

sion of a circular cylindrical tube and of a spherical shell, and torsion of a circular cylinder, no mention is made of the general solutions valid for arbitrary strain energy which have recently appeared in the literature [R. S. Rivlin, *Philos. Trans. Roy. Soc. London. ser. A* vol. 241 (1948) pp. 379–397, and other papers]. New, however, is the calculation of the second order change of dimensions in a state of simple shearing stress, as distinct from a simple shear displacement, and of the similar change of dimensions of a circular cylinder in torsion.

The only historical references in the book tell us that Jacobians are named after Jacobi, the Lamé constants after Lamé, besides giving the dates and nationalities of these two persons. Apart from a single reference to some experimental data, the only literature citations are to the author's other texts. While this practice has become the rule in volumes intended for the pedagogical and undergraduate market, its extension to serious works does not seem altogether commendable to this reviewer. The publishers present this book as an "authoritative exposition." Inclusion of the recent results in finite strain theory obtained by Signorini, Reiner, Rivlin, and Green and Shield, which seem deep and significant to the reviewer, would not have been un- welcome.

In the preface the author states: "If the mathematical treatment given here serves to stimulate the procurement of experimental knowledge of these phenomena we shall have attained our aim." Abundant and detailed experiments on the very large strain of rubber have been reported by Rivlin from 1947 onwards. In the reviewer's opinion, the results of these experiments fully confirm the predictions of the general theory of elasticity, while showing that the second order approximation employed by the author is insufficient.

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*Lectures in abstract algebra. Vol. I. Basic concepts.* By N. Jacobson. New York, Van Nostrand, 1951. 12+217 pp. \$5.00.

This is the first volume of a projected three volume work designed to give a general treatment of abstract algebra. This volume gives a comprehensive introduction to abstract algebra and its basic concepts. The next two volumes will be more specialized in nature. The second one will deal with the theory of vector spaces and the final volume with field theory and Galois theory.

The present volume is well organized and excellently written. A considerable number of exercises are given that vary greatly in difficulty.