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. Nasmith; 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