the authors allude tantalizingly to the glorious history of what is, after all, the "queen of mathematics." Nevertheless, there is much here that reveals the theory of numbers as a vital and living subject. One way in which this is accomplished is by exploiting the algebraic viewpoint. The beginner is thereby provided with a reservoir of examples to solidify his conception of abstract algebra. There are also topics for the connoisseur as well as the tyro. For example, in Chapter 5 the proof of the theorem of Legendre on the Diophantine equation $ax^2 + by^2 + cz^2 = 0$ is based upon recent work of Mordell and Skolem. Again, in the last chapter, the proof of Mann's $\alpha\beta$ Theorem is modeled after the formulation of F. J. Dyson.

It is the reviewer's belief that this elementary text, written specifically for classroom use in American universities, may very well be the best in its class.

<div style="text-align: right">A. L. WHITEMAN</div>

A survey of binary systems. By R. H. Bruck. Ergebnisse der Mathematik und ihrer Grenzgebiete, new series, vol. 20, Berlin-Göttingen-Heidelberg, Springer, 1958. 8+185 pp. DM 36.00.

Except for the vast literature on groups, the subject of binary systems is one that has emerged into the limelight only recently. Suffering in its infancy from being perhaps too much like an appendix to group theory, this book presents irrefutable evidence that this has not been the case for some time. Group theory and also lattices are deliberately and quite appropriately excluded from the survey.

The lion's share of the literature from which this survey is drawn has been discovered during the past two decades, at the same time that related topics from the foundations of geometry, non-associative ring theory and mathematical logic have also received a lot of attention. By now the subject has quite an international following.

This book seems to be the first survey of binary systems. As such it will be invaluable to the expert who desires a quick glance at what has been done as well as an excellent guide to the beginner who seeks an introduction to the subject. We are grateful to the author for having undertaken this study, especially since the quality of the writing is indeed excellent. While virtually every significant result is discussed in the text, some topics are merely mentioned whereas others receive elaborate treatment. In view of the author's many original contributions to the literature it is not surprising that he has chosen to select topics close to home for preferential treatment. Needless to say others might have elected to redistribute the emphasis. For example a proof of Post's result on the unsolvability of the word problem for semi-