

ute or less, the two fingers mesmerized proved to be perfectly stiff and insensible: the points of sharp instruments might be plunged deep into them, or a lighted match might be applied to the sensitive region around the nail, without producing a sign or a murmur. It is difficult to suppose that an ordinary youth, sitting with relaxed limbs in quiet unconcern, would be able to control, by the exercise of his will, every sort of reflex start or twitch when a naked flame is applied to one of the most sensitive parts of his person. To meet such an objection, however, the experiments were repeated with other subjects with equal success, — one of them a delicate woman, whose shrinking from pain was such that the prick of a fork on one of her unmesmerized fingers would cause a half-hysterical cry. The hands of the subject may even be mesmerized when he is in the mesmeric sleep; and then the usual clap and call restore him to consciousness, but do not permit him to remove his hands from the sofa, to which they seem to be glued, until after they have been separately released.

We pass over the report of the Reichenbach committee, of the literary committee, and of the committee on haunted houses, but not because they do not contain a great deal of very interesting and striking matter. The addresses of the president, too, are models of clear, careful, and forcible writing; and the proceedings as a whole cannot fail to produce a strong effect upon a reasonably unprejudiced reader, especially when it is considered that all this is in addition to the varying amount of testimony and experience that has been for years in the possession of nearly all of us. In no other subject has there been such a long dispute over the reality of the phenomena: even the witnesses to globular lightning have gained credence for themselves at last. No other subject, as is perfectly natural, has been so inex-

tricably mixed up with fraud and chicane, and has fallen, in consequence, under such a weight of obloquy. There has usually been, besides, a peculiarly 'unwashed' flavor about the possessors of these mysterious powers which are denied to people in general. The travelling mesmerizer has not been an attractive specimen of humanity, and to that fact has been allowed more than its due effect. In other undecided scientific questions, weight of authority has counted for something, but not the weight of a man's family connections. Even when it was said that such unexceptionable witnesses as De Morgan and Wallace and Crookes had become convinced that certain facts not generally admitted were really facts, one could not help believing that they differed in some way from the ordinary sane scientific man, and that some peculiar crookedness of mental vision was the source of their strange belief. Another refuge of incredulity has been national and sectional distrust: it was chiefly outside of the centres of learning that such things went on. Mr. Sidgwick was once told by a German, that they happened only in England or America, or France or Italy, or Russia, or some half-educated country, but not in the land of *geist*. If this society does not at once convince all the world of the truth of its phenomena, it has at least accomplished the feat of suddenly elevating them into the region of respectability; and hereafter any one can admit his belief in them without shamefacedness. Now that mesmerism and mind-reading have ceased to be exclusively the property of travelling-shows and after-dinner entertainments, and have become a subject of experiment in laboratories, it is to be hoped that their extent and limitations will be speedily defined, and that the vagueness and haze in which they have hitherto been enveloped will soon be replaced by definite knowledge.

## INTELLIGENCE FROM AMERICAN SCIENTIFIC STATIONS.

### GOVERNMENT ORGANIZATIONS.

#### U. S. geological survey.

*Study of metamorphic rocks.* — Prof. R. D. Irving, after consultation with the other lithologists of the survey, and with Dr. Williams of Baltimore, is confirmed in his view of the occurrence of a secondary brown hornblende (as announced by him in 1880 and in 1883) produced by the alteration of augitic minerals. This occurrence is one hitherto denied by the best German authorities; and the cases described by

Mr. Irving have been supposed to be probably cases of envelopment such as are well known to occur. This, of course, has no reference to the occurrence of a green hornblende as an alteration product of augite. Most of the sections made by Mr. Irving and his assistants, showing secondary hornblende, show this variety, only a few localities yielding rocks in sections of which the brown variety occurs as a secondary product.

Mr. Merriam, of Professor Irving's division, has been experimenting on the photographing of thin

rock-sections directly with the microscope, with very satisfactory results. It is hoped to use this method of preparing plates for publication, to be reproduced by some heliotype or autotype method. Mr. Merriam took the field the latter part of May in south-eastern Dakota, where he proposes to study the quartzites exposed at a number of places between the James River and the Minnesota state line.

Mr. Vanhise, during May, continued his microscopic work, having prepared some forty new written descriptions of greenstones, chiefly from the original Huronian of the north shore of Lake Huron. The microscopic as well as field study of this formation has been found necessary, as it forms the type with which the rocks of all the other so-called Huronian areas must be compared.

Mr. Vanhise has also prepared a number of new sections, including some additional ones of the sandstones which he has described in his paper on secondary enlargements of felspar fragments published in the *American journal of science* for May. The new sections show the enlargements even more distinctly than the ones previously described by him,

and leave no room for doubt as to the correctness of this very important observation. Mr. Vanhise will probably take the field in north-western Michigan in the agogebic belt of Huronian schists.

*Unalashka sands.* — Mr. J. S. Diller's report on the Unalashka sands will be published by the U. S. signal-office, and the geological survey has promised to examine and report upon any other volcanic sands or atmospheric dusts that may be collected by that bureau. Their observers, especially on Mount Washington and Pike's Peak and in Alaska, have been instructed to collect and preserve any sands or dusts that may fall, or be brought down from the air by rainfall.

*Artesian wells.* — Prof. T. C. Chamberlin has prepared a paper on artesian wells for the fifth annual report of the survey.

Dr. Peale has reports from Montana that work has been resumed on the artesian wells at Helena and at Billings, and that the second boring at Miles City, on the Yellowstone, reached flowing water at a depth of four hundred and fifty feet, which is a hundred feet deeper than in the first well.

## RECENT PROCEEDINGS OF SCIENTIFIC SOCIETIES.

### Cincinnati society of natural history.

*July 1.* — Dr. Walter A. Dun read a paper on the recent floods in the Ohio valley. He tabulated the measurements of all the floods since 1832 of which we have trustworthy records. The river has reached the height of fifty feet and over, fourteen times since 1832. All of these floods except one (that of August, 1875), have occurred in the winter months, and seven in the month of February. The extremely high water is the result of a long-continued and widely extended rainfall upon an accumulation of ice and snow, or upon the frozen ground. These conditions are sufficient to account for floods, not considering the question of the reduction of timber areas. — Mr. Charles Dury, in a brief paper, described the finding, for the first time in our locality, of *Adranes LeContei*, a beetle inhabiting ants' nests. This beetle is kept by the ants for the honey-like secretion which it exudes. — Mr. Joseph F. James stated that a recent discovery in the lower Silurian rocks of Clark county, O., makes it clear that some of the so-called 'fucoids' are undoubtedly caused by the oscillation of crinoid stems over the soft mud.

### Brooklyn entomological society.

*June 29.* — Mr. J. B. Smith read a paper on some structural modifications of the Noctuidae with reference to their geographical distribution. Three typical faunae inhabit America north of Mexico; the northern of which, the Labrador fauna, is typical; the eastern agreeing in all essential characteristics with that of central Europe; and the western, peculiar to this country, reaching to the Pacific, thrusting long

extensions into the southern states, and small spurs into the middle states. The northern fauna is typically represented by *Anarta* and the *Pachnobia* group of *Agrotis*, and is characterized by small head, smooth clypeus, often narrow ovate eyes, plump figure, and long, hairy vestiture. The northern species of *Plusia*, of which *P. Hochenwarthi* may be considered typical, share this tendency to ovate eyes, and, having also the tibiae spinose, must receive separate generic designation. *Caloplusia* is proposed to designate these forms, which usually also have the secondaries yellow. This northern fauna is indicated again in the high north-west, and is traceable in the mountainous regions of northern New York and the New-England states. The eastern fauna is characterized by more proportionate head, the front usually smooth, the body vestiture scaly, usually overlaid or intermixed with hair. The tibiae, when armed, are usually all of normal length; and the armature consists of spines. The maculation is normally noctuidous, and the wings are ample. The western fauna is most peculiar. The front is strongly modified, tuberculate, rugose, or excavate: the tibiae are heavily spinose, the anterior pair often shortened, and the armature consisting of long, corneous, claw-like processes. The ♀ oviduct is also more or less prominently extruded. As a whole, the heliothid type prevails; and even *Agrotis* takes a distinct heliothid tendency in the tuberculate front and heavily armed fore-tibia of the western species. Belonging to no special locality, but perhaps more distinctly south-western, is that group of which *Phurys* and *Syneda* are typical, and which agrees in distribution with the *Tenebrionidae* among the *Coleoptera*. The speaker asked, What is the peculiar circumstance