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ARTICLE I.

THE MORALITY OF ACTIONS, VOLITIONS, DESIRES, EMOTIONS, COGNITIONS, AND DISPOSITIONS.

1. According to Paley, in his Natural Theology, the best way to introduce a large subject is to propose an individual case. We will suppose, then, that a man takes from another, by force or by stealth, some article of food, not in order to preserve his life or health, but merely to gratify his palate. This is certainly a case of wrong doing; and two questions arise, viz.: What is wrong, and why is it wrong? The ancient mode of statement sounds rather scholastic, but it has the merit of being very precise. We may inquire, what is the material cause of sin, and what is its formal cause? The material cause of the pen with which we are writing, is the steel of which it is composed; and the formal cause is the shape into which the steel has been fashioned, and which makes it a pen instead of an amorphous lump of metal. The present article will be devoted to the former inquiry, namely, What that is in which the quality of morality inheres?

2. It is hardly necessary to prove that sin is a quality, not a substance. Indeed, this does not seem to admit of proof; it is an intuitive conviction. The Gnostics and the Manichæans, according to Hodge—Theol., Vol. II., p. 132—held that it was a substance, an eternal *ὕλη*, or matter. The same writer quotes Augustine as saying that “Manes, following other ancient here-

ARTICLE V.

AN EXAMINATION OF CERTAIN HYPOTHESES
CONCERNING PERCEPTION AND SENSATION.

No discussions, probably, have ever excited greater interest amongst psychologists than those which have for their end to determine the precise character of that act by which we have, or suppose that we have, a knowledge of the external world.

The first topic connected with this general subject to which we would call attention, is the question, *whether we have an immediate knowledge of a material world.*

To the great mass of mankind, no question seems easier to answer. Were it left to be decided by a vote, we should have an overwhelming majority in favor of the affirmative. On the other hand, amongst philosophers, scarcely anything has raised more doubt, or given birth to more perplexity. The result is, that there are very few of those who have made an especial study of the subject, who have not arrived at the deliberate conclusion that we have no immediate or direct cognition of matter. Those who allow any knowledge whatever of a material world, contend that it is known only mediately, by and through ideas. These philosophers are known as hypothetical realists, inasmuch as, in their creed, the reality of a material world, as distinguished from the world of ideas, is only an hypothesis; while the very small minority who have vindicated the popular conviction, are called, in contradistinction, natural realists.

The inquiry here is a pertinent one, what importance are we to attach to the almost universal suffrages of the learned? Are we to surrender our irresistible conviction to their opinion? Are we to yield the point to their superior gifts and their more intense and thorough investigation? Or shall we raise the standard of rebellion against authority and say that though hypothetical realism may be very good metaphysics, it is not common sense?

This latter course is, we presume, practically the course of all. It may well be doubted whether this is not the thought of even the hypothetical realist himself, as he walks forth upon the green

earth, or handles what he chooses to call ideas, but what his more ignorant neighbors take for realities. It would require, not a "slight," but a very strong "tincture" of philosophy to hold in abeyance the instinctive conviction of the mind, in the presence of nature, that we have a direct knowledge of material objects.

Let us not linger here, however, dallying with such considerations as these, but pass with the philosopher into his sanctum, where the obtrusive world is found to be less troublesome, and learn from him there, why he feels constrained to deny what all men naturally believe. Let us, moreover, make up our minds definitely, that we shall lose nothing by accepting the truth, whatever it may turn out to be. But let us wait for proof, without which we should bow before no authority. Upon what grounds, then, does the hypothetical realist feel constrained to reject the seemingly unequivocal deliverance of our senses?

Does he undertake to decide the question by an appeal to experience? Then he must show us that a more accurate analysis of the phenomena of perception evinces that what we mistake for a cognition of matter is not such, but the cognition of an immaterial idea. But in order to reach such a result, there must be a discrimination of what is an apparent cognition of matter but no more, from a real one. The only way in which this can be done, is to bring before the mind both these cognitions; for, according to the teachings of these same philosophers, no two things can be discriminated without a knowledge of both. It would be necessary, then, to allow to the mind the very cognition in question, before it could be proved by our experience that what we mistake for it is not really such. To claim that the dogma can be thus ested, is to surrender it unconditionally.

If, then, the hypothetical realist would correct our ignorance he ought to be able to appeal to another test than this. And this he claims to be able to do. Indeed the method by experience is a very contemptible thing in the eyes of the majority of those who have undertaken to settle questions of this character. They have a more excellent way than this, and that is the *a priori* method.

Let us examine its application to the point in hand.

It promises no such half-way results as that "mind *does not* know matter directly." It yields a necessary principle instead. "Mind *cannot* know matter directly." In order to the establishment of such a proposition as this, we must be able to trace it to intuitive principles or axioms to show that it follows, by necessary consequence, from them. The question now arises, to what intuitive principle or principles—to what axiom or axioms—can this sweeping statement be traced?

In answer, it may be said that by one and another philosopher, five different axiomatic principles have been supposed to justify this proposition. Of these, however, only one has been very potent. Since it has been deemed satisfactory by the great majority, it seems to be more worthy of consideration than any of the others. The principle in question is this: "No substances, entirely dissimilar, can affect each other directly." All who accept this proposition, and, at the same time, regard mind and matter as substances essentially dissimilar, are compelled, by the laws of thought, to conclude that "mind cannot know matter directly." There is nothing left us but to accept the conclusion, or question the principle which justifies it.

If we become so rash as to ask for proof of the proposition that "substances entirely dissimilar cannot affect each other directly," we are upbraided for our folly in demanding proof for a necessary truth. But if this be a necessary truth, its contradictory must be absurd. Its contradictory is the proposition, "some substances, which are entirely dissimilar, can affect each other directly;" and the question to be determined is, whether it is seen, either directly or by its consequences, to involve an absurdity. We dare say no one finds it impossible to construe it, in thought, as true. Indeed, the very conviction of mankind under discussion, cries out with many voices, and says it is true. Besides, there are innumerable analogies in nature which seem to indicate unequivocally that the more different any two things are, the more easily do they affect each other without the mediation of anything else. This being true, until some one shall condescend to prove that it leads necessarily to absurdity, we think all unbiased minds will refuse to accept its contradictory as an axiom.

It would seem, then, to be too much to demand that we surrender the witness of our senses, repeated a thousand times every day, at the beck of a pseudo-axiom, simply because it has been supported and defended by great names in philosophy.

We pass now to another question, concerning which the popular opinion is just as positive and fixed, but which opinion is even more earnestly contradicted by the deliverances of philosophy. The question referred to is, *whether the mind has any immediate or direct knowledge of objects distant from it in space.*

We must not here expect to find philosophers ranging themselves as before; for of those few who, in the other dispute, were the champions of the popular conviction, almost every one deserts at this hard saying, and takes his place in the opposing ranks. Even Sir W. Hamilton, the great defender of natural realism and apostle of common sense, answers emphatically in the negative, and thus turns his back upon that same popular belief to which he had so confidently appealed against the hypothetical realists.

In pursuance of our determination to receive nothing upon authority, it becomes us to ask again for the grounds upon which a direct knowledge of distant objects has been denied to the mind. We must point to *a priori* arguments here, as before, by the use of which the effort is made to demonstrate that such knowledge is, in the very nature of the case, impossible. And again we meet with a so-called axiomatic principle which is supposed to settle the question. This is nothing else than the brocard, "nothing can act where it is not." The assertion that the mind can know nothing directly, which is distant from it in space, is but a specific application of the general principle.

This maxim, that "nothing can act where it is not," or, as it has been differently expressed, "*actio in distans* is impossible," has played a conspicuous part, in times past, in the speculations of physical philosophers as well as those of metaphysicians. Sir Isaac Newton, for instance, regarded it as a sure mark of the absence of a competent faculty in philosophical thinking, that one should not regard it as absurd that "one body may act upon another at a distance, through a vacuum, without the mediation of anything else, by and through which their action and force may

be conveyed from one to the other." But notwithstanding so decided an opinion from so great a man, let us see whether we can escape the admission, even in the case of brute matter, that action at a distance is not only possible but actual.

If we, under the guidance of the physicist, study the inner structure of masses of matter, we learn that they are made up of atoms, no two of which are in absolute contact. For if they were in absolute contact, the bodies so composed would be absolutely incompressible. But there are no such bodies. In addition, the phenomena of cohesion and elasticity prove that these atoms attract and repel each other, at certain fixed distances. Let us now imagine two atoms brought within the sphere of each other's repulsion. They are not in absolute contact; otherwise they could not be brought nearer to each other, which, however, can be done. The question is, how do these atoms act upon each other, over the interval which separates them? We either have here a case of "*actio in distans*," or there is something else between them, "by and through which their action and force may be conveyed from one to the other."

This latter alternative has been chosen. An extremely attenuated and highly elastic form of matter, called "*ether*," is supposed to occupy the interval and mediate between the atoms. But this ether, being elastic matter, must also be made up of atoms, between which there are intervals. Now, how do these ether atoms act upon each other over the relatively immense distances which separate them? Shall we hypothecate another ether more subtile, by and through which the action of the grosser ether atoms may be conveyed from one to the other? Then may we go on to infinity. Shall we, in despair, cast the burthen upon *force*, an immaterial agent, and leave it to do the work? But where resides the force? In the atoms themselves? Then it acts across the interval between them, and we have "*actio in distans*." Does it occupy an intermediate position? Then it acts, at a distance, upon the atoms, in either direction. Is it diffused between the atoms? Then it is extended. But that which is extended in space is material, and is made up of atoms, between which there are intervals. So that we have returned to the

point from which we started. If we give up the rigid atom, and substitute the conception of a "centre of force," we gain nothing; action at a distance clamors still for recognition.

Now, if it be true that "inanimate, brute matter," can and does act at a distance, with naught to mediate that action, who shall say that mind—active, living mind—that which of all finite things most faithfully shadows forth the ceaseless activity of the Infinite—who shall say that mind cannot know aught at a distance?

But, further, there is a difficulty of no slight importance in the way of those who, while they maintain that we have an immediate knowledge of matter, deny that the mind can know that which is distant from it. The difficulty lies in seeing how it is possible to say that the mind can directly apprehend extension, which is implied in the cognition of matter, without knowing, at one and the same time, that which occupies more than one point in space. Extension cannot be thought at all without conceiving two points, at least, as out of each other; that is, separated from each other. Hence it cannot be directly cognised, or perceived, without a direct cognition of at least two points as out of each other. But extension is an essential quality of matter. Therefore the same cognition is imperative in order to a direct cognition of matter.

There is only one supposition which can relieve this difficulty, and that is, that the mind can be present at more than one place at the same time. This relief has been seized upon by the philosophers in question; and hence they have promulgated the doctrine that the mind is all in the whole, and all in every part of the animated body, and therefore can know it as extended. We quote the language of Sir Wm. Hamilton upon this point: "There is no good reason to suppose that the mind is situate solely in the brain, or exclusively in any one portion of the body. On the contrary, the supposition that it is really present *wherever we are conscious that it acts*—in a word, the peripatetic aphorism—*the soul is all in the whole, and all in every part*—is more philosophical, and consequently more probable, than any other opinion. It has not always been noticed by those who deem themselves the

chosen champions of the immateriality of the mind, that *we materialise mind when we attribute to it the relations of matter*. Thus we cannot attribute a local seat to the soul without clothing it with the properties of extension and place; and those who suppose this seat to be but a point, only aggravate the difficulty."

It will be noticed that we have here an hypothesis to account for the fact that we know different parts of our own bodies, in the same instant of time; and an argument to prove the necessity of the hypothesis. This argument consists of two allegations. The first is, that it is more philosophical to suppose that the soul is where it acts, than that it acts at a distance. The second is, that we materialise mind when we attribute to it a local seat; and this we are said to do when we confine it to one part of the body.

Now, as to the first of these, it is true only upon condition that it can be shown that nothing can act at a distance. Then it cannot be more philosophical to say that the mind is always where we are conscious that it acts than to admit that it may act where it is not. As to the second, that we materialise mind by giving to it a local seat, and thus attributing to it relations in space, it would seem that this could be of value in the present case, only provided that the hypothesis proposed did not attribute to the mind relations in space. But, in the language of the hypothesis, the mind is "*all in the whole and all in every part*" of the body. It is *in* the body, then, as contradistinguished from being *out* of it. Now, if it can be said to be in the body, and not out of it, it stands related to the extension of the body. And the relation sustained to the extension of the body is different from that sustained to the extension outside the body. The truth is that to deny that the mind has any relations in space, implies the assertion that it is *nowhere*. But these philosophers are so far from allowing that the mind is nowhere, that they tell us that it is all of it *in* the body! How the "aggravated difficulty" of asserting that the mind is confined to a point is relieved by an hypothesis which confines it to a definite portion of space, we cannot imagine.

Moreover, let it be distinctly borne in mind that all who be-

lieve in the immateriality of mind, must regard it as an inextended monad. How it is possible for it to be in more places than one at any given instant—how, while it is all in the head, it is also, all of it, in the hands and the feet—this hypothesis does not inform us. To most minds, we make bold to assert, such a supposition involves a flat contradiction. The difference, then, between saying that the mind is all in the whole and all in every part of the body, and that it is confined to some one place or position, is not that the former attributes to the mind no relations in space, while the latter does, but that the former attributes contradictory relations to it, whereas the latter does not.

We are aware that a similar mode of speaking is in use, with reference to the divine Omnipresence. It is not our purpose to apply to it the same canons as to that concerning the human spirit. There is clearly this difference, that no theologian has ever taken upon him to assert that the Divine Being, though all of him present at every point within a certain definite extension, is not present, in the same sense, to points outside that extension. To make these two assertions, and supplement them by a third statement, that he bears no relations whatever to space, would be to make the two cases parallel, in which event, it seems clear we should have a contradiction.

Having now seen that it is irrational, and therefore unphilosophical, to maintain that the mind can have an immediate knowledge of that which is extended without, at the same time, having an immediate knowledge of that which is distant from it in space, we come to consider *whether we have an immediate cognition of objects outside of and at a distance from our own bodies.*

It is scarcely necessary to state that here again popular conviction and the deliverances of philosophy are in direct opposition to each other. Sir Wm. Hamilton earnestly maintains that “the primary qualities”—and be it understood that he holds that only the primary qualities can be immediately known—“the primary qualities of *things external to our organism*, we do not perceive, *i. e., immediately know.* For these we only learn to infer from the affections which we come to find that they determine in our organs—affections which, yielding a perception of organic exten-

sion, we at length discover, by *observation and experiment*, a corresponding extension in the extra-organic agents." (Reid's Works, p. 881, Note D*.) Passages to the same effect might be multiplied, but this is unequivocal, and therefore sufficient.

But why should we accept this statement of the philosopher? The answer given to this question may be briefly stated, and is to this effect: that we cannot know directly or immediately anything as extended, except as we localise in it a sensation or sensations. We quote again from the same author: "Sensation proper is the *universal condition* of perception proper. We are never aware of the existence of our own organism, except as it is somehow affected, and are only conscious of extension, figure, and the other objects of perception proper, as realised in the relations of our sentient organism as a body extended, figured, etc." Again: "Sensation proper is the *conditio sine qua non* of a perception proper of the primary qualities. For we are only aware of the existence of our organism, in being sentient of it as thus and thus affected; and are only aware of its being the subject of extension, figure, motion, etc., in being percipient of its affections as like or unlike, and as out of, or locally external to, each other." (Reid's Works, p. 880.)

Before proceeding further, it is necessary to determine the exact signification of the term *sensation*, as it is used in these passages.

Locke, and other philosophers before Reid, employed the word to indicate the entire process by which the mind, through and by the senses, takes cognisance of the external world. In this usage, it included not only what is now known as sensation proper, but perception proper also. It is scarcely necessary to say that it is not used, in this sense, in the passages which have just been quoted.

Dr. Thos. Reid sharply distinguished between sensation and perception. In his philosophy, "sensation is a simple and original affection of the mind," having no localisation in the body. Rising into consciousness, when an external object is properly correlated with an organ of sense, it becomes the "natural sign" by which the mind is enabled, in a manner utterly inexplicable,

to conceive the external object as endowed with such and such qualities. This latter—the conceiving the external object—he calls perception.

Sir W. Hamilton, though laying out his strength to prove that Reid was a natural realist, could not fail to see that such a doctrine as that just stated affiliated his great countryman very closely with the hypothetical realists. He, therefore, explicitly declares that he does not use the term in this sense. “On the contrary,” says he, in distinguishing his usage from that of Reid, “On the contrary, I hold that sensation proper being the consciousness of an affection not of the mind alone, but of the mind as it is united with the body, that in the consciousness of sensations *relatively localised* and reciprocally external, we have a veritable apprehension, and consequently an immediate perception of the affected organism as extended, divided, figured, etc.” (Reid’s Works, p. 884.)

Another point which it is important should be settled at this stage of the discussion, is to which of the three classes of mental phenomena, viz., cognitions, feelings, or conation, sensations are to be assigned.

Sir W. Hamilton settles this question for us in his forty-fifth Lecture on Metaphysics. He there assigns them to the class of *feelings*, and distinguishes them from the other species of feelings—the emotions—in that they are localised in the body, whereas the emotions are not.

We may, then, define sensation, in the Hamiltonian and proper sense of the term, to be *a feeling localised (more or less definitely) in the sentient organism or body.*

Now, if this definition be accepted, and, at the same time, it be true that we perceive or directly know as extended—only that in which we localise sensations, it follows irresistibly that we cannot immediately cognise any thing as extended outside our own sentient organisms.

The simple question, then, is *whether a localised feeling is the universal condition of perception.* If the affirmative be established, it must be admitted that we cannot know immediately ob-

jects outside our organism. If it be not established, the main question is relegated to the test of experience.

Our first step is to find out what are the teachings of philosophy as to the relation between *cognition and feeling*. Wherever we turn, we find but a single opinion; and that opinion is best given in the words of the author from whom we have cited the preceding passages. "The faculty of knowledge," says he, "is certainly first in order, inasmuch as it is the *conditio sine qua non* of the others;" *i. e.*, of the feelings and the conations. Again: "The order of these is determined by their relative consecution. Feeling and appetency suppose knowledge." This language clearly means that, given any particular feeling, we must admit that, in the order of nature, it was preceded by a corresponding cognition. This view of the relation of cognition and feeling, we think we may presume to say, cannot fail to commend itself to the mind of any one who has a competent knowledge of the subject. Now it would seem that one of the three following propositions must be accepted, and, by consequence, the other two rejected. Either,

1. Perception and sensation are not, respectively, cognition and feeling; or,

2. A given cognition is not always antecedent in the order of nature to, the *conditio sine qua non* of, the corresponding feeling; or,

3. Any given perception is antecedent in the order of nature to, the *conditio sine qua non* of, the corresponding sensation.

But it has already been shown that Sir Wm. Hamilton, in one portion or another of his work, and as it suits the end in view, denies them all. In other words, he maintains that any given cognition is antecedent, in the order of nature, to the corresponding feeling, and that any given sensation (a feeling) is antecedent in the order of nature, to the corresponding perception, (a cognition.)

We have very earnestly endeavored to see if, in any possible way, the apparently flat contradiction involved in maintaining that cognition is the condition of feeling, and sensation the condition of perception, can be removed. The only possible way of

reconciliation, though one which, so far as we are aware, has never been proposed, would be to fall back on Hamilton's peculiar doctrine of consciousness. All who are familiar with his writings will remember that he regards consciousness as a genuine faculty. All our mental phenomena, according to his system, whether they be cognitions, feelings, or conations, are specific products of the mind, containing one common element, that of consciousness. This element, which, so to speak, underlies all the mental phenomena, might be said to be antecedent, in the order of nature, to them all, and by consequence, to the sensations. Now, consciousness, according to Hamilton, is of the nature of cognition. Every sensation, then, might have cognition (*i e.*, consciousness,) as its condition, and still be the condition of the corresponding perception. This would, probably, be satisfactory to those who accept the Hamiltonian doctrine of consciousness.

But let us see what is involved in making consciousness the genus of which the other mental phenomena are the species. We suppose that no one will undertake to deny that the species contains, as an essential element, all that is contained in the genus. Now, if the feelings be a species of which consciousness is the genus, then the feelings, containing essentially all that consciousness contains, must be pronounced to be cognitions, because, according to Hamilton's own statement, consciousness is of the nature of cognition. So, also, acts of will shall turn out to be essentially cognitions. This doctrine of consciousness, then, destroys the distinction between the three classes of mental phenomena. Instead of cognitions, feelings, and conations, we have cognitions, cognitions, and cognitions! Either this conclusion must be admitted, or the doctrine that consciousness is a generic faculty must be given up. To offer the above plea, then, only transfers the difficulty one step further back, and leaves it insuperable as before. It would seem, therefore, that we are shut up to one of two conclusions; either cognition is not the universal condition of feelings, or perception is the universal condition of sensation. The former of these cannot be admitted, therefore the latter must. That is, so far from sensation's being

the *conditio sine qua non* of perception; perception is the *conditio sine qua non* of sensation.

Just at this point, in order to prevent possible misunderstanding, it may be well to state that there is no intention whatever to deny that there is a *conditio sine qua non* of every act of perception. The only thing denied is that sensation is that condition, inasmuch as the relation is just the other way. It would be the height of folly to undertake to maintain that the mind, while in the body, cognises external material objects independently of all modifications of the organs of sense. On the other hand it is a fact, beyond all doubt, that there is physical modification of the appropriate organ as the condition of every act of perception. Now it is true, that some thinkers have abused language to the degree of calling this bare physical modification a sensation. This, however, deserves no notice. What is denied is that the physical modification is translated into a *felt* affection of the organism, in order to the cognition of that organism as extended.

Notice, further, that this statement does not imply that the perception is *chronologically* antecedent to the sensation. There is no doubt but that the perception of the organism, as extended, and the recognition of the feeling which is localised in it, are chronologically coincident. The only question is, whether the having the feeling, does not imply a knowledge of the locality in which it is recognised. It is the affirmative of this question which has been maintained.

Having now seen that it cannot be maintained, in consistency with the teachings of sound philosophy, that sensation is the universal condition of perception, it follows that no valid argument can be drawn from this source to prove that we cannot have an immediate or direct knowledge of distant objects.

Let us now confine our attention to the sense of *light*, which is, by all psychologists, admitted to be superior to the others in its perceptive powers, and see how the phenomena of vision have been explained by those who deny an immediate knowledge of the distant.

It will be admitted, on all hands, that we know objects by

vision only as they are colored.* What is color, then? If we turn to the philosophers, they will tell us that it is a sensation. "Color, in itself, as apprehended or immediately known by us, is a mere affection of the sentient organism; and therefore, like the other secondary qualities, an object not of perception, but of sensation, proper. (Hamilton's ed. of Reid's Works, p. 885.) That in bodies which is the cause of the sensation is occult, unknown. Light, reflected from an object, falling upon the retina of the eye, produces sensations in it. These sensations, being recognised as out of each other, become the condition of the perception of that portion of the *sensorium* of which they are the affections. This is the sum total of the immediate or direct cognition. Afterwards, we learn by "*observation and experiment*," that these sensations, recognised as out of each other, imply the extension of external objects to which belong the occult quality which is their cause. Now the simple point to be determined is, *whether color is a sensation in any sense consistent with natural realism.*

We have already had under discussion the teachings of those who deny to the mind any direct knowledge of the external world. All these philosophers interpolate a *tertium quid* between the mind and the external object, which, rising into consciousness, enables the mind to form a notion of the object. Some of these philosophers call the *tertium quid* an "idea;" others call it an "*impression.*" Reid, in his effort to distinguish his doctrine from a grosser form of hypothetical realism, called the *tertium quid* a "*sensation.*" Many eminent hypothetical realists have used the term in the same way. Not to mention others, Dr. W. B. Carpenter, in his recent work on Mental Physiology, defines sensation to be "that primary change in the conscious ego, which results from some change in the non-ego, or external world—this last term including the bodily organism itself." Color, in this sense, being a *tertium quid* through and by means of which the mind gets an indirect knowledge of external objects, stands on a level with all other "ideas," "impressions," or "sensations,"

* It will be borne in mind, that in the psychological sense of the term, color embraces not only the prismatic hues, but also all modifications of light and shade.

which give us a mediate knowledge of the external world. This being true, no natural realist can regard color as, in this sense, a sensation.

That misuse of the term which would make it convertible with an *unfelt* physical modification of the organism, is sanctioned by no psychologist of whom we have any knowledge. And if it were, a sufficient answer to any one who would apply it here would be, that such a sensation is just as "occult" in the organ of vision, as its cause in the external object. It differs only accidentally from color in the distant object. So that the physical modification of a leaf, which is the cause of the physical modification in the organ of vision, might just as properly be called a sensation.

The only other possible sense in which color may be called a sensation is that already mentioned—a feeling localised in the sentient organism. The only point remaining to be settled can be settled only by an appeal to experience. We venture to assert confidently that *no one, under normal conditions, ever recognises color as a feeling localised in the eye.* It is freely admitted that a very bright color, seen by a very powerful light, produces a feeling in the eye. The physical agitation of the organ is, under these circumstances, violent enough to make itself *felt*; but it is never felt as *color*. It is felt as *pain*; and the pain may be so great as to destroy the perception of the color altogether. Under normal conditions, that is, when the organ is sound and the light not too intense, there is no sensation whatever connected with vision, unless we lug in the purely muscular sensations attendant upon the movement of the balls in their sockets, and the adjustment of the lenses. If, then, there be no sensation connected with normal vision, is there anything which we are conscious of cognising directly, or can become conscious of so cognising, as between our minds and the distant object? It is admitted universally by those who have an adequate acquaintance with the subject, that the inverted images upon the retinae are not directly cognised, nor can be. There is nothing left to be cognised, so far as we can learn, except the molecular motion of the retina, the optic nerve, and the optic ganglia. But this

molecular motion is itself hypothetical. Its existence is *supposed* to account for phenomena which cannot otherwise be accounted for. What, then, do we know by vision? We either know nothing, or we know the distant object directly.

Let it be emphatically stated again, that there is no denial of the fact that there are physical antecedents to the act of perception by vision. Those physical antecedents cannot be dispensed with; but they do not become objects of perception. The first of the knowledge of which we have a consciousness, is that of the distant object. That is always known immediately or directly, between which and the mind there cannot, by any direct effort, be detected anything else which implies its existence—where there is no term, in the psychical series, before the cognition of an object as distant, that distant object is known immediately.

We are prepared to have some one object that knowledge is not properly called immediate in cases in which even a physical modification of the organ of sense, or other term in a physical series, stands between the mind and the object. In reply, we have only to say that there is no such thing as immediate knowledge, if all that knowledge is to be called mediate of which a physical modification stands as the *conditio sine qua non*. Not the simplest axiom can be cognised as true without a definite brain modification as its antecedent in the order of nature.* If it be admitted that the cognition of distant objects is no less immediate than that of axioms, no one shall care to debate the question further.

But it is further objected, that we are frequently deceived as to distant objects, which would not be the case if our knowledge of them were immediate.

In answer, it may be said that it has not been asserted that all the knowledge of distant objects which we ever attain is immediate. The truth is, that by far the greater part consists of acquired perceptions. These acquired perceptions are very numerous, and result from a facility, arising from constant practice, of

* This statement will be understood as applying only to our present estate. To infer from this fact that in no estate can the mind think without physical concomitants, is logic which we do not endorse.

adding to the product of direct perception by one sense, that which, by the simultaneous use of our other senses on other occasions, we have found uniformly associated with that product. We take what we immediately perceive as the sign of much more which we have known to be associated with it on previous occasions. This is the secret of the illusion produced by spectroscopic views. Distance, size, shape, are all referable to this head.

But it must be admitted that there are spectral illusions which occur under such circumstances that it can be demonstrated that there are no corresponding external objects whatever. These may be divided into two classes. First are those in connection with which there are no modifications whatever of the retina or optic nerve. Sir John Herschel, in one of his "Popular Lectures on Scientific Subjects," gives an excellent illustration of this class of illusions. He tells us that "he was subject to the involuntary occurrence of visual impressions into which geometrical regularity of form entered as the leading character." Dr. Carpenter attributes this appearance to "impressions conveyed down to the sensorium from the cerebrum," just as it is the case with our dreaming that we behold visible objects. These spectral illusions, of which examples might be multiplied, differ only accidentally from dreams. They are therefore not instances of perception at all, and are not to the point in this discussion.

The second class of spectral illusions are those corresponding to which there is no external object, but which arise when the organ of vision is modified artificially or abnormally. An illusive perception of light may be produced by an electric current, or by mechanical pressure on the ball, or by a diseased condition of the organ. Now, it is contended that if the perception of objects external to us were immediate, it would be impossible to impose upon the mind these *bogus* flashes of light as though they were objective realities. In other words, so far as we are capable of immediate knowledge, we are not capable of deception. With reference, then, to whatsoever class of objects we are capable of being deceived, we have no immediate knowledge. But let us see what is the result of an abnormal modification of the cerebrum

corresponding to the abnormal modification of the organ of vision which we have just been considering. The madman, by reason of a derangement of his cerebral functions, mistakes for intuitive principles propositions absolutely false. If, now, the fact that we are deceived as to distant objects, by reason of an abnormal physical modification of the organ of vision, proves that we have no immediate perception of distant objects, under normal conditions, then the fact that, by reason of an abnormal modification of the cerebrum, the madman is deceived as to intuitive principles, should prove that we have no immediate cognition of such principles. But since no one is willing to admit the force of the latter argument, no one should allow any force in the former.

There is a fundamental error which underlies all such objections as these we have been considering. It is the assumption that immediate knowledge is convertible with absolute certainty. It confounds knowledge obtained by no process of which we can become conscious, with knowledge connected with the acquisition of which there are no adjuncts which may introduce error. But let it be understood and admitted, as truth demands that it should, that we have no knowledge whatever, in this present estate, which is not dependent for its validity upon the normal exercise of the cerebral functions. There needs nothing more than an interference with these functions to destroy utterly the validity of that which we may still rest upon implicitly. If any one is disposed to quarrel with such a representation, he quarrels not with the present writer, but with science and the facts which it arranges and interprets.