

from the unstable state in which the air in ascending becomes lighter than the surrounding air as it rises, or is it heavier in this case also, and has to be pushed up, as in the case of cyclones, by some external centripetal force on all sides at the base, originating in the steep gradients of the upper part of the atmosphere in high latitudes? for it must be remembered that by the new theory cyclones originate here. If the former, as is admitted in the case of tropical cyclones, then it is evident that the unstable state of the air can take place; and, if so, why can it not exist in the case of cyclones, in America at least, notwithstanding that the temperature of the air over the Alps, under some peculiar circumstances, sometimes becomes greater than the normal temperature, and than the mere surface temperatures on the Alps in a cyclone immediately after a recent fall of snow? As Professor Davis is the first one in America to adopt the new theory, if it can be so called, he must be regarded as its exponent here, and so feel bound to answer all pertinent questions and to give all necessary explanations; for it is to be presumed, that, during the two or three weeks of the transition period, he thoroughly studied it in all its bearings and applications.

WM. FERREL.

Martinsburg, W. Va., Dec. 12.

BOOK-REVIEWS.

Electricity in Daily Life. New York, Scribner. 8°. \$3.

FROM whatever point of view this book may be regarded, the effect cannot fail to be satisfactory. The expert electrician will find in it a succinct yet comprehensive survey of the whole field of electrical progress, from the earliest experiments down to the latest applications, with invaluable data made readily available by a copious index; the student will find it a guide to the particular branch of the science he may be specially interested in; and the general reader will find in it all that he may desire in the way of general information upon a subject comparatively new, fascinating in itself, and the results of which he is forced into contact with at almost every turn.

The volume is the joint production of Cyrus F. Brackett, Franklin L. Pope, Joseph Wetzler, Professor Morton, Charles L. Buckingham, Herbert L. Webb, W. S. Hughes, John Millis, A. E. Kennelly, and M. Allen Starr, M.D., each an authority on the special branch of which he treats. The publishers have done their part handsomely, the illustrations and typography being excellent, and the general make-up and finish of the volume setting off to the best advantage the work of its several writers. Even in the embellishment of the cover the artists have drawn their inspiration from the text, the ornamentation being worked up from fragments of telegraphic messages as recorded by the Morse instrument and the siphon recorder, and as prepared on a perforated ribbon for transmission by the Wheatstone instrument, together with artistic groupings of incandescent lamps and cables in outline and section.

In the opening chapter Mr. C. F. Brackett, professor of physics in Princeton College, briefly surveys the whole field of electrical science, tracing its history, explaining its technicalities, and making clear the principles involved in the use of conductors and insulators, and in the construction and operation of galvanometers, electro-magnets, dynamos and motors, transformers, and storage-batteries. In the second chapter Mr. Pope, past president of the American Institute of Electrical Engineers, treats of the electric motor and its applications, giving some account of every thing of importance in that department, beginning with Faraday's first motor, touching on the experiments of Ampère and Arago, Professors Henry and Jacobi, Dr. Page, and others, and going into greater detail on the evolution of the dynamos and motors of to-day. Joseph Wetzler of the *Electrical Engineer* makes an interesting chapter on the electric railway, explaining the three methods of applying the current to the railway motor, — the overhead-wire system, the underground-conduit system, and the storage-battery system; besides which he recounts the many advantages claimed for electrical over other roads, shows the comparative cost of construction, gives some electric-railway statistics for the United States, and points out the possibilities of the future in that direction. Electricity in lighting is ably treated by President

Morton of the Stevens Institute, who touches all the salient points of that application of electrical energy, from Sir Humphry Davy's first electric light in 1808, down to the present time, when, as he states on p. 123, the daily output of incandescent electric lamps in this country alone is fifteen thousand, or at the rate of four million and a half lamps a year.

In the succeeding chapters the electric telegraph is treated of by Charles L. Buckingham of the Western Union Telegraph Company; the making and laying of submarine and other cables, by Herbert Laws Webb of the Metropolitan Telephone Company; electricity in naval and land warfare, by Lieut. Hughes of the navy, and Lieut. Millis of the army, respectively; electricity in the household, by Electrician Kennelly of Edison's laboratory; and electricity in relation to the human body, by M. Allen Starr, M.D., professor of nervous diseases in the College of Physicians and Surgeons of New York.

AMONG THE PUBLISHERS.

THE Christmas number of the American edition of the *Illustrated London News* contains three well-executed colored plates which have become a feature of a few of the largest weekly illustrated papers at the holiday season.

—Messrs. E. & F. N. Spon announce the following new books: "Electric Bell Construction: a Treatise on the Construction of Electric Bells, Indicators, and Similar Apparatus," by F. C. Allsop; "The Steam-Engine considered as a Thermo-dynamic Engine" (second edition, revised and enlarged), by J. H. Cotterill; "Smokeless Powder and its Influence on Gun Construction," by J. A. Longridge; "Modern Cotton-Spinning Machinery, its Principles and Construction," by J. Nasmyth; and *The Journal of the Iron and Steel Institute*, No. 1, 1890.

—One of the most remarkable lists of famous contributors ever brought together in a single number of a magazine will be presented in the January issue of *The Ladies' Home Journal* of Philadelphia. The authors in that number will include Henry M. Stanley, Dr. Oliver Wendell Holmes, Ex-President Hayes, Hon. John Wanamaker, Joseph Jefferson, Hon. Hannibal Hamlin, Madame Albani, James Whitcomb Riley, Gen. Lew Wallace, George W. Childs, Dr. T. De Witt Talmage, Mrs. A. D. T. Whitney, Robert J. Burdette, Edward Bellamy, Will Carleton, Charles A. Dana, Sarah Orne Jewett, George W. Cable, Julian Hawthorne, Mrs. Lyman Abbott, Mrs. Margaret Bottome, and nearly twenty others.

—Messrs. Ginn & Co. announce to be published in February "Mechanism and Personality," by Francis A. Shoup, D.D., professor of analytical physics, University of the South. This book is an outline of philosophy in the light of the latest scientific research. It deals candidly and simply with the burning questions of the day, the object being to help the general reader and students of philosophy find their way to something like definite standing ground among the uncertainties of science and metaphysics. It begins with physiological psychology, treats of the development of the several modes of personality, passes on into metaphysics, and ends in ethics, following, in a general way, the thought of Lotze. It is strictly in line with the remark of Professor Huxley, that the reconciliation of physics and metaphysics lies in the acknowledgment of faults upon both sides, in the confession by physics that all the phenomena of nature are, in their ultimate analysis, known to us only as facts of consciousness, in the admission by metaphysics that the facts of consciousness are practically interpretable only by the methods and the formulæ of physics.

—The late Professor Austin Phelps had just previous to his death completed preparations for a new volume somewhat similar in character to his "My Study" and "My Portfolio." It is entitled "My Note Book," and is to be issued immediately by the Scribners. It contains a number of the author's briefer essays, with some detached thoughts, somewhat of the nature of table-talk. Professor A. L. Perry of Williams College, the well-known author of works on political economy, has just completed a new work entitled "Principles of Political Economy," which will also be

issued at an early date by the Scribners. Col. Church's "Life of Ericson," issued by the same firm, went into a second edition almost immediately upon publication.

— Among the contents of the *New England Magazine* for December we note, "Emerson and his Friends in Concord," by Frank B. Sanborn; "What shall we do with the Millionaires?" by Charles F. Dole; "Quebec," by Samuel M. Baylis; "Anti-Slavery Boston," by Archibald H. Grimké; "A Day in the Yosemite with a Kodak," by Samuel Douglass Dodge; "Making Man-o'-war's-men," by W. L. Luce; "Harvard's Better Self," by William Reed Bigelow; "On the Rappahannock," by Charles H. Tiffany; and "King Philip's War," by Caroline Christine Stecker.

— The "Papers of the American Historical Association" for October, just issued by G. P. Putnam's Sons, deal largely with the subject of historical documents and the importance of collecting and preserving them. The opening paper, by John O. Sumner, is on "Materials for the History of the Government of the Southern Confederacy," and gives an account of the difficulties the author met with in searching for such materials. Professor William P. Trent follows in a similar strain, complaining of the indifference shown by most Southerners to their local history. Both writers strongly insist on the importance of collecting the materials for Southern history before it is too late. Mr. William Henry Smith has a paper on "The Pelham Papers," in which he points out their importance for the history of New York in 1755-56. These various essays, together with some shorter ones that this number contains, show that the association is alive to the importance of collecting our historical records, and we trust that it will be successful in doing so. A circular letter from the association to the State historical societies asks for their co-operation in historical work, which will doubtless be gladly given. Besides the papers mentioned, the pamphlet before us contains several others on various themes, the longest and most elaborate being by

Mr. William A. Dunning, on "The Impeachment of President Johnson," in which that celebrated case is treated with true historical impartiality. The remaining papers deal with the early history of Kentucky, the economic history of New England, the trial of John Brown, and other topics in American history; but none of them call for any special remark.

— The announcement is made that a new edition of "The Life of Our Lord," by Rev. S. J. Andrews, D.D., largely re-written and brought down to date in every respect, is now in press for early publication. It will be printed from new plates, and will contain a number of maps.

— On or before Jan. 1, 1891, will appear an illustrated magazine entitled the *Bacteriological World*, which will have for mission the general dissemination of knowledge on the subject of bacteriology in general, and pathological micology in particular. The first number will contain the following: frontispiece, Pasteur's and Koch's pictures; "Study of Bacteriology" (preface, introduction, etc.); "Generalities on Germs, Spontaneous Generation;" "Actinomycosis in Man and Beasts (Big Jaw of Cattle);" "Foreign and Home Investigations;" "Bacterial Complication of Wounds (Ogston, Rosenbach, Cornil, Babès, etc.);" "Immunity," by Dr. Bouchard, Paris, France; "Hydrophobia," by Dr. Paul Gibier, Pasteur's Institute, New York City; "True and Spurious Bovine Vaccination and Complications," by Paul Evans, Pathological Laboratory Missouri Agricultural Experiment Station; "Clinical Notes;" editorial; "Koch's Treatment of Tuberculosis;" and "Notes from Laboratories" (Pasteur's laboratory and others). All communications and articles, except those relating to advertisement and subscription, should be addressed to the editor, Paul Paquin, Columbia, Mo., U.S.A. All matters pertaining to advertisement and subscription should be addressed to The Bacteriological World Publishing Company, Columbia, Mo., U.S.A., or Dr. T. J. Turner, Mexico, Mo., U.S.A.

Publications received at Editor's Office,
Dec. 8-13.

- ADLER, C. Report on the Section of Oriental Antiquities in the U. S. National Museum, 1888. Washington, Government. 12 p. 8°.
- BERTENSHAW, T. H. Longmans' French Course. London and New York, Longmans, Green, & Co. 208 p. 12°. 60 cents.
- BIRD, C. Elementary Geology. London and New York, Longmans, Green, & Co. 248 p. 12°. 80 cents.
- DAWSON, G. M. On the Later Physiographical Geology of the Rocky Mountain Region in Canada, with Special Reference to Changes in Elevation and the History of the Glacial Period. Ottawa, Roy. Soc. Can. 74 p. 4°.
- GILL, T. Osteological Characteristics of the Family Amphipnoideæ. Washington, Government. 4 p. 8°.
- GOODE, G. B. Report upon the Condition and Progress of the U. S. National Museum during the Year ending June 30, 1888. Washington, Government. 84 p. 8°.
- HIPPISLEY, A. E. A Catalogue of the Hoppisley Collection of Chinese Porcelains, with a Sketch of the History of Ceramic Art in China. Washington, Government. 105 p. 8°.
- HJÆLT, E. Principles of General Organic Chemistry. Tr. by J. B. Tingle. London and New York. 220 p. 12°. \$1.75.
- HOUGH, W. Fire-making Apparatus in the United States National Museum. Washington, Government. 87 p. 8°.
- JAGO, W. Inorganic Chemistry. London and New York, Longmans, Green, & Co. 458 p. 12°. \$1.50.
- LUCAS, F. A. The Expedition to the Funk Island, with Observations upon the History and Anatomy of the Great Auk. Washington, Government. 37 p. 8°.
- MORRIS, I. H. Practical Plane and Solid Geometry, including Graphic Arithmetic. London and New York, Longmans, Green, & Co. 260 p. 12°. 80 cents.
- SEAWELL, Molly Elliot. Little Jarvis. New York, Appleton. 64 p. 12°. \$1.
- VERÖFFENTLICHUNGEN aus dem Königlichen Museum für Völkerkunde. Band I. Heft 4. Berlin, W. Spemann. 72 p. 8°.

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— *Scribner* will begin an Australian edition with the January number, and a group of articles on that country will appear during the coming year. Josiah Royce of Harvard writes his "Impressions of Australia" in the January issue, and court-tennis, the oldest game of ball that we have, is described by Dr. James Dwight (ex-champion doubles at lawn-tennis). There are very few courts in this country, those at Boston, Newport, and New York being the chief.

— Henry M. Stanley, in his article on "African Pygmies," to appear in the January *Scribner*, says, "For the benefit of such of your readers as take an interest in pygmy humanity, I have taken the trouble to write this article, that they may have a little more consideration for the undersized creatures inhabiting the Great Forest of Equatorial Africa. They must relieve their minds of the Darwinian theory, avoid coupling man with the ape, and banish all thoughts of the fictitious small-brained progenitor supposed to be existing somewhere on land unsubmerged since the eocene period. . . . Intellectually, the pygmies of the African forest are the equals of about fifty per cent of the modern inhabitants of any great American city of to-day; and yet there has been no change, or progress of any kind, among the pygmies of the forest since the time of Herodotus.

— A new departure has just been made in periodical literature in the form of a quarterly entitled *The Critical Review of Theological and Philosophical Literature*. It is edited by Professor S. D. F. Salmond of Edinburgh, and contains able reviews of all the notable new books in the fields indicated by the title, giving a chronicle of all publications in these departments, and noticing the more important articles in magazines and journals. The reviews will be the work of eminent writers, and will be signed. The quarterly is published by Messrs. T. & T. Clark of Edinburgh, and is controlled in this country by Messrs. Scribner & Welford. The first number, now ready, contains articles by Principal Rainy,

Professor A. B. Davidson, Canon Driver, Professor A. B. Bruce, Professor Marcus Dods, Professor W. G. Blaikie, and other well-known authors.

— *The Political Science Quarterly* for December opens with a study of Henry C. Carey and his social system, by Professor C. H. Levermore. Brander Matthews contributes an article on "The Evolution of Copyright;" Professor Charles Gide of Montpellier, France, discusses the present condition of the study of political economy in France; Professor E. R. A. Seligman concludes his series of articles on "The Taxation of Corporations;" and Professor A. B. Hart gives a sketch of Herman von Holst, both in his private life and his literary career. In addition to these leading articles, the number contains reviews of more than twenty recent publications, with the regular semi-annual "Record of Political Events."

— "Harper's Sixth Reader," which has just been published by the American Book Company, completes the well-known series of school-readers edited by James Baldwin, Ph.D., and heretofore published by Harper & Brothers. The volume is made up wholly of selections from the works of British authors, prose and verse; so that, in schools where an early acquaintance with British writers is thought desirable, its study may be taken up at once upon the completion of the "Fourth Reader," its reading-lessons being of nearly the same grade as the "Fifth Reader" of the same series. Otherwise it may be used alternately with the latter volume, or as a sequel to it. The exercises are well selected and carefully graded, the lessons being so arranged that those requiring deeper thought and greater reading ability follow those which are easier. Among the selections are some of the acknowledged classics of the language, as might naturally be expected in a compilation of the kind. Notes, biographical and otherwise, at the end of the volume, will be found helpful and suggestive to both teacher and pupil

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