actual mathematical work. Dee's numerous additions and annotations to the 1570 English text of Euclid should prove of considerable interest. In addition, the mathematical aspects of his theorems on parallax, his calendar reform, and his other manuscript work remain unexplored.

I have spoken thus far of those areas of Dee's work that should be of most interest to readers of this journal and of the need for research in those areas. The most recent interpretations of Dee have emphasized Dee's natural philosophy, and largely his Hermeticism and natural magic at that, while neglecting his concrete work in science and mathematics. This surely stems from the fact that most recent research has been done by intellectual historians. It is time that the work of intellectual history be cross-fertilized with the results of investigations of Dee's technical scientific work. This research, however, should not be done in isolation from broader considerations. Dee is ultimately important because he was not only a mathematician but also sought to develop a philosophical conception of mathematics and a natural philosophy in which a mathematical approach to nature was an important component. The inter-relations of the various facets of Dee's work need critical examination and detailed elucidation because it is upon the basis of this characteristic that he has been claimed as a prophet of the mathematical science of the seventeenth century. Debus has appropriately noted that "the greatest need is to examine Dee's work in its full contemporary context," and this context is undoubtedly more complex than we have been led to believe, involving social and religious as well as a variety of intellectual and scientific factors.

MATHEMATICS AND MATHEMATICIANS. By P. Dedron and J. Itard, translated by J. V. Field. London (Transworld Publishers Ltd.) 1974. Vol. I, 326 p.; Vol. II, 222 p. Ł 1.50, Ł 1.00.

Reviewed by Phillip S. Jones
University of Michigan

This is an English translation in paperback format (11 cm. x17.8 cm.) of *Mathématiques et Mathématiciens* published in Paris by Magnard in 1959. The two volumes correspond to the two parts of the original. Volume I is a chronological survey beginning with *The mists of legend* (chapter 2) and extending through chapter 11, *Classical work*, which includes separate sections on Newton, Leibniz, Clairault, D'Alembert, and one devoted to Lagrange, Laplace, Monge. Volume II is topical with chapters on numeration, algebraic notation and first degree problems, second degree problems, Pythagorean theorem, trigonometry, duplication and trisection, squaring the circle. Each volume has a general index, an improvement over the French edition, but the index of names at the end of volume 1, while it includes dates, is less extensive than that in the original. Apparently it omits the names of persons such as Abel and Charles Adams who were mentioned only somewhat incidentally. The bibliographical references include some English sources (e.g. Heath's *Thirteen books of Euclid's Elements*) not mentioned in the French original and some more recent works (e.g. D. T. Whiteside, *The mathematical papers of Sir Isaac Newton*).

All of the many diagrams necessary to reading the text have been retained but many of the portraits, reproductions of paintings, and pictures of architectural works which gave the original a broader cultural and interdisciplinary flavor have been omitted, probably in the interests of economy. The Bibliothèque Nationale and the works of French authors have been an important source of illustrations.

The many extracts from original works is one of the strengths of these volumes. The selections are well chosen and long enough to give the flavor as well as the methods of a number of significant original works. If the reader is not actually learning from the masters, he is learning to understand the masters, and this suggests the purpose of these two volumes. In the foreword to volume 1 Graham Flegg of the Faculty of Mathematics of the Open University explains that as Course Team Chairman for the second level course, History of Mathematics, he began in 1973 to search for a text. The course was to begin in 1975. The team found no English book which met their criteria: (a) impeccable mathematical and historical scholarship, (b) content accessible to students with a "general school" level background, (c) mathematical material presented in a general historical context, (d) a balance between mathematics and mathematicians, (e) suitable primary source materials, (f) analysis in depth of some topics. They felt that *Mathématiques et mathématiciens* did meet these criteria admirably and commissioned Judith Field to translate it. Graham Flegg added a few notes. This reviewer commends the judgement of the Open University team.

The pedagogical goals of the original work are suggested by its inclusion in a series of historical volumes dealing with physics chemistry, and biology, and by the fact that Pierre Dedron was Inspecteur Général de l'Instruction Publique and Jean Itard was Professor at the Lycée Henri IV at the time they wrote the book. The book includes appreciative notes on persons famed as teachers as well as mathematicians (e.g. Pacioli, Tartaglia) and fascinating extracts from Lagrange's lecture on the metric system as well as from debates on such topics as infinite and infinitely small, repeating decimals, and the binary system involving Lagrange, Laplace, and students of L'Ecole Normale.

From the viewpoint of technical accuracy there are a few more errors than one would hope for in a more expensive and less hurried production. They are a peculiar mixture. There are printer's errors (e.g. in volume 2, the repetition of two lines on page 166 and the omission of a coefficient "3" on page 72). There are errors derived from the French edition (e.g. Figure 7.3, page 188 has been redrawn to include the original errors in which equal segments and equal arcs are not drawn to be equal, the use of "transposition" for "superposition," and non-English spellings such as "Khovarizmi" and "Aboul Wefa"), and miscellaneous errors (e.g. where Fermat wrote the verbal equivalent of $BA^2+DA=Z^3$, the French edition wrote $bx^2+dx=c$ and the English version has $b^2+d=c$).

Historically, one wonders whence came the interpretation of the area of a circle in Problem 50 of the Rhind Papyrus. The formula reproduced from the French is $(1-1/9)d \times d-1/9(1-1/9)d \times d$, but $(d-1/9d)^2$ seems to contain the essence of the papyrus as well as to be closer to explainable Egyptian thought processes. In discussing Euclid's treatment of regular polygons the book correctly states that the side of the 15-gon can be determined by taking one half the difference between the arcs subtended by the sides of an inscribed equilateral triangle and a pentagon. However, Euclid's construction determined the side of the quindecagon by taking the triangle's arc from twice the pentagon's.

As the paperback format and low price suggest, the paper is cheap and the type is small, especially on the pages giving extended extracts from the original sources. However, the errors are really minor and only a few will trouble even unsophisticated readers; the writing and translation are, in general, well done; the consistently followed efforts to show continuity in development and the search for principles in response to criticisms (e.g. by Clairaut for algebra, d'Alembert for the calculus) are commendable and better displayed than in many histories--especially at this elementary level. As a text the book is readable and stimulating It is limited in its coverage, but so are many potential students. It lacks problems, suggestions for further reading, and bibliographies to which students might be referred, but these are easily supplied and both students and more sophisticated mathematicians alike will enjoy and profit from reading it.

HISTORY OF MATHEMATICS. By Arthur Gittleman. Columbus, Ohio (Charles E. Merrill). 1975. 291 p. US$14.95.

Reviewed by Barnabas Hughes, O.F.M.
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The selection of an appropriate title for any book is difficult. Too general a title may misinform; a too specific one may turn the reader aside. This title is too general. Better, as suggested in the author's preface and implied in his final sentence, would be *Topics of special interest in the history of mathematics*. The "topics" are the origin of numeral systems, methods in arithmetic, origins and some development of algebra, geometry, trigonometry, analytic geometry, calculus and number theory, and a glimpse at