

*Die mechanischen Beweise für die Bewegung der Erde.* By R. Grammel. Berlin, Julius Springer, 1922. IV + 71 pp.

The author states in the preface that his reason for writing the book is to make the material accessible to students who have only an elementary knowledge of mathematics and mechanics. His plan is to describe the experiment, state the law of the motion mathematically, and put the derivation of the formulas in small print. The experiments are grouped into (a) those depending on the principle of the motion of the centroid, (b) those depending on the principle of angular momentum.

Such subjects as Foucault's pendulum experiment, the gyroscopic compass, and the effect of the earth's rotation on a projectile and also on a freely falling particle are familiar to students who have had a course in mechanics. Nevertheless a systematic presentation which gives numerous references and also some experiments not so generally known, makes interesting reading. The material is well arranged and the figures are good.

In connection with Fig. 16, which gives the trajectories of two projectiles fired in vacuo with equal velocity and elevation, one toward the east and the other toward the west, one would naturally wonder if numerical data were used in constructing the diagram, or if it is simply a figure drawn with the idea of bringing out certain general properties.

PETER FIELD

*Calculus and Probability for Actuarial Students.* By Alfred Henry.

Published by the authority of the Institute of Actuaries of Great Britain. London, C. and E. Layton, 1922. 152 pp.

The scope of this book is outlined in its introduction.

"Actuarial science is essentially practical in that, whilst it is based on the processes of pure mathematics, the object of the worker must be to produce a numerical result."

"For this reason it is necessary for considerable prominence to be given, in the curriculum of the actuarial student, to the subject of Finite Differences, and it thus becomes convenient, in the study of those subjects not included under the heading of Algebra, to deal with this part of the syllabus first and, notwithstanding certain theoretical objections, to treat the fundamental propositions of the Differential and the Integral Calculus as being, substantially, special cases of similar propositions in Finite Differences. The subjects enumerated cover so wide a field that it has been necessary to exercise considerable compression."

A chapter on the theory of probability is also added. This book undoubtedly will be the standard introduction to mathematics necessary for a preparation to actuarial science although it may be found rather difficult reading to many students, as graduated exercises and a fuller