

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.
- Spofford, 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.

HENRY HOLT & CO., 29 West 23d St., N. Y., have now ready a new descriptive catalogue of their Educational Publications and will send it to any one who applies, referring to this advertisement.

HIGH CLASS ETCHINGS.

A new illustrated Catalogue free by mail. Frederick Kappel & Co., 23 East 16th St., New York.

JUST PUBLISHED.

LORENZ ALMA TADEMA.

His Life and Works. By Georg Ebers. With Thirteen Illustrations. One Vol., paper, 40 cents; cloth, 75 cents.

*** Sent by mail on receipt of price.

WILLIAM S. GOTTSBERGER, Publisher, 11 Murray Street, New York.

G. P. Putnam's Sons,

27 and 29 W. 23d St., New York.

READY THIS WEEK:

I. *A STUDY OF DANTE*. By Susan E. Blow. With an introduction by William T. Harris, LL.D. 12mo. cloth, gilt top, \$1.25.
"Miss Blow's analyses of Dante are remarkably clever. They show not only a thorough knowledge of the author, but a very clear discrimination in the details that make up character and a profound insight into human nature. Miss Blow's criticisms are valuable studies in psychology and moral science."—Howard Crosby.

II. *EVOLUTION OF TO-DAY*. A Summary of the Theory of Evolution as held by Modern Scientists, and an Account of the Progress Made through the Investigations and Discussions of a Quarter of a Century. By Prof. H. W. Conn, of the Wesleyan University.

III. *THE PHYSICS AND METAPHYSICS OF MONEY*. With a Sketch of Events Relating to Money in the Early History of California. By Rodmond Gibbons. Octavo. Paper, 25 cts. *Questions of the Day* series, No. 33.

*** Putnam's new lists sent on application.

SCHOOL BOOKS IN FOREIGN LANGUAGES. Miscellaneous Books in Foreign Languages. Catalogues on application. Foreign Periodicals. CARL SCHÖENBERG, Importer, 144 Tremont St., Boston.

S. DAVIS, JR.'S

DIAMOND HAMS and BREAKFAST BACON, CINCINNATI.

This season these meats have had patrons in Massachusetts, Rhode Island, New York, New Jersey, Pennsylvania, Maryland, District of Columbia, Virginia, South Carolina, Florida, Louisiana, Ohio, Illinois, Indiana, Kentucky, Michigan, Minnesota, and Nebraska. Also, Dominion of Canada and Newfoundland.

TO BOOKBUYERS AND LIBRARIANS.

DOUGLAS & FOULIS' CATALOGUES Of Surplus Library Books,

Withdrawn from circulation and offered at GREATLY REDUCED PRICES: Post-free to any Address.

* These Catalogues include the best recent works on HISTORY, BIOGRAPHY, TRAVEL, POETRY, THEOLOGY, a large collection of modern fiction, and many important works on SCOTISH HISTORY and ANTIQUITIES. Also books on the FINE ARTS, RUSKIN'S WRITINGS, etc.

DOUGLAS & FOULIS,

9 Castle St., Edinburgh, Scotland.

Scribner & Welford's

NEW BOOKS.

Important Work on the History of Music.

A History of Music from the Earliest Times to the Present.

By W. S. ROCKSTRO,

Author of the 'Life of Handel,' 'The Life of Mendelssohn,' etc.

In one Volume, 8vo, cloth, \$6.

Synopsis of Contents: Section I., Music in the Early Ages, including an introductory description of the Music of the Ancient Greeks; section II., Music in the Middle Ages; section III., Music in the Seventeenth Century; section IV., Music in the Eighteenth Century; section V., Modern Music; section VI., Future Prospects.

Prominence is given to the progress of music in England, and it is proposed to treat this part of the subject as fully and as fairly as that which concerns the development of music on the Continent.

The work will be accompanied by a copious index and chronological table.

George Eliot:

Thoughts Upon Her Life, Her Books, and Herself.

By Margaret Lonsdale, Compiler of 'Sister Dora: a Biography.' 12mo, cloth, 60 cents.

Madame de Maintenon.

AN ETUDE.

By J. COTTER MORISON.

Square 16mo, parchment, 50 cents.

** A vivid sketch of the life and times of Madame de Maintenon.

Personal Recollections of Thomas de Quincey.

By JOHN RITCHIE FINDLAY.

Two Portraits. Crown, 8vo, cloth, \$1.80.

YACHT ARCHITECTURE. By Dixon

Kemp, Associate of the Institution of Naval Architects and Member of the Council. 1 vol., super royal 8vo, cloth, \$16.80.

This work enters into the whole subject of the laws which govern the resistance of bodies moving in water, and the influence a wave form of body and wave lines have upon such resistance.

It also deals comprehensively with the subject of Steam Propulsion as applied to yachts.

An easy system for Designing is provided, and every necessary calculation is explained in detail.

The latter part of the work is devoted to Yacht Building, and engravings are given of every detail of construction and fitting, including laying off, taking bevels, etc.

The list of plates (exclusively of over thirty devoted to the elucidation of the text, and nearly two hundred woodcuts) exceeds fifty, and comprises the lines of some of the most celebrated yachts afloat, by the most successful builders and designers.

WANDERINGS IN CHINA. By C. F.

Gordon Cumming, author of 'At Home in Fiji,' 'A Lady's Cruise in a French Man-of-War,' etc. With a portrait of the author and numerous illustrations. 2 vols., 8vo, cloth, \$10.00.

** The above books will be sent upon receipt of advertised price. Catalogues of our regular stock will be mailed, if desired, to those interested. New Catalogue of Choice, Rare, and Second-hand Books ready. New Catalogue of Musical Literature ready.

SCRIBNER & WELFORD, 743-745 Broadway, N. Y.

Bohn's Libraries.

A Series of Standard Works of European Literature in the English Language. Full Catalogue sent, post-free, to all parts of the world on application.

NEW VOLUMES:

The Life and Works of Robert Schumann.

By August Reissmann.

Translated from the third edition of the German by A. L. Alger. 1 vol. 12mo, cloth, \$1.40.

The Spirit of the Age,

Or Contemporary Portraits. 4th Edition. To which are added Free Thoughts on Public Affairs and a Letter to William Gifford. By William Hazlitt. Edited by W. Carew Hazlitt. 1 vol., 12mo, cloth, \$1.40.

W. Hazlitt's other works, each in 1 vol., 12mo, cloth, \$1.40, viz.:

TABLE TALK. A New Edition.

LECTURES ON THE COMIC

Writers and on the English Poets.

LECTURES ON THE LITERATURE

of the Age of Elizabeth, and on Characters of Shakespeare's Plays.

PLAIN SPEAKER.

ROUND TABLE; The Conversations

of James Northcote, R.A.

SKETCHES AND ESSAYS, AND

Winterslow (Essays written there).

RECENT ADDITIONS TO THE LIBRARIES.

HENFREYS GUIDE TO ENGLISH

Coins. Revised Edition. By C. F. Keary, M.A., F.S.A., with Historical Introduction. \$2.40.

FAIRHOLT'S COSTUME IN

England. Third Edition. Enlarged and Revised by the Hon. H. A. Dillon, F.S.A. With more than 700 Engravings. 2 vols., \$4. Vol. I. History. Vol. II. Glossary.

COLERIDGE'S MISCELLANIES,

Æsthetic and Literary: to which is added The Theory of Life. Corrected and arranged by T. Ashe, B.A. \$1.40.

WALTON'S LIVES OF DONNE,

Hooker, etc. New Edition. Revised by A. H. Bullen. With numerous illustrations. \$2.

GRIMM'S GERMAN TALES.

With the Notes of the Original. A New Translation, by Mrs. A. Hunt. With Introduction by Andrew Lang M.A. 2 vols. \$2.80.

BURNEY'S NOVELS. EVELINA,

1 vol.; Cecilia, 2 vols. By Frances Burney (Mme. D'Arblay). With Introductions and Notes by A. R. Ellis, author of 'Sylvestra,' 'Marie,' etc. Price per volume, \$1.40.

Charles Scribner's Sons'

NEW BOOKS.

Letters to Dead Authors.

By Andrew Lang. 1 vol., Elzevir, 16mo, gilt top, \$1.

CONTENTS.

To W. M. Thackeray.	To Alexander Dumas.
To Charles Dickens.	To Theocritus.
To Pierre de Ronsard.	To Edgar Allan Poe.
To Hierodotus.	To Sir Walter Scott, Bart.
Epistle to Mr. Alexander Pope.	To Eusebius of Cesarea.
To Lucien of Samosata.	To Percy Bysshe Shelley.
To Maitre François Rabelais.	To Monsieur de Molière, Valet de Chambre du Roi.
To Jane Austen.	To Robert Burns.
To Master Isaac Walton.	To Lord Byron.
To M. Chapelain.	To Omar Khayyám.
To Sir John Mandeville, Kt.	To Q. Horatius Flaccus.

The Fight for Missouri in 1861.

From the Inauguration of Jackson to the Death of Lyon. By Col. Thomas L. Snead. 1 vol. 12mo, cloth, \$1.50.

The Mexican Guide.

By T. A. Janvier. 1 vol., 12mo, with maps and plans, \$2, net.

The best and only accurate guide to Mexico, convenient in form, complete and reliable, picturesque and graphic.

OCEANA; or, England and Her Colonies. By JAMES ANTHONY FROUDE, M. A. Illustrated. 1 vol., crown 8vo, \$2.50.

THE HISTORY OF GERMAN

Literature. By Professor WILLIAM SCHERER. Translated under the supervision of Professor Max Müller. 2 vols., 12mo, \$3.50.

WHAT DOES HISTORY TEACH?

By JOHN STUART BLACKIE. 1 vol., 16mo, cloth, 75 cents.

DOMESTICUS: A Tale of the Imperial City.

By WILLIAM ALLEN BUTLER, author of 'Nothing to Wear.' 1 vol., 12mo, \$1.25.

VALENTINO. By WILLIAM WALDORF ASTOR. 1 vol., 12mo, handsomely bound, \$2.

STRANGE CASE of DR. JEKYLL

and Mr. Hyde. By ROBERT LOUIS STEVENSON, author of 'The New Arabian Nights,' 'Treasure Island,' etc. Library Edition, \$1; paper, 25 cents.

HOW TO BE HAPPY THOUGH

Married. Being a Handbook to Marriage. By a graduate in the University of Matrimony. 1 vol., 12mo, \$1.25.

AN APACHE CAMPAIGN IN

the Sierra Madre. An Account of the Expedition in Pursuit of the Hostile Chiricahua in the Spring of 1883. By Capt. JOHN G. BOURKE, author of 'The Moquis Indians.' 1 vol., 12mo, illustrated, cloth, \$1; paper, 50 cents.

** These books for sale by all booksellers, or sent, post-paid, on receipt of price, by

Charles Scribner's Sons,

743-745 Broadway, New York.