

calibration of chemical glassware, heat, combustion, assaying, select methods for technical analyses. The list of tables includes temperature, mineralogy, conversion tables, specific gravities of solids and liquids, weight and volume of substances. The volume is nicely bound in leather and the size is convenient for carrying in the pocket.—L. B. J.

Practical Applied Electricity.—By David Penn Moreton, B.S., E.E. Flexible leather, $4\frac{1}{2} \times 7\frac{1}{4}$; 450 pp.; 323 illustrations and many tables. Published by the Reilly & Britton Co., Chicago. Price \$2.00.

This book is intended primarily for those who are desirous of obtaining a practical knowledge of the subject of electricity, but are unable to take a course of instruction in electrical engineering at a college or university. Nothing new in the explanations of the phenomena and apparatus involved, are given, and for that reason the book is better adapted to its purpose.

The author presents his explanations very clearly and concisely, and the book is a decided improvement over many of the practical books that have appeared recently, both in the matter of text and illustrations. The author mainly deals with discussions of direct current, leaving the presentation of alternating currents to the end.

This book will form a valuable addition to the library of persons who desire to obtain a practical knowledge of the subject of electricity, but who are unable to take a complete course.

Oil Analysis.—Augustus H. Gill, published by Messrs. J. B. Lippincott Co., London and Philadelphia. 188 pp.; $5\frac{1}{2} \times 8\frac{1}{2}$; fully illustrated; price \$2.00.

This work is designed primarily for the advanced student in analysis, as assumption is taken that the reader is familiar with volumetric and gravimetric work and possesses some knowledge of organic chemistry.

The descriptive text includes concise methods of making determinations on petroleum, animal and vegetable oils, waste fats and lubricating grease. The volume is divided into two main portions, Part I. closing with a chapter on "General considerations regarding lubricants"; Part II. deals in a specific manner with a number of oils and their peculiarities, and it may be said that this list includes all the principal oils of commerce. An appendix follows in which are presented tables and curves, as well as specifications for reagents. Among the tables are the requirements of various United States cities, flash and fire test of various oils, flash points of certain organic compounds, the specific gravity, Degrees Baume, and weight per gallon and per cubic foot of certain oils, and the principal constants of various oils.—L.B.J.

A bulletin has recently been published by the Bureau of Mines, Washington, D.C., dealing with the essential factors in the formation of producer gas.

It is the joint endeavor of J. K. Clement, L. H. Adams and C. N. Haskins. The work is descriptive of some original and interesting investigations, and in the opening sections a useful electric furnace is described, together with a means of constructing same; this apparatus is employed to produce a uniform temperature on which to determine the precise thermal conditions most favorable to the formation of H. and Co.

This booklet demonstrates the inadvisability of operating gas producers at a temperature above 1300°C .

The rear portion of the book contains some information on "Effective Temperature for Water-Gas Generation." This bulletin is known as No. 7.—L. B. J.

Kinetic Theory of Engineering Structures, Dealing with Stresses, Deformations, and Work for the use of Students and Practitioners in Civil Engineering.—By David A. Molitor, C.E., McGraw-Hill Book Co., New York, 1911. Cloth 7×9 ; 366 pp., including index. Many diagrammatic illustrations and several tables. Price \$5.00.

When engineers in this country set out to design a framed structure, they make a very careful and complete analysis of the various stresses in the individual members by means of static determinations. For a number of years designers abroad, especially in Germany, have employed a method of stress analysis in which an elastic structure is treated as a mechanical contrivance in motion, on the application of an external load, and not as an inelastic body at rest. The soundness of such a theory is evident and the actual stresses can be worked out analytically on the basis of virtual work performed on and by the members of any structure, due to the elastic properties of the material and in accordance with the direct ratio existing between deformation and stress within the elastic limit.

Mr. Molitor devotes the first eleven chapters of the above volume to an exposition and analysis of this "Kinetic" theory, and the only criticism that might be offered is one which is common to many works where long and involved mathematical operations are carried forward, and that is a tendency for the actual meaning of the various relations to become obscured when worked up from long lists of symbols. One chapter of the book is given over to a study of stress analysis by methods of statics, and while rather short, is a remarkably clear exposition of such treatment, especially that portion referring to live load stresses. Secondary stresses due to the weight of individual horizontal and inclined members, producing bending, stiffness at panel points, and eccentric connections, as well as dynamic stresses, due to wind, tractive effort, impact, etc., are also carefully analysed, and the author makes several very valuable observations regarding practical features in carrying out designs in order to eliminate secondary stresses as far as possible. The final chapter of the book, after discussing and analyzing the elastic theory for masonry arches, takes up in detail the design of a 150-foot concrete arch.

Mr. Molitor generously gives credit for much of the work to various authorities and lists many works of reference on the subject.—M. V. S.

The Principles of Scientific Management.—Frederick Winslow Taylor, Past President Am. Soc. M.E. Published by Harper and Bros.; $5\frac{3}{4} \times 9$ inches; 144 pages.

We here have a book presented by a man who has devoted thirty years of his life to developing "Scientific Management." After serving an apprenticeship as a pattern maker and machinist, he entered the machine shop of the Midvale Steel Co. as a laborer, but soon after became clerk of the shop, then machinist and gang boss. Here he noticed the great fault of the American workman, of "soldiering" on the job and began his life work of getting a fair days work out of every man and every machine.

He states that the book has been written:

"First. To point out, through a series of simple illustrations, the great loss which the whole country is suffering through inefficiency in almost all of our daily acts.

"Second. To try to convince the reader that the remedy for this inefficiency lies in systematic management, rather than in searching for some unusual or extraordinary man.

"Third. To prove that the best management is a true science, resting upon clearly defined laws, rules and principles, as a foundation. And further to show that the fund-