

result by back-ploughing every alternate furrow, making it a dam. Surely the practice, recommended by some, of subdividing the rainfall by furrows running up and down a slope, must be more wasteful in the final result than an occasional rushing break of the water retained by the process above described.

Cyclones and tornadoes are amply discussed in the light of the latest investigations. A diagram of equatorial and polar currents would aid such readers as are not familiar with the general theory of winds; and there seems to be in this book an over-valuation of winds in the production of the great ocean-currents. In regard to tornadoes, observation would teach that the author's advice to construct houses of brick or stone in tornado regions is not wise. A massive stone building is torn to pieces as easily as one of wood, and with far more danger to the occupant. In fact, the stone foundations of a house are sometimes swept clean off, level with the ground. In the path of the tornado there is but one security, — an outside underground refuge with most direct access from the living-rooms of the house, such as by a trap-door and stairs, if the ordinary cellar stairway is not near the south-west corner. The roar of the storm may readily be mistaken for that of cars. The funnel of the cloud may follow at some interval the accompanying general storm, when one least expects devastation. There may not be a moment to lose in going to an out-of-doors tornado-refuge, which some have recommended. And there should be not only ingress from the cellar, but some mode of egress from the cave in case the cellar entrance is blocked by *débris*, and especially in case the wrecked house takes fire. Certainly, in exposed regions, fifteen dollars spent in rightly providing a refuge is worth the peace of mind it brings, though the terrible disaster never comes.

The concluding chapter on soils is of interest to every intelligent reader as well as to cultivators of the ground. Happily, it must have come into many rural homes in its first form as a magazine article. Of course, the great expense of this volume is its engravings, such a full-page picture as that of the Yellowstone Falls probably costing two hundred dollars. But, many of the woodcuts having already paid something like their cost in the magazine, it is to be regretted that a cheaper edition on less costly paper is not issued along with this luxurious one; lighter, too, for the very heavy paper in a book of this size is a considerable weight to hold, in this instance three and a half pounds. Large type and very thick paper are suitable in books of a pictorial sort for brief entertainment rather than continuous reading.

"*Evolution of Sound*" *Evolved*. By M. J. THOMPSON. Cincinnati, Standard Publishing Co. 8°.

THERE once lived in this town (by "this town" we mean New York) a certain Dr. Hall, who was much given to violent attacks on all that had been considered as reasonable by ordinary mortals in the results of the investigations of scientific men. It may be that some of our readers will remember the doctor's attack on the wave-theory of sound, and his vehement appeals to scientific men to answer his arguments against the validity of the conception we now have of the way in which sound is propagated. It cannot be said that opportunity for discussion was lacking, for the warlike doctor even went so far as to establish a journal — *The Scientific Arena* — for the very purpose of furnishing a suitable medium for open discussion of the merits of his arguments. But all this was to little purpose till the author of "'Evolution of Sound' evolved," at that time professor of science in Garfield University, Wichita, Kan., published a number of letters, pointing out how the doctor had wandered a little from the paths of wisdom. These have been collected in book form; and, even if they did not serve the purpose of opening the eyes or ears of Dr. Hall, it may happen that there will be others who will find in them answers to attractive sophistry or to their own doubts.

Appended to these letters is reprinted Professor Thompson's graduation thesis at Ann Arbor, on the measurement of chemical affinity.

*Mountaineering in Colorado: the Peaks about Estes Peak*. By FREDERICK H. CHAPIN. Boston, Appalachian Mountain Club. 12°.

THE Appalachian Mountain Club is made up of those men and women, boys and girls, who, for the most part living not far from

Boston, delight in taking walks. The most of their excursions are, per force of circumstances, taken through the most attractive regions to be found near their homes. But every year one or more parties start for a tramp through the White Mountains, a winter tramp in that region being a yearly feature of the club's doings. All this leads to an increase in the intelligent interest in the hills and mountains visited, and is very pleasant as a recreation for those able to take part.

The volume now before us shows that one member has had the temerity to venture thousands of miles from the usual haunts of his colleagues. We have in it a record of his wanderings through unfrequented valleys, and even those hitherto unvisited by white men, of his clamberings over peaks, and of the views he saw. Fortunately our author was an admirable photographer, and fortunately again his negatives fell into the hands of good engravers, as we are enabled, by the excellent and numerous pictures with which the volume is embellished, to gain some idea of what was spread before his eyes.

The book is well written, contains a good deal of information such as is told in the narratives of travellers, and is a real contribution to our knowledge of one of the few out-of-the-way and yet wild corners of our country.

*The Graphic System of Object Drawing*. By HOBART B. JACOBS AND AUGUSTA L. BROWER. New York, A. Lovell & Co. 75 cents.

THE aim of the authors of this admirable series of drawing-books is to give the pupil a clear idea of form, to help him to express that idea on paper, and to give him command of his pencil, so that he can draw the objects about him. The plan of the work is so simple that any teacher can use it; and a manual for the teacher's use, which accompanies the set of drawing-books, makes the system plain even to those entirely unskilled in the art. The course is intended to cover four years of practice, and is adapted for use in both public and private schools. The part of the series intended for the primary course deals only with single objects in outline; the part for the intermediate course is devoted to drawing from groups of objects; in the part prepared for the grammar department, studies in tones and values are given; and for the high school, thorough instruction in drawing from life is found. Manuals for the four departments, or four-years' courses, are provided.

While the methods for work given in this series are based on the systems current in many of the best schools of art, and on the practice of the most successful art teachers, no attempt is made to attain the critical accuracy to be expected in more advanced textbooks. The authors claim for it simply an original and highly efficient arrangement of lessons; and no one who carefully examines the system will deny that it is one which will naturally call forth the interest and develop the powers of the pupil.

#### AMONG THE PUBLISHERS.

A HISTORY of American literature, by Karl Knortz of this city, will be published shortly in Berlin by Hans Lüstenöder.

— John P. Morton & Co., Louisville, Ky., have in preparation a work on "Kentucky Jurisprudence," by Lewis N. Dembitz of the Louisville bar.

— The American Writing Machine Company, Hartford, Conn., has issued a pamphlet showing a selection of writing-papers suitable for use on the Caligraph.

— "Odds and Ends from a Literary Junk Shop" is the title of a priced catalogue of new and second-hand books just issued by A. S. Clark, 34 Park Row, this city. It contains many points of interest to book-buyers.

— Thoroughly earnest work is being done in behalf of tariff reform by the New York *Weekly Post*, which holds that the time to discuss this economic question is now rather than in the heat of a presidential campaign. Every issue of the paper contains articles bearing upon some phase of the subject, together with questions by doubting readers, with answers by the editor, all tending to facilitate and simplify the discussion. The *Post* is compiling a di-