

hypotheses which best explain them. The more important formulas of differential and integral calculus are deduced in an early chapter (of only 15 pages) on "varying quantities." This is well written for review, but less adapted to the student who is unfamiliar with calculus. The next chapter discusses vectors, composition of motion or velocities, harmonic motion, etc., as preliminary to mechanics, gravitation, and the properties of matter. While the phenomena and the laws of sound, light, heat, and electricity are taken up in succession, the essential unity and interdependence of the several subjects are kept in view. Thus many of the terms and formulas which we usually associate with statical electricity are discussed in connection with gravitation.

Among the interesting topics are Thomson's hypothesis of vortex atoms, Maxwell's electro-magnetic theory of light, and the several theories of ether.

References to original papers, and problems to be solved by the student, might have been desirable features, but would have increased the size of the volume. A very large range of physical science is comprised within moderate space; and this is confidently recommended to those who enter into the beauties of mathematical thought.

ROBT. B. WARDER.

The Woodworkers' Manual. By C. R. TOMPKINS, M.E. The author, Dover, N.H.

THIS is a pamphlet of sixty pages containing a condensed account of the machinery and processes of woodworking, by an author evidently practically familiar with the subject. He gives a plain and simple account of the best practical methods of planning and building the woodworking "plant" and of placing its machinery. The most usual and standard forms of woodworking machinery are described, and "practical instructions for the care, management, and preservation of the machinery" are given. Illustrations of the tools employed are also given. The paper is printed in good style, and it would be worth while, one would think, to doubt its extent and bind it up. The good sense of the author is seen in his remarks about the use of lubricants.

He thinks that there is "no economy in saving five dollars on the price of a barrel of oil, and losing ten dollars, in consequence of its use, in extra repairs; which is in most cases a fact."

AMONG THE PUBLISHERS.

PROFESSOR E. A. SMITH, State Geologist of Alabama, has recently published a "Sketch of the Geology of Alabama." In it are given descriptions of the various geological formations outcropping, with mention of the economic products found in them. In this regard the most valuable rocks are the crystalline schists of Archæan age, and the Coal Measures. From the former are derived many varieties of minerals and from the latter large amounts of coal. The Clinton or Red Mountain formation is also of value for the large quantity of iron ore it contains. The formations occurring in the State and treated of with more or less fullness, are Archæan, Cambrian, Silurian, Devonian, Carboniferous, Cretaceous, Eocene, Miocene, Pliocene (?), Pleistocene, and Recent. The pamphlet will prove useful to geologists in general and the citizens of Alabama in particular.

—Professor Merwin-Marie Snell, who is one of the few specialists in comparative religion to be found in the United States, and who has been known for some years as a writer and lecturer on that and other anthropological subjects, has recently severed his connection with the University at Washington, for the purpose of giving his attention to the conducting of a magazine devoted to the comparative history of religions and the archæology, philology, history, philosophy, religion, and literature of the Asiatic peoples. The leading specialists of Europe and America will be found among the contributors, but it is intended to give the periodical enough of a popular character to make it acceptable to the general reader as well as to the serious students of the sciences concerned. The name of the magazine will be *The Oriental Review*. It will be a bi-monthly, with a subscription price of two dollars a year. The publication office is at 2,128 H Street, N. W., Washington, D. C.

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The American Geologist for 1893.

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