

as the former volume. Great story-teller as Rembrandt was, upon occasion, he is yet less essentially an illustrator than was Raphael, and one feels that more of the essence of his art is omitted in the kind of comment that Miss Hurlb gives than in the case of the Urbinate. Parts of the little book read dangerously like illustrated Sunday-school lessons. The reproductions are rather better than in the first issue; but are not yet irreproachable.

Just one year after the first appearance of Dr. Frank Hall Thorp's 'Outlines of Industrial Chemistry' (Macmillan Co.) comes a new and revised edition. If the determination is to revise this publication yearly, it will undoubtedly gain vastly in importance. In the early years it will be requisite not only to keep up with the march of improvement, but also to remedy inevitable faults of the original preparation. We find, however, only two considerable changes in this issue: namely, on p. 446, a paragraph of eleven lines on carbonizing wool is inserted at the expense of a shorter paragraph on scouring wool, two others being more concisely expressed; and on p. 51 an account of the Herreshoff Pyrites Burner takes the place of descriptions of the Perret-Ollivier Furnace and the Haenschle-Helbig Burner. The other changes that we have remarked do not amount to a score of slight corrections. The index is amended by the addition of a single entry, besides those which the above-mentioned insertions in the text required. The lists of authorities are almost absolutely unchanged. Not even new editions have been noticed. At this rate, the work, far from being improved, is barely maintaining its place in the line of march. Its external appearance is even handsomer, owing to the paper taking the ink better; and figure 26 has been redrawn to advantage.

Prof. John Goodman's 'Mechanics Applied to Engineering' (Longmans) is a book which we may just mention, notwithstanding its elementary technical character, because its purpose is peculiar. It is addressed to men who have some knowledge of mechanics, as taught in the mathematical treatises, but whose knowledge floats among the clouds, so that they do not know how to apply it to engineering problems. Among the various effects of the usual bad teaching of mathematics, this is a very common one; and this work will do something for the victims. Part of it, however, seems to fall between two stools, being superfluous for those who are up in theoretical mechanics, and insufficient for those who are not. This will not prevent other parts of the book from being useful. Even an accomplished engineer will find some things in it worthy of his attention.

'Mathematics,' from the *Chicago Record* (Doubleday & McClure Co.), will be found useful by journeymen carpenters who are deficient in the theoretical side of their profession, and perhaps by some others.

Prof. William Ripper's 'Steam-Engine Theory and Practice' (Longmans), though too technical to be criticised here, is, nevertheless, so well put together and so concisely expressed as to deserve notice for its literary merit; and the matter of it is equally judicious and strong. So far as we have tested it, we have found it unusually accurate. But that students who mean to make it their business to understand the steam-engine, and who have gone

so far as to know what differentials and integrals are, should shirk the labor of going on to learn enough mathematics thoroughly to master the theory of thermodynamics, and should find themselves sufficiently numerous to compel the adaptation of a work like this to their half-and-halfness—this, we must say, bespeaks some great fault in the methods of teaching. Perhaps it is ultimately traceable to the neglect of scientific logic, in consequence of which teachers of mathematics, not fully understanding its logic themselves, are unable to impart it to others, unless their pupils have a natural gift that makes them independent of teaching. But, given the conditions, we cannot see how Prof. Ripper could have done better than he has.

Dr. Philip Atkinson's 'Power Transmitted by Electricity' (Van Nostrand) has been fully revised; and obsolete matter has been cut out. There is nothing useless in it, and it well represents the present state of the art.

A new volume of "The Specialists' Series" is 'An Introduction to the Study of Central-Station Electricity Supply,' by Albert Gay and C. H. Yeaman (Macmillan). It is to some extent a work of reference, but is much rather a book to be read, dealing broadly with all sorts of points which arise in the conduct of a central station, but which are distinct from direct problems of electric lighting. There is no attempt at treating details exhaustively; but we feel sure that the discussions the work contains will be highly appreciated and found serviceable by those to whom they are addressed.

We believe there is no more uncompromising educational iconoclasm on record than that indulged in by Superintendent Edwin P. Seaver of Boston in his delineation (in the *Educational Review* for February) of the ideal public high school of the twentieth century. Yet some such plan as he proposes is what we are inevitably coming to: the ever-widening field of knowledge, the accumulating mass of heterogeneous educational material, together with the growing claims for recognition of individual tastes and rights on the part of the pupils, are even now beginning to remove beyond the range of possibility fixed courses of instruction for all. To do away with all prescribed work and allow students to select any study, or studies, to suit themselves or their parents, and to "carry these far enough to realize well-nigh their full educational value," is merely accepting fully and frankly a principle already powerfully asserting itself in the educational practice of our time. The shifting of responsibility for the pupil's education and success in life from the school to the pupil himself or the parent is considered by Mr. Seaver a decided gain, and it can, at least, be said that the risk is no greater in one case than in the other. For no thinking man or woman of mature age can for a moment doubt that the number of lives marred is at least equal to that made by scholastic rigidity, and by the authoritative or persuasive influence of narrow-minded, ill-balanced pedagogues. The subject, which the Boston Superintendent of Schools discusses in half-a-dozen pages, constitutes one of the greatest problems bequeathed by the closing century to the new.

We are glad to receive the first number of an attractive quarterly magazine, albeit of slender dimensions, entitled the *Pennsylvania*

German, and edited at Lebanon, Pa., by the Rev. P. C. Croll. It is to a large extent devoted to Conrad Weiser, of whom a curious frontispiece portrait is given. He heads a series of "Famous Pennsylvania Germans." Next follow some "Poetic Gems," in the dialect and partly in translation. The tourist is invited by an interesting "Historic Pilgrimage over the Old Horse-Shoe Pike." Numerous illustrations helpfully adorn the number.

The modification of the American character by the physical nature of the country is dwelt upon by A. Oppel in the *Annales de Géographie* for January. A sympathetic and suggestive record of the impressions of an intelligent observer closes with a reference to the wonderful assimilative power of the country, especially over Germans, and to the completion of the "economic domain" by the acquisition of tropical possessions and its probable effects upon our future. Other articles are a résumé of recent investigations of coral reefs; observations on Mt. Blanc, and on the vegetation of the Caucasus (with a map); and an interesting sketch, with numerous illustrations, of some of the Berber tribes inhabiting the Aurès, the highest chain of the Atlas Mountains.

The *Bulletin* of the Society of Civil Engineers of France, at Paris, has become a semi-monthly, and is published on the 15th and 30th of each month. The first number of the current volume contains the conclusion of Périssé and Godfernaux's interesting memoir on mechanical traction as applied to public conveyances on railroads and highways.

Among the contents of *Petermann's Mitteilungen*, number twelve, is a suggestive colored map, with notes, showing the distribution of the agricultural and industrial population of the German Empire. A glance suffices to perceive that eastern Prussia and Bavaria are almost exclusively agricultural, while Saxony and Brunswick are wholly devoted to manufactures. The editor summarizes the meteorological observations of the Belgian Antarctic expedition, and holds that they prove that the absolute "Kältepol" of the earth is to be found there. The index of the geographical publications for the year exhibits the influence of current events on this branch of literature. The whole number of works noticed is 868, of which 221 and 22 are on Europe and the United States respectively, a considerable falling off from the previous year, while the 127 and 145 for Asia and Africa show an equal increase.

A striking description of Turkey under the present Sultan was given by Mahmud Pasha, his brother-in-law and for twenty-two years his minister, now a refugee in Paris, in a recent interview with M. de Blowitz of the *London Times*. "The whole empire is captive," he exclaimed impulsively at the outset. "Abdul Hamid keeps everybody in prison. . . . Whatever he has not directly under his hand frightens him, and whatever he thus does have in hand appears to him menacing at the slightest sign of individual will on its part or of a thought not the master's own. He is the Sultan of the Terror, and this fact haunts him even as it does others." At the same time he is a man of wonderful activity, working "harder than any of his subjects, but at useless and childish things," as the uniform of the army and the voluminous police reports. Mahmud recounted his own futile efforts to secure reforms, and