reducing the fundamental equation to its simplest form $F = ma$. The author points out also that it is possible to vary the procedure by choosing arbitrarily the unit force and adopting a kinetic definition of the unit mass; and he uses the word "slug" to designate the mass to which the pound-force would give an acceleration of 1 ft./sec^2. His explanation of this matter seems to the writer to be entirely sound, as well as being an aid to the student in acquiring a clear understanding of the fundamental law.

The entire treatment of force and of the laws of motion is notably free from the vagueness which too often characterizes the exposition found in text-books. The words push and pull are freely used, and the fact is explicitly stated at the outset that every force is exerted *by* one body *upon* another body. The law of action and reaction is stated in the following words: "When one particle exerts a force upon another, then the latter exerts one upon the former; and the two forces are equal, colinear and opposite." Most of the difficulty that arises over this law is due to losing sight of some one or more of the facts that are here explicitly stated. If it is kept clearly in mind that an action and its reaction (*a*) always concern two bodies and only two and (*b*) never act upon the same body, there is little difficulty in avoiding the confusion that is often associated with such terms as "inertia-force" and "kinetic reaction."

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Principles of Electrical Measurements. By Arthur Whitmore Smith. New York: The McGraw-Hill Book Company, 1914. Pp. xiv + 343.

In a laboratory course, emphasis may be laid by one teacher on manipulation and details of apparatus and, by another, on the principles underlying the methods employed in making the measurements. Professor Smith does the latter and has developed a text that is suitable for classroom as well as laboratory. The book is written for the instruction of those who are beginning their course in electrical engineering or who desire a more complete understanding than is afforded in most elementary manuals. It shows thoroughness and care in its preparation. In addition to a discussion of subject-matter usual in a laboratory manual of this kind—as ammeter and voltmeter methods; use of the galvanometer, bridge and potentiometer; measurement of current, power, capacity and inductance; magnetic tests of iron and steel—the author includes chapters on electromagnetic induction, on the definition of the Maxwell and on alternating currents, which, while not essential for one only interested in the taking of readings, lead the student to a better understanding of the subject as a whole.

Frederick Bedell

A Manual of Bacteriology for Agricultural and Science Students. By Howard S. Read. Ginn & Co. $1.25.

This little manual of 179 pages contains a collection of experiments, descriptions of methods, formulæ for media and reagents, and other information of practical use in a bacteriological laboratory. It is intended as an outline of a course for students, but it would be quite difficult, indeed, practically impossible, in an ordinary laboratory, for a student to follow this course consecutively, since the experiments described follow each other in an order that, while logical for study, would be almost impractical to carry out in a laboratory class. As a result the student can not follow the course without very careful thought and selection of experiments on the part of the teacher. The book is therefore more valuable for a manual for reference than as a distinct course for students to follow. It contains large numbers of experiments, and if properly used can be made of great use as a foundation of a course in bacteriology. It is more complete, more up-to-date, and contains more of the recent additions to bacteriological methods than the other manuals which have been published in the last few years. It is made more valuable by having in addition to methods strictly bacteriological some which are especially designed for the study of yeasts, and of common molds. While the methods are