advocates of the concussion theory welcome any discoveries that can add to our knowledge of the reasons why battles cause rain, and thus suggest methods for producing it which may be an improvement on these suggested by the battles and their sequences. In this category appears to be the discovery of Mr. Aitken referred to, but it furnishes nothing conclusive on the subject, and, in my opinion, an experiment on the line marked out by Professor Blake would prove a failure. If some of us go to one extreme in relying too much on concussion as the means by which the process of nature that leads to rain can be set in motion, so does Professor Blake go to the other extreme in holding that it is smoke or dust particles alone that can artificially effect that result. We know, as a matter of fact, that simply throwing smoke into the air does not produce rain. There are scores of cities in our land whose chimneys are doing this every day, and yet they do not produce rain. And it cannot be said that the smoke they send up is not of the right kind. It contains a great deal of sulphur and of carbon, and these, according to Prosessor Blake, are among the substances which form dust particles, around which molecules of aqueous vapor most readily collect.

In the light of Mr. Aitken's discovery, however, I am willing to admit the possibility that smoke may not be without its effect in producing the rain that follows battles — an idea, I may add, which, though not original with me, I placed on record over twenty years ago, as may be seen by reference to the letter of Gen. Robert A. McCoy, in the appendix to "War and the Weather." In any future experiments in the field the application of the principle discovered by Mr. Aitken ought to be duly tested. But I see no reason as yet for doubting that force, exerted by means of explosions and expended on the earth and air, is a necessary factor in artificial rain production.

EDWARD POWERS.

El Paso, Tex., Jan. 15.

Eye-Habits.

IN *Science* of Dec. 18, 1891, p. 339, is a note taken from *Nature*, and referring to some experiments of Mr. James Shaw to test the ability of school children to keep one eye open and the other shut at the same time. Having been associated with school children for many years where the microscope was frequently used in the class-room for demonstration, my attention has often been called to their proceedings in this respect, and the impressions may be worth recording, though they are, no doubt, essentially like those of many other teachers in analogous positions. As the use of the microscope was only for a short time to each individual in a particular exercise, it was necessary that an observer looking into the tube of a monocular should by some means close one eye in order that other objects might not be in the field of view of the unoccupied eye and confuse the image. For it requires long practice on the part of one using a monocular stand to examine an object while keeping both eyes open and not be inconvenienced, a training out of question with school children where the time was limited. In the case of such the eye was closed either with or without the use of the hand. Being pupils in a high school their ages ranged from fourteen to twenty or more, the majority from fifteen to eighteen. Statistics were not kept, but I do not recall an instance where a boy could not close one eye without the aid of the hand. If it occurred, it was very rare. But it was quite common for girls to make use of the hand for this purpose, a fourth or more, as mentioned by Mr. Shaw for school children.

Sometimes, by request of teachers in primary grades, I have taken a microscope to their rooms, in which the lowest classes were taught, their ages being from six to eight or nine. It was for the purpose of showing something which the teachers desired to use as an object-lesson, like the eye or foot of a fly, or the scales from the wing of a butterfly, things whose forms they readily comprehended, as was shown by their description of them. With them the unaided closing of one eye was exceptional, some of the older boys, perhaps, being able to do so. I have noticed the same difficulty with older people who occasionally look through a microscope; the inability to shut one eye and leave the other open being among the women. This was illustrated but a short time since by a lady nearly eighty years old. She had recently had one eye treated for cataract, and was told to test the perceptive power of it. In order that there might be no interference by the other eye, this was covered by the hand.

This habit of peeping, or looking with one eye open and the other closed, is plainly an acquired one, becoming easy by practice, as is seen by comparing children with adults, and men and women with each other. The difference in the latter is mostly due to the lack of use. Boys early become accustomed to "sighting" in various ways in their play, as in the use of the cross-bow or bow and arrow, toy gun or real gun, or they may wish to line something. They also work more with tools, and, like a carpenter, must see if they are making a straight edge, and thus acquire this ability. There being less occasion for it on the part of girls and women, they may fail to gain it at all. This is not from inherent inability any more than in the case of men, unless heredity becomes a factor working through sex, and facilitating the process.

E. J. HILL.

Englewood, Chicago, Jan. 14.

BOOK-REVIEWS.

Chambers's Encyclopædia. New edition. Vol. VIII. Peasant to Roumelia Philadelphia, Lippincott. Royal 8°. $4.

COMMENT on this encyclopædia may seem almost superfluous, not only because the work is well known, but also because of the uniform excellence of its several volumes; yet one does not like to pass it by without remark. The present volume is noteworthy for the number of its articles on philosophical and religious topics; Professor Andrew Seth writing on Philosophy, Professor D. G. Ritchie on Plato, Professor Sorley on Psychology, Mr. James Oliphant on Positivism, Professor Flint on Religion, Rev. W. L. Gildea on Roman Catholicism, Professor Cheyne on the Book of Psalms, etc. In the very different department of the industrial arts we find articles on Photography, by T. C. Hepworth and W. T. Bashford; on the Plough and the Potato, by James MacDonald; on Pottery, by James Paton; on Printing, by John Southward; and a long one on Railways, by E. M'Dermott. In science strictly so called, Professor Peile treats of Philology, Mr. Norman Wyld of Plants and of Physiology, Professor Knott of Quaternions, Dr. Alfred Daniell of Reflection and Refraction Mr. J. A. Thomson of Protoplasm and of Reproduction; while the minor articles are too numerous to mention. In history and geography the most important papers are perhaps those on Phœnicia, by Canon Rawlinson; on Rome, by Canon Taylor and Dr. Steele; and on Persia and Persepolis, by Gen. R. Murdoch Smith. In this department it seems to us that there is a deficiency of maps. Political and social themes receive their share of attention, Mr. T. Kirkup treating of Political Economy, Mr. Jesse Collings of Peasant Proprietors, Mr. W. C. Smith of the Poor Laws, Sir E. F. Du Cane of Prisons, and Mr. W. Draper Lewis of Protection. Literature and the ideal arts are less conspicuous in this volume than in some of the previous ones; but Mr. Edmund Gosse writes of Poetry, Mr. Stead of Periodicals, Sir Joseph Crowe of Raphael, Mr. P. G. Hamerton of Rembrandt, and Mr. W. Holman Hunt of Pre-Raphaelitism. The number of minor articles on all subjects is so great as to preclude all mention of them individually; yet it not unfrequently happens that these are the most useful of all to the reader It is expected that the two remaining volumes of the Encyclopædia will appear during the present year.

AMONG THE PUBLISHERS.

THE new volume of the Badminton Library, announced by Little, Brown, & Co. for immediate publication, will treat of skating, curling, tobogganing, and other out-door sports. It is written by J. M. Heathcote, C. G. Tebbutt, T. Maxwell Witham, and the Rev. John Kerr, Ormond Hake and Henry A. Buck, and contains several plates and numerous illustrations in the text, by C. Whymper and Captain Alexander.

— John Wiley & Sons announce as in preparation "Elementary Lessons in Heat," by Professor S. E Tillman, United States Mili-