

theory that Yah and Yahu, instead of being shortened forms of Yahveh, as is generally assumed, were really the current and popular names of God, and that Yahveh was constructed upon them according to the expression found in Exodus iii, 14. Yahu (not Yaveh) Professor Delitzsch takes back to Assyrian *Ya-u*, who was, in the pantheon of the non-Semitic aborigines of Babylon (the Akkadians) *I*, the supreme God. The next important theory is found in an article by F. A. Philippi in the *Zeitschrift für Völkerpsychologie*. This writer contended that Delitzsch had failed to make out his case, that Yahveh was the more original form (instancing its occurrence in the famous inscription of King Meshah); that, admitting an Assyrian *Yau*, it would be difficult to derive Yahveh from it, and impossible to get Assyrian *Yau* from Akkadian *I*. Professor Sayce, naturally at the present moment, thinks it to be of Hittite origin. Dr. Driver emphasizes the fact that none of these theories are objectionable on theological grounds, because they all recognize that Yahveh is of Jewish origin, and, even if built upon *Yah* or *Yahu*, received an entirely new signification. The essay concludes with the statement that "no ground appears at present to exist for questioning either the purely Israelitish origin of the Tetragrammaton, or the explanation of its meaning which is given in Exodus iii, 14."

The third essay, by Ad. Neubauer, is on a subject always full of interest, the "Dialects spoken in Palestine in the time of Christ." The older scholars thought that Alexander and his successors had caused the Greek language and literature to spread so completely throughout Asia that the Hebrew had not escaped the fate of the other Asiatic language. The moderns, like Renan and Franz Delitzsch, take the position that the language spoken was still a kind of Hebrew. Neubauer holds in the main with these, and, after a mass of interesting and acute discussion, he concludes that if the New Testament were to be restored to its original form, the Hebrew dialect to which it should be most nearly approximated would be that of the Jerusalem Talmud.

Essay Number VI, by W. Sanday, is an account of the Text of the so-called Codex Rossanensis, a newly-discovered sixth-century text of the New Testament found in Rossano in 1881. Only an incomplete examination of it has been made, the chapter at Rossano refusing all permission to scholars to study it as soon as they discovered its value. It in a great measure supports the traditional text.

Number IX, a very careful paper by Mr. T. Randell, is on the date of St. Polycarp's martyrdom. This date has ranged all the way from 147 to 175, but Mr. Randell attempts to fix it in the spring of 155.

The Story of the Heavens. By Robert Stawell Ball, LL.D. With colored plates and numerous illustrations. Cassell & Co. 1885.

This is a capital book, but not without its faults. A marked diffuseness is in several instances particularly unfortunate, needlessly taking the reader on rambling excursions before he is allowed to reach the objective point. However adapted it may be to British needs, the volume is too bulky for the general American reader, and fully a quarter of it might with advantage be expunged, and that, too, without damage to the rhetoric. Printer's errors are not numerous, yet the book bears evidence of having been hurried through the press.

Dr. Ball writes with the hand of a master, and his book is an exceedingly attractive exposition of the astronomy of to-day—the best popular English treatise, in fact, if one can spare the time to read it all. The story of Neptune's discovery

has never been better told, nor more fairly; while the chapters on shooting-stars and comets, stellar distances, the tides, and the astronomical significance of heat, are in every way excellent. Dr. Ball is ready to acknowledge in detail his indebtedness for numerous illustrations, but he has nothing to say about a work of like character with his own, well known in Great Britain and better known in America, Professor Newcomb's 'Popular Astronomy,' published by the Harpers in 1878, which has afforded him an occasional suggestion. We parallel two passages:

BALL (p. 9).

"Tycho Brahe, who was born in 1546, three years after the death of Copernicus. His attention seems first to have been directed to astronomy by the eclipse of the sun which occurred on the 21st August, 1560. It amazed his reflective spirit to find that so surprising a phenomenon admitted of actual prediction, and he determined to devote his life to the study of a science possessed of such wonderful precision. In the year 1576 the King of Denmark had established Tycho Brahe on the island of Huen, and had furnished him with the splendid observatory of Uraniberg. It was here that Tycho assisted in the observation of the places of the heavenly bodies for some twenty years," etc.

BALL (p. 393).

"In February, 1862, Messrs. Alvan Clark & Sons, the celebrated telescope makers, were completing a superb 18-inch object-glass for the Chicago Observatory. Turning the instrument on Sirius, for the purpose of trying it, the practised eye of the younger Clark detected something unusual, and he exclaimed, 'Why, father, the star has a companion!' The father looked, and there was a faint companion due east from the bright star, and distant about ten seconds. This was exactly the predicted direction of the companion of Sirius, and yet the observers knew nothing of the prediction. As the news of this discovery spread, many other observers were pointed on Sirius; and it was found that when observers knew exactly where to look for the object, many instruments would show it. The new companion star to Sirius in the constellation Canis Major, and it was now watched with the keenest interest, to see whether it also was moving in the way it should move, if it were really the body whose existence had been foretold. Four years of observation showed that this was the case, so that hardly any doubt could remain that the telescopic discovery had been made of the star which had caused the inequality in the motion of Sirius. The correspondence between the observed motions and the predicted motions has not since proved quite exact; for the observed companion appears to have moved about half a degree per annum more rapidly than the calculated companion. This difference, though larger than was expected, may be partly due to the inevitable errors of the difficult observations from which the movements of the theoretical companion were computed."

We forbear further criticism: the downright simfulem of this sort of thing is perhaps small; but if all such passages had been closed with marks of quotation, nobody could have thought the less of 'The Story of the Heavens,' and everybody, surely, would have thought more of Dr. Ball.

Royalty Restored: or, London Under Charles II. By J. Fitzgerald Molloy, with an etching of Charles II. by J. Grego, and eleven other portraits. In 2 vols. Scribner & Welford.

The fascination that traditionally pertains to evil

NEWCOMB (p. 66).

"Tycho Brahe, who was born in 1546, three years after the death of Copernicus. His attention was first directed to the study of astronomy by an eclipse of the sun on August 21st, 1560, which was total in some parts of Europe. Astonished that such a phenomenon could be predicted, he devoted himself to a study of the methods of observation and calculation by which the prediction was made. In 1576 the King of Denmark founded the celebrated Observatory of Uraniberg, at which Tycho spent twenty years, assiduously engaged in observations of the positions of the heavenly bodies," etc.

NEWCOMB (p. 439).

"February, 1862, when Messrs. Alvan Clark & Sons of Cambridgeport, were completing their eighteen-inch glass for the Chicago Observatory. Turning the glass one evening on Sirius, for the purpose of trying it, the practised eye of the younger Clark detected something unusual, and he exclaimed, 'Why, father, the star has a companion!' The father looked, and there was a faint companion due east from the bright star, and distant about 10". This was exactly the predicted direction for that time, though the discoverers knew nothing of it. As the news went round the world, all the great telescopes were pointed on Sirius, and it was now found that when observers knew where the companion was, many telescopes would show it. It lay in the exact direction which theory had predicted for that time, and it was now observed with the greatest interest, in order to see whether it was moving in the direction of the theoretical satellite. Four years' observation showed that this was really the case, so that hardly any doubt could remain that this almost invisible object was really the body which, by its attraction and revolution around Sirius, had caused the inequality in its motion. At the same time the correspondence has not since proved exact, the observed companion having moved about half a degree per annum more rapidly than the theoretical one. This difference, though larger than was expected, is probably due to the inevitable errors of the very delicate and difficult observations from which the movements of the theoretical companion were computed."

things has certainly kept bright the memory of the Merry Monarch. The virtuous William is a pale figure beside the amiable youth whose return to Whitehall was attended by so much revelry in town and court, and whose services to his country consisted largely in providing it with an aristocracy presumably sprung from his own loins. Indeed, the age of Charles II. was one of those in which the fascination of evil is brought to so brilliant a focus that it almost adorns history. Such, at least, would seem to be the opinion of the compiler of these two handsome volumes, from whose portraits all that was most beautiful and most dangerous in that fallen Eden looks out upon the reader, and in whose pages are gathered all the gay adventures of the quarter century of the reign which was the first to be prolific in that illegitimate literature, as it must be thought, of private diaries. Politics have been practically ignored by the writer, but a connected story is made up very deftly by accounts of parades, suppers, and receptions, characterizations and short sketches of the principal figures of the court, each of whom was the hero of many an intrigue, and extracts from the common sources of the history of the Caroline scandals. Larger features, though not more dwelt on and extended, are the plague, the fire, and the Popish plot, which were altogether too useful as material to be neglected, and have a certain relevancy as convenient centres about which to display the life of the town. The whole forms a very complete history of the life of London from the standpoint of royalty in the Restoration, and the work has been, in a literary sense, well done.

It is needless to say that the effect is that of a pretty comedy, for in this handling of the subject vice certainly has lost its grossness. Much of it is well known from Grammont and others, but here, as Byron says, the reader has the felicity of obtaining the age's naughtiness "at one fell swoop." The court, however, was not altogether depraved; there was innocence even there, and the figure of the much tried Queen, who had such "need of patience," is as bright as Shakspeare's famous candle that sends its rays so far into the night. The romp of the maids of honor as orange girls in their visit to the astrologer, himself no other than the mountebank Rochester, and the notorious Colonel Blood's capture of Arundel, and that heartless duel of Shrewsbury's, and that most pathetic one of Tom Porter's; Sedley's town frolic, Pepys's prying eyes and the sights that rewarded them—everything of note is here, even to the story of Lady Chesterfield's green stockings, which in the humor of hosiery is almost a match for that of *Malvolio's* unfortunate dandyism. It is all high-life, it is true, such as Thackeray alone could make moral, or Scott healthy; the seeds of death were in it, and England got rid of it, though only to know a grosser age with the Georges. Of the people, which, growing up in labor and Puritan dissent, was at last to remain it to secrecy if not to slough it out of the social system, these volumes say little. The author is not concerned with the character of the times or the tendencies of his own celebration of them. He has portrayed them only. But it does not need this new example to show us how often nowadays the necessary toleration of history is made the cover of a scandalous chronicle.

Physical Arithmetic. By A. Macfarlane, M. A., D. Sc., F. R. S. E. Macmillan. Pp. 357.

PROFESSOR MACFARLANE has had the excellent idea of collecting in one book of convenient size the arithmetical processes involved in the physical sciences. It is not to be considered as a text-book of arithmetic to be studied without knowing anything about physics—nothing could be more fatal

to the difficult task of forming clear and correct physical concepts than to use it in that way. But as a companion to laboratory work and good instruction, and as a compendium of the mathematics involved in a non-mathematical course of physics, it will be found to be of great value.

Professor Macfarlane's familiarity with symbolic logic has enabled him to give a particularly happy setting to the general arithmetical problem. His equations may be considered as a cross between the equations of pure mathematics and the equations of logic. The question, in a great part of the work in arithmetic, is whether a given number is to enter the work as a multiplier or as a divisor, and the question has a connection with the logical problem of the elimination of a middle term. If the A's are M, the M's are N, the N's are P, and the P's are X, it follows that the A's are X. Professor Macfarlane's one rule which covers the ground of his whole book (but which is to be mixed, it is true, with a good proportion of brains) is in effect this: Arrange the units which occur twice so that they appear once as subject and once as predicate; then cancel, and an equation results between the two units which have appeared once only. For instance, if

120 cents = 4 dozen eggs,
3 dozen eggs = 2 lbs. butter,
5 lbs. butter = 75 pts. milk,

then

$1 \text{ cent} = \frac{4 \cdot 2 \cdot 75}{120 \cdot 3 \cdot 5} = \frac{1}{3} \text{ pt. milk};$

and similarly with volts, and ohms, and amperes, and chemical equivalents. The plan has the advantages and the disadvantages of a "method"—the student is in danger of working by rule of thumb instead of by pure head; but if he is destined to do enough work to become expert at it, he is saved a good deal of head for other and more difficult purposes. The same remarks apply to a memorized multiplication table and to symbolic logic. There is a large collection of examples, partly selected from recent examination papers and partly prepared by the author.

Professor Macfarlane has left the University of Edinburgh to become professor of physics in the University of Texas. The latter University bids fair to become a centre of learning. It contributes a paper to the current number of the *American Journal of Mathematics*.

Frank's Rancho; or, My Holiday in the Rockies. Being a contribution to the inquiry into what we are to do with our boys. By the author of 'An Amateur Angler's Days in Dovedale.' Boston: Houghton, Mifflin & Co. 1886.

THE attraction of this little work is due to its great simplicity and directness. It appears that its author (a well-known English publisher) had a boy who preferred to try his fortunes in American agriculture to being pinned to a city desk, and hence came over. He learned enough of a Minnesota farmer in a few months to think he understood the art, and bought a farm, with the aid of his father's purse; and, not succeeding in this venture, he turned the capital into a creamery, in which it disappeared. The boy (whose partner, we are told, made a paying business of "the milk idea" after he got the sole ownership of the plant) went West, and "roughed it" near Bozeman, Montana. The father by this time had concluded to let "Frank" make his fortune by himself, and "Frank" took hold of his task with cheerfulness and pluck. The letters from "Frank," which are given in the first part of the book, are by far the most interesting portion. He had a hard time of it, and his endurance, resolution, and the buoyancy of his hopes in the most dismal circumstances, stand out in his free and straightforward narrative with delightful unconsciousness. So fresh a nature is not often met with in books, and in this is the charm of the whole; those who think no boy can "rough it" in the West without being "spoilt," can read to advantage.

The second portion consists of the account of the father's journey to see his son and judge for himself of his prospects. "Frank" had got a piece of ground and a cabin and "a few things together" by the hardest of real toil, and perhaps the purse-strings might be loosened once more. The journey tells of the voyage, the Catskills, Saratoga, Niagara, the Yellowstone, and the "Rancho," with a few notes of the return by Helena, Salt Lake, Cheyenne, and Boston. These sketches are interesting light reading, and breathe a spirit of appreciation for things American which is at once spontaneous and unbroken, and, in an Englishman of sixty years, is marvellous. It is pleasant to know that "Frank" did increase his real, and possibly his personal, estate by this visit of "the Governor." From the title-page one infers that the author advises

other parents to do as he has done; but it would be well for the "boy" who is to go out, also to read the account of what "Frank" had to do, and to reflect well whether he has got the fibre and the spirit for such a severe apprenticeship to fortune.

BOOKS OF THE WEEK.

- American Law Review*. Vol. XIX. St. Louis: Review Publishing Co.
- Anderson, E. L. *Vice in the Horse, and Other Papers on Horses and Riding*. Edinburgh: David Douglas.
- Brooks, Louise. *A Year's Sonnets*. Boston: Cupples, Upham & Co.
- Buck, J. D. *The Nature and Aim of Theosophy*. Cincinnati: Robert Clarke & Co. 25 cents.
- Channing, W. E. *John Brown and the Heroes of Harper's Ferry: A Poem*. Boston: Cupples, Upham & Co.
- De Vere, S. *The Wonders of Water*. From the French of Gaston Tissandier. Illustrated. Charles Scribner's Sons. \$1.
- Gragg, Agnes. *Our Odyssey Club*. Boston: D. Lothrop & Co.
- Green, Anna Katharine. *The Mill Mystery*. G. P. Putnam's Sons. \$1.
- Hamilton, Prof. E. J. *Mental Science: A Text-Book for Schools and Colleges*. Robert Carter & Brothers.
- Harrison, F. *Choice of Books, and Other Literary Pieces*. Macmillan & Co. 50 cents.
- Hitchcock, J. R. W. *Etching in America*. White, Stokes & Allen. \$1.25.
- Howe, Maud. *Atalanta in the South: A Romance*. Boston: Roberts Brothers. \$1.25.
- Janvier, T. A. *The Mexican Guide*. With maps. Charles Scribner's Sons. \$2.
- Keenan, H. F. *The Ancients: A Novel*. D. Appleton & Co. \$1.25.
- Lang, A. *Letters to Dead Authors*. Charles Scribner's Sons. \$1.
- Lefèvre, M. *Wonders of Architecture*. With a Chapter on English Architecture, by R. Donald. Illustrated. Charles Scribner's Sons. \$1.
- Longfellow, S. *Life of Henry Wadsworth Longfellow*. 2 vols. Boston: Ticknor & Co.
- Lyall, Edna. *We Two: A Novel*. D. Appleton & Co. \$1.50.
- Meunier, V. *Adventures of the Great Hunting-Grounds of the World*. Charles Scribner's Sons. \$1.
- Monteith, J. *Barnes's Complete Geography*. Barnes's Elementary Geography. A. S. Barnes & Co.
- Platform and Pulpit Aids*. A. C. Armstrong & Son. \$1.50.
- Ragozin, Z. *The Story of Chaldea: From the Earliest Times to the Rise of Assyria*. G. P. Putnam's Sons. \$1.50.
- Richards, Ellen H. *Food Materials and their Adulterations*. Boston: Estes & Lauriat.
- Rockstro, W. S. *A General History of Music, from the Infancy of the Greek Drama to the Present Period*. Scribner & Welford.
- Roosevelt, T. *Hunting Trips of a Ranchman: Sketches of Sport on the Northern Cattle Plains*. Illustrated. G. P. Putnam's Sons. \$3.50.
- Reed, A. Z. *Evolution versus Involution: A Refutation of the Theory of Herbert Spencer, and a Vindication of Theism*. James Pott & Co. \$2.50.
- Salmon, Lucy M. *History of the Appointing Power of the President. Papers of the American Historical Association*. Vol. I., No. 5. G. P. Putnam's Sons. \$1.
- Sanitary Engineer*. Vol. XII. June-November, 1885.
- Schmidt, O. *The Mammalia in their Relation to Primeval Times*. D. Appleton & Co. \$1.50.
- Shand, A. I. *Fortune's Wheel: A Tale*. Harper & Bros. 25 cents.
- Snead, T. L. *The Fight for Missouri. From the Election of Lincoln to the Death of Lyon*. Charles Scribner's Sons. \$1.50.
- Spender, Emily. *Until the Day Breaks*. Harper & Bros. 20 cents.
- Spoford, A. R. *American Almanac and Treasury of Facts, Statistical, Financial, and Political, for 1886*. American News Co.
- Stickler, Dr. J. W. *The Adirondacks as a Health Resort*. G. P. Putnam's Sons. \$1.

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