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.

DARTMOUTH COLLEGE G. F. HULL

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

Pfeiffer, Geh. Med.-Rat. in Weimar, with 250 Original-Abbildungen. Jena, Verlag von Gustav Fischer. 1912.

Dr. Pfeiffer has produced an important work on the stone art in which he has not only detailed his own extensive researches on the subject, but has brought together the results found in the scattered and often inaccessible publications which have appeared from time to time. It is encouraging to workers that his enthusiasm has not been dampened by the difficulty of encompassing so vast a subject, the most part of whose materials are buried (archeological) and the rest only fragmentarily studied (ethnological culture history). If we regret that the historians of the past have not recorded for us the methods of ancient arts, so do we also mourn that there were not more of the thorough workers like Holmes, Mason, McGuire, Cushing, Roth and others, to undertake the study of present man before he lost his inherited art.

Dr. Pfeiffer remarks in his preface that organized labor goes farther back than has been supposed and that in the immensely long period before metals, man had manufactured implements and discovered processes for a definite purpose and in so doing developed industries and the tools necessary to carry them on. The work concerns the stone age up to the time of the beginning of the technical age when bronze, hard bronze and iron took the place of stone, the latter age small compared with the million years that flint dominated. He believes that the tools that have survived to us show a progressive modification as a result of their transmittal from earlier to later social units, the changes marking the phases of culture which in European archeology are practically established. The most important material covered by the monograph is naturally flint, but Dr. Pfeiffer does not lose sight of the industries connected with wood, skin and other softer materials.

The subject is so fascinating that excursions into it are almost irresistible and with some slight knowledge of the complexity of the study and the liability to error we must honor the efforts of those who are the pioneers. The problems are not simple, it is not enough to know how the American Indian made an arrowhead—there are 20 ways, or to set it on its shaft—there are many ways. A study of the mute point in a museum is good, but a study of the mind of primitive man correlated with its environment is necessary before we can loose the scientific imagination on its quest. We must manipulate the substances ourselves; we must unravel and weave again until the possibilities are exhausted so far as our limits are concerned, going again and again to the man in the hinterland of civilization and hoping, also, that some survival can be wrested from bog or cave to give us light.

The chapters are seven, as follows: (1) The History of Technic in the Stone Age, Treating of the Time Element; (2) The Physical Basis of Stone Technic; (3) The Products; (4) The Stone Age Bone Work; (5) The Stone Age Wood Work; (6) Animal Industry; (7) The Extinction of the Stone Art.

The subheadings of subjects treated under the chapters number 59 and form an interesting synopsis. Walter Hough

Psychology and Industrial Efficiency. By Hugo Münsterberg. Boston and New York, Houghton Mifflin Company. 1913. Pp. 321. $1.50 net.

There are three varieties of books on applied psychology. To the first variety belongs the intensive monograph in which is reported some attempt to utilize the methods of experimental psychology in the detailed investigation of some limited problem of general and practical importance. This variety is represented by Thorndike's studies in the quantitative measurement of school progress. A second variety attempts directly to apply the generalizations of psychology to some particular field of daily life, and is represented by Scott's books on psychology and business. Books of the third variety are designed primarily to stimulate general interest in the possible serviceableness of the science and to suggest various directions which this service may