Quozienti e Resti nella Divisione di Frazioni. Congruenze a Modulo Frazionario. By Paolino Fulco. Memoria IV. Civatavecchia, 1929. 104 pp.

Dr. Fulco undertakes in minute detail a systematic exposition, by elementary methods, of the theory of linear and quadratic congruences with rational coefficients, in one unknown, to a rational modulus. The theory is based on the following definitions. The fraction a/b is divisible by m/n if an/bm is an integer; if a/b is not divisible by m/n, the incomplete quotient of a/b by m/n is the greatest integer in an/bm.

Misprints unfortunately are rather numerous; the second numerical example illustrating the second definition already contains one. Possibly it is on account of similar slips in printing that the reviewer is unable to follow some of the proofs. In particular, the stated necessity and sufficiency of the conditions for the solvability of quadratic fractional congruences seem to the reviewer to demand more detailed proof than the author indicates.

E. T. BELL

Vorlesungen über Allgemeine Mechanik. By A. Brill. Munich and Berlin, R. Oldenbourg, 1928. viii+356 pp.

This treatment of the dynamics of a particle, rigid bodies, and systems of particles is an outgrowth of Professor Brill's lectures on theoretical mechanics in the Technische Hochschule in Munich and the University of Tübingen. The statics of rigid bodies is discussed only incidentally, and for the mechanics of deformable bodies, with the exception of two sections on the elastic rod, the reader is referred to the author's *Einführung in die Mechanik raumerfüllender Massen* (Leipzig and Berlin, 1909). The subject proper, the dynamics of particles and rigid bodies, is built up from first principles in a manner which commends the book to the beginning student of mechanics who has mastered mathematics through advanced calculus.

Part I, the dynamics of a material point, begins with a thorough discussion of kinematics, including the introduction of the vector calculus. The author then devotes one chapter to central forces and another to the theory of the potential. This is followed by chapters on constrained motion, the problem of two or more bodies with applications to the theory of double stars, and a short chapter on relative motion. Part II, the rigid body, considers first the kinematics of rigid bodies, the conditions for equilibrium, and statics. The dynamics of systems of particles and rigid bodies is then discussed from a general point of view, beginning with d'Alembert's principle and the more immediate general laws. Their development is interrupted to allow applications to the theory of the gyroscope and is resumed in the next chapter with Lagrange's equations for general systems, including non-holonomic systems, and Hamilton's principle. The last chapter is devoted to the theory of impulsive forces.

Professor Brill's work is to be recommended as an exceptionally well written introduction to dynamics. It is particularly to be commended for the fine balance which it maintains between general principles on the one side and applications to physics, astronomy, and engineering on the other. One can only wish that such a book of similar compass were available in the English language.

H. P. ROBERTSON