

CONCERNING SOME THINGS LITTLE UNDERSTOOD.

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IN that this article touches upon debatable points and, in some parts, traverses the borderland between science and metaphysics, the arguments may not be acceptable to all readers. No apology is offered for its submission. It is put forward in no controversial spirit, but, rather, planned to stimulate thought upon subjects which we, as members of a scientific corps, are bound to think about and not infrequently to express an opinion.

A few weeks ago I was staying in the family of one of our officers. They had a child with whom I was soon on confidential terms. The main outcome of that intimacy was that I was made to read constantly aloud from the child's favourite book. That book was called "The Chance World," a book I had not seen since I myself was a child and had long since forgotten. It described a world in which everything happened by chance. The sun might rise or it might not: it might appear at any hour or the moon might rise in its stead. Even the children might be born with one head or half a dozen, and those heads might or might not be on their shoulders but arranged in all sorts of queer situations. If a person jumped up in the air there was no certainty as to whether he would come down again. Further, if he did come down again yesterday there was no guarantee that he would do so to-day or to-morrow. Throughout this odd yet fascinating book every day antecedent and consequent varied, and gravitation and everything else which we associate with what are called natural laws changed from hour to hour. For instance, to-day a child's body might be so light that it was impossible for it to get down from a chair to the floor; while to-morrow, in attempting the effort again, the impetus might drive it through a three-storeyed house and dash it to pieces somewhere near the centre of the earth. The world pictured in this book was all chance, for cause and effect were abolished. In a word, all "law" was annihilated. Like all children, the child to whom this book belonged put me many questions; some were very difficult to answer. Not the least disturbing was the quaint question whether gollywogs and fairies did all the funny things such as we had been reading about. The outcome of the catechism to which I was exposed was that one began to think, and the musings which followed seem worthy of general consideration.

The first thoughts which came to one were that to the inhabitants of such a "chance world" the result could only be that reason would be impossible; in truth, it would be a lunatic world with a population of lunatics, or no more than our present world would be without law or the universe without the principle of continuity. This thought naturally led to the appreciation of the necessity for some principle according to which laws shall actually be continuous throughout the universe. If we, as rational and moral beings, depend on Nature for any given result, we demand a pledge that our intellect shall not be insulted nor our confidence in her abused. The existence of this principle of continuity is demanded as the expression of "the divine veracity in Nature." It is not easy to explain what this principle of continuity is, but it is, nevertheless, so fundamental to human intuition as to be believed by all and acted upon universally. It may be described as the universal experience of mankind upon which the value of all experiment depends, the constant fact that precisely similar effects follow precisely similar causes. The whole of human knowledge would seem to depend upon this being true.

Having framed definite ideas of this principle, the thought quickly follows: since natural laws are continuous through the universe of matter and space, are they continuous through the world of spirit? or, as the child would have put it, could she have so expressed herself, do the fairies and gollywogs live in a world in which there is no continuity of natural laws? The thoughts which arise out of this apparently simple question are many, and lead one on to very difficult ground. Suppose we deny the existence of what we call natural laws and continuity of them in the super-normal world or universe of spirit, we are open to the demand that we must furnish the disproof; but the real question is, are we justified in taking up that position? The answer to this thought was forthcoming from reflections arising out of another incident which may now be discussed.

At a recent dinner party, the conversation drifted, as it so often does in India, to the subject of what is called the supernatural, that is to spiritualism, telepathy, and the whole range of topics classed under neo-vitalism. As one supremely ignorant of these matters, one's rôle was rather that of a listener and learner than that of a critic. Two of the guests were evidently ardent believers in the occult, and one listened with interest to some extraordinary accounts of not only the comings and goings, but of the actions of spirits. As explanatory of these manifestations of the unseen

world much was said of the influence or action of what was described and spoken of as "psychic force." The conversation naturally made an impression on one, but, as one listened and subsequently thought over the question, certain difficulties presented themselves.

One can accept the idea of the passive existence of a spirit alleged to be non-material, as it is clearly beyond our means of examination or proof. But when it comes to hearing that such a spirit was concerned in moving matter and exerted a "vital or psychic force" very grave difficulties arise calling for critical analysis. In the first place, what do we mean by a "force"? A force is but a name for the influence by which a portion of matter tends to change the direction of motion of some or any other portion of matter. If the distribution of matter be known then the forces in operation are known. Since the law of the conservation of energy declares that no force is ever destroyed, but merely transformed into force of another kind, we are face to face with this situation that, if this so-called "psychic force" is consistent with the conservation of energy, we must abandon the view of the conservation of matter. Few of us are prepared to do that. If we assume the existence of any new force we must assume the existence of new matter, otherwise the conception of a new force is meaningless. The neo-vitalists and exponents of what they call "psychic force" would imply that an atom in motion may and does change its direction of motion without a material cause. If this be so, it is quite obvious that the use of the term force is a misnomer and certainly distinct from the ordinary meaning of the word "force." Such a force must act in some direction or other, and since action and reaction are equal and opposite the origin of that force must be affected by the material atom and have a situation in space. In other words, if there be such a thing as psychic or vital force it is endowed with material attributes.

We come now to another question: What evidence have we that such a thing as psychic force exists at all? Practically none. What evidence there is resolves itself into a statement of difficulties associated with explaining alleged phenomena on any other assumption. The only assumption which seems acceptable is that if spirits exist and do acts, their doings are no exception to the general law that every physical event has a cause, that is to say, that it follows or originates from some pre-existing event of the same material character as the other. This may be termed pure

mechanism, and it is argued in favour of a so-called psychic force, as explanatory of certain mysterious phenomena, that it is incredible that these complicated facts should be due to mere mechanical causes. It is more incredible that these complicated facts should be uncaused. There are many things in this world of which we are not able to describe or explain the immediate causes, but the recognition of this fact is no argument in favour of their having no cause at all, or for going out of our way to conjure up a hypothetical cause or so-called "force" which is inconsistent with physical laws and forces of which we have exact evidence.

It may be argued that a mere adherence to mechanism is incompatible with teleology, in that life is purposive and implies a psychological factor or will to live, while mechanism is non-purposive. Let us see how far this is true. Suppose we take natural selection as an example. By this theory every organism is adapted to its environment and evolution renders the adaptation more perfect; surely, then, the purpose of evolution is adaptation? It may be objected that natural selection is not all-sufficient to explain biological evolution; even so, we cannot get away from the fact that it is an operative factor in securing adaptation and that, although mechanical in operation, it leads to purposive results. Here, then, "purpose" expresses mechanism in terms of teleology, and teleology in terms of mechanism. Again, suppose we take any particular flower with some distinctive odour which attracts insects of a particular kind. In the course of evolution those flowers which fail to develop the special odour will not attract the particular insects, and remain unfertilized, while those endowed with the strongest odour will be all the more sure of fertilization and propagation of their kind. Or, suppose we take any one of the many insects which for self-preservation assume by evolution a colour and form resembling a dead leaf. All such insects which fail to look like dead leaves will be seen by birds and eaten without due propagation of their kind. In neither of these instances is there any struggle for existence, and only by a stretch of the imagination can we suppose that either the flower or the insect displays any will to live. Regarded in this way natural selection is devoid of a psychological factor and wholly impassive. We, therefore, come to this, that the purely mechanistic conception is not antagonistic to purpose, and the falling back upon or alleging the existence of a psychic force to explain a cause of events is merely a verbal expression to conceal the incomprehensibility of an alleged fact.

If we could obtain a solution of the problem raised by the

statements of the vitalists and spiritualists we might advance in respect of some metaphysical questions. That solution appears to lie in a consideration of the metaphysical bearings of mechanism or materialism. We all know that a human being is nothing but a complicated machine and that all its actions are explicable from the basis of matter and energy, without introducing or assuming consciousness. Of that consciousness and individuality we are all aware. The question suggests itself, suppose we were able to build up synthetically a living man and were able to ask him "Do you feel?" he would reply "Yes." This somewhat startling thought is surely justifiable, in that this synthetic man is only matter and energy, and that he feels is nothing more nor less than that a certain part of his mass is functioning in a certain way. Without that functioning of his brain he could not feel, therefore the functioning is the feeling; or, to put it another way, the feeling is but matter in motion and this matter in motion is feeling. Conversely, we are compelled to say that feeling is matter. Developing the thought still further, we are forced to admit that the feeling is but a manifestation of consciousness or mind, and as feeling is matter then matter is only a mode of consciousness or mind. At first, this idea is disturbing, but it really need not be so, as we clearly know nothing of matter in the absolute, but know of it only through sense impressions. This brings us to the conclusion that consciousness of mind as an entity must be fictitious, and that, after all, thoughts in the concrete are made of the same stuff as material things are.

Reverting once more to our spiritualistic friends at the dinner-table and their views, we arrive at the conclusion that their conceptions convey a meaning only in so far as they are materialistic, and that the purely mechanistic outlook is not inconsistent with physical or biological facts, and is helpful as to metaphysical questions. The conclusion, however, does not force us to close our minds absolutely to the views and possibility of there being a super-normal world or world of spiritual forms. On the contrary, there is much to warrant the belief that there is such a super-normal world which, to most of us, is an invisible world. To many, the negation of such an unseen world would be painful, and to them the beautiful clause in the Christian creed which speaks of a communion of saints expresses an idea which is full of comfort, especially if they have lost earthly friends or relations to whom they were attached. In writing these thoughts, therefore, one does so with full regard for the feelings of others who may not be attuned to the cold and

hard arguments of what may be called a scientific article. Speaking for oneself, these musings force one to confess a belief in the existence of a super-normal world, but on the condition that such is operating by and through physical agencies. It is true we know little about this super-normal world, but that does not warrant our denying its existence. On the contrary, in spite of the charlatanry which has been associated with its cult, there are some reputable facts which suggest the need to keep an open mind regarding it; the difficulty lies in how we are to explain the many imperfectly understood and recorded facts on a material basis reconcilable with modern knowledge. It may not be time wasted if we think over the question.

In an earlier stage of this article, one has laid stress on continuity. We need to avoid associating or confusing continuity with the duration of an effect. The latter has nothing to do with the former, which concerns only the sequence of causes, and the unexpectedness of any appearance is no index of a breach of continuity. To an uninformed person, the appearance of a precipitate when one mixes a clear solution of common salt with a clear solution of silver nitrate is unexpected and suggestive of discontinuity; but to the informed person the appearance of that precipitate does not suggest breach of continuity. The question is, why should we regard the unexpected appearance of a visitant from the unseen world as suggestive of a discontinuity? To do so is merely to admit we are in the position of the uninformed person who is astonished to see a precipitate result from the mixing of two clear liquids. Similarly, if we burn a piece of paper in a sufficiently hot flame we get smoke and vapour; these are continuous and direct representatives of the paper, there has been no breach of continuity though we have destroyed the familiar material form. Further, it will be conceded that we cannot conceive apparent action at a distance, whether it be gravity, electricity, magnetism, or will-power, without there being a medium for the transmission of the energy displayed, and a still greater difficulty is to appreciate or understand the method by which it acts on our senses.

These difficulties are lessened if we think for a while concerning what we mean by matter, and what we know of the great forms of energy called heat, light, electricity, and magnetism. We cannot think of matter in these days as being merely a something separable into the ordinary chemical elements, or that its constitution is expressible as a grained structure built up of variously sized entities, called atoms. True, the atom is chemically the smallest

amount of matter which can enter into combination, but in the light of our newer knowledge it is a shell of positive electricity within or without which groups of electrons of negative electricity, in varying numbers for each element, revolve with inconceivable velocities under electrical attractions and repulsions. In other words, we can think of the atom as being physically a fixed form, as the result of rapid internal motion, just as the solar system is a physical atom and fixed form. Further, we picture all matter to be composed of these atoms and to be made solely of electricity or something closely allied to it.

When we come to think of heat, light, electricity, and magnetism, we at once admit that they are real, but they have not the properties of matter by which it is ordinarily defined, except, perhaps, of inertia. They are all convertible, but yet cannot be isolated. We cannot even think of them as mere properties of matter. Yet we know that a hot pound of iron weighs the same as the corresponding mass cold, and the same is true if the iron be magnetized or be charged with electricity. We know that glass is opaque to electricity, but transparent to heat and light; all metals are opaque to light and transparent to electricity; almost all substances are transparent to magnetism, while others, like rock-salt, are almost opaque to heat yet transparent to light, and tourmaline allows only vertical light waves to pass through. These accepted facts compel us to think of heat, light, electricity, and magnetism as things permeating so-called matter yet not affecting its mass and weight; also as occupying the same space at the same time, yet not excluded by the densest substances. We are forced to think of the influence of matter in the orthodox sense as extending only as far as its own boundary planes; while heat, light, electricity, and magnetism permeate and radiate in all directions. A further thought, however, reminds us that heat, light, electricity, and magnetism are vibratory in their nature, and as we are convinced that action at a distance without a connecting medium is inconceivable, it follows that all space must be, and [probably is, filled by some medium closely related to these forms of energy. This hypothetical substance we call the aether, and it is in this all-pervading medium that magnetic and electric fields exist; its function is to act as the transmitter of motion and energy both in and to what we are accustomed to think of as matter. We know nothing of the exact nature of the aether, but the more we think of the phenomena which its evident existence explains, the more wonderful it seems. The aether clearly comprehends much for

which so-called matter has no analogues, and, by virtue of transient modifications, is the cause of the properties associated with so-called matter, and possibly under one permanent modification may be ultimate matter itself. This idea involves the conception that, by causes of which we have no knowledge, parts of this aether have acquired rotary motion, and are now the electron-laden atoms of which matter, as commonly spoken of, is constituted. In these atoms are entangled other portions of the aether to which certain other properties of matter are due, and by means of all these properties the universe is perceptible to our senses. Other portions of the aether in space are in simple vibratory motion carrying energy from the sun, which energy is manifested as heat and light.

These thoughts suggest the idea of a new order of existence which, as a whole, may be less complex, and its variations fewer than those of that smaller part of it which, differentiated from the greater part by rotary motion, we call matter. This conception permits us to think of light and heat to be but modes of vibration of the aether, that magnetism is an aetheric disturbance excited by streams of electrons freed from the atoms. It may be that the explanation of gravitation will be on similar lines. Musing in this way, we advance beyond the boundaries of a crude materialism associating matter only with mass or substance, and realize the conception that ultimate matter is represented by an intangible, invisible entity having a differentiating force or power, and from the latter it acquires those properties by which energy is manifest to us. If we can accept these arguments and deductions we must admit there is what, for want of a better name, we may call a soul of mass or substance, as represented by the aether, bound in or permeating substance, and that as the magnet is keyed to the aether so the whole physical universe is keyed to a sub-universe or unseen entity which is an integral of all mass or substance, yet not evident to our senses. The same arguments suggest the further idea that the ultimate cause of variation and of evolution is aetheric or psychic, acting by and through the mind or soul of living substance. If we ask ourselves what is living substance, the simplest definition is an organized aggregate of molecules which unceasingly is shedding old and incorporating new ones. As yet we do not know the force which can induce that mysterious polarization.

The critical reader may here say: But some persons claim and are credited with an ability to perceive evidence of an unseen universe, and, moreover, a very earthly and unscientific or un-

spiritual element characterizes their communications; how is that? Unless that reader has familiarized himself with all the literature bearing on the subject of so-called spiritualistic manifestations, he will be unable to appraise the evidence at its true value. One cannot here summarize what is an extensive literature, but of it this may unhesitatingly be said, that the greater part seems to call for much independent corroboration before it can be accepted. That some persons have the faculty of perceiving what we call the unseen or super-normal world is not inconsistent with truth, and that they are few and far between is not surprising. It is possibly but a question of evolution and that, as generations go on, more and more humans will acquire what one may conveniently call a psychic sense. That these alleged manifestations or communications from the unseen or super-normal world are marked by an earthly taint is a stumbling block to their genuineness, but, if we are judicial, we must admit that it is explicable from the circumstance that, however exalted the knowledge of those who originate the communication, it can only be received in language and form corresponding to the intellectual level of the recipients. For the present, the whole question calls for an attitude of reserve and the maintenance of an open mind, rather than one of direct negation simply because it does not accord with either personal experience or knowledge. It may be, however, not unprofitable to consider how far the alleged spiritual or neo-vitalistic phenomena are consistent with our knowledge.

The arguments so far bring us to the conclusion that mind and matter are not antithetical but rather parts of one great universe of substance. We also conclude that heat, light, and magnetism are mere modes of and definitely connected with the aether or soul of substance. Is it too much to assume that when the nature of this aether is better understood the mechanism of so-called occult phenomena may be plain to us? Suppose we consider the hypnotic phenomena. We are all familiar with the theory of the ordinary magnet. An unmagnetized steel rod consists of atoms which are potential magnets, but all the atoms are faced anyhow. If we stroke this rod with an already formed magnet then the atoms of the unmagnetized rod all face round one way and it becomes magnetized. We cannot say that anything has left the originally magnetized rod nor has anything been added to the newly magnetized rod, at most the forces resident in the latter have been directed. Some energy has been expended, but the original magnet is not weakened. We are unable to affirm

that the human body is composed of magnetic atoms exactly like those of the steel bar, but it is not unthinkable that the regular polarity of the human body may be similarly affected. This analogy goes far to explain some authenticated facts regarding therapy by human magnetism. The same analogy helps towards an understanding of hypnotic control. We know that a magnet has no special affinity for the iron as iron, but only for the contained magnetism. The magnet controls the "soul" in the iron, and any variation in quality or strength of the magnet is reflected or reproduced in the iron rod. If thought be a disturbance of the aether affected by animal or human magnetism, is it too much to suppose that a similar polarization of two organisms may go far to explain any transfer of thought between them? Of course, there are many gaps to be filled before we can explain the details or even give it unqualified acceptance; at present, we get over the difficulty by saying it is all "suggestion," which is synonymous with direction or control. Still, the possibility of something more than suggestion is probable when we remember that what we call our senses are nothing more than reports of certain tissues correlated to certain vibrations, and that there are many vibrations of which our senses give no report.

If we analyze the more reputable accounts of automatic writing and speaking we find much to suggest that these are phenomena similar to the hypnotic facts. The essential difference is that the agent or sensitive person is said to be mesmerized either wholly or in part. These are alleged facts difficult to explain otherwise than on the assumption that the so-called agent or medium acts in the personality of what might be called a controlling aetheric; if so, then we can only assume it is the magnetism of this invisible visitant which causes the involuntary words and acts of the medium. Where phenomena indicative of the underlying consciousness are exhibited, such as clairvoyance, clairaudience and precognition, we can only think of them as being due to the receptive faculty of the super-normal conscious element in us picking up vibrations of the aether which are unperceived by the normal consciousness. How many of us are able to deny that these super-normal sensations have never been felt by our normal personality when we give it opportunity for intro-cognition? Probably few, in spite of the rarity of the occurrences. One is tempted here to quote the following words from Kant,¹ which indicate that even so acute a

¹ Kant's Works, vol. vii, p. 32.

philosopher was not unattracted or repelled by such a view. His words are, "that also in this life the human soul stands in an indissoluble communion with all the immaterial beings of the spiritual world; that it produces effects in them, and in exchange receives impressions from them, without, however, becoming humanly conscious of them so long as all stands well."

Perhaps the most astounding and most difficult phenomena to think seriously about were the accounts which one's friends at the dinner-table gave of manifestations such as levitation, apparitions, the tying of knots in endless cords and the apparent penetration of matter by matter. One was tempted to smile and merely dismiss them as a farrago of nonsense accepted by credulous and illusioned people; but this attitude is hardly scientific and, as they were seriously vouched for, one could not avoid thinking them over and endeavouring to explain them, if possible. It is not easy to do so, but one's thoughts have run somewhat as follows. One remembers well a demonstration in a school class-room, in boyhood days, when a key was shown floating in the air, some nine inches from and yet anchored as it were to a table by a piece of string. This was, of course, but a well planned experiment to bring home to us the magnetic attraction of an electro-magnet. It made a great impression upon us all, and many of the smaller boys, who did not understand all that was involved, were fully convinced that what they had seen was magic. As one thinks over these alleged cases of levitation one can only conclude that we can give no explanation, and that one is in precisely the same condition of one's smaller schoolfellows who, at that demonstration, did not know or understand all that was involved in the phenomenon they saw.

One has never seen an apparition, though one has heard very succinct accounts of these materializations of the super-normal world. They present great difficulties, especially as we, living on a material or phenomenal plane, cannot comprehend anything as a reality apart from what we are accustomed to call matter. Maintaining the same attitude of open-mindedness and desire to explain what we do not understand, the only solution or partial solution of the difficulty seems to lie in framing an analogy from mathematics. In fact, it affords the only means of explaining the occurrence of a new order of being or any series of successive orders of existence. A point is self-centred and has no dimensions; if that point moves, it traces a line, which then has one dimension or length. Suppose that line moves, it traces out a plane, having two dimensions of length and breadth. If that plane moves, it traces out a cube or

other solid figure which has three dimensions of length, breadth and thickness and is bounded by planes. It is evident that the dimensions of length, breadth and thickness are not entities, but merely aspects of substance. Line, plane and solid figures are equally unreal, and except by the aid of substance are inconceivable. Now, if we imagine a point world, with a number of lines surrounding it, but whose consciousness is bounded by itself, then not until a line enters those limits can it be apparent to the point. In the same way, in a line world whose people were cognisant of only north and south, any number of planes might surround them, but they would not be seen until they entered that world, and even then only as a succession of lines coming suddenly from space and disappearing again. Similarly, we can think of a plane world whose people appreciate north, south, east and west. To them a figure of three dimensions could only be known by that part of it within range of their faculties. The approach of a sphere to such a people would be first as a small circle, then that would grow larger till its maximum diameter was reached, gradually it would lessen and finally disappear. Just as the sphere would appear to the people in a plane world as a plane figure (circle) suddenly coming from space, so an apparition from the super-normal world coming into the normal world can appear only as a material form, perhaps of greater or less tenuity, but all the same substantial.

It must be remembered that these mathematical analogies make no reference to the interior of any solid, which is a mere fixed form, unrealized in substance and also as imaginary as the point of no dimension or the plane of no thickness. Since each dimension is made visible by means of the next lower dimension, as the solid by planes, the plane by lines and the line by points, so a "body" is manifest or visible by the motion of a form and bound by fixed forms. If the analogy is correct, then this "body" is nothing but substance. On the modern electronic theory, all substance is made up of atoms, which are small but definite spaces or fixed forms retaining their form because of their motion and by virtue of the aether or true and ultimate matter, and around them are the apparent centres of forces which are the cause or source of the properties of substance, such as chemical affinity, colour, heat, light, and magnetism. These properties or manifestations of substance are synonymous with energy, and this brings us to a concept of the nature of the super-normal or unseen world. For, though energy is ordinarily apparent by the visible motion of the aether or ultimate matter, it is not necessary that the motion should be visible as such any more than the motion

of an atom is visible, but only that fresh motion of some kind be superadded. This brings us back to the concept of the soul of both living and dead substance, which is the aether, and, if Mendeleeff's theory be true, the aether itself is composed of particles and it is those aetheric particles which form or build up the electrons of the atom. The "soul" of vegetable and animal substance is confined within the limits of its own nucleated cells or forms, though it may radiate influence outside those cells or forms. The "soul" of dead substance is confined within the limits of its atoms or fixed forms. Planes limit forms, lines limit planes and points limit lines. In all these cases, the addition of new motion raises the manifestation one degree, and in each instance the persistence of the form depends on the persistence of the originating motion. The mathematical analogy, therefore, still holds good.

It is legitimate here to remark that when a well-known face is said to have appeared in the air and then vanished it suggests a creation and disappearance of matter; but it is not necessarily so any more than the formation of rain or snow from invisible water vapour implies the creation of new matter. Probably most of the alleged apparitions are subjective, the effect being produced by something acting on the brain of the perceiver, who interprets in terms of sight or hearing, and in a form of matter which he and his world know. We see here why nearly all apparitions are anthropomorphic, simply because no other would be understood. Without committing ourselves to the opinion that it is so, we can deduce from the foregoing analogies that, just as an appearing line would be above or below a perceiving point, and an appearing plane on either side of a line, and an appearing solid all round that part of a plane into which it entered, so an aetheric order of being is around and within a mundane being. The enthusiast would add that this aetheric order of being is not limited to any place, but manifest anywhere by and in appropriate substance. As we cannot disprove it, he is entitled to his opinion.

As for the tying of a knot in an endless or closed cord, that seems just as impossible and inexplicable to us who live in a space of three dimensions as would be the tying of a knot in an open cord for beings living in a space of two dimensions. To a person conditioned by two dimensions of space, an ordinary circle would appear to be a perfectly closed space, though it seems to us, who are conditioned by three dimensions, to be an open one. If we think it over, the access to the interior of a space which seems closed to us may require and probably does require fourth

dimensional powers; if this be so, then the fourth dimensional power, may be no more wonderful to us than a third dimensional would be to a person having knowledge or perception of only two dimensions, and, consequently, may not involve any real interpenetration of matter by matter. A consideration of the mathematics of this question suggests that a fourth dimension may be referred truly to substance rather than considered as an axis of spatial measurement.

To be told calmly, as one has been, that signed and witnessed documents testify to the passage of a solid body through a wall or door by means of super-normal agency, makes a severe call upon one's powers of reason. It clearly implies that matter seems to penetrate and even disappear in other matter, which seems incredible. Here again are we to disbelieve it simply because we cannot understand it? One is very tempted to do so, but then if we are logical we should disbelieve the following, which is a matter of common knowledge. A gramme of oxygen at -200° C. occupies 0.807 c.c. A gramme of sodium at ordinary temperature occupies 1.015 c.c. These two elements combine in such proportion that 46 gm. of sodium occupying 46.7 c.c. unite with 16 gm. of oxygen occupying 12.9 c.c. The sum is 59.6 c.c.; but 62 gm. of the compound occupy only 21.7 c.c. Nearly 38 c.c. have disappeared and we cannot explain the disappearance as due to pressure, for both sodium and liquid oxygen are incompressible. In this case, which is an accepted chemical fact, it is difficult to deny interpenetration of matter. If we deny in the one case we ought to deny in the other. One is not prepared to advise, but it is typical of some of the difficulties associated with this question and suggests a need for caution and the maintenance of an open mind when dealing with matters which profess to relate to a super-normal world. At the best, we can only say "not proven."

In closing this review with that verdict, one does so impressed with the inadequacy of one's treatment of the subject. The childish prattle of a little girl about her book and the ardent views of adults concerning things which are still largely mysteries have suggested a train of thoughts which may be of use to others when placed in a like situation. One has endeavoured to invite attention to psychic phenomena which at once attract the credulous and bewilder or irritate the sceptical. Frankly, one is of the latter, but matured reflection compels one to admit that, whatever the explanation of the phenomena be, we are in the presence of facts

which, though we may be sceptical as to their accuracy, still are of a nature to demand no off-hand attitude but rather sympathetic thought. Our difficulties lie in the use of the term matter or material. It may be that there is something wanting in our conception of the universe. We know that there are two kinds of electricity, each kind attracting its opposite and repelling its like. May there not be two kinds of matter as there are two kinds of electricity, that is, terrestrial and non-terrestrial matter—the one gravitating towards its own kind, and the other repelled from the substances of which earthly things are made? The fact that we are not acquainted with such matter does not prove its non-existence. Modern astronomical research suggests that many ill-understood anomalies concerning star movements will be and can be explained only on the basis of such a conception of a mutual repulsion and attraction of so-called matter. So long as our conception of matter is limited to gross material we can find no basis for any connexion between the alleged spiritual or super-normal manifestations and matter. If there be no connexion, or the absence of connexion involve the abandonment of the law of conservation of energy, then the idea of a sub-universe or unseen world is unacceptable and unthinkable. If, on the other hand, modern knowledge or the electronic theory of so-called matter be correct, then we can arrive at a conception that matter is synonymous with the aether, which is associated with all physical phenomena and permeating all material things. Of the nature and properties of that aether we have only partial knowledge; but, if the aether be ultimate matter, such knowledge as we do possess concerning the aether goes far to remove many of the difficulties which have stood in our way towards giving any sympathetic attention to the statements of those who believe in super-normal phenomena. It at once couples up those alleged phenomena with accepted physical phenomena on a basis consistent with physical agency, and does not violate the essential law of the conservation of energy. If this interpretation of the facts be correct then our difficulties are removed as to the existence of a sub-universe to which our phenomenal world is keyed, and that view is without prejudice to the accuracy or genuineness of the alleged phenomena of that sub-universe. Of these we may still say “not proven.”

Apart from what has been said, the whole subject presents other wider and deeper aspects; these one has been careful to avoid discussing as they are unsuitable for our Journal, still the thoughtful reader will appreciate how much the facts bear on the greater

problem whether the human soul is but a name for the sum of vital functions, or has an objective existence, embodied and disembodied. One has endeavoured to be both logical and judicial, and, perhaps, the effort will not have been unprofitable if it do no more than stimulate thought upon matters which, despite the charlatantry with which they are associated, suggest both a message and a philosophy which some of us are apt to overlook. The message is, assuming that there are aetheric personalities associated with and surviving each human being and co-substantial with the causative energy, then man is now as immortal as he ever will be, and the conviction of this persistence after death is the intellectual warrant for all morality and altruism. The philosophy is, that if we are satisfied of the existence of a spirit world, then man has a direct normal access to the creative power, and that perfect spiritual relations can only be presented adequately in a perfect life, and that the perfect life will be a perfect reply to its circumstances.