

hands of mercy, to remind each passer-by — the physician and the nurse, as they pursue their ministry of relief; the student, as he begins his daily task; and the sufferer from injury or disease — that over all this institution rests the perpetual benediction of Christian charity, the constant spirit of "good will to man." Upon one hill of Baltimore rises a temple "whose guardian crest, the silent cross," is an emblem of the Christian faith; upon another a lofty column reminds us of the patriots' hope; upon a third the Hôtel-Dieu is placed, — the house of charity. Significant triad! Here "abideth faith, hope, charity, . . . but the greatest of these is charity."

## BOOK-REVIEWS.

*Economic Value of Electric Light and Power.* By A. R. FOOTE. Cincinnati, Robert Clarke & Co. 16°. \$1.

THE author of this little book claims that the spirit moved him, as it were, to write it *pro bono publico*. The book is essentially a collection of papers read before scientific societies, and extracts from magazine articles on the applications of electricity for producing light and in the transmission of power. Mr. Foote is a strong believer in the future of electricity as an agent in furthering human comfort, and we doubt not that many who may be pondering on the question of introducing electricity in their homes or factories will find valuable suggestions within the covers of this book. In an appendix is given a glossary of electrical terms for the benefit of unprofessional readers.

*Treatise on Trigonometry.* By W. E. JOHNSON. London and New York, Macmillan. 12°. \$2.25.

THIS work is intended for both those who are beginning the subject and hope to continue their mathematical studies, and those

who wish to revive their knowledge of trigonometry and to extend it beyond the limits of the ordinary text-book. The treatise is so written as to make a good introduction to much of the higher mathematics; Chapter IX., on the geometry of the triangle, being sure to help those desirous of entering upon modern geometrical developments, and the final chapter presenting a fair view of the transition from the earlier interpretations of  $\sqrt{-1}$  to the quaternions of Hamilton.

## AMONG THE PUBLISHERS.

HARPER BROTHERS published last week H. Rider Haggard's story of "old and mysterious Egypt," entitled "Cleopatra: being an Account of the Fall and Vengeance of Harmachis, the Royal Egyptian, as set forth by his own Hand." The book is profusely illustrated from drawings by Mr. Greiffenhagen and R. Caton Woodville.

— D. Lothrop Company have issued recently, among many other books, "One Voyage," a story of life at sea from the passenger's point of view, by Capt. Julius A. Palmer; also a pictorial "History of England in Rhyme," and a similar one of the United States. Later they will publish new editions of "Art for Young People" and "Adventures of the Early Discoverers," by Mrs. F. A. Humphrey.

— The J. B. Lippincott Company have in preparation "Elementary Lessons in Heat," by Professor S. E. Tillman, of the United States Military Academy; and a new subscription-book entitled "A Manual of Machine Construction," a practical reference-book for the design, proportions, and method of constructing all kinds of machinery in common use, with all required references for the use of engineers, draughtsmen, and mechanics, by John Richards.

Publications received at Editor's Office,  
June 17-29.

- ALDEN's Manifold Cyclopædia of Knowledge and Language. Vol. XIII. Electricity to Exclaim. New York, J. B. Alden. 12°. 50 cents.
- BLANFORD, H. F. A Practical Guide to the Climates and Weather of India, Ceylon and Burmah and the Storms of Indian Seas. London and New York, Macmillan. 369 p. 8°. \$3.50.
- DORRIS, SOPHIE. The Beginners' Book in German. Boston and London, Ginn. 273 p. 12°. 90 cents.
- GEPP, C. G., and HAIGH, A. E. A Latin-English Dictionary. Boston, Ginn. 563 p. 12°. \$1.40.
- LIGHT on the Path, with Notes and Comments by the Author. Written down by M. C. Boston, Theosophical Book Co. 68 p. 16°. 30 cents.
- LOEWY, B. A Graduated Course of Natural Science. Part I. London and New York, Macmillan. 151 p. 16°. 60 cents.
- MEADOWCROFT, W. H. The A B C of Electricity. New York, Lovell. 108 p. 12°. 50 cents.
- PENNSYLVANIA Geological Survey. Catalogue of the Geological Museum. Part III. Harrisburg, Geol. Surv. 260 p. 12°.
- Atlas Northern Anthracite Field. Part III. Harrisburg, Geol. Surv. 8 maps. 8°.
- Atlas to Reports HH and HHH. Harrisburg, Geol. Surv. 56 p. 5 maps. 8°.
- PLATO's Protagoras; with the Commentary of Hermann Sauppe. Tr. by James A. Towle. Boston and London, Ginn. 179 p. 12°. \$1.50.
- SMITHSONIAN INSTITUTION. Annual Report of the Board of Regents of the, for the Year ending June 30, 1886. Part I. Washington, Government. 878 p. 8°.
- Two Great Retreats of History. I. The Retreat of the Ten Thousand. II. Napoleon's Retreat from Moscow. With Introduction and Notes by D. H. M. Boston, Ginn. 318 p. 16°. 60 cents.
- U. S. WAR DEPARTMENT. Annual Report of the Chief Signal Officer of the Army to the Secretary of War for the Year 1888. Washington, Government. 418 p. 8°.
- WEISMANN, A. Essays upon Heredity and Kindred Biological Problems. Oxford, Clarendon Pr. 455 p. 8°. (New York, Macmillan.)

## Old and Rare Books.

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 "The need of such a book has undoubtedly been felt by many . . . we predict for it a splendid sale."—*The Age of Steel*.  
 "A book like this should be largely read."—*N. Y. Herald*.

"The book is well illustrated, and no pains have been spared to make it accurate and reliable throughout."—*Electrical Review*.

"In simple language the author lays bare the secrets of electrical science and application."—*Electrical World*.

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## NORTH AMERICAN REVIEW.

JULY, 1889.  
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 The Telegraph Monopoly. . . . . Prof. Richard T. Ely  
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 Protection for Our Language. . . . . N. A. Campbell  
 French Proper Names in English. . . . . M. B. Thrasher  
 Fifty cents. All Newsdealers.

## D. APPLETON &amp; CO.

HAVE JUST PUBLISHED

I.

## Education in the United States.

ITS HISTORY FROM THE EARLIEST SETTLEMENTS. By RICHARD G. BOONE, A.M., Professor of Pedagogy in Indiana University. Volume XI of "The International Education Series," edited by W. T. HARRIS, LL.D. 12mo, cloth. Price, \$1.50.

This work, which is the first noteworthy attempt at a general history of education in the United States, forms a tolerably complete inventory of what exists, as well as an account of its origin and development. It includes: I, The Colonial Period; II, The Revolutionary Period; III, The Period of Reorganization; IV, Current Educational Interests.

II.

## Stellar Evolution and its Relation to Geological Time.

By JAMES CROLL, F.R.S., author of "Climate and Time," "Climate and Cosmology." 12mo, cloth. Price, \$1.00.

A treatise upon the probable origin of meteorites, comets, and nebulae, upon the age of the sun's heat, and upon the pre-nebular condition of the universe.

1, 3, & 5 BOND STREET, New York.

HEAVEN AND HELL, by EMANUEL SWEDENBORG, 416 pages, paper cover. Mailed pre-paid for 14 Cents by the American Swedenborg Printing and Publishing Society, 20 Cooper Union, New York City.

—The opening article in the *Political Science Quarterly* for June is by Albert Shaw, on "Municipal Government in Great Britain." It is not a history, but an account of the existing system of municipal government, which differs in important respects from that prevailing in the United States. The governing authority in British cities is the Common Council, the members of which are chosen by districts, and which has the appointment of the mayor and other administrative officers. The mayor is always a member of the council, and holds office for only a short time, while the other appointive offices are held for life. Mr. Shaw thinks this system greatly superior to the American, because it centres both power and responsibility in what is really a committee of the citizens, while in America responsibility is practically destroyed by the division of power and the complicated system of checks and balances. He also disapproves giving the mayor of a city such great power as the mayor of New York now wields, and remarks that "the one-man power is on the decline everywhere in this age." The article ought to be read by every American who is interested in municipal affairs. The next paper in the *Quarterly* is by J. H. Dougherty, on the "Constitutions of New York," the first part of which was published in September of last year. It is purely historical, and contains nothing specially new or striking. Another historical paper is that of J. W. Jenks on "The Whiskey Trust." The writer does not inquire into the legality of the trust nor into its economic effects, but merely relates the circumstances of its formation and development; and those wishing for information on these points will find it in this article. Mr. E. P. Cheyney discusses the recent decisions of the courts in "Conspiracy and Boycott Cases," and thinks that they have been too harsh against the labor-unions. He believes the judges have been too much influenced by legal precedent, and have not given sufficient attention to the changed condition of industry and society. Mr. F. W. Whitridge writes on "Rotation in Office," strongly condemning the United States law which provides that all officers appointed by the President and Senate shall hold office for only four years, which he justly holds to be one of the main supports of the spoils system. Besides these essays and a number of book reviews, the *Quarterly* contains a "Record of Political Events" from October to May, which is evidently the continuation of those formerly published in the *New Princeton Review*, which has now been merged with the *Quarterly*.

—Professor W. G. Sumner is to contribute to the *Popular Science Monthly*, as the opening article of the July number, a discussion of the question, "What is civil liberty?" in which he reviews the ideas of liberty that have prevailed, and the relations that rights and duties have borne to each other, in the past, and points out the tendencies that threaten civil liberty in the present. "Christianity and Agnosticism" is the title of a further reply to Professor Huxley, by Rev. Dr. Henry Wace, which will be printed in the July issue. In this paper Dr. Wace undertakes to show that his opponent's latest arguments are evasive and involve numerous fallacies; he also courteously criticises Mrs. Humphry Ward, whom Professor Huxley had cited with approval. What man has done and may do to lessen or increase the abundance of those food-fishes that have the wide ocean for their home, is told in an article on "The Artificial Propagation of Sea-Fishes," which Professor W. K. Brooks will contribute; and the railway problem now before the country will be treated by Mr. Benjamin Reece, under the title "Railway Maladjustments." Mr. Reece maintains that our laws favoring railroad-building have produced an excess of roads, which must be either a loss to the investors or a burden to the public, and that the Interstate Commerce Law is a clumsy expedient which takes little note of the working of economic forces.

—D. C. Heath & Co. will publish, July 20, "An Introduction to the Study of Shakspeare," by Hiram Corson, professor of English literature, Cornell University. It will be an attempt to indicate to the student some lines of Shakspearian study which may serve to introduce him to the study of the plays as plays. The commentaries presented on "Romeo and Juliet," "King John," "Much Ado about Nothing," "Hamlet," "Macbeth," and "Antony and Cleopatra," aim chiefly to present the points of view which are demanded for a proper appreciation of Shakspeare's general attitude

toward things, and his resultant dramatic art. An attempt is made to show the moral spirit with which he worked, as distinguished from a moralizing spirit, which it seems all-important to appreciate. Herein consists the transcendent educating value of the plays. To come into the fullest possible sympathy with this moral proportion, with this harmony and truthfulness, should be the highest aim of Shakspearian culture.

—P. Blakiston, Son, & Co., medical and scientific publishers, booksellers and importers, 1012 Walnut Street, Philadelphia, have just ready "The Cerebral Palsies of Children," a clinical study from the Infirmary for Nervous Diseases, Philadelphia, by William Osler, M.D., F.R.C.P., London; physician-in-chief Johns Hopkins Hospital, Baltimore; late professor of clinical medicine, University of Pennsylvania.

—Messrs. Ginn & Co. of Boston have for some time been publishing a series of classics for children, with the object of introducing the young to a better class of literature than most of them now read. The different volumes of the series comprise stories of various kinds, biographical and historical works, and any others that seem suitable for young readers. The series has proved successful in a mercantile sense, and already comprises more than thirty volumes. The latest issue is entitled "The Two Great Retreats of History," and contains Grote's account of the retreat of the ten thousand Greeks, and an abridgment of Ségur's account of Napoleon's retreat from Moscow. Count Ségur was an officer in the French army and an eye-witness of the scenes he relates, and his story of the great disaster in Russia has long been celebrated. The two works together make an interesting volume, and can hardly fail to hold the attention of all young people that can appreciate historical events.

—The *Magazine of American History* opens its July number — the beginning of its twenty-second volume — with a "Story of the Washington Centennial," illustrated from photographs by amateurs and other artists, executed during the progress of the celebration. It is safe to say that no great public event was ever before seized in all its interesting particulars, and placed before the popular eye, with such felicitous results. The truthful pictures of the scenes are rendered doubly attractive and valuable through the portraits of the distinguished characters in our national life of to-day appearing in them. The view of the assemblage on the steps of the Sub-treasury Building in Wall Street is good, and every reader will be able to recognize in the picture the distinguished men present whose faces are best known. "The Discovery of the Mississippi" is the second paper, an instructive study by Henry Lee Reynolds. "Washington and William the Silent—a Parallel," is an article by M. M. Baldwin. Judge Dykman contributes the second part of his account of "The Last Twelve Days of Major André." Gen. Alfred E. Lee writes a paper, entitled "Some Glimpses of Holland," in which he gives us a general idea of the habits and customs of our Dutch ancestors, and a better knowledge of our Dutch cousins in their homes. There is a sketch of Hon. Robert C. Winthrop, by Daniel Godwin; and a short paper on Col. William S. Smith, the son-in-law of John Adams, by M. D. Raymond. There are other short articles, and the notes furnish fresh and curious data.

—Roberts Brothers published on the 25th, in two handsome octavo volumes, "Rogers and his Contemporaries," by P. W. Clayden, containing hitherto unpublished letters from Lord Byron, Wordsworth, Coleridge, Walter Scott, Everett, Daniel Webster, Prescott, Ticknor, Irving, and Sumner, all of which furnish abundant materials for forming a just estimate of Rogers's place in English literature and social life; "By Leafy Ways," by F. A. Knight, describing wild life in Old England in as interesting a manner as John Burroughs does that of New England, with fine illustrations by E. T. Compton; the second part (July to December) of E. E. Hale's "Sunday-School Stories;" and "Sunday-School Stories for Little Children," by Lucretia P. Hale and Mrs. Bernard Whitman.

—*Medical Classics* for June includes articles on "The Care of the Hands, Finger-Nails, and Nail-Brushes;" "The Doctor in the Kitchen;" "Fruit as a Food;" "Strawberries as Food and Medicine;" "Blond Hair;" "Wakefulness;" "Early Rising;" "Vaca-

tion Victims;" "The Gospel of Rest;" "The Legal Liability of Doctors;" "The Danger of Ignorant and Indiscreet Bathing;" "Bleaching the Hair;" "The Filtering of Drinking-Water;" "Liver-Spots;" "Typhoid-Fever on Long Island;" "Lotions for Freckles, for Red Hands, for keeping the Hands Soft and Smooth;" etc. There is also a very interesting article on "The Policeman as an Autocrat, and Clubbing and its Effects," by Capt. Gunner of the New York police.

— Mr. Gladstone has an article in the *Nineteenth Century* for July, entitled "Plain Speaking on the Irish Union." In it he says, "Sir Richard Webster, in examining William O'Brien before the Parnell Commission, implied that a grave charge would be proved against certain Irishmen if it could be shown that they regarded English power as alien. I should like to have asked Mr. O'Brien whether the Irish, so far as he knew, regarded the Act of Union as possessed of the same moral authority as the laws against theft and murder, or as possessed of moral authority at all. I do not doubt that Mr. O'Brien would have answered that they regarded it as an act of force to which Ireland was under, not a moral, but only

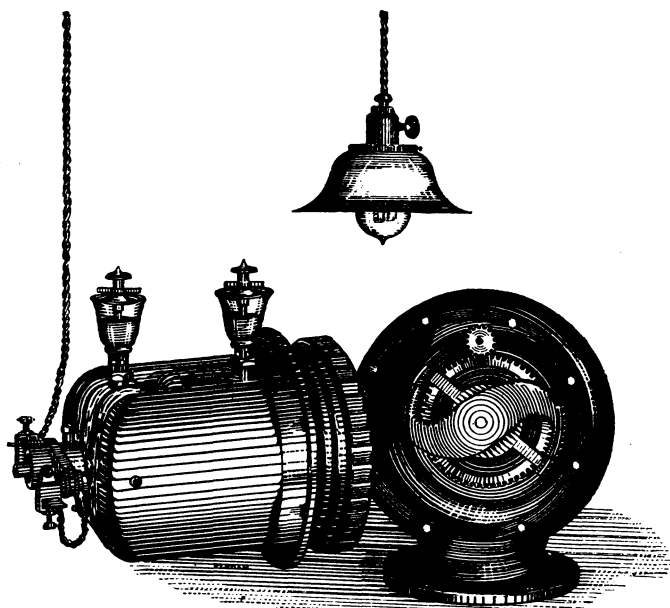
a prudential obligation to conform. There may be immorality in miscalculated resistance even to immoral laws, but such resistance is not in itself immoral. The question is, whether worship of the Act of Union is piety or superstition."

— Mr. George John Romanes, the distinguished author of "Mental Evolution in Man: Origin of Human Faculty," will contribute to *The Open Court* of July 11 (Chicago) an article entitled "The Psychic Life of Micro-Organisms." The public will recall M. Binet's able series of essays in Vol. II. of *The Open Court*, in which the soul-life of these tiny and interesting beings was so carefully discussed. The essays were afterwards published in book form by The Open Court Publishing Company. In a preface written especially for the American edition, M. Binet took issue with Mr. Romanes relative to the stage in animal development at which psychological powers first appear. The criticism has attracted much attention. The eminent English scientist, in turn, now replies to the strictures of the French *savant*. The controversy will be of interest to all. To those who have read M. Binet's monograph the reply of Mr. Romanes will be an appropriate supplement.

#### INDUSTRIAL NOTES.

##### A Combined Water-Motor and Dynamo.

A COMPACT combination of a water-motor with an electric generator, now being placed on the market by the Belknap Water Motor Company of Portland, Me., is shown in the accompanying illustration. It is intended for small plants of from ten to fifty or more 16-candle-power lamps. In the engraving the dynamo and



COMBINED WATER-MOTOR AND DYNAMO.

water-wheel are shown detached from the wheel-case and stand or base. The gear-wheel and pinion seen in the wheel-case operate the devices which control the flow of water to the wheel, thus governing the speed of the motor and dynamo. Water under the requisite pressure is admitted at the centre of the case, in the rear, passes through the curved arms shown in the case, whence it impinges upon the curved buckets of the wheel, at the inside, and escapes at the exterior of the wheel, passing away through the base of the motor casing. The wheel is an outward-flow turbine or vortex wheel, mounted on the same shaft as the armature, and may be run at a speed ranging from one thousand to three thousand revolutions a minute, according to the head of water available. Several of these novel electric-light plants are now in operation, and are said to give great satisfaction.

Aside from its use in connection with a dynamo, this motor, the "Little Giant," as it is called, is used for a variety of purposes, having been on the market some eight or ten years. In many towns and cities of the United States and Canada, where water at

a pressure of twenty-five or thirty pounds may be had at a reasonable price, these motors, ranging in size from seven to twelve inches in diameter, are successfully running printing-presses, lathes, saws, jewellers' and dental tools, organs, sewing-machines, and coffee, spice, and drug mills.

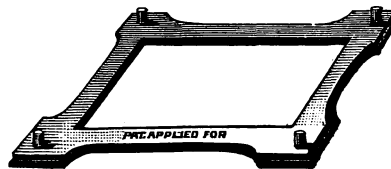
##### Graduated Glassware and Bohemian Beakers.

James W. Queen & Co., Philadelphia, have recently made arrangements for the manufacture of chemical glassware of fine quality, and call particular attention to the accuracy of their graduated ware, such as burettes, pipettes, volumetric flasks, cylinders, etc. These goods are made abroad, by experienced workmen, of the best German glass.

In order to satisfy themselves still further, as well as their customers, as to the quality of the apparatus, they selected at random a number of each of the articles mentioned above, and sent them to William H. Greene, professor of chemistry in the Philadelphia Central High School, asking him to submit them to a comparison with his "standard instruments," made by Geissler of Bonn. The results of these tests, as shown in a letter from Professor Greene, are highly satisfactory.

##### A Rubber Mat for Type-Writers.

A useful device, manufactured by the United Rubber Company of Trenton, N.J., is shown in the accompanying illustration. It is a rubber mat, to be placed under a type-writing machine for dead-



ening the clicking noise of the type, which, even in the best of type-writers, sometimes becomes annoying. The mat reduces the noise to a minimum, and is made in various sizes and styles to fit machines of different makes.

##### Notes on Electric Railways using Thomson-Houston System.

The popularity of electric railways is evidenced by the recent purchase of the Des Moines Broad Gauge Railway, equipped with the Thomson-Houston system, by a wealthy Chicago syndicate; the purchasing price being \$350,000, some three times the original cost of the road. When equipped with horses, this road did not pay operating expenses; but, since its equipment and operation under the Thomson-Houston system, its net earnings will pay 3 per cent dividends upon an investment of nearly \$400,000. The road has never had a repair-shop for its electrical apparatus; and in a recent conversation its president said that they did not know what electrical repairs meant, as they had had none to make. In some respects the Des Moines road has been the most wonderful