter contains descriptions of analytical methods for commercial antiknock fluids and gasolines. The first few chapters are a general discussion of valence and bonding, synthesis methods, and common physical and chemical properties. Other chapters describe unsaturated, heterocyclic, optically active, and cyclopentadienyl-type lead compounds and organolead salts, hexaorganodilead compounds, and organolead-organometal compounds. A thorough description of the potential applications for organolead compounds developed through the efforts of the International Lead Zinc Research Organization is included in the last chapter. Several of the chapters contain extensive lists of compounds with references for each compound and some physical properties. Finally, the monograph is well indexed, containing both author and subject indexes.

The Organic Compounds of Lead should now become the standard reference volume in organolead chemistry, and it certainly belongs in the library of every worker in organometallic chemistry.

H. V. CORTEZ
PPG Industries, Chemical Division, Corpus Christi Laboratories, Corpus Christi, Texas

New Journals

The Journal of Chemical Thermodynamics. Vol. 1, No. 1, January 1969. Bimonthly. Editors: M. L. McGlashan, Exeter, England; H. A. Skinner, Manchester, England; Edgar F. Westrum, Jr., Department of Chemistry, University of Michigan, Ann Arbor. Academic Press, 111 Fifth Ave., New York, N.Y. $19.50 a volume (6 issues).

Forma et Functio. An International Journal of Functional Biology. Vol. 1, No. 1, April 1969. Four times a year. Editors: R. Altevogt, Munster; H. Hediger, Zurich; J. A. King, East Lansing, Mich.; G. Tembrock, Berlin; K. S. Thomson, New Haven, Conn. Pergamon Press, Maxwell House, Fairview Park, Elmsford, N.Y. $9 a year; to libraries and institutions, $25.

International Journal of Man-Machine Studies. Vol. 1, No. 1, January 1969. Four times a year. Editor: G. B. B. Chaplin, Department of Electrical Engineering Science, University of Essex, Wivenhoe Park, Colchester, Essex, England. Academic Press, 111 Fifth Ave., New York, N.Y. $16.50 a volume (4 issues).

Journal of Fish Biology. Vol. 1, No. 1, January 1969. Quarterly. Editor: J. C. Chubb, Department of Zoology, University of Liverpool, P.O. Box 147, Liverpool, England. Published for the Fisheries Society of the British Isles. Academic Press, 111 Fifth Ave., New York, N.Y. $14.50 a volume (4 issues).

Organic Magnetic Resonance. Vol. 1, No. 1, with Spectral Supplement, February 1969. Bimonthly. Editor-in-chief: Eric F. Mooney, Birmingham, England. Regional editor for North America: S. L. Manatt, Jet Propulsion Laboratory, California Institute of Technology, Pasadena. Spectrum House, Alderton Crescent, London, N.W.4. $15 a year; to libraries and institutions, $40.

Remote Sensing of Environment. Vol. 1, No. 1, March 1969. Quarterly. Editor-in-chief: David S. Simonett, Department of Geography and Center for Research in Engineering Science, University of Kansas, Lawrence. American Elsevier, 52 Vanderbilt Ave., New York, N.Y. $28 plus $2 postage a volume (4 issues).

Schizophrenia. Journal of the American Schizophrenia Foundation. Vol. 1, No. 1, first quarter 1969. Quarterly. Coeditors: Abram Hoffer, Saskatoon, Sask.; J. Ross MacLean, New Westminster, B.C.; Humphry Osmond, Bureau of Research in Neurology and Psychiatry, Princeton, N.J. Lowrie Associates, 6950 France Ave., Minneapolis, Minn. $15 a year.

Information Sciences. Vol. 1, No. 1, December 1968. Quarterly. Editor: John M. Richardson, North American Rockwell Corporation, Science Center, Aerospace and Systems Group, 1049 Camino Dos Rios, Thousand Oaks, Calif. American Elsevier, 52 Vanderbilt Ave., New York, N.Y. $24 plus $1 postage a volume (4 issues).

International Journal of Chemical Kinetics. Vol. 1, No. 1, January 1969. Bimonthly. Editor-in-chief: Sidney W. Benson, Stanford Research Institute, Menlo Park, Calif. Interscience (Wiley), 605 Third Ave., New York, N.Y. $20 a volume (6 issues).

Journal of Biosocial Science. Vol. 1, No. 1, January 1969. Quarterly. Executive Editor: A. S. Parkes, 69 Eccleston Square, London, S.W.1, England. Published for the Galton Foundation. Blackwell Scientific Publications, 5 Alfred St., Oxford OX1 4HB, England. $20 a year.