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## SOCIAL SCIENCE ASSOCIATION

OF

## PHILADELPHIA.

## PAPERS OF 1875.

## MIND READING.

READ BEFORE THE ASSOCIATION MAY 12th, 1875.

BY PROF. PERSIFOR FRAZER, Jr.

The following is a list of the Papers read before the Association :

1871. *Compulsory Education.* By Lorin Blodget.  
*Arbitration as a Remedy for Strikes.* By Eckley B. Coxe.  
*The Revised Statutes of Pennsylvania.* By R. C. McMurtrie.  
*Local Taxation.* By Thomas Cochran.  
*Infant Mortality.* By Dr. J. S. Parry.
1872. *Statute Law and Common Law, and the Proposed Revision in Pennsylvania.* By E. Spencer Miller.  
*Apprenticeship.* By James S. Whitney.  
*The Proposed Amendments to the Constitution of Pennsylvania.* By Francis Jordan.  
*Vaccination.* By Dr J. S. Parry.  
*The Census.* By Lorin Blodget.
1873. *The Tax System of Pennsylvania.* By Cyrus Elder.  
*The Work of the Constitutional Convention.* By A. Sydney Biddle.  
*What shall Philadelphia do with its Paupers?* By Dr. Ray.  
*Proportional Representation.* By S. Dana Horton.  
*Statistics Relating to the Births, Deaths, Marriages, etc., in Philadelphia.* By John Stockton-Hough, M. D.  
*On the Value of Original Scientific Research.* By Dr. Ruschenberger.  
*On the Relative Influence of City and Country Life, on Morality, Health, Fecundity, Longevity and Mortality.* By John Stockton-Hough, M. D.
1874. *The Public School System of Philadelphia.* By James S. Whitney.  
*The Utility of Government Geological Surveys.* By Prof. J. P. Lesley.  
*The Law of Partnership.* By J. G. Rosengarten.  
*Methods of Valuation of Real Estate for Taxation.* By Thomas Cochran.  
*The Merits of Cremation.* By Persifor Frazer, Jr.  
*Outlines of Penology.* By Joseph R. Chandler.
1875. *Brain Disease, and Modern Living.* Dr. Ray.  
*Hygiene of the Eye, Considered with Reference to the Children in our Schools.* By Dr. F. D. Castle.  
*The Relative Morals of City and Country.* By Wm. S. Peirce.  
*Silk Culture and Home Industry.* Dr. Saml. Chamberlaine.  
*Mind Reading, etc.* By Persifor Frazer, Jr.

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## MIND READING.

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Often, on the surface of a stream of water which is rapidly flowing towards a narrow defile, a floating log will be carried so as to present its side to the current, and after bounding and rebounding on the obstructions, it will glide back in an eddy, to re-enter the channel again at some point higher up and renew its attempt at passage. Perhaps its branches and twigs spread out so much that its transit is impossible except in one definite position, in which case it may thus be thrown again and again against the gorge and returned; or it may be wedged for a time across the rivulet and remain a long time fixed stationary, until some fortuitous change in the conditions (such as the increase of the force of the water, the impact of some other floating body, etc.), finally accords it a passage.

The case is very similar with many perplexing problems which have never ceased to occupy the attention of mankind—questions which the perennial flow of experiences, constituting the widening river of human knowledge, have brought nearer and nearer to their elucidation, but which when almost within reach have been suddenly checked, or which some inconsistent newly acquired facts have driven back further from our ken than ever. Again and again have the ever-changing events of the life of civilization brought such questions back to the first barrier in ever-varied positions and relations. Some have yielded to the unknown forces which guide the general current and have been born into our knowledge. We say we *know* them. But how vastly many more remain as undivined to-day as they were in the times of the Rameses, building continually,—to carry out the simile just employed,—an indefinitely enormous raft like that famous one of the Red river, which may extend as far back into the unknown country which is the

source of our developmental force as the placid sheet on which we float stretches on to the unknown ocean of our destiny.<sup>1</sup> Such questions cannot be abandoned and disregarded by the common consent of mankind. They are integral parts of the whole network of existence. Organic nature struggles to evolve them by the force of man's understanding, as the organs of the body are evolved by the processes of life. If this force be too feeble the embryo still remains—still seeks, by the irritation which its effort at development creates, a stimulus adequate to its disenthralment.

In the history of the race, then, repeated reappearances of mysteries are so familiar as hardly to need citation. They are recorded under different names and in different phases, with all kinds of explanations and hypotheses, upheld with all degrees of belief on the part of their chroniclers—as a general rule their dogmatism and conviction of the truth of their own theories being weaker in proportion to the recency of the age.

The fact of these inevitable resurrections has an important bearing on human psychology, for it shows that the contemplation of these objects is a condition of mental existence.

Among the most persistent of these revisitants of the pale glimpses of the moon is the idea of the active participation in the affairs of men of disembodied spirits, *i. e.* of men and women, minus all that we are positive that men and women possess. It may be said that no people ever existed, in a state of civilization enabling them to form any abstract ideas, to whom this notion of spirits was not familiar in some form or other. The earliest records of our race present this belief, not in its incipiency, but in the full noon-tide of its existence. Wherever we turn we find this faith. It is almost common to our race, and this of itself inclines some conservative people to yield to it unquestioning acceptance.

It has been often objected to the idea of the formation of the globe from a molten sphere, that the earliest known rocks, and therefore those which are chronologically the nearest to the

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<sup>1</sup> "Every day reveals to us new channels in the courses of nature; but as we trace them back to their source we find them to be the branches of *one great current*, which forces everything before it onward and straight forward into the universal ocean—the *end of all things* and the beginning of the new; that great reservoir from which the elements of all things are derived and to which they all return," etc., etc. *Clark: "Mind in Nature."*

*original* rock, are nevertheless of clearly sedimentary origin,<sup>2</sup> and it may be similarly objected to any hypothesis which would derive a belief so ancient and wide-spread from a natural attempt of the human mind to classify all phenomena—even the uncomprehended—that the very earliest information we have of our species includes as one of its most fundamental characters, the recognition of an unseen world peopled by intelligent beings; and moreover that in no instance, among the numerous savage tribes with which ethnologists have made us acquainted, do we find any exception to the rule. On the contrary, it may be said that so far from a state of doubt or disbelief in such a world being the normal condition of man, such doubt never exists among the people least removed by culture from our original state, and seems to require a considerable civilization in order to secure even a foot-hold.

And yet the cultivated mind cannot help reflecting on the phenomena upon which these existences are predicated, and seeking to bring them under some still more general head with other phenomena satisfactorily understood, *i. e.*, to push classification of phenomena to its limits.

It is sufficiently admitted that the *primitive* worship of the unknown was a worship of an indefinite number of bad or good spirits, each of which had special control over one kind of force. The power of generalization whereby the superstitious barbarian connected together such different evils as famine, pestilence and war, and ascribed them to the agency of the same *démon*, is of far later growth than their reference to many unknown agencies. In fact, the culmination of this doctrine in the replacement of the thousands of gods of the Rig Veda by a select few, shows a considerable advance in intellectual culture, and an application of the principles of true inductive philosophy.

The different degrees of power which the superhuman beings were supposed to possess were as various as the attributes by which they were known—from the almost infinite power of Brahma, and the very great power of Zeus, (limited however by his own human imperfections,) to the limited capacity for interference in

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<sup>2</sup>“The alternations of argillaceous, chloritic, and other schists with quartzites, limestones, gneiss, and the other azoic rocks, prove that all were once sedimentary beds.” Manual of Geology, J. D. Dana.

human affairs of the imps and elfs and the Mephistophilean Devil. In fact, tired of bowing his head in awe before the mute and motionless creations of his fancy, and yet too much the slave of fear to cast off their fetters altogether, a distinctly humorous vein was gradually introduced into human mythology whereby men were represented oftentimes as outwitting, subduing, imprisoning, and even sometimes chastising these superior intellects and forces. Such for example are the stories of casting out devils, wrestling with angels, banning witches and evil spirits by the sign of the cross and by horse-shoes, imprisoning the Devil in a charmed circle till he agreed to exercise his power for the advantage of the human gaoler; cheating the Angel of Death; bottling up the genii; commanding the services of fairies by the possession of amulets, talismans, etc., etc.

All these fables are but the buds and leaves and twigs of a tree indigenous to man's mind. Its original germ may be said to be an unfortunate tendency to self-deception, the last obstacle to progress which the master-mind in science succeeds in overcoming. The savage worships the wind because he cannot understand the cause of the force it exhibits. But though he cannot understand the cause, he gives it a name, and this name becomes to him afterwards a living entity. The case is very parallel with the more subtle disputations of those metaphysicians who handle "consciousness," and "will" as if each were a separate existence, independent of the body or of the other manifestations of organic life.<sup>3</sup>

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<sup>3</sup> "There is no force in the reason alleged by Descartes to prove the independence of our free actions by a pretended lively internal sentiment. It is as if the needle should take pleasure in turning to the north: for it would suppose that it turned independently of any other cause, not perceiving the insensible motions of magnetic matter."—*Leibnitz*.

"En tout ce que je puis dire à ceux qui croient qu'ils peuvent parler, se taire, en un mot, agir en vertu d'une libre decision de l'âme, c'est qu'ils révent les yeux ouverts."—*Spinoza*.

\* \* \* "Abstractions were made from the concrete by the active mind; and the abstractions being thus converted into objective realities, were looked upon and applied as actual entities in nature."

"Anaximander, looking into his own mind and finding an imbecility there, gave to it the name of the Infinite, and transferring it outwards was thenceforth quite content to pronounce it the true origin of all things; whilst Pythagoras,



This habit of giving names to things we do not comprehend, joined with our prudent habit of propitiating the entire unknown under one general designation, in view of possible contingencies, may be safely considered the integral factors of all our superstitions—and of much more beside that is not generally included under that term.

But on the other hand there is a numerous class of thinkers who will not consider problems the elements to the solution of which are not felt to be at hand. It is a charge, unjustly made to be sure, yet like all sweeping charges easy of expression, one which has come to be one of the rallying cries of the adherents of those *isms* which are excluded by scientific men from the catalogue of their fields of inquiry, that the latter are as much afraid of seeing phenomena as are the most fanatical upholders of mystery and faith. And it is true that certain classes of phenomena have been shunned by the orthodox from their general resemblance to cherished mysteries, and the fear that they may be explained by natural laws now known; and also by a scattering few in the army of science for fear that they *cannot* be thus resolved.<sup>4</sup>

Without entering upon the intensely interesting inquiries as to the origin and growth of ancient creeds and superstitions, either generally or in detail, it may be permitted to note at random a few circumstances usually surrounding narratives of unusual events.

going still further into the unmeaning, proclaimed numbers, which are mere arbitrary symbols, to be actual existences and the origin of things.”—*Maudsley: “Physiology and Pathology of the Mind.”*

“In the common metaphysical conception of sensation as a certain constant faculty, what happens is this: the abstraction from the particular is converted into an objective entity which thenceforth tyrannizes over the understanding.”—*Ibid.* p. 91.

“Those who are metaphysically minded have done with *idea*, as they have done with *sensation*: they have converted a general term, summing up a great number of various phenomena, into an actual entity, and thenceforth allowed it to tyrannize over the thoughts.”—*Ibid.* p. 110.

<sup>4</sup>There is some difficulty in understanding why those who are willing to accept all the Scriptural miracles without doubt or hesitancy, should join in pronouncing similar miracles, attested by apparently trustworthy sources, impossible. There is a vagueness about the boundary which separates the time when miracles were from that when they were not possible, which such persons would do well to dispel.

Probably each of us remembers being carried along spell-bound by the skillful narrator of some mysterious tale. The eyes are strained on the speaker, the features motionless, the breath held back that the movement may not confuse the ideas by sending two impressions to the brain. Our whole existence seems divided between the conscious act of learning and the unconscious printing off of the matter in the brain, as the telegraphic tremors of the auditory nerves keep the copy supplied. If the conclusion leaves the narration still a mystery, how solemnly we look. The mind wanders over and over the thread of the story, seeking egress from the darkness, and finding none, we move off slowly and reflectively, leaving the reverberations of the recital as a whole (and abstracted from its details) still resounding, though in feeble and feebler cadences, through the soul.<sup>5</sup> Every such deep impression derived from a tale well told intensifies the emotional and stimulates the reflective capacities within us.

Nothing is so captivating as mystery, provided we find ourselves ambuscaded by it, as it were, without having known it.<sup>6</sup> To say that we cannot go far either in the direction of cause or effect without coming to the inscrutable, produces no more effect than to say that every one can look into infinite space from his doorstep; but to find a mystery among the affairs of everyday life, is like discovering a fathomless pit in one's cellar.

In turning over the many compendiums of strange events which have been published, it is striking to observe that certain kinds of things usually happen together. The dead arise from their graves, generally about midnight, almost always habited in white. They glide without noise while in sight, but frequently are heard to tread heavily, clank chains, etc., when not within the field of view. They prefer dimly lighted chambers and

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<sup>5</sup> Moreover the sensation itself may persist for a while after the cause of it has disappeared, as when an image of the sun remains after we have ceased to look at it, or the roar of the cannon abides in the ears after the firing has ceased. Such persistence of action in the ganglionic cell will serve to convey a notion of the condition of things when there is hallucination otherwise caused." *Maudsley: "Physiology and Pathology of the Mind,"* p. 100.

<sup>6</sup>The passion of surprise or wonder from miracles being an agreeable emotion, gives a sensible tendency toward the belief of those events from which it is derived. *Hume's Essays: "Miracles."*

dark corses, and almost always vanish before a bright light or the return of day.

To be sure there are all sorts of ghosts, but this represents the normal, old-fashioned kind of apparition.

Now, that the conditions which are favorable to the production of these spectres are just those which are unfavorable to the proper use of the sense of sight, by means of which we derive our principal ideas of substance, is one which it would be difficult to explain, except on the theory that the climax of the mystery was to be supplied by the imagination. So strictly in conformity with the laws of our bodily organs are these conditions, that absolute darkness is almost as unusual a concomitant of spectral visions as bright illumination; and the reason of this would seem to be that in the former case the whole burden of conceiving and maintaining the deception falls upon the imagination, which in most persons and in most states it is incapable of accomplishing; whereas, the attention being really chained by an actual though ill-defined object, the imagination fills out the details without difficulty. With the prevalence of traditions relating to this kind of phenomena—traditions which were perhaps first confined to the simplest modes of such manifestations, but afterwards became more and more elaborate—there is little difficulty in accounting for the uniformity of surroundings of these ghosts. What is called the association of ideas, and the physiological psychologist calls the “intuitive motor residua,”<sup>7</sup> through acquired habit, must of necessity be responsible for this lack of variety.

An unusual noise summons up a remembrance of the story of an unusual sound and its connected supernatural cause, though we may not be conscious of them. This mental action is similar to the effect of a pleasant taste to excite the appetite, and conversely the appetite to call up visions of a delicious repast.

The fact that the ghostly uniform is usually white suggests as reasons, first, that this is likely to be the color which most attracts the eye in feeble light; and, secondly, custom teaches us to expect more dead men than any other class of visitants, because this can prove no alibis, and the robes of the dead are generally white. Midnight is the hour of appearance, because this period is farthest

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<sup>7</sup> Maudsley.

from the day, a period when the bright illumination of objects leaves nothing to the fancy. It is not improbable that the origin of the idea that these objects glide without noise, may be partly due to the fact that to be far enough off to be indistinct they must be too far to be clearly heard; or else it may be connected with the gradual passage across the eye of an imaginary picture, as is the case in dreams.

Countless numbers of inexplicable events are verified on unimpeachable evidence. These phenomena concern various parts of Nature, from those which affect the upper regions of the atmosphere or interstellar space itself, sensible to a number of persons at the same time, and which are only connected with our consciousness through the medium of our observation, to those which interweave themselves inextricably with our subjective existence, and whose very appearance bears some relation to the state of our physical being.

The former kind we have no difficulty in agreeing about, though we may not be able to explain them; and if those whose personal experiences have not permitted them to verify the latter, doubt their existence, or at least refuse to refer the cause to some stupendous power overreaching the universe, their action will be justified by the common practice of mankind.

Thus various and contradictory opinions are held respecting the true cause of the Solar Corona, the Zodiacal Light, and even the Aurora Borealis; yet that the cause or causes of these phenomena are intimately connected with the laws of Nature already known to us, no one doubts. And even if the causes were other laws as yet unknown to us, no one would hesitate to believe the universality of the action. But the case is different when, starting with phenomena to the successful production of which *certain individuals* are necessary, we are asked to extend our belief in their cause to a different kind of existence from any that we know, and finally to accept a cosmogony as intricate, as arbitrary and as unsatisfactory as any from which science is engaged in delivering us.<sup>8</sup>

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<sup>8</sup> See the "Defense of Modern Spiritualism," by Alfred R. Wallace, F. R. S., with a preface by Epes Sargent, Boston, 1874 (p. 52), where as one argument in favor of the doctrines of the Spiritualists, it is urged that they render the traditions of primitive mankind literally possible. Should this be a ground in their favor?

The epidemic of mesmerism and "electro-biology" had already spread over the country before spiritualism, and not only were the conditions under which the unexplained effects were produced allied to those of the later mystery, but the effects themselves nearly resembled each other. In both cases the means of communication were through a person who was peculiarly fitted for the exhibition of such phenomena (whether called subject or medium), and the success of the experiments depended upon the bodily condition of the person, the atmospheric changes, etc.; but the revelations were, if anything, a reading of the mind of one person by another.

A very striking instance of the manner in which this power of clairvoyance is limited, was related to me by a gentleman of undoubted candor and trained power of judgment. A young girl who was subject to epileptic fits<sup>9</sup> possessed the power, when in a state of trance, of describing distant events and places. Upon one occasion a lady, unknown to her previously, received an accurate and detailed description of the house in which she lived, the surroundings, interior, etc. In the course of the narrative the girl described a gentleman in the house whom the lady had no difficulty in recognizing as her husband. His movements were detailed, his departure from the house, the route that he took along the streets, etc. Finally he was declared to have entered a house, which from its position was recognized as that of the gentleman's mother. He was said to enter a room and to have met persons there whose description tallied exactly with the appearance of the occupants of the house. In the greatest surprise the lady went home, and on meeting her husband informed him that she had been enabled to follow him in his movements during that evening by the help of a clairvoyant. But on repeating the description, he assured her that he had been in quite another part of the city.

Nevertheless the impression had been sharply fixed in the lady's mind that her husband *had* gone just where he was described to have gone. Here seemed to be one of those instances which are too numerous and well authenticated to discredit, where the ideas

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<sup>9</sup>Maudsley regards epilepsy as "in great part a true sensorial insanity." *Phys. & Path.*, p. 101.

in one person's mind are communicated to that of another person, by means as yet wholly unknown.

From another gentleman eminent in science, I am told that on one occasion, after having seen some public experiments of mesmerism, it occurred to him to imitate the motions of the mesmerizer. The experiment was attempted in a country house where some young people, acquaintances of his, were guests. None of the party had ever had the slightest experience in mesmerism but himself. Accordingly he selected a youth of pale and nervous appearance, and by making the passes he had seen made, and keeping his mind and his eye steadily fixed upon his subject, he succeeded in six or seven minutes in throwing him into a mesmeric sleep. A number of experiments were then tried, strikingly illustrative of the doctrine of intuitive motor residua so elaborately worked out by Maudsley. When the fists were doubled the subject made the motions with his arms of fighting, etc. But more extraordinary still, when a coin or other object was held in the hand behind his head, he was able to describe it minutely.

It is a grievous mistake to suppose that any considerable number of scientific men will not admit the truth of that which can be demonstrated. In this sense, Hume's remark that "a miracle," (*i. e.*, that which *seemed to him* to contravene the known laws of nature) "supported by any human testimony, is more properly a subject of derision than of argument," and Faraday's remark that "we must approach the investigation of phenomena with an educated judgment of what is and what is not possible," are less true to the rules of conduct governing the earnest seeker after truth, than that of Arago, that "He who, out of pure mathematics, makes use of the word impossible, is imprudent."<sup>10</sup>

Leaving these questions of disputed truth with the observation that no amount of testimony proving that there are no grounds why such and such a thing should *not* be so, can carry a conviction to one that it *is* so,<sup>11</sup> we can address ourselves to an humble,

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<sup>10</sup> Clifford would probably extend the application to mathematics itself.

<sup>11</sup> "I have finally settled down to the opinion that, as to the phenomena of so extraordinary a character, one may by dint of discussion reach the conviction that there are sufficient reasons for believing them, but that one really *does* believe them only after having seen them." *Bertrand*: "*Traité de Somnambulisme.*"

but not, therefore, uninteresting part of this general realm of mystery, *i. e.*, the communication between minds without conscious employment of the physical organs.

Fortunately for our purpose, a case is at hand which has not ceased to be a topic of conversation among the public. It is that of the so-called "Mind Reading" of Mr. Brown. The faculty which this gentleman claims to possess is the simplest manifestation of what may be called "reading the mind"—so simple as naturally to lead to the suspicion among many persons that it is merely an acute perception of those involuntary nervous motions which we cannot avoid making when our attention is concentrated on a single object.

Mr. Brown takes the hand of a person, who then fixes his mind on a given *place*, and by moving to and fro, whereby he naturally brings the person alternately near to and far away from the object, he narrows the circle of his wanderings down to a point, which he thereupon declares to be that in which the object selected is placed, or which represents the object itself. This is of course a mere general statement which is intended to cover all cases, and not meant to imply that the action is not sometimes direct and rapid.

All that is effected by this faculty, then, is the direction of movement towards a given place; and were this done only when Mr. Brown retained the hand of the person operated upon in his own, the disposition to ascribe the general rough approximation to the place of a selected object to an unconscious guiding motion experienced in the hand of such person would be almost irresistible. That unconscious motions of this kind do prompt others as to the direction of our thoughts is undoubtedly true. A simple experiment to prove this may be easily tried. Let two persons join hands, and let one mentally decide upon the direction of a series of movements up and down, right and left, in any order. In order that the experiment be successful, the amount of force exerted should be the minimum necessary. If the person whose hand is moved pay strict attention to his intuitive impressions, it will be found that one who is unaccustomed to the amount of force which is exerted by the other, and unfamiliar with the experiment, will succeed in fairly anticipating the direction designed by him, and opposing to its execution a resistance a little over thirty-three per cent. of the number of trials.

Of course the tests upon which this average is founded are necessarily too few to furnish a reliable average; but, so far as the limited time permitted, this percentage has been tolerably constant. It will be at once seen that this average, thirty-three per cent., is but little above what we might reasonably expect from a machine whose movements were unknown to the experimenter. In other words, we should expect success in twenty-five per cent. of these experiments, as there are but four directions permitted.

It might be also said that in so rough an experiment it was hardly possible for the persons engaged to decide whether the impression were conveyed by an unconscious muscular action *before* the movement, or an arrest of the movement itself at a very small interval after its commencement. To decide this would require the appreciation of a small fraction of a second on the part of the experimenters, and that without instruments or other means than their own consciousness of measuring it. This difficulty was felt to be so serious that this method of testing was abandoned, and the following modification was introduced:

The hands having been clasped as before, the subject was requested to think very strongly of making a movement in one of the above four directions, but at the same time to guard as much as possible against communicating this motion to the hand or forearm. At a given signal he was to choose a direction, but not to execute any movement. This modification of the experiment was tried by persons who were not accustomed to perform constantaneous movements, but the result was that the intended direction was anticipated seven times out of eight. The active and passive agents having changed places, of the following four movements two were anticipated correctly. Of the whole number, nine out of twelve were successful anticipations.

According to this view it would be perfectly natural that some persons should be better subjects than others, or in other words, that persons who exhibited the stronger involuntary movements would lead the operator most rapidly and directly to the objects, and that independently of whether the *voluntary* motions of the subject—which, to a great extent, experience must teach the former to distinguish from the *involuntary*—were designed to deceive or not.

It would also be consistent with this theory, that in the average



cases where the muscles of the subject were too passive to direct the operator, so long as the person was not subjected to any great change of place with reference to the selected object, that a rapid removal from the room and a subsequent rapid re-entry into it, would be likely to suddenly excite such a vivid idea of the locality in his mind that the involuntary movements would be caused.

So far as this goes, Mr. Brown acts in many of his experiments as if this were in reality the object of his movements. For example, at the first private exhibition of his powers given in Philadelphia, at the Continental Hotel, the first experiment was conducted in this way. A gentleman was selected to secrete an object. This gentleman gave the object to me, and I put it in my pocket. Mr. Brown, after taking the gentleman's hand, hurried down the aisle between rows of benches on which were seated sixty or more persons, went into the hall and walked rapidly to the end of the corridor. Afterwards, turning suddenly on his tracks, he re-entered the room at a rapid pace, whereby the picture of the general location of the object was suddenly presented to the mind of the gentleman who had secreted it. The experiment was successful. Whether or not this *were* really the explanation of the success of this and similar experiments, is not certain; but for this very reason these experiments are indecisive, and they form the greater part of the whole number. The same is the case with regard to selecting letters of the alphabet hung up on cards or written on the blackboard, selecting a particular photograph or page of a book, etc., etc.

If Mr. Brown selects the object directly, it *may* be because the involuntary movements of his subject are unusually distinct; if he wanders about very much before finding the object, it *may* be that his final success has been due to causing intermittent impressions of the object in the mind of the other; if he fail, the reason is obvious. In an experiment tried for the purpose of testing how far Mr. Brown could be misdirected by feigned slight involuntary motions of the hand, I found that it could be easily done, but the difficulty was to be sure that the mind was firmly fixed on one object, at the same time that the motions of the hand were leading the experimenter in an opposite direction. Where the attention was more directed to the true place than to the causing of a

deception, he was not deceived; and in the opposite case it is questionable whether the conditions were those demanded.

Another instance in which I was the subject illustrates this. A particular picture in a large atlas of birds having been selected, the leaves were turned over, and, while keeping the figure of the bird in my mind, I exerted an effort to avoid giving rise to any "thrills" on beholding it. The plate was passed, but when two pages more had been turned, Mr. Brown rapidly turned back the leaves and selected it. Here I could not repress the thought that the indisposition to submit to a tedious search over fifty or sixty pages with nothing but failure as an object *may* have so acted upon my nerves as to have caused motions of the hand which Mr. Brown interpreted properly.<sup>12</sup>

All these things and a large number of similar experiments, sufficiently vouched for by well-known persons of trained scientific culture in the West, Boston, New Haven and elsewhere, are in conclusive as to the real source whence Mr. Brown derives his information; for however probable or improbable the theory of unconscious guidance may be, it is not *impossible*; and if it is least in antagonism with our experience we are bound to accept it, at all events provisionally. But there are other facts to be explained. The first, is the experiment of acting through a passive agent who is ignorant of the selected object. The operator clasps the hand of a person who is to use his mental faculties as little as possible—to remain perfectly passive; but a second person who has fixed his mind on a given place clasps this intermediate person by the wrist. The object is usually selected quite as readily in this case as in the others. The only manner in which the previous hypothesis can be supposed to apply, is that in this case the passive hand receives the involuntary tremors to which the active subject gives rise, and in this way leads the seeker to the right place. In order to vary the conditions of this, the two persons were requested to think of quite different things, the passivity of either being thus abolished. Mr. Brown selected with very great promptness the object thought of by the person whose hand he held. On changing

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<sup>12</sup>The meeting at which the experiments here mentioned were undertaken was arranged by Prof. Cope and myself, at the Academy of Natural Sciences, for the purpose of learning something of the nature of this power. Six other persons were present.

the conditions so as to place a very "bad subject" in connection with him, and a very "good subject" on the outside, the object thought of by the latter was found. The experiment of taking the hands of two persons who were thinking of the same place was tried, in order to ascertain if a confusion of guiding tremors would ensue; but the object was found without delay.

It is one grade more difficult to believe that these indications were caused by unconscious tremors of a person not touching the operator, transmitted to the entire wrist and hand of the passive subject, than that this was the case when there was direct contact between operator and subject. And if it be admitted that the very magnitude of the mass moved by the forearm and wrist of the intermediate person, would render the motions slower and more easy to interpret into a directive impulse one way or the other, it still is astonishing that a small object, in one case removed at arm's length above the heads of the persons engaged in the experiment, should be thus selected, and with apparent facility.

But a fatal objection to this explanation would be the success of experiments similar to those mentioned, when the means of communication was a slack wire held in the hands of operator and subject. Two tests of this kind were attempted at the interview referred to, neither of which was entirely successful, though one was certainly remarkable. A number of persons held one end of a wire, their attention fixedly directed to a certain object, and Mr. Brown, being blindfolded, held the other end. In the first experiment the wire was over a hundred feet long and about one millimetre in diameter. It was insulated with cotton and wound around an iron pillar. The experiment failed. In the second instance about sixty feet of the same wire was allowed to trail loosely on the floor, the same conditions in other respects being observed.

In both cases care was taken that the positions of the persons composing the group at the thinking end should not lead to any guess on the part of Mr. Brown as to the general direction of the object, although (as in all the experiments) he was blindfolded. The object was a ball of twine placed upon one of the tables in the large and well-filled hall of the Academy. Mr. Brown came back to the spot where this was lying five or six times, and actually touched it several times, but was unable to distinguish that

this was the article. When he finally abandoned the experiment his hands were almost, if not actually in contact with it. Nevertheless the experiment was not a success, however near it might have been to it. The task of dealing with facts is a sufficient employment, without introducing any which might have been but were not. At the Michigan University and at Yale College the test was entirely successful. The following are the published accounts of the feats :

*Experiment 6.*—One end of a copper wire 20½ feet long was held by Prof. Lyman, the other by Mr. Brown, the wire being slack. Mr. Brown (blindfolded as in all cases), after turning for a moment to a person seated near by, went straight to a spot beneath the object on which Mr. Lyman had fixed his thought, which was the clock, in a high and (to Mr. Brown) inaccessible position. What he did find was an article on a shelf within reach, and a few feet directly beneath the clock.

*Experiment 7.*—Mr. Brown left the room. An inkstand was placed in a certain position on the lecture table. Prof. Fisher, Prof. Wright and Tutor Phelps took hold of one end of the wire before mentioned, and Mr. Brown blindfolded, of the other end. Very soon, and without mistake, he found the inkstand, having passed round the end of the table, which was then between him and the three gentlemen, the wire being slack and partly on the floor.—*Prof. Lyman, Yale College.*

\*                     \*                     \*                     \*

Among the rest, he was requested to take hold of the end of an insulated copper wire, two hundred and ten feet long, running from the basement to the lecture-room of the school building, while the other end was held by Prof. Brewer, in the basement. The professor thought of a hammer lying on a black board in the lecture room ; and Mr. Brown, holding his end of the wire in that room all the while, found the article after a search of nine minutes.

A similar test was made with Prof. Lyman holding a slack wire, thirty feet long. And at a public meeting, this gentleman said “ he would stake his reputation upon the genuineness of the phenomena,” which he considered “ of great scientific value.”—*Col. Olcott, in Daily Graphic.*

From a private letter from a gentleman connected with Yale College a few days ago, and in answer to an inquiry as to the accuracy of this published account of Mr. Brown’s experiments there, I extract the following : “ I have just had a talk with Prof. Lyman, of the *Sheffield Scientific School*, and am authorized to say that the account of Brown’s performance in the papers sent by you is correct in every respect, it having been written by Prof. Lyman himself. The only criticism he has to offer was in the case of the wire experiment : The wire was two hundred feet long, but it was

so arranged as to go into the basement and then back into the room where the experiment was being performed, so that Mr. Brown and his subject were both in the same room. Prof. Lyman remarked that in eight wire experiments six were entirely successful, the other two were partial failures, but in each case the failure was as remarkable as the success. The Professor is a firm believer in Brown. \* \* \* \* He regards the theory of "unconscious muscular action" as entirely opposed to the facts observed."

This obviously occurring theory of the manner in which Mr. Brown performs those experiments during which his hand is in contact with the hand of the person operated upon is fortified by an account of a series of experiments performed by Mr. Whitehouse, and which was published in one of the dailies here. The whole article (which is humorously headed the "Muscle Reader"), is interesting as recounting experiments which remove all doubt as to the possibility of the acquisition by some persons, through experience and attention, of such sensibility to faint movements, and such tact in distinguishing voluntary from involuntary tremors or pressures, as to enable them to perform the greater number of Mr. Brown's feats. It matters not here whether Mr. Brown performs them in the same way or not. If not, nature expends in his case a quantity of a higher kind of force which might be readily applied to superior ideation, while its results could be as easily effected by means of faculties common to all mankind. Water seeks the most direct course down hill, and one such natural and direct channel of explanation having been proved, the common sense of mankind refuses to have anything to do with a circuitous and (as yet) unnatural one.

To this extent we are indebted to the gentlemen who were witnesses of these extraordinary proofs of Mr. Whitehouse's skill. But the humorous chronicler allows his admiration to carry him per saltum over facts which merit, from the sources which attest them, the most respectful attention, and which are inconsistent with the theory of "muscle reading." Such are the wire experiments before alluded to. It is as contrary to all approved methods of induction, to reject well authenticated facts, as to jump prematurely to general conclusions. It may well be that the greater number of phenomena exhibited by Mr. Brown, may be gathered together under the head of "muscle reading," but this does not

explain those which remain. Nor is the public enlightened by being told in reference to this that "Mr. Whitehouse had not learned that trick yet" (*i. e.* the wire test). This premature assumption that all has been said on the subject, while it may answer the purpose of a daily paragraphist, shows a want of that scientific calmness with which problems of this nature should be regarded.

Considering the high standing and long experience of those gentlemen who have pronounced in favor of Mr. Brown's possessing the power of reading the mind through a long wire, it would seem that this satirical writer, in the concluding sentence of the report alluded to, *viz*: that "all the fools are not dead yet," only lent to a universal truism what force there is in a personal illustration.

In his introduction of Mr. Brown at the Continental Hotel, Prof. Barker stated in substance—(I quote from memory)—that scientific men were *not* averse to being made acquainted with *facts*, no matter of what nature; that Mr. Brown was undoubtedly honest, and that many of the experiments were not *certainly* solved by the application of any laws with which we were at present familiar.

It is not meant to cast the slightest imputation on Mr. Brown, when it is said that the second of these propositions ought to have no weight in an investigation. No experiments can be considered scientifically conclusive when their force is derived from a supposed action of the will of the subject. Asseverations of good faith, even though supported by circumstantial evidence, can be of no value in a scientific inquiry into facts.

An experiment was tried to determine whether the clue, whatever it may be, was given over the whole distance separating the seeker and the object sought, or whether it consisted in a great number of guiding impressions given at many points of the route chosen, and informing him of the next immediate *part* of the route previously determined on, or which would have been naturally selected. A ventilator in the ceiling was selected, to which there was no ordinary means of access, and the mind was kept firmly fixed upon it. The movements were rapid and erratic. The subject was taken out of the room and brought back again, when Mr. Brown, as if suspecting that the place selected must be on the sub-

ject's person, endeavored to find it there. There was not the least indication that any means of discovering the direction would be found, and he failed. This again seems to corroborate the unconscious movement theory, for no case can be thought of which so entirely precludes unwitting guidance, as where it is impossible to convey a hint of the route to pursue, owing to the fact that there is no such route.

All the experiments heretofore considered have required from the successful performer, but the one faculty of *locating*. It was not entirely clear whether Mr. Brown possessed any other capacity or not. From his replies, contrary impressions on this subject were gathered. In order to test this he was blindfolded and brought into the room, after which certain figures unseen by him were drawn in chalk on the blackboard. In the first experiment, which was to discover which of them was thought of, (although it was of precisely the same character as those in which he had succeeded,) he failed. In the second, which was to discover the position of one of the same four characters on the blackboard, the subject meanwhile keeping his mind intently upon the *form* itself to the exclusion of its position, he also failed. The third test was as to whether, by holding the hand of a person who was thinking intently of a simple figure, he could draw that figure in chalk. This also failed.

Next the attempt was made to get him to designate a simple tune from impressions received synchronously with the imaginary impressions of the rhythm. This also failed. It is due to Mr. Brown to state that these experiments were of a character such as he had never professed, but on the contrary doubted his ability to perform; that they were new to him, and each tried but once. The above unsuccessful experiments suggested another in which he was more fortunate, viz: the designation of a particular organ of sensation. It was announced to him that the attention would be directed to a particular sensation. This he readily detected to be the sense of smell, by selecting the nose. But it will be at once perceived that by the conditions of this experiment the same possible source of error was introduced, as in the simple experiment of locating a pain, or an "imaginary pain" (as if there could be such a thing). In fact, the moment the particular sense was selected, the organ ministering to it at once became the true point thought of, and the ele-

ment of possible unconscious indication was introduced. Added to this, in the particular case selected, it must be confessed that the natural desire to consummate a termination to the inevitable rubbing of the subject's nose, as his hand was passed in succession over the organs located in the head and face, must have furnished an additional stimulus to the tremors.

The trial was then made to ascertain whether the *instant* of a slight muscular movement was ascertainable by an impression conveyed to Mr. Brown, and the interpretation of the answer was that it was not; but the moment the interrogation concerned the *place* where the motion was made, it was correctly stated to be the right knee-cap. Many other experiments of the same kind as those to which he is accustomed were successfully accomplished, but they would lend no additional value to this brief account, because they are all open to the objection suggested.

It is undoubtedly astonishing on the one hand that unconscious "ideomotor movements" should be so general a consequence of the attention to any indifferent idea, and on the other hand that they should be sufficient in amount to enable a sensitive and impressible person to detect and rightly interpret them. But it is possible. No experiment which Mr. Brown performs is removed from the suspicion of this agency, except that with the insulated wire; and this, though unsuccessful here, deserves attention from its authenticated success elsewhere.

In reference to these experiments with wires in this city, an instance occurring in my own observation and which has not appeared in print is worthy of reproduction.

One or two persons had been invited by Mr. Pugh (Mr. Brown's manager) to meet the latter in the superintendent's room of the Western Union Telegraph Company's office here, in order to witness an experiment which had long been suggested to Mr. Brown, but not yet attempted.

Presuming on his power to interpret the thoughts of a person through two hundred feet of wire, it was proposed to ascertain if he could receive impressions through greater distances, and thus justify the soubriquet applied to him of "the human telegraph."

Two experienced operators were present, who, having cut ten slips of paper and numbered them from thirty to forty, requested the operator in New York to get ready to hold the wire, and at



the same moment to think intently of that one of the above numbers which represented his age. It was a solemn and impressive moment. In the next few seconds it was to be determined whether that inscrutable force which had evolved the "Inferno" and "Hamlet," had really been speeding away unseen through space, from every one of countless millions of brains—now dancing in the sunlit space of our planetary system, now converted into heat and light or what not by impact with the matter of Alpha Cygni—perhaps adding its share to making up differences of the brilliancy of the earth as seen from remote regions of space. It was the critical moment in which an era might be born, and the hypothesis of the correlation of the mental and physical forces receive the corroboration of successful experiment. Every one in the room watched the movements of Mr. Brown in silence and with intense interest.

The tap-tap of the instrument was the announcement we received that all was ready. Mr. Brown, blindfolded and holding the wire between his hands, his head bowed over the table whereon the numbers were laid, commenced moving slowly to and fro, his forehead occasionally descending to absolute contact with one or other of the papers. To one of these he returned several times, and finally picked it up with his hand, at the same time unfastening the bandage over his eyes, and handing it to the operator. It was the number 37. The silence of intense interest was only broken by the clicking of the electro-magnet responsive to the touch of one of the operators, who was announcing the result to the subject in New York, and asking information in regard to it.

Our impatience to get the answer made the monotonous ticking of the "Sunder" in reply occupy apparently twice the usual time, but it came nevertheless quickly and substantially in these words: "Battery put on the wire by mistake."

That battery could hardly have been so old.

The three trials which followed this (between Philadelphia and Wilmington,) and of which alone I have any personal knowledge, were unsuccessful.

But granting that this faculty stands future tests and can be relied upon, or that the molar vibrations transmitted to the operator's hand are not sufficient to account for the phenomena, what explanation can be offered of them?

The following is taken from the circular entitled "Mental Telegraphy," which was circulated by the manager of Mr. Brown:

THE SCIENCE OF IT.

Dr. Cocker, Professor of Mental Science in the University of Michigan, in a scientific essay on Brown's performances, says:—

"As to the hypothesis: he is no imposition, as he is well known by several residents in the University, who were acquainted with him before any tour of exhibition was contemplated, and knew that he possessed natural peculiarities.

"Only a hint can be given as to what is the true hypothesis. A few of the cases he gives are instances of imageal *representation* of concrete objects in space. In order to have a representation of this sort, the optic nerve and optic ganglia, or the molecules of the optic nerve and ganglia, must have the same chromatic vibrations as in the first act of perception.<sup>13</sup>

"The intensity must, of course, vary, because the image is not so vivid. Now if the hypothesis be true, that the nerve current is some mode of force correlated with electricity, then we can conceive how the same molecular vibrations in the brain of the co-operator may be transmitted to the brain of the operator, and a faint image of the same object produced, so that really Mr. Brown sees through the brain and eyes of another.

"Furthermore, a long copper wire was attached to the wrist of the operator and to the hand of the co-operator, where there could be no tension and relaxation, and Mr. Brown succeeded perfectly."

If Mr. Brown has ever been capable of imageal representations of concrete objects in space, he has given in no instance specific proof of the possession of this power which can be found authenticated. But assuming that he had, it by no means follows that the optic nerve should have any vibrations at all. Maudsley says, in speaking of the Ideational Centre, "The reflex action of an ideational centre may operate downwards, not only upon the muscular system, but also downwards on the sensory ganglia." "As the idea is excited into activity by the impression on the senses, so it may in turn react downwards upon the sensory centres, giving rise under certain circumstances to illusions and hallucinations." In this, as in all other cases when the idea is derived from a stimulus from without, that stimulus must first assume the character of a sensation; because, to quote his language, "the anatomists believe they have now demonstrated that the nerve fibres which ascend from the spinal cord through the medulla oblongata do not pass directly to the surface of the hemispheres, but end in the ganglionic cells of the 'corpora striata'; new fibres

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<sup>13</sup> See note (α) at end of addendum.

starting from these cells and radiating to the cortical cells, to establish the communication between the primary and secondary nervous centres."

Now assuming that the "nerve current is some mode of force correlated with electricity," the conclusion that "we can conceive how the same molecular vibrations in the brain of the co-operator may be transmitted to the brain of the operator," seems hardly justified.

If we unite the wires leading from twenty-six electro magnets, each corresponding to a letter of the alphabet, with a single wire, and then attempt to affect only one of those magnets by sending a current through the main wire, we would be attempting a far simpler experiment than that spoken of here. The same current of electricity which will produce different degrees and kinds of involuntary and unconscious muscular action if applied to the different motor ganglia, will produce the sensation of smell if applied to the olfactory, or sight if applied to the optic nerve, and most probably ideation of different kinds if applied to the various cells of the central hemispheres. We have then a stimulus from without acting directly on the sensory ganglia of the observer, and through them to the cerebral cells, expending its force, first, by transmission laterally as a train of thought among them; second, by the storing up of residua as memory of the act; and third, by reflection downwards on the sensorium commune. Next this fragment of the original force is divided between, first, *derivative* sensation, and second, molecular motion propagated through the nerves of the body and finding outlet through those of the hand to the similar nerves in the hand of the operator. From this point it is conducted either to the motor or sensory centres, and in any case through the latter to the vast congeries of cortical cells of the hemispheres, when finally what remains of force must be supposed to exercise a selective discrimination on these innumerable cells sufficient to cause a "faint image of the same object, so that Mr. Brown really sees through the brain and eyes of another."

If this be a fact, certainly its explanation on known physiological principles remains one of those problems with more unknown quantities than equations to solve them by.<sup>14</sup>

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<sup>14</sup> It matters little whether this current be electricity or magnetism, Od (as Reichenbach calls it), or nerve current. Our knowledge of the laws of force is suf-

Since Mr. Brown's appearance in this city, the subject has excited a great degree of interest, and attention has been called to numerous cases where amateur experimenters and professional exhibitors have claimed various degrees of success. Hearing of one of the latter who was said to have given even more remarkable instances of this mysterious power than any accredited to Mr. Brown, it was determined to give this subject as thorough investigation as possible.

An experiment having been made with the young man referred to (who always executed these marvels in the presence of his mother, and avowedly through the assistance of spirits), and a few witnesses having been provided and the same hall selected, a series of twenty-five experiments of the same general character as those referred to in connection with Mr. Brown, were tried—such as finding secreted objects, spelling out words by indicating the letters in succession on an alphabet, etc., etc. Out of these twenty-five experiments but two were successful, and both with the same lady. The results being considered so unsatisfactory by the performers, a new appointment was made for the next day, when some of the same and some additional witnesses were selected. Twenty-four experiments were undertaken, each of the seven persons present being made at least once the subject. But four of these experiments succeeded, three of them with the same person. So far as this person is concerned, therefore, nothing is added to our knowledge. It may be stated that there was not the least difficulty in leading this "mind reader" in any direction, by very clumsily-imitated unconscious movements of the hand, or indeed even by mere pressure.

It would seem to be a fair conclusion from the facts thus far

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ficiently advanced to require no further confirmation of the doctrine that whatever occurs—whether heat, motion, sound, or idea—costs energy, and that the residual energy will be less in proportion as the effects produced by the stimulus have been greater, or as that original force has been more diverted into various manifestations. In all Reichenbach's extraordinary assertions (the "Researches on Magnetism," etc., translated by John Ashburne, M. D. Hyppolyte Bailliere, 219 Regent street. London: 1851), there is nothing so extraordinary as this—that a residual current, acting through a complicated maze of centres, and connected as directly with one as with another, should result in an intelligible impression, however faint, by the excitation of those peculiar centres which alone could give it birth, to the exclusion of all the others.

known in connection with this new form of mind reading, that with the exception of the wire test (about which too little is yet known to warrant a decided opinion) there is nothing to justify the inference that the results are obtained by the agency of any unknown or occult force.

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## ADDENDUM.

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Since the presentation of this paper, a perfect confirmation of the theory of unconscious muscular movement was obtained through the kindness of my friends, the Messrs. A. A. and A. E. Outerbridge, of this city. These gentlemen have been amusing themselves for some time in practising "mind reading," and each of them performs the ordinary feats of Mr. Brown, in a very satisfactory manner. During the course of an evening devoted to this kind of experimentation, the number of the unsuccessful attempts to find objects was exceedingly small. A gentleman having secreted an object during the absence from the room of Mr. A. E. Outerbridge, on giving the latter his hand was conducted directly to the spot where the object was hidden. The same gentleman having under the same conditions taken a circuitous route through the room, was conducted by Mr. Outerbridge over precisely the same route.

Besides these ordinary tests, some were added of a very interesting character. Thus a person who had previously secreted an object while keeping his thoughts upon the locality where it was placed, held one end of a cane to his forehead, the other end being similarly held by Mr. Outerbridge. The object was found on two occasions with great rapidity.

Another novelty was the discovery of a selected place by means of movements discernible in the hands of a person without any contact at all.

The person who had selected the object held his right forefinger in front of him and kept his eyes steadily upon it, while his thoughts were firmly fixed upon the place.

Mr. Outerbridge held his own finger at a short distance from that of the subject, and kept his attention riveted upon it. After moving slowly over the floor for a few moments the place was discovered. In some remarks explanatory of these experiments, Mr. A. A. Outerbridge alluded to the fact that unconscious motion always follows in the direction of an object firmly fixed in the mind. This becomes perceptible in the motions of a subject's hand to an operator who has had a little preliminary practice, and especially so if the guiding impulses are screened from the notice of him who makes them by voluntary

*Addendum.*

motions of the hands made by the operator. The same is the case when any rigid object forms the connection between the operator and subject, as in the case of the passive subject, cane, etc.

With regard to the last experiment, the unconscious guidance lies in the closing or non-closing of the interval between the two fingers. If the movement of the operator be in the right direction, the subject (if disposed to perform his part fairly) closes up the temporarily increased interval more rapidly than if the motion be in a wrong direction.

The gentlemen to whose ingenuity we are indebted for this practical demonstration of the theory heretofore noticed, are too well known to render any observations on this explanation necessary.

As to the wire tests, various suppositions as to how they are attempted have been suggested to me, all of which are based upon the hypothesis that Mr. Brown is simply performing a trick, to which, on that account and for the reasons alluded to above, I must be excused for not referring.

(a) Huxley says, in speaking of the hallucinations of a Mrs. A. \* \* \*: "For there can be no doubt that exactly those parts of her retina which would have been affected by the image of a cat, and those parts of her auditory organ which would have been set vibrating by her husband's voice, *or the portions of the sensorium with which these organs of sense are connected*, were thrown into a corresponding state of activity by some internal cause." (*Elementary Lessons in Physiology*, p. 273.)

(b) The explanation that such selective action may take place by sympathetic vibration, as the vibrations of one tuning-fork are taken up by another in harmony with it, is applicable only if we conceive the ganglionic cells of the corpora striata capable of any electrical *tone*, while each fibre to a cortical cell is capable of but a single one, and that the *wave length* of such tones is in some way altered by modifying the amount of the current, which latter must nevertheless be supposed to pass from the ideational centres of one person to those of another, through all its transfers without change.

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