abundantly and most intensely, with uniform air pressure, weak winds, a strong heating of the lower air strata, and a high humidity of the air.

"The storms of the temperate latitudes have, moreover, still another peculiarity, outside of their maximum action in the coldest season during a period of the greatest stability in the thermic equilibrium of the atmosphere, which stands in contradiction to the convection theory, namely, a tendency to take the same path one after the other. Upon this peculiarity Köppen has remarked before (Met. Zeit., 1874, Vol. IX., p. 380), and we need only to examine the daily weather charts to find clear examples in abundance.

"This view is wholly contrary to the facts which the true cyclones of the convection theory show, and must show. A cyclone equalizes the temperature above and below in the region through which it passes. The condensation process heats the higher layers, cools off the lower, and makes a more stable equilibrium in the atmosphere. At the same time the moisture of the lower air layers is used up, and at the same place precipitation cannot occur again through pure convection currents. The cyclones of the convection theory must diminish or become extinct, if placed where shortly before another cyclone was in activity which has disposed of the latent energy stored up in the lower layers of the atmosphere in the form of high temperature and great moisture.

"The heat thunder-storms of our summers do not show this peculiarity, and are appearances to which the pure convection theory can find full application. On the other hand, the fact that the cyclones of our latitudes often follow a path behind each other, shows that the convection theory has no application, or only a subordinate one, and that the force upon which their origin and advance depend most importantly is not in themselves, but must be sought outside. We must refer to the conditions of the general distribution of pressure and currents of the general atmospheric circulation for their origin and development.

"If we correlate the origin and forward movement of the cyclones of the temperate and high latitudes with the general circulation of the atmosphere, then the greater frequency and intensity in winter explains itself wholly, as well as all the peculiarities which the application of the pure convection theory contradicts. That also in whirls of this origin the condensation of moisture plays a greater or less secondary *rôle* no physicist can well doubt."

This is a most significant utterance and important attack upon the convection theory. Heretofore this theory has been assailed in England and this country from outside, but now the attack is from within the camp and by one of the foremost of its former defenders. The arguments, to be sure, are rather old, but they are put in a fresh dress. We welcome Dr. Hann to our side of the controversy. It should be noted that, as Miss Clerke has said, the original convection theory has been so added to and corrected it can hardly be recognized. Dr. Hann takes up only one view, and the one applicable to the summer season; but there is another view which applies to the winter, namely, that an unstable equilibrium in the atmosphere may occur whenever, through any reason, a central core becomes heated above its surroundings. This gives a less diminution of temperature with height, instead of greater, as in the other view, and at the same time causes a rising tendency in the air; this has been called the "balloon" effect. Dr. Hann will find that the "chimney" effect has been relegated to the tornado, in which the height is very much greater than the breadth.

There would seem to be no greater difficulty in accounting for the moisture and generation of a storm which follows another than in accounting for these conditions in the first. It is not supposed that a storm carries away very much from any region, but each one may feed upon the conditions which surround it. In fact, there is probably a good deal more moisture in sight and usable after a storm has passed than before, unless the first storm is followed directly by a high area, which is contrary to Dr. Hann's supposition. It does not seem as though these and other more serious objections to the old theory can longer be ignored by convectionists.

H. A. HAZEN.

Washington, D.C., Sept. 21.

BOOK-REVIEWS.

A Girl in the Karpathians. By MENIE MURIEL DOWIE. New York, Cassell. 8°. $1.50.

THAT this is an entertainingly written book of travel few will deny. The region described is one visited little, or we might say not at all, by the ordinary tourist, and the author abandoned herself to a life with the natives for the several months she was in the Karpathians.

That there are many girls like Ménie Muriel Dowie may well be doubted, and perhaps it is as well that there are not. She is certainly bright, but independent almost to a fault. In answer to those asking why she went alone, she writes: "I gaze at their indulgent, smiling eyes, and their self-satisfied faces, and I dare not tell them that I do it from sheer bold preference. I couldn't have the heart to wound and shock them so, and I say, what is perhaps also true, that I am driven to it, for nobody cares to come to the places I care to go to." That there must be a little of self-satisfaction in Miss Dowie's face, one cannot help thinking. There must be some self-reliance at least in a girl of twenty-five, as the author describes herself, who, armed with a revolver and dressed in knickerbockers, plunges into a thinly-settled region for a sojourn of months. She hails from Scotland, but a love for cigarettes does not at all conform with the general conception of a Scottish lassie's character.

But eccentricities can be overlooked in one as clever as Ménie Muriel Dowie, and the interest in her personality adds to the charm of her book. She shows her youth occasionally in the earnestness of her self-communing over the problems of life, but her account of the people she lived with is well worth reading. To be sure she tells us inadvertently that it is the way of returning travellers to swap lies, but the book shows little sign of its being a work of fiction.

AMONG THE PUBLISHERS.

THE next volume of the Contemporary Science Series, published by Chas. Scribner's Sons, will be "The Man of Genius," by Professor Lombroso. This volume, which will be issued on September 25, will be copiously illustrated.

— Messrs. Smith, Elder, & Co. have in preparation "Vertebrate Embryology," by A. Milnes Marshall, F.R.S., professor in the Victoria University, Beyer professor of Zoology in Owens College, late fellow of St. John's College, Cambridge; new, revised, and cheaper edition of Finlayson's "Clinical Manual;" new edition of Farquharson's "Guide to Therapeutics;" new edition of Part I. of MacCormac's "Surgical Operations."

— This year's volume of the Annual of the Office of Naval Intelligence, just issued from the government printing office at Washington, is the tenth in the series of general information from abroad, and retains the title of last year's number, "The Year's Naval Progress." It has a chapter on ships and torpedo-boats, one on machinery, and one each on ordnance, electricity on shipboard, and the naval manœuvres of 1890. Chapter VI. treats of the armor question in its present aspect, as viewed in the light of recent practical tests; and Chapter VII. presents a view of the different systems of coast defence of the various European States. Other chapters are devoted to high explosives, torpedo vessels, and promotion in European navies; and the final chapter gives a list of books on professional subjects.

— Messrs. Sampson Low, Marston, & Co announce: "Theory and Analysis of Ornament," applied to the work of elementary and technical schools, by Francois Louis Schauermann, for eight years head master of the wood and carving department, Royal Polytechnic, Regent Street, with 263 illustrations; "Answers to the Questions on Elementary Chemistry," theoretical and practical (ordinary course), set at the examinations of the science and art department, South Kensington, 1887-91, by John Mills, formerly of the Royal College of Science, London, author of "Alternative Elementary Chemistry," fully illustrated; "Chemistry for Students," consisting of a series of lessons based on the syllabus of the science and art department, and especially designed to facilitate the experimental teaching of elementary chemistry in schools and evening classes, by John Mills, author of "Alternative Elementary