

BOOK REVIEWS

Modern algebra with applications, by William J. Gilbert, Wiley, New York, 1976, xii + 348 pp., \$21.95.

The book under review can only be described as an elementary text book in algebra. Thus it may seem strange that it is being reviewed in these pages which are usually reserved for the discussion of scholarly books or some advanced graduate texts. In fact when I was asked to write this review my own reaction was one of surprise.

However, there are some cogent reasons why it, or some book like it, should be discussed here. It is clear to me that the publication of these books, and the fact that they are being written, reflect a change that is taking place in emphasis and direction in the teaching of algebra to our beginning students. Perhaps this is even symptomatic of a trend in the kind of research that is being done, or will be done, in algebra, namely, a greater concern for the use of recent algebraic results and a lesser concern for the discovery of such new results. In the past few years there have been some prominent voices saying that the boom days of abstract algebra are over for now and that the algebra that will be done in the near future will be rather more concrete, with a sharper emphasis on the solution of specific problems. The appearance of these elementary books with "application" or some isomorph in their titles can be viewed as one more bit of evidence that there is some undercurrent in the algebraic community that things are not as they used to be.

Be that as it may, one can legitimately ask: why discuss a book of such an elementary nature here? If the trend in teaching will be to slant the material towards applications, appropriate texts will be needed. It is safe to say that the definitive books of this nature have yet to be written. The natural candidates to write these definitive works are practicing algebraists, people who would normally read the reviews here. By some discussion of what has already been written, or what might be appropriate to write, maybe some algebraists could become concerned enough to try their hands at writing these texts. With a little luck and lots of failed attempts we might eventually have some really good books come out.

Generally, the few books of this applied character that have been published so far fall into one of relatively few types. The first type—and this would most aptly describe Gilbert's book—tries to develop the algebra as if one were teaching the usual first course in algebra, however taking excursions outside to make applications of the algebra developed.

The second type, of which the book by Birkhoff and Bartee is the best known example, sets for itself as prime goal the applications rather than the development of the algebra *per se*. The intended readership is not so much the mathematics students but, rather, users of algebra—computer scientists, physicists, electrical engineers, economists, and others.

The basic difference between these two types of books is one of emphasis and general philosophy rather than content. In the final analysis, however,