tion is sequentially transformed. However, where anatomical information is lacking he is reduced to making vague generalizations. For example, in the section on instincts and interneuron growth he writes: "The only explanation of innate behavior is that interneurons grow and mature their connections in particular patterns which are derived from hereditary material" (p. 315). In another context he writes: "Basically, the properties of interneurons are an inescapable a priori of behavior. Perhaps the whole mind-body relation depends upon them . . . What any man or animal perceives or does, and all human conceptions, are restricted by the limitation of interneurons" (p. 372). In this context the properties of interneurons are equated with the properties of brain, and Horridge adds little but his justifiable admiration to our understanding of the complexities of central nervous system functioning.

The other problem with this book is its scope. In order to cover so many topics in a short monograph Horridge is forced to summarize rapidly large bodies of research. The reader is often not told how certain data were obtained, and most factual statements are not documented by references to the literature. As a result this book provides a rather personal account of Horridge's interesting and provocative view of the nervous system and will be of most value to those who enjoy following his train of thought. Other readers may benefit less, for the book is likely to prove difficult for the beginning student and impressionistic for the specialist.

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Mathematics

A History of Mathematics. CARL B. BOYER. Wiley, New York, 1968. xviii + 717 pp., illus. $10.95.

At last there is a history of mathematics that can be recommended without reservation. Making full and critical use of recent scholarship, Boyer has avoided major errors of fact or interpretation. And unlike several currently popular handbooks, the work is neither too concise nor too elementary.

The guiding principle of Boyer's book is that continuity in the development of mathematical ideas is the rule rather than the exception. Important ideas of modern mathematics, such as infinity, coordinate geometry, and the striving toward generality and rigor, are discussed in their ancient and medieval settings. The author makes judicious assessments of the influence and importance of individuals and schools, and illustrates his generalizations with well-chosen examples. Especially praiseworthy are the chapters on medieval European mathematics and early-17th-century mathematics, areas which Boyer's own research has illuminated.

Mathematicians will be most interested in the last quarter of the book, which gives a fine account of mathematics since 1789. Of particular excellence are the chapters on "The rise of abstract algebra" and "The arithmetization of analysis." Also worthy of notice are the discussion of the nature of modern mathematics that begins the last chapter, "Aspects of the twentieth century," and the treatment of Hilbert's Problems which helps organize that chapter. A high level of mathematical sophistication is reached, and the author has chosen to treat selected topics in depth rather than to try to cover everything superficially.

Teachers of the history of mathematics could not want a better textbook. Most of the book can be read by anyone who knows elementary calculus. Expositions of more advanced mathematical results are done with clarity and skill, often enabling one who has not studied a particular result to appreciate its place in the development of mathematics. Each chapter is followed by a number of instructive problems in the style of the time under study, as well as by a set of questions on the contents of the chapter.

Historians will find the work a splendid place to begin research; the bibliographical footnotes and the chapter bibliographies include most of the important secondary sources. Boyer pays attention to the role of translations and national styles in mathematics, and to social and economic conditions. The relations between mathematics and philosophy and between mathematics and physics are touched on at times, but the work does not claim to treat them with any degree of completeness.

The weaknesses of the work are really the weaknesses of the existing secondary literature, especially apparent for the 19th and 20th centuries. In particular, a full-length history of algebra is needed, as are overall evaluations, based on a careful study of original works, of a number of important men and topics in the modern period. The treatment of 20th-century mathematics is extremely brief, though the author does give many bibliographical suggestions. Finally, it would have been helpful had the chapter bibliographies been annotated, and had the annotations in the general bibliography been longer and more critical. But these are minor flaws. Boyer has produced a work which should be welcome to mathematicians, teachers, and historians alike.

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Rural Pollution

Agriculture and the Quality of Our Environment. A symposium presented at the 1966 meeting of the American Association for the Advancement of Science, Washington, D.C. NYLE C. BRADY, Ed. AAAS, Washington, D.C., 1967. xvi + 460 pp., illus. $13.50; members' cash orders, $11.50. AAAS Publication 85.

Improvement of environmental quality is of great concern today, as is evidenced by the prominence of the subject in the local, state, and national political arenas and by the trend for many college courses to be organized around the "environment." One undeniably important factor in that environment, though often taken for granted, is agriculture. The present book brings together for the first time in one volume a summary of our knowledge of the effects of a polluted environment on agriculture and, conversely, of the contribution of agriculture to environmental quality.

The 30 symposium papers are presented in three sections dealing with the three portions of the environment, air, water, and soil, and a fourth section devoted to disposal of wastes in rural areas.

The first section discusses the effects of various gaseous and particulate air pollutants, including radionuclides, on plants and animals. The effects of air pollution on agriculture are aggravated by the increasing invasion of rural areas by industry and urban communities. One interesting aspect of the problem relates to forests: whereas we readily recognize the threat to agronomic crops, recognition of the threat to trees,