Laboratory Problems in Physics. By JONES and TATNALL. Macmillan Co. Pp. 81.

Physical Laboratory Guide. By FREDERICK C. REEVES. American Book Co. Pp. 183.

A Course of Elementary Practical Physics. By H. V. S. SHORTER. Clarendon Press, Oxford. Part I., Mensuration, Mechanics, Hydrostatics. Pp. 110. Part II., Heat and Light. Pp. 216.

Jones and Tatnall's text contains outlines of about seventy-five experiments in general physics of secondary school grade. Some of the experiments are qualitative, such as are usually given in demonstrations in the classroom. Their inclusion would tend to make a laboratory course more interesting and less an exercise in following directions than most laboratory courses in physics are apt to be. The experiments are very briefly but clearly outlined and are well proportioned among the various parts of the subject. The text is named "Laboratory Problems," rather than "Laboratory Manual," probably on account of the fact that emphasis is placed upon the experimental problem, the principle or fact involved. In keeping with this idea, the outline of an exercise after giving a few brief directions (in very short sentences) consists of a series of questions tending to sharpen the student's powers of observation and reasoning. This is a most commendable feature of the text.

Mr. Reeves, an electrical engineer who is also a teacher of physics, has written a manual which places larger emphasis upon some experiments bearing upon engineering than do most manuals in physics. One evidence of this influence is seen in the fact that electricity (and magnetism) is given considerable space (from pages 23 to 59) almost at the opening of the text. Thirteen pages, an unusual amount of space, is given to Archimedes's principle with its application to the measurement of density and specific gravity. The chapter on the mechanics of *solids* opens with an experiment on the bending of beams and closes with the verification of Boyle's law!

The course which has been given by Mr. Shorter for several years at King Edward

VIII. School, Sheffield, differs from that given in similar American schools in the larger space given there to mensuration. The volumes outlining the course consist of questions or directions with large blank spaces between—a cross between a series of report sheets and a laboratory manual. The spaces are rather small for the report sheets and the questions and directions rather attenuated for a manual. The heuristic method is rather overdone.

An Introduction to Mathematical Physics.

By R. A. HOUSTOUN. Longmans, Green & Co. Pp. 197.

In less than two hundred pages Dr. Houstoun presents those ancient and honorable theorems in mathematical physics which English university men look upon as essential to the training of a physicist, but which look rather formidable to most students of physics in American colleges. The text starts in with the theory of attraction and potential, Gauss's theorem, Laplace's and Poisson's equations, and electrical images. It continues through hydrodynamics, Green's theorem, irrotational motion, Stokes's and Kelvin's theorems, Fourier's series with application to the conduction of heat, wave motion with application to acoustics and tidal waves, electromagnetic theory with application to the reflection and refraction of radiation, and lastly, thermodynamics with applications to reversible cells. It is a matter of wonder that a text so small can contain so much. Most physicists will feel that the experimental point of view should have had a larger place—for example, that descriptions should have been given of harmonic analyzers and synthesizers, of sound analyzers, of wave meters, and that it should have included the telegrapher's equation. The problems, too, might have been chosen with more thought of the actual and less of the geometric and ideal. But we can not have everything in two hundred pages.

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Die Steinzeitliche Technik und Ihre Beziehungen zur Gegenwart. Ein Beitrag zur Geschichte der Arbeit von DR. LUDWIG