

nition for their extreme profundity. His style is always savory; and where occasion is, he can write with finesse or with impetuosity. In one word, it is safe to say that there exists no directory to any branch of modern philosophy that is half or quarter as useful as this book is destined to be found.

Dr. Caldecott distributes the philosophies with which he deals into types; and it will dispose any reader to confess his need of the information that this publication furnishes, to learn that those types are in number no fewer than thirteen. This leads us to notice the second purpose of the book, which is to classify and consider the various types of thought which have been pursued, with a view of extracting therefrom lessons as to what should be tried next. It was, we dare say, beyond human powers to classify in a satisfactory way all the writers that had to be dealt with. But any well-trained logician would have avoided the worst faults of the classification of Dr. Caldecott, who, although Professor of Logic, is weak in that direction. At any rate, competent logicians will easily convince themselves that Caldecott is not of their number by turning to what he says of Dr. Samuel Clarke's so-called demonstration of the existence of a God, in which our author sees a "singular mixture of assertion and ratiocination" which has so puzzled him that he has "sorted out" Clarke's pretended demonstrations in two different ways before satisfying himself as to what the nature of the argument really was. Now, in an ordinary reader, nothing could be more pardonable than a perplexity about Clarke's meaning. Indeed, it would rather be a sign that the reader's ways of reasoning were sound and healthy than the reverse. For, as John Caird pretty accurately says, "it is a piece of meaningless jargon." But to a reader well versed in logic there is nothing singular about the argument, nor anything to hinder its being understood at a first reading. Clarke's notions of demonstration were false enough, but they were shared by almost all his contemporaries, particularly by Spinoza. The difference between those two writers was that with Spinoza the living thought did not pursue that erroneous method, which, in his case, was merely the garb in which it was clad after it was full-grown—and even then only imperfectly, since it does not accurately conform to the logical rules which it acknowledges. Clarke's reasoning, on the other hand, satisfies those requirements to the full, for it was constructed to do so, and never aimed at anything truer. Its sole merit is that of conforming to futile rules.

The division of thinkers into types would

no doubt have been a good idea if it had been restricted to the separation on logical grounds of the histories of widely disparate lines of thinking, leaving smaller subdivisions to be drawn by the historical associations and disassociations themselves. What, unless it was the mysterious fatality of the number thirteen, should have possessed the author to make so many divisions on purely rational grounds that it becomes a nice question in what compartment almost any given author may be most appropriately pigeon-holed—thus cutting for parallel histories in equal number, of movements not historically distinct—and is, at a loss to imagine. The consequence is that there is little genuine history in the book, whose parts are brought into relation only by the cement of rather foolish reflections. It will appear to many that an account of the philosophy of religion in England and America, which includes Emerson, treating the "Essay on the Over-soul" as natural theology, yet excludes the "Substance and Shadow" of Henry James, the father, does not thoroughly comprehend its own purpose. The author is not sufficiently acquainted with American thought.

The great utility of this work as a compendium remains untouched. Even if the author is not strong enough to stem the tide of an ephemeral public judgment as to the importance he allows to Balfour's stuff, this does not in the least matter, or perhaps is a positive convenience. We may add that it is a very agreeable book to read. Its natural style, never tired, its excellent index compensates for all faults of classification. It is printed, not on that beautiful paper so much in vogue which everybody likes who detests reading, and everybody detests who likes reading, but on a laid paper on which the ink takes black, and which gives a book of 450 pages weighing only a pound and a half, cover and all. That, in itself, ought to double the sale of it.

Substitutes for the Saloon. By Raymond Calkins. An investigation made for the Committee of Fifty under the direction of Francis C. Peabody, Elgin R. Gould, and William M. Slomsh. Boston: Houghton, Mifflin & Co. 1901. Pp. xviii, 397.

The striking point about this book is its sheer good sense. There are men who frequent saloons because they want alcohol; there are men who frequent saloons because they want company, and who drink more than they wish to and when they do not wish to, rather than be left in solitude. It is very wisely for this second class of men only that the author speaks to and efficient substitutes for the saloon. He discusses

many substitutes as have already been tried—Clubs of the People, Clubs for the People, the Mingle, the Settlement, the Young Men's Christian Association, Lunch Rooms and Coffee Houses, English Temperance Houses—and makes a number of suggestions for their improvement; notably in the matter of choice of location, furnishings, supply of gymnasia, and organization of amusements.

The book is so free from impractical speculation that it is almost misleading to speak of the author's "ideal," though he has an ideal, namely, to make the saloon so far as possible, by legislation and otherwise, a place for drinking simply, not for lounging, and to supply the people with places of meeting in which they will find as nearly as may be all the attractions of the saloon and none of its temptations to excess.

BOOKS OF THE WEEK.

Albani, Antoine. *La Formation du Style par l'Assimilation des Auteurs*. Paris: Armand Colin. Allen, Grant. *Colin Gledits Calendar*. New ed. London: Grant Richards; New York: E. P. Dutton & Co. \$1.25.
Austrian, G. L. *Wilderemoor*. G. P. Putnam's Sons. \$1.50.
Bacon, Richard. *Casting of Nets*. John Lane. Banks, N. *An Old Boy's Letters*. Cassell & Co.
Boswell, Walter. *The Story of King Alfred*. D. Appleton & Co.
Clifford, Mrs. W. E. *A Woman Alone*. (Trove and Country Library.) D. Appleton & Co.
Craw, F. H. *Introduction to the Study of Comenius*. Silver, Burdett & Co. \$1.25.
Crosby, G. O. *Family Original Verse*. New and enlarged ed. Columbia (S. C.). Published by the Author. \$1.
Donahue, T. L. *Trolley Yarns and Other Tales*. F. Thompson Neely Co.
F. E. F. *An Introduction to Political Economy*. New ed. Boston & Maine. \$1.50.
Fletcher, W. I. and Poole, Mary. *Poole's Index to Periodical Literature*. Abridged Edition covering Thirty-seven Important Periodicals, 1812-99. Houghton, Mifflin & Co.
Gibbs, Francis. *Lausanne and its Literary Landmarks*. London: Archibald Constable & Co. New York: E. P. Dutton & Co. \$4.50.
Hilberich, Joseph. *Artine Valere*. Boston: L. O. Page & Co. \$1.50.
Japp, A. H. Darwin. London: John Bale, Sons & Danielsson. 2s.
Jerrard, Walter. *Surrey*. (Dent's County Guides.) London: J. M. Dent & Co. New York: E. P. Dutton & Co. \$1.50.
Keston, N. E. *Poems*. Bates & Matine. \$1.
Lawrence, S. G. *The Lawrence System of Vocal and Physical Education*. The Lawrence Pub. Co.
Manley, Frederick. *The Merchant of Venice*. (New ed. Clarendon.) Boston: G. O. Birkhard & Co.
Mangin, D. S. *Life of Indus and the Hindu Cal Revelation*. Edwin S. Gorham. \$1.50.
Morris, Charles. *The Handy Dictionary of Etymology*. Henry T. Coates & Co.
Navy. *Baron de Santa Anna*. The Land of the Unknown. London: Sands & Co. New York: E. P. Dutton & Co. \$4.
Parker, Mary M. *A Girl of Chicago*. F. Thompson Neely Co.
Paton, George. *Little Memoirs of the Eighteenth Century*. London: Grant Richards; New York: E. P. Dutton & Co. \$1.
Phillips, Sarah E. *The Old House by the Sea*. F. Thompson Neely Co.
Richards, Laura E. *Geoffrey Strong*. Boston: Dana, Estes & Co.
Rynd, Evelyn E. *Mrs. Green*. G. P. Putnam's Sons.
Silver, E. N. *A Daughter of Mystery*. Boston: L. O. Page & Co. \$1.50.
Simpson, R. N. *Captain Bayanov*. Boston: L. O. Page & Co.
The Chronicle Fire Tables for 1901. The Chronicle Co.
Tate, H. P. *An English Commentary on Dante's Divine Comedy*. Henry Fryde, Jr. \$1.
French, Herbert. *Dante's Web and Other Poems*. John Lane.

"He has appealed, not to the idle and to the foolish, not to the fashionable mob, but to a more august tribunal"—Literature.

"Our Friend the Charlatan," the latest work by George Gissing, ought then to please the readers of the Nation.

12mo, \$1.50. Henry Holt & Co. N. Y.

Autobiography of a Journalist.
By W. J. Stillman. 2 Portraits. 8 vols. 8vo. \$2.00.
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FOR SALE

The *Journal of the American Association of Teachers*, Vol. 1, No. 1, 1901. Published by the American Association of Teachers, 100 West 4th St., New York.

NEW BOOKS RECEIVED
The *Journal of the American Association of Teachers*, Vol. 1, No. 1, 1901. Published by the American Association of Teachers, 100 West 4th St., New York.

prudence were to pass on. In his discussion of the transmission of the law, Mr. Taylor might have emphasized the clear lines with which the dominant institution of the Middle Ages, the Church, is delineated in the Roman law, for there is no more conclusive proof of his general thesis than the last book of the Theodosian code, which might almost have been drafted by a jurist attached to the curia of Innocent III. Among those pagan elements which were Christianized and adapted to their own purposes by Christian writers were allegory, symbolism, and the mystery. The failure to distinguish between real mysteries, which exist by reason of the limitation of human knowledge, and artificial mysteries is plainly shown in the intellectual, religious, artistic, and literary history of the whole mediæval period. Mr. Taylor believes that this confusion must be regarded as wilful. "It was not the germinal mental chaos which exists in savages and barbarians, who have not developed the faculty of perceiving clear distinctions; it was rather a confusion to which human beings abandoned themselves after periods of clear thinking among their ancestors, Roman, Greek, and Hebrew." But the mystification was rather purposeful than wilful, and gratified a deep-seated craving to assimilate this independent and recalcitrant universe to human uses and ideals. And the writer recognizes that "allegorical interpretation represents that conservative religious progress which avoids a breach with the past and clings to the statements of ancient seers."

The chapter upon Monasticism—the ideal Christian life—and the character it illustrated and engendered, is preceded by an admirable discussion of the changes in the ideals of knowledge, beauty, and love. Here, as elsewhere, the author remains a sincerely impartial historian. He simply aims to understand; he neither condemns nor approves, and yet avoids a cold, unsympathetic attitude. He has sought his knowledge of the monastic spirit at the sources, in the utterances of Jerome, Benedict, Gregory the Great, and those who did most to assure its growth in the West; he shows how irresistibly the ascetic life appealed to those of the most diverse instincts and experience, the mystic, the scholar, the lover of nature, the disappointed, and the merely indolent.

About a third of Mr. Taylor's volume is given to Christian prose and poetry, both Greek and Latin, and the transition to mediæval poetry. He traces the slow substitution of accent and rhyme for quantity, and endeavors to correlate this change with the general tendencies and needs of the period. Christian emotion found the classic metres too confining for its purposes. Not only was the old verse, based upon quantity, no longer in accord with the spoken speech, it was too restrained and artificial, too measured, to express the vague and mystic longings and frantic apprehensions of mediæval religion. "Such unmeasured feelings were not to be held within the controlled harmonies of the hexameter nor within the Sapphic, Alcaic, or Pindaric strophes." The new quiver, the new shudder, the utter terror, and the utter love, which appear in the mediæval rhymed acrostic poetry, and the inappropriate use of classical metre to express such emotions, are all shown in lines like these:

"Desidero te milles.
Ni Jesu quando venies?

Me lætum quando facies,
Ut vultu tuo saties?"

"Quo dolore
Quo moerore
Deprimuntur miseri,
Qui abyssi
Pro commissis
Submergentur inter!"

While allusions to pagan tradition and mythology never cease in mediæval poetry, the antique spirit gives way completely.

"Speaking more particularly, the antique sense of form and proportion, the antique observance of the mean and avoidance of extravagance and excess, the antique dislike for the unlimited and monstrous, the antique feeling for literary unity, the abstention from irrelevancy, the frank love for all that is beautiful or charming, for the beauty of the body and for everything connected with the joy of mortal life, the antique reticence as to hopes or fears of what was beyond the grave, the antique self-control and self-reliance—these qualities cease in mediæval Latin poetry."

In the closing chapters upon architecture and painting the author holds that, in them as in the poetry of the time, the antique spirit is superseded by the genius of the Middle Ages, although the classical survives in mere references and allusions.

The volume closes with an elaborate bibliographical appendix, arranged to correspond with the chapters of the text, and an index. To sum up, Mr. Taylor's work gives evidence of a rare form of scholarship. He has the general preparation of a scholar, the necessary acquaintance with the five most essential foreign languages and with the literatures which each represents. He has the adequate special preparation which he derived in this case from such very solid works as those of Ebert, Norden, Harnack, Zöckler, Krumbacher, Cholsy, but above all from the sources themselves, which he has read with a patience little common in our country, where the *ipse dixit* of the German *érudit* still too often satisfies our scholarly ambitions. Lastly, he exhibits a broad human insight which keeps him within speaking distance of the beings whose spirit and predilections he seeks to surprise. Instead, however, of giving the public three stout tomes, as he was well prepared to do, he condenses the results of his studies into a handy little volume which many will read who know nothing of even Dill and Boissier.

SOME PHYSICAL BOOKS.

Contributions to Photographic Optics. By Otto Lummer. Translated and Augmented by Silvanus P. Thompson. Macmillan. 1900. 8vo, pp. 135.

Experimental Physics. By Eugene Lommel. Translated by G. W. Myers. J. B. Lippincott Co. 1900. 8vo, pp. 664.

An Introduction to Modern Scientific Chemistry. By Dr. Lassar-Cohn. Translated by M. M. Pattison Muir. D. Van Nostrand Co. 1901. 12mo, pp. 348.

Practical Electro-Chemistry. By Bertram Blount. Macmillan Co. 1901. 8vo, pp. 374.

Dr. Silvanus P. Thompson is known as an excellent physical investigator, and the author of several particularly admirable expository works. In translating Professor Lummer's articles on Photographic Optics he has used great freedom in improving upon the German author, quite rewriting many passages, and adding two chapters, together with an appendix and an interesting

preface. In this preface, Dr. Thompson laments the badness of British text-books of optics, which he attributes to the fact that optical books will not sell in England unless they are cram-books for university examinations set by non-optical examiners. English text-books "serve admirably to get up the subject for the tripos; but they are far too academic and too remote from the actual modern applications. In fact, the science of the best optical instrument-makers is far ahead of the science of the text-books." It is certainly very unfortunate that the possibility of publishing a scientific treatise in England, and far more in America, should depend on whether or not it will be a means of making money for the publisher; but it would be hardly better if it depended on its serving to make money for an optician. Even in Germany, publication is not so facile as might be supposed. Dr. Moritz Cantor's great 'History of Mathematics' hung fire for years before Teubner would proceed with the second volume; and other works which have notably advanced human thought have cost their authors the savings of their lifetime. Meantime, the master-key to the theory of lenses was given by a British mathematician, Rowan Hamilton, as long ago as 1833; and it has remained substantially unused, while German scientists have pursued the fearfully tortuous and labyrinthine analysis which was more directly suggested by the exigencies of the instrument-makers.

A photographer is not thoroughly accomplished in his profession until he knows at least as much about lenses as is taught in this volume, and there is no other in any language in which the outline of the theory is made equally clear. It will prove a tough nut to crack for most readers; but there is no help for that until the mathematicians have furnished new developments. The two authors seem to be of opinion that photographic lenses have now reached their highest pitch of perfection—at least, until new kinds of glass are produced. But this may be doubted; for hitherto nothing has been aimed at except to bring all the waves of light from any one point of the object to focus on a given point of the plate, without inquiring whether they arrive at that point in the same phase of motion, so as to reinforce one another fourfold, or in opposite phases, so as to extinguish one another. A photographic lens may easily be too perfect, in an optical sense, to produce an artistic effect for any eyes except those which see exceptionally well. We desire that a picture should present nature as it looks to us when we are in a sympathetic mood. If the lens is much more perfect than the human eye, the view reminds us of how things look when our nerves are strung for stern and disagreeable duties—only more so. But from this it must not be argued that the photographer can afford to neglect the seven kinds of aberration which Lummer and Thompson expound after Seidel. On the contrary, the proper conclusion is, that, to the study of this book, the photographer should add that of physiological optics, in order to know what particular kind of defects to value in his lens, and in what different degrees.

Lommel's 'Experimental Physics' is written in a lucid and agreeable style. The author shows a decided faculty for making the subject clearly intelligible with surprisingly little mathematics. The book is not too

large for use in a high school. The English edition has a really tasteful appearance, in striking contrast to most of our school-books, however handsome they may be; and this ought to recommend it to teachers and school boards. For when a boy has thoroughly studied a book of natural philosophy, he ought to keep that volume within reach for the rest of his days. It is, therefore, particularly important to inquire what kind of a book this is. We will accordingly examine a single section, occupying about a page—a section neither among the best nor among the worst in the book, but chosen as embodying several qualities that are very characteristic of the whole. It relates to the heat of chemical combination. The author begins by treating the heat of crystallization, and here we remark that the translator says that the color of a certain salt is "bright grey." The setting of plaster of Paris is considered. It is a well-chosen illustration, for it is a process that every boy wants to understand. Unfortunately, the explanation is pretty thoroughly wrong. The statement made is that plaster is calcium sulphate, or gypsum, which has lost its water of crystallization. The truth is, that the essential constituent of plaster is a salt which contains one-fourth as much water as gypsum. That is the reason why the burning of gypsum is such a delicate operation, for if it is heated only a little too much, it loses all its water, and becomes substantially anhydrite, an insoluble salt which absorbs water only very slowly, and will not make a cast in any length of time because it won't hold together. The true plaster, on the other hand, dissolves in the water, and then pretty soon combines with the water in which it is dissolved to form insoluble crystals of microscopic size. In doing this it contracts slightly and evolves heat; but, owing to the crystals lying "every which way," they are not packed accurately together, and microscopic interstices are left, so that the whole mass has a tendency to swell enough to fill out every fine line of the mould. Thus, notwithstanding the pores, the crystals are pressed against one another so closely at certain points as to come within the range of powerful cohesive attraction, which gives the cast a certain degree of strength.

The author next considers the slaking of lime, of which we have the following account: "Burnt calcium (calcium oxide, CaO), generated by heating native calcium (calcium carbonate, CaCO₃) in a calcium oven, thus driving off the water, combined with water to produce calcium hydroxide (Ca(OH)₂), or slaked calcium, which is a solid." A lime-kiln may properly enough be called a furnace, in English, but hardly an oven; nor is lime called "calcium," or lime-stone "native calcium." A little below there is a small table of heats of combustion of ten substances commonly burned for fuel or light. It would have been appropriate to include some food-stuffs. Of these ten values, six are grossly in error, five having the decimal point put one place too far to the left, and in the sixth, alcohol, 91.90 being printed, instead of 71.90.

The translator has studied in Germany, and he evidently thinks himself qualified to improve upon the English language. This sometimes has disastrous effects; as where the rhombic system of crystallization (which we identify by his giving the sym-

nym "quadratic," and also by his not otherwise enumerating this system), being called by the translator "rhomboidal," is confounded with the rhombohedral system; and the pupil is told that it is a hemihedral variation of the hexagonal system, which, by the way, is not true even of the rhombohedral crystals. Water cooled below 32 degrees F., but still liquid, is said by the translator to be "undercooled." Other writers call it "supercooled." A hydrometer the readings of which are inversely proportional to the density is christened a "volumometer." Truly, with three such lovely words as "volumenometer" and "volumeter," already in the dictionary, and now the new-born "volumometer"—all meaning entirely different things—the English language ought to be supremely happy. The volume is crowded with contributions to the dictionary.

We know very well that Mr. Pattison Muir is a translator acquainted with the English language and with the science of chemistry—is, indeed, thoroughly skilled in both. Under these circumstances, we cannot understand his choice of Lassar-Cohn's book, or how he could call it an "introduction to modern scientific chemistry," when there is not a word in it about the dominant kind of chemistry of to-day. The name of Ostwald does not occur from cover to cover. The doctrine of valency is much insisted upon; but we hope that that is not regarded as particularly modern or as particularly scientific. There are two pages about the "unsymmetric carbon atom," which dates from 1869, as does Mendeleef's table of elements, from which the Helium-Neon-Argon-Crypton-Xenon series is omitted. We notice, by the way, that in two of the three places where xenon is mentioned it is called "xeon." Selenium, too, is called "selenion," throughout. Yet helium is not called "hellion." On page 215, the following dictum is printed in authoritative italics: "It is impossible to think of life without the presence of nitrogenous substances." That is not a proposition in chemistry; and to slip it into a chemistry for children, where nobody would suspect such proselytizing, may accord with North German notions; but, in this country, some people will not deem it dealing honestly with parents. Since Mr. Pattison Muir has failed to see the impropriety of it, the publishers would do well to cut it out of the plate. It is a doctrine of metaphysics, and uncommonly metaphysical metaphysics. There are other eccentricities. Thus, the translator adds a note of his own to say that "in our preposterous English system of weights and measures, there is no simple relation between the units of weight and volume." The British unit of weight is the imperial pound; the unit of volume is the imperial gallon. The imperial gallon is defined as the volume of ten pounds of water under standard conditions. No relation could be simpler. This system was the result of the most careful and deliberate consideration on the part of the most competent metrologists that British science has ever produced. It is a little bit pre-something—let us say *promature*—for Mr. Pattison Muir to call it "preposterous" in that particular feature.

Mr. Bertram Blount discusses the economic aspects of every branch of electro-chemistry. In eight sections he considers (1) general principles, (2) the electrolytic mining and refining of metals from aqueous solu-

tion, (3) the electrolysis of igneous liquids, (4) the electric furnace, (5) electro-deposition, (6) the alkali and chlorine processes, (7) the electrolysis of organic compounds, and (8) power. There are some electrical processes the details of which are kept secret. Others have never been put into practical operation under economic conditions. In such cases, there is, naturally, not very much to be said; but what there is to be said is here said, and said well. Under the sixth and seventh sections there are chemical reactions that some students will think Mr. Blount has not got to the bottom of. But where the questions relate simply to the economics of electricity, the discussion is masterly. The bitter-beeriness that pervades the British arts is occasionally illustrated in these pages. Thus, we read of an American silver-refining company that has to remelt its silver with a little copper before sending it to England, because the English dealers cannot admit on any evidence that silver can be more than 998 fine. In the last chapter, the following question is put as if it were a poser: Into one of two vessels, both filled with a solution of sulphate of potassa, and connected with a siphon, is placed a bar of carbon, and into the other a bar of zinc, these bars having been connected with the terminals of a galvanometer. There is a momentary current, which promptly ceases. Now into which vessel shall we pour a little sulphuric acid in order to make a steady current, and why? The great name of Ostwald is invoked for a principle on which to decide this question—a Titan imported to crack a hazelnut, as any American amateur electrician would find it.

FRANCE BEFORE THE REVOLUTION.

Etudes sur l'Histoire Economique de la France (1760-1789). Par Camille Bloch, Archiviste du Département du Loiret. Préface de M. Émile Levasseur, Membre de l'Institut. Paris: Picard. 1900. Pp. ix, 269.

Here is a little collection of papers to which it is worth while to call attention, because it illustrates one of the most hopeful tendencies in recent French historical writing. For some time past it has been realized that the history of the French Revolution had been written too exclusively from the point of view of Paris; consequently, attention has been more and more directed to the provincial archives. Hitherto, indeed, the object of the investigator has usually been to trace the progress of the Revolution itself in the several localities. But our judgment concerning the several stages in that tremendous episode is necessarily colored by our beliefs as to the evils which occasioned or preceded it. We may remember, for instance, how Mr. John Morley rebukes Burke's sentimentalism by a reference to the "mainmortables in the gorges of the Jura." And hence it is coming to be felt that an exact understanding of the prevailing social conditions in the half century before the outbreak is a good deal more instructive than the details of this or that atrocity after the outbreak had once taken place. The schism in the nation is still so far from being healed, and historical work has unfortunately been so well organized in two rival camps, that we may expect the inquirers for some time to bring forth from the mass of material at their