

reach its destination. Observations, except for magnetism, were carried on throughout their stay. The Varna was nipped by the ice, Dec. 24, 1882, but did not sink until the following summer, when the crew and party took refuge on the Dimfna, also beset near by, and later were taken off by the steamer Obi, and reached Hammerfest, Sept. 3, 1883. This was the only expedition which failed to reach the vicinity of the station selected before sailing.

14. In the southern hemisphere, France sent a large party, under Lieut. Courcelle Seneuil, to Orange Harbor, near Cape Horn, in south latitude $55^{\circ} 48'$, longitude $67^{\circ} 30'$ west of Greenwich. Its arrival, successful operations, and return without loss, have already been chronicled in *Science*.

15. Lastly, the German government established on South Georgia, in south latitude 54° , and west longitude 37° , a station under the direction of Dr. C. Schrader. This expedition landed Aug. 21, 1882, and observations were begun early in the following month. It was safely embarked again in the autumn of 1883, without serious accident of any sort, and with the required series of observations, beside large collections in every branch of science.

Beside these extraordinary stations, of whose doings brevity obliges us to give only the barest intimations, nearly all the observatories for magnetism and meteorology in the United States and Europe endeavored to co-operate in the work.

PSYCHIC FORCE.

ALTHOUGH it may be regarded as doubtful whether the society for the investigation of psychic force, proposed at the recent meeting of the American association, will result in any new discoveries, yet the philosophy of the subject is of sufficient interest to merit general consideration. The first and greatest obstacle we meet with in such investigations is the absence of clear ideas of what it is we are to look for, and how we are to distinguish between real relations of cause and effect and mere chance coincidences. The state of mind of the community at large is also unfavorable to the attainment of any result. If we take out of it two classes holding quite opposite views, — the one comprising those who look upon the subject with that sentiment of credulity and wonder which is fatal to all scientific accuracy; and the other, those who think it all nonsense, and unworthy the attention of common-sense peo-

ple, — we shall have but few left for patient research.

If, however, this remnant is going to investigate the subject in a scientific spirit, they are entitled to all the light that can be thrown upon it. We begin by warning them against a kind of inquiry which can lead to absolutely no conclusion. We refer to such inquiries as those made in the following extract in the *New-York Nation* of Aug. 28, 1884: —

Thought-transference, apparitions, etc.

“The Society for psychical research will be grateful for any good evidence bearing on such phenomena as thought-reading, clairvoyance, presentiments, and dreams, noted at the time of occurrence, and afterwards confirmed; unexplained disturbances in places supposed to be haunted; apparitions at the moment of death or otherwise; and of such other abnormal events as may seem to fall under somewhat the same categories.”

It would be difficult for the society to put forth any thing better fitted than this advertisement to lower the estimation in which their work is held by common-sense people. Let us make a little calculation showing how often coincidences of the kind sought for must really occur in our country. Numerical exactness in our data cannot, of course, be reached: all we can do is to make rough estimates which shall not be unreasonably far from the probable truth. Any physician, we apprehend, will consider it quite within the bounds of probability that one per cent of the population of the country are subject to remarkably vivid dreams, illusions, visions, etc. This will make half a million such people in the United States. Each of these persons may be supposed to have fifty friends or relations, of whom one per annum dies. If they are subject to a dream or vision once a week, there is one chance out of seven that they have one on the same day that the friend dies. Let us suppose that it takes a combination of eight separate and independent points of resemblance, between the vision and the circumstances attending the death of the friend, to constitute a remarkable coincidence, and that each of these has a probability of one-half. We shall have, in one case out of two hundred and fifty-six, a remarkable combination of coincidences. Putting these results together, we may infer, that, as a matter of fact, some case of extraordinary coincidence between the circumstances of death, and the dream or vision by a friend of the dying person, does occur somewhere in the country nearly every day in the year. Thus, what the Psychical society will find, will be what we know must exist as the result of chance coinci-

dence. The search after haunted houses is of a different kind, but the result must be equally inconclusive: all that can be discovered is cases in which the cause of some apparently singular phenomena happened to be undiscoverable. The idea seemingly entertained by the psychists—that the residuum, after they have eliminated all cases in which the natural causes could be found, must be genuine—has no logical foundation. One can hardly lie on his bed awake an hour after midnight without hearing some sound the cause of which it is beyond his power to guess; and we do not see any essential distinction between this case and that of a haunted house.

The general question at issue is, whether there is any such process as what the psychists very happily denominate 'telepathy,' which may be defined as *feeling at a distance* without the intervention of any physical agent. And just here we have the real point at issue between them and those people 'of the earth, earthy,' who think their work is all nonsense. The real questions are two in number,—

First, Can the mind be influenced by things external to itself in any other way than by such things acting physically upon the nervous system? Second, Can the mind, by any act of the will, produce any effect outside of itself, except through the agency of the organs of motion of the body itself acting according to physical laws?

The two questions may, perhaps, be combined into one by inquiring whether it is possible that mind can affect mind otherwise than by some physical connection between the nervous systems with which the two minds are associated. That there is a natural tendency to believe in the possibility of the so-called telepathy is, no doubt, well known to all who have considered the subject. The frequently expressed view that the mesmerizer influences his subject by the mere act of his will, and especially the readiness with which this view is received, may be cited as an example. But it is none the less true that the longer we live, the more evidence we see that there is no such action. It is true that this evidence is negative, and so may always lack something of being conclusive; yet the more closely we look into the case, the less foundation we can see for any positive belief in telepathy. We must remember that the physical connection through which one mind affects another may be of the most delicate kind; may, in fact, nearly evade all investigation. The slightest look, an unappreciable motion of the muscles of the mouth or eyes, made perceptible through the light which

is reflected to the eye of the second person, constitute a physical connection. Now, since in the operations of mesmerism the subject is always within easy sight or hearing of the operator, there is always room for the action of a physical cause between the two through the intervention of light or sound. Telepathy between the two could be proved only by finding that the subject was affected by the mesmerizer when the latter was not within sight or hearing or knowledge of the former.

The Society for psychical research has published in its proceedings very detailed accounts of a number of investigations undertaken by its committees and members, some of which are very striking. The report of the committee on haunted houses, however, can hardly be regarded by lookers-on as any thing better than very scientific children's ghost-stories. The extraordinary cases of events or accidents happening to one person being reproduced in the imaginations or visions of others at a distance, are nothing more than recitals of what we know, from the theory of probabilities, must be very frequent occurrences. A feature of these coincidences which ought not to have escaped the notice of the society is, that they have no feature in common by which they can be traced to the action of a general cause, and do not even tend to show that there are particular persons who possess the faculty of being influenced by telepathy. A very striking case is that which most of our readers may have seen, in which a lady awoke under the impression that she had received a blow in the mouth at the very time when her husband, a mile or two away, actually did receive such a blow. Now, if this lady had repeatedly felt her husband's impressions in this way, or if it could be shown that a blow in the mouth or on any other part of the person often makes itself felt by telepathy, the case would be better worth inquiring into; but there is no common feature of this kind in the cases as reported, and they thus fail to supply good evidence that they are any thing more than mere chance coincidences.

The only case that looks at all strong in favor of telepathy is that in which one person is made to draw figures similar to those thought of by another in his neighborhood. If any of the members of our home society can succeed in making this mechanism work, they will have something of great interest to show the critical observer. But we apprehend that the incredulous will, under almost any circumstances, require stronger evidence than any which he has any prospect of getting, to make him

believe that there is no physical cause in action by which the subject has an inkling of the drawings he is to make, or an indication whether he is going right or wrong. This incredulous tendency will be greatly strengthened if the assistance of spiritualistic performers is called in.

S. NEWCOMB.

RADIANT MATTER IN AN EDISON LAMP.

In the Edison exhibit at the Electrical exhibition was shown a phenomenon that deserves careful investigation at the hands of physicists. Midway between the two wires which carry the current to the carbon filament of an ordinary incandescent lamp, a third wire is inserted, which terminates in a thin strip of platinum extending up midway between the branches of the loop with its faces turned towards them, and ending about half an inch below the crown of the loop. When the lamp was in action at its ordinary state of incandescence, if a circuit was closed through a galvanometer between the insulated terminal of the platinum strip and either terminal of the carbon filament, it showed a current flowing across the vacuum of the lamp, between the platinum and the carbon, in opposite directions, according to which pole of the carbon was connected, but much stronger — forty times stronger — when the platinum was connected to the positive pole of the incandescent carbon; this through a galvanometer of about twenty ohms resistance. Moreover, this current was increased when the current through the lamp was increased, so as to heat it much beyond its normal temperature.

After the lamp has been in use for some time, the stronger, positive-platinum, current becomes weaker, and finally changes direction. By letting the lamp rest, the experiment may be repeated. The same currents were obtained *through the glass* when either terminal of the carbon was joined to a small piece of platinum stuck anywhere on the *outside* of the lamp; the same effects were also obtained when the bulb was drawn out into a long tube and the connection made at its end, and when this tube was packed in ice to cool it down; but when the tube was bent round into a loop, no current was obtained, probably from the cutting-off of rectilinear radiation from the carbon.

It would seem as if here were a field for extending Crookes's experiments on radiation.

H. M. PAUL.

THE AMERICAN ORNITHOLOGISTS' UNION.

THE second congress of the American ornithologists' union was held in the American museum of natural history in New York, Sept. 30 and two following days. Dr. Philip Lutley Sclater, Mr. Howard Saunders, and the Rev. E. P. Knubley, of the British ornithologists' union, were present, and took part in the proceedings. A large number of new members were elected.

The report of the committee on the revision of the nomenclature and classification of North-American birds was presented by Dr. Elliott Coues. The work of the committee had been divided; Messrs. Ridgway, Brewster, and Henshaw being charged with determining the status of species and sub-species, while Mr. Allen and Dr. Coues were to formulate the canons of nomenclature and classification. Dr. Coues read at length the report of this last sub-committee, the reading occupying about an hour and a half, after which Mr. Ridgway presented the report of the other sub-committee, which emphatically and unanimously indorsed the employment of trinomials for the designation of sub-species.

The report of the committee on bird-migration was presented by Dr. C. Hart Merriam. This committee had been very industrious, and had been greatly helped by the public press; so that, by the distribution of nearly six thousand circulars, the committee finally secured nearly seven hundred observers, in addition to the keepers of lights. The observers are distributed as follows: Mississippi valley district (Prof. W. W. Cooke, superintendent), 170; New-England district (John H. Sage, superintendent), 142; Atlantic district (Dr. A. K. Fisher, superintendent), 121; Middle-eastern district (Dr. J. M. Wheaton, superintendent), 90; Quebec and the maritime provinces (Montague Chamberlain, superintendent), 56; district of Ontario (Thomas McLlwraith, superintendent), 38; Pacific district (L. Belding, superintendent), 30; Rocky Mountain district (Dr. Edgar A. Mearns, superintendent), 14; Manitoba (Prof. W. W. Cooke, superintendent), 10; British Columbia (John Fannin, superintendent), 5; North-west territories (Ernest E. T. Seton, superintendent), 5; Newfoundland (James P. Howley, superintendent), returns not yet received. Migration-stations now exist in every state and territory in the union, excepting Delaware and Nevada.

The committee was fortunate in obtaining the co-operation of the Department of marine and fisheries of Canada, and of the Lighthouse board of the United States. By this means it secured the free distribution of upwards of twelve hundred sets of schedules and circulars to the keepers of lighthouses, lightships, and beacons, in the United States and British North America.

The returns thus far received from observers were exceedingly voluminous and of great value; they were so extensive, indeed, that it was utterly impossible for the committee to elaborate them without considerable pecuniary aid.