Book Reviews

The World of Mathematics. A small library of the literature of mathematics from A'h-mose the Scribe to Albert Einstein, presented with commentaries and notes by James R. Newman. vols. 1–4. 2535 pp. Illus. $20.

The World of Mathematics is an anthology which reflects the diversity, utility, and beauty of mathematics and makes clear the wealth of its ideas. This anthology also reveals that mathematics can be an object of satire, a subject for humor, and a spur to wit. These and other appropriate phrases are used by the author in the introduction, which describes his achievement, after 15 years of gathering and selecting materials. Our gratitude should go to the author and publisher for the timeliness of this scholarly work and for their wisdom in allowing it to include four volumes and more than 2500 pages. The subtitle is in no sense too bold a claim, and there is great value in the commentaries of the author which provide the setting of the separate selections, indication of how they came to be written, their place in the development of mathematics and, in most instances, biographic sketches of the authors.

Even though the selections must necessarily reveal the bias of the author—this is true of any anthology—the scope of the work is great enough to prevent serious injustice to any of the many facets of our rich heritage of mathematics. My enthusiasm for the library may be due, in part, to the fact that I share many of the biases of the author, especially in the attention given to geometry and probability. A number of the great writings of mathematics are given completely, and those from which excerpts have been taken include enough of the original to provide the reader with a fair taste of the idea of the writer. As is so often the case, a selection from a manuscript appears to have a different meaning out of context, when it is read in an anthology. Because of the length of the excerpts, and because of the commentaries and notes introducing them, this disadvantage has been reduced to a minimum. While some omissions may be regretted, and substitutions preferred according to mathematical taste, the breadth of selections seems to guarantee that these disappointments will also be at a minimum.

The wide diversity in history and topic of the selections can be recognized from a list of the mathematical greats whose works find a place in this library. The list includes such names as Archimedes, Bernoulli, Clifford, Dedekind, Descartes, Euler, Galileo, Laplace, Newton, Poincaré, and Sylvester. Among contemporary scholars, represented are Bell, Courant, Heisenberg, Kline, Menger, Russell, Schrödinger, von Neumann, and Wilder. Mathematicians and others will also enjoy the contributions from Lewis Carroll, Aldous Huxley, John Maynard Keynes, and George Bernard Shaw. As further indication of the scope of the work, I find satisfaction from the inclusion of such items as *The Declaration of the Profit of Arithmeticke* by Robert Recorde and *Counting* by L. L. Conant. To add to the value of the work as biography, Turnbull's *The Great Mathematicians* is given in full, as are a number of chapters from Bell's *Men of Mathematics*. Stephen Leacock's delightful essay on *Mathematics for Golfers* may be of significance in recording the timeliness of the anthology.

Among the selections that will be of interest to persons not claiming special mathematical competence are those items related to artistic expression. Here the reference is to the somewhat vague principle (as, for example, in the case of symmetry) and its interpretation through application and from a philosophical, as well as a mathematical, basis. In this category are included two of the penetrating essays of Hermann Weyl on *Symmetry*, with numerous illustrations that were included in the original manuscript. Other titles in this category are *Mathematics as an Art* by J. W. N. Sullivan; *Mathematics of Aesthetics* by G. D. Birkhoff; *Mathematics of Music* by Sir James Jeans. It is worth noting that Birkhoff, one of the leading mathematicians of the 20th century, in addition to his contributions to point-set theory, study of n-dimensional space, and mathematical physics, attempted to create a "general mathematical theory of fine arts." The two Birkhoff excerpts provide very interesting reading, although to some they may not be at all convincing.

Newman's small library of the literature of mathematics may become a landmark in the current effort to improve the teaching of science and mathematics. It should be a part of the personal library of all secondary-school and college teachers of mathematics and can very appropriately be placed in high-school and college libraries. Scientists and nonscientists will find pleasure and profit from reading many of the selections. It is not too much to hope that this anthology could contribute materially to the establishment of a more proper place for mathematics in our culture. Every college graduate should have read *Mathematics of a Lady Tasting Tea* by Fisher; *How to Solve It* by Polya; *Assorted Paradoxes* by DeMorgan; *Common Sense and the Universe* by Leacock; and *Mathematics as an Element of the History of Thought* by Whitehead. These and a great many other bits of liberal education in the broad sense are to be found in *The World of Mathematics*.

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The Nature of Brucellosis. Wesley W. Spink. University of Minnesota Press, Minneapolis, 1956. 464 pp. Illus. $8.

This is an excellent book on an absorbing subject by an internationally recognized expert who writes well. Spink has centered his professional activities in a region where brucellosis has been prevalent, and he has derived knowledge from his extensive experience. This he shares with great skill and imagination.

Spink has written a good review of the book in his preface, and one is tempted to quote it in full. He graciously reveals his awareness of what makes research projects (and monographs) succeed—the help of cooperative colleagues, the support of institutions and organizations, favorable circumstances, dedication, hard work, and good facilities. He states the nature and purpose of the volume and describes his qualifications to write it. He is a professor of medicine who is also a research worker, and he brings a great deal to this subject.

"This monograph is the biography of a disease and the autobiography of a laboratory and clinic devoted to a study of that disease. . . . The primary purpose of this publication is to present an overall picture of the complex nature of brucellosis in animals and in man."

Because he describes a disease that is