place. Further removal of heat will cause as much of the gas to liquefy as the heat removed would cause to evaporate were that number of calories to be added to the liquid. The critical pressure is a pressure which is associated with the critical temperature as a minimum of pressure for the temperature. As the gas is cooled below the critical temperature, the necessary pressure to hold it a liquid also diminishes, until we may come to a temperature at which the liquid will remain in a "static" or fixed condition in the open air. This is, of course, what is called its "boiling point." Its vapor pressure is then equal to atmospheric pressure. 3. Has any gas under critical conditions any latent heat? A. Yes. The answer to the last question implies this. The term "latent heat" is disappearing from our books. It is not necessary and conveys an erroneous impression, or rather, it is based upon a former theory which is false and abandoned. The heat of evaporation is the energy which is used in changing the condition of the substance from the liquid to the gaseous form, and this energy is still active in the gas maintaining it in the gaseous form. When the heat is removed the substance returns to the liquid form. So long as the substance is a gas, the heat necessary to change its form from a liquid to a gas must be in the substance, and as soon as this heat is removed, the substance will return to its liquid form.

NEW BOOKS, ETC.

AMERICAN TRADE INDEX. Descriptive and Classified Membership Directory of the National Association of Manufacturers of the United States, Arranged for the Convenience of Foreign Houses. Philadelphia: National Association of Manufacturers. 1900. 12mo. Pp. 67. Price $5.

The index is printed in English and French, and 7,500 copies are now being distributed gratuitously among the principal business houses of the world, and will prove an agency for the foreign distribution of information concerning American manufactures. The arrangement is admirable, and the alphabetical list of articles produced by members of the National Association of Manufacturers will certainly prove of the utmost value, as this index is printed in both English and French. The registered cable addresses are also given.

COMMERCIAL ORGANIC ANALYSIS. By Alfred H. Allen. Vol. II., Part 2. Hydrocarbons, Petroleum and Coal Tar Products, Asphalt, Phenol and Creosotes. Philadelphia: P. Blakiston's Sons & Company. 1900. 8vo. Pp. 330. Price $3.50.

It seems almost unnecessary to do more than give the title of this book, which forms, with its companion volumes, one of the most important contributions ever made to the literature of chemistry. The present volume deals with subjects which interest a large number of manufacturers.

SCHOOL CHEMISTRY. By John Waddell. New York: The Macmillan Company. 1900. 12mo. Pp. 278. Price 90 cents.

The author has produced an excellent book, and the only criticism we have to make is that many of the old classic illustrations which make their appearance with such refreshing regularity are in evidence. An endeavor is made in this text-book to help the pupil in the discovery of new facts which enables them to see their connections, and to show how facts lead to theory and theory aids in investigation in the discovery of further facts.

PETROLEUM IN CALIFORNIA. A Precise and Reliable History of the Oil Industry of the State. Compiled and published by Lieut. Redpath. Los Angeles, Cal. 8vo. Pp. 134. Price $1.

Nature has certainly been lavish with her gifts in California. Its gold and fruit have been one of the wonders of the world, and the production of oil is the third great industry. The pamphlet before us gives in convenient form reliable information regarding almost everything that the reader is desirous of knowing about the discovery, exploitation and prospects of oil in California.

MODERN PERSPECTIVE. A Treatise Upon the Species and Practice of Plane and Cylindrical Perspective. By William R. Ware. New York: The Macmillan Company. 1900. 12mo. Pp. 336. Price $4.

The present work was first issued in 1882, and since that time it has been recognized as one of the standard works on perspective. The author has taken advantage of the opportunity offered by the issue of a new edition to revise the text and to add in an appendix some matters of interest. The reputation of the Professor of Architecture in Columbia University is so great that any book which bears his name is sure to be an excellent production.

OUR COUNTRY. What It Is and What Has Made It What It Is. By W. C. Dodge. Washington: Government Printing Office. 1900. Senate Document. 8vo. Pp. 98.

The object of the present pamphlet is to present in a condensed and simple form those facts relating to the growth, prosperity and future prospects of our country with which every intelligent and patriotic citizen ought to be familiar. The idea is an admirable one, and the amount of information which is given is very considerable.

CASSELL'S CYCLOPEDIA OF MECHANICS. Edited by Paul M. Hasluck. London and New York: Cassell & Company. 1900. Quarto. Pp. 384. Price $2.50.

This volume presents in a form convenient for ready reference and every-day use receipts, processes and memoranda selected from the rich store of choice information contributed by a staff of skillful and talented technicians, upon whose practical experience and expert knowledge the information is based. The matter in the volume has been carefully digested, freely illustrated and made plain to those inexperienced. It will prove useful to all amateurs.

THE PRINCIPLES OF MECHANICS. An elementary Exposition for Students of Physics. By Fred. Slate. Part I. New York: The Macmillan Company. 1900. 12mo. Pp. 299. Price $1.90.

The author's aim has been to select the subject matter with close reference to the need of college students. The second, to bring the instruction into adjustment with the actual speed of their training; and third, to aim continually at treating mechanics as a system of organized thought, having a clearly recognizable culture value. The author is Professor of Physics in the University of California.

ELEMENTS OF MINERALOGY, CRYSTALLOGRAPHY AND BLOWPIPE ANALYSIS FROM A PRACTICAL STANDPOINT. By Alfred J. Moses, E.M., Ph.D., and Charles Lathrop Parsons, B.S. New York: D. Van Nostrand Company. 1900. 8vo. Pp. 414. Price $2.

In this edition of the authors' text-book they have adhered to the design of the edition of 1895, to present the facts leading to a useful knowledge of mineralogy in such a manner that the student in the technical school and the professional man in the field may readily learn to recognize, or at least to determine all important minerals. Their original book has been largely rewritten, and the result is a handsome contribution to the literature of mineralogy. The larger part of the illustrations do not appear in other works. In all, there are 664 illustrations and diagrams and several tables.

SANITY OF MIND. A Study of Its Conditions and of Means to its Development and Preservation. By David F. Lincoln, M.D. New York: G. P. Putnam's Sons. 1900. 12mo. Pp. 177.

The author deals in his opening chapters with the attitude of public men; care and education which is favorable to sanity of mind, nature of mental derangement, degeneracy, education, self-education and our social and civic duties. It is a most interesting discussion of the subject.

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