

NEW BOOKS.

THE TEACHING OF CHEMISTRY AND PHYSICS IN THE SECONDARY SCHOOL.
BY ALEXANDER SMITH, B.Sc., Ph.D., Associate Professor in the University of Chicago, and EDWIN H. HALL, Ph.D., Professor in Harvard University. New York, London, and Bombay: Longmans, Green, and Co. 1902. Crown, 8vo. xiii + 377 pp. Price, \$1.50.

This book has not an uninteresting page in it, and is "as full of meat as an egg" when it is in the hands of those for whom it is intended, "teachers who are earnestly seeking for improvement" (editors' note), and others who have some knowledge, the more the better, of chemistry and physics. To such, the volume fulfils its share of the mission of the American Teachers' Series, of which it forms a part, that of being a teacher's help.

"The authors of the separate parts on chemistry and physics have conferred frequently * * * * to avoid unnecessary duplication * * *. In a few instances, however, the divergence between the opinions of the authors seemed to make it desirable that each should present his own" (editors' note).

The foregoing will indicate, in part, why nearly two-thirds of the book is written by the chemist and the remainder by the physicist. The chemistry comes before the physics in the book, the chemist concluding, however, that physics should come before chemistry in the laboratory and the classroom.

While primarily intended for teachers in the secondary schools, the reading of the book will more than repay the college or university instructor. The parts given to chemistry and physics are full of suggestions but differ in treatment and in the amount of detail and emphasis given to similar topics in the two sciences.

The work begins with a discussion on the value of science in general, and chemistry and physics in particular, in a scheme of secondary education. It presents the conflicting views in a clear, comprehensive and satisfying, if not satisfactory, way. This is followed with considerations regarding the place and sequence of chemistry and physics in a curriculum. Then follows the character and method of the instruction in chemistry, in the classroom and the laboratory; the subjects of the courses; the equipment of the laboratory in apparatus, in literature, and in first aid in case of accident; with an excellent bibliography of chemistry for the teacher first and then, to a limited extent, for the pupil in addition

to the bibliography at the beginning of each chapter and the notes and references which are found on nearly every page; and last and greatest, the equipment and development of the teacher.

The matters discussed under physics are, *mutatis mutandis*, the same as those under chemistry, without following the same order.

While every one will not agree with the authors in all their views, it will be generally admitted that these views are urged with ability, earnestness and moderation, and in their endeavor to show how chemistry and physics can be made of more intellectual benefit in a course of instruction there will be few that will deny that they have succeeded and at the same time made a book that will repay careful study from cover to cover. W. G. BROWN.

THONINDUSTRIE-KALENDER, 1903. WEIHNACHTSBEILAGE DER THONINDUSTRIE-ZEITUNG, BERLIN.

The publishers of the *Thonindustrie-Zeitung* have distributed to their patrons their annual calendar, in two parts, for 1903.

Part I, bound in linen, as is usual with such publications, is largely in diary form, but contains in addition 69 pages of maxims for clayworkers, in very concise form, which apply not only to the technical but also to the management of the administrative and mechanical sides of the clay industries. Although many of the observations are truisms, they are all more or less suggestive and might bring about a decided improvement in the results attained in any of our own clay industries were they translated and put into the hands of managers, superintendents and foremen.

Part II, in paper, 450 pages, opens with instructions as to the proper manner of examining clay deposits by borings and cuts, pointing out the necessity for so doing, and the methods of determining the depth, extent, and character of the material in any deposit before attempting to develop and use it. Apparatus such as calorimeters, that for the examination of flue gases, draft indicators in their various forms, flue thermometers, alarm clocks for the guidance of stokers at the kilns, registering clocks for the control of the firemen and others, are described. The manner of determining the completion of the burning processes from the shrinkage of test-pieces and of the temperature of the kilns, by means of the very useful Seger cones, and by pyrometers of the electric type, with tables showing the temperatures with which cones of various