An attempt to solve some of the difficulties of the Berkleyan controversy, by well-ascertained physiological and psychological facts / by Richard Fowler.

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SOME OF THE DIFFICULTIES

OF THE

BERKLEYAN CONTROVERSY,

BY

WELL-ASCERTAINED PHYSIOLOGICAL AND

PSYCHOLOGICAL FACTS.

BY

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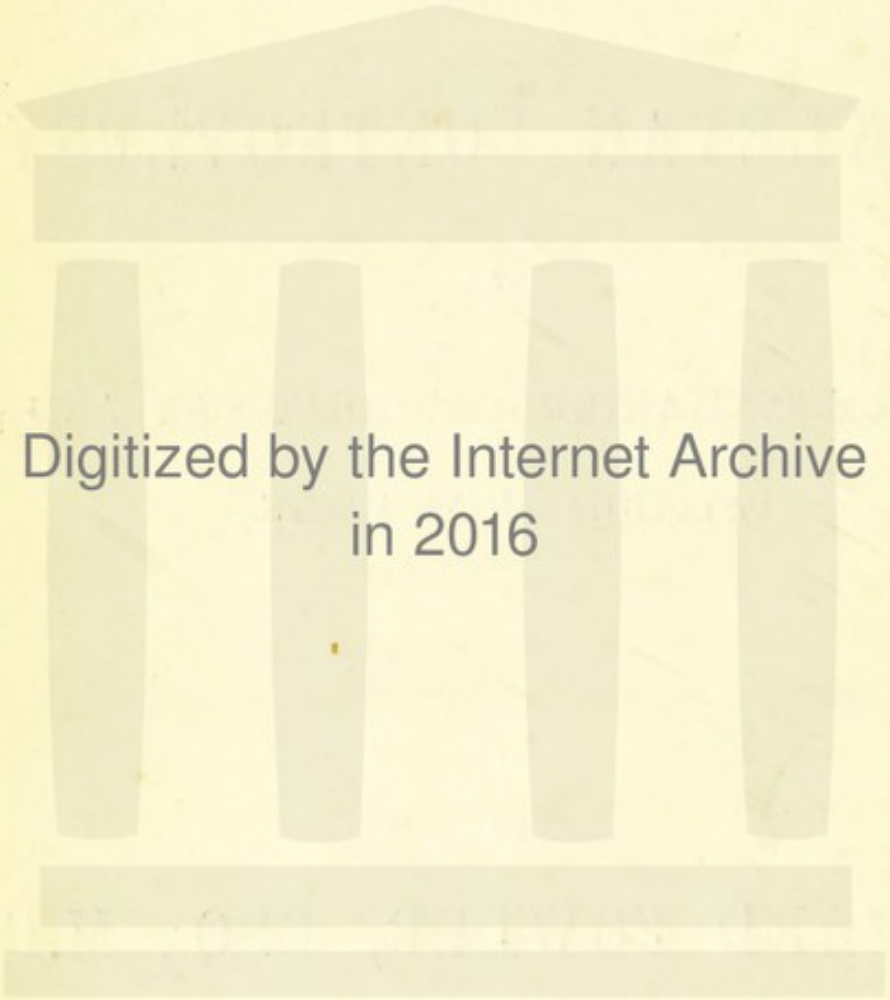

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An Attempt to Solve some of the Difficulties of the Berkleyan Controversy, by well-ascertained Physiological and Psychological Facts.

The Berkleyans contend that we have no knowledge of matter but by gratuitous inference from subjective sensation; that, in reality, the mind has no direct perception of anything but of impressions, conceptions, or ideas. For example, when a portrait painter would transfer the features and expressions of a face to his canvass, it is the conceptions of the face that he copies, and not the face itself. Virgil expresses the intensity of Dido's love for Æneas, by "manent infixi mente vultus verbaque viri." A lady who amused herself with silk worms, told me that after she had had them some time before her, she still seemed so see them crawling on her plate at dinner. Such conceptions are the abiding effects of impressions, or rather of the adjustments which they had excited, analogous to the impressions on the strings of the harp, whose vibrations may afterwards be recalled by analogous vibrations, and not as impressions of a seal on wax. For such impressions there is no place in any of the organs of sense except on the retina.

"Amid the strings his fingers played,
And an uncertain warbling made."

The generality of mankind instinctively believe that impressions on our organs of sense, like impressions on wax by a seal, are made by objects external to the mind—such objects are supposed to be modifications

of matter. It therefore becomes necessary to ascertain what matter may really be. Berkley said there was no matter; and it was wittily replied, "It is no matter what Berkley said." In our conceptions we have all the forms, and colours, and dimensions of matter, but they are wanting in the impenetrability assigned to matter, and in the periodicity by which some of its phenomena are noticeable—as, the revolution of the planets, or more familiarly those of a common clock, admitting of mathematical calculation, while our conceptions are fleeting, uncertain, and evanescent—come when they are least expected, and, in emotions, particularly fear and remorse, resist all the efforts of volition to exorcise them. The question then recurs, what is matter? Its impenetrability has been supposed to consist in a nucleus surrounded by spheres of attraction and repulsion. But, as it is useless to assign more causes of the fact than are necessary to produce it, philosophers, Newton, Boscovich, Priestley,* and others, have, I think, experimentally shown that these nuclei can never be brought in contact with each other, and that all the phenomena attendant on compression and adhesion can be explained by the atomic forces of attraction and repulsion. It was, therefore, the conclusion of Boscovich that the attractive and repulsive forces might have no other common centre than mere mathematical points. With what force these can resist pressure, we have instances in the diamond, flint, agate, and in thousands of well-known hard substances; and of their attractive power we

* On this subject see some confirmatory observations in Dr. Priestley's clear and able work on matter and spirit.

have proof, by the impossibility of separating them, in the instance of earth, water, and alkalies; till it is found by recent philosophers (Sir H. Davy and others), that the attractive forces were separable by the repulsive forces of galvanic electricity, light, and, lately, heat (by Mr. Grove).

It would appear then that we have no knowledge of any external cause of our impressions on our mental force but by the vital and physical forces. For example, we have no sensation from mere contact of objects, we must move to feel; we have then sensation by our muscular sense. We must look to see; listen to hear; sniff to smell; and move the organs of the mouth to have the sensation of flavour. If one hand be put into hot, and the other into cold water, and both hands into a mixture of the two, the hand that has been in the cold water will have the sensation of warmth, while the hand that has been in the hot water will have the sensation of cold; as persons coming down from the Alps feel the midway air intolerably hot, while those who are ascending shiver with cold.* From experiments like these we find that it is by the forces by which objects are actuated that we are impressed; and the different sensations are perceptible by our minds as the forces in approaching or retiring from our perception excite different sensations: as all is dark on our entrance to a diorama, while the passages appear light as we return from it. The same force acting on the vital force impresses in ratio of the structure of the organ of sense: thus, in a case related by Sir Charles Bell, a bullet in passing

* In these instances it is the sensations alone are perceived.

through the face of an officer immediately under the orbits excited the sensations of a brilliant light and loud sound. The mere bullet without the force motion would not have produced either. Matter, then, seems to have been, not without reason, considered by Turgot, Professor John Robinson, and Professor Dugald Stewart, as the mere cause of the phenomena which are believed by us to be real, external, and palpable objects.

But can it be possible that any such appearance can be produced by any combination of mere forces. Few are aware of the influence of mere position in varying the appearance of objects. The changes produced in the appearance of objects by a varied position of the physical forces, may be instanced by water, which is composed of the same atoms whether in the state of ice, water, or steam; carbon is composed of the same atoms which, differently arranged, constitute the diamond; vinegar, starch, and sugar, are composed of the same atoms bearing different relations of position to each other—

> "So, dying vegetables life sustain,
> And life dissolving, vegetates again."

This is no idle question of mere curiosity; it bears on the very foundation of our hopes of a future life. We have all the evidence which the present state of this world can give us that the forces by which its phenomena are effected have always existed, and are likely always to continue to exist—the immediate agents of the Deity, so immediate, indeed, as to be considered by many profound thinkers (Malebranch and Norris) as evincing the presence of Deity itself, and that all

our perceptions are impressed by the conceptions of the Deity—

> "Which change through all, is yet in all the same,
> Spreads undivided, operates unspent."—POPE.

> "These, as they change, Almighty Father! these,
> Are but the varied God."—THOMPSON.

Be this as it may, if our own mind be a force, it may have equal durability with the physical forces. The difficulty consists in forming a conception of the individuality of a part of a force; but that this is not a mere possibility but a fact, can be proved by innumerable instances—of gravitation, in the barometer; of motion, in the chronometer; of chemical affinities, in gunpowder and the galvanic trough, respiration, and culinary light and heat; of electricity, in the Leyden jar; of magnetism, in both natural and artificial magnets; of latent vitality, we have instances in the ova of animals and the seeds of plants; of mind, modified by the organs of animals, and manifested by the intelligent conduct of men, such are the proofs that portions of forces can be individualized; and, in the diamond, we see what charcoal may appear by a mere change of the position of its atoms.

HOW SENSATIONAL PHENOMENA ARE EFFECTED.—It appears then that if there should be an impenetrable nucleus, surrounded by spheres of attraction and repulsion, that these nuclei may be disregarded in the attempt to account for phenomena by force only, since it cannot be ascertained that by the strongest compression these nuclei can ever be brought in contact with the impressing force; and that all the phenomena of adhesive attraction can be accounted for by

the attractive force, and all the phenomena of motion by the repulsive force. But how account for the infinite variety of phenomena by seven physical forces only? May not this question be answered by the consideration of others; for example:—How are those infinite varieties of colours produced in flowers by changes in the relative positions of three colours only? Goëthe's theory resolves the appearances into varying blendings of black and white only. How are the variety of musical tones effectively produced by the few notes, not more in number than that of the forces? How is the infinite variety of human thought to be expressed by the letters of an alphabet? Of all possible numbers by the varied position of ten characters of arithmetical expression? Algebraic and geometrical varieties are expressed by still fewer arbitrary signs, and the interchanging communications of nations by the visible vibrations of a single needle.

But it must be borne in mind that "quicquid recipitur, modo recipientis recipitur." Now, these forces excite different sensations while passing into an organ from what they do when passing out: of this fact heat and cold are the most prominent instances. And the different sensations impressed upon the organs of sense, excitable and exhausted, before or after gratification, healthy or diseased, substantially influence our perception of the impressions made by forces external to our mental force. Well, therefore, might Turgot, Robinson, Dugald Stewart, and all philosophers who have a candid consideration of the speculations of Berkley, say, that we cannot indeed prove or deny the existence of matter external to the mind. We

are bewildered by phenomena for which we are at a loss to account. My solution of the difficulty, after much consideration, is, that these phenomena are produced by impressions by physical and vital forces external to the mental force, but in immediate proximity and communication with it.

The difference between external realities and merely internal perceptions are strongly marked. Whatever is really external to the mind is so far independent of the mind that it can be recalled in space and time, as expressed on the dial of a watch, but its return may be calculated with mathematical precision; the periodical return of astronomical phenomena for example, and of the unknown under investigation, as was the case in the recent discovery of the place, the orbit, and the time of Neptune; and the attracting cause of the disturbance observed in the circular movement of the planet Herschel.

PHENOMENA: IF BY FORCES?—The force of gravity is felt as different when we are in a diving bell or on high ground.* Motion is calculated by time, as time is calculated by motion over the surface of a chronometer, or a finger along a given line; hardness or softness by the resistance of a padded spring to vital strength—"possunt quia posse videntur;" adhesive attraction by the forces of electricity or heat† required to separate them, as in waters, diamond, earths, and alkalies (Davy); in

* Captain Basil Hall, in "Chambers' Journal," has well described the difference felt in the diving bell at Plymouth, and in a few days afterwards in his ascent to the top of Mount Teneriffe.

† Grove on the decomposition of water by heat.

metals by the heat required for their fusion; light, by its affinity to the vital force of vegetables and animals (Mitchell);* electricity, by the length of the discharging spark; magnetism, as vitality, by the weight with which it can antagonize gravity or the muscular force.

As all studious persons, whether literary or scientific, have to deal more with these mental conceptions than with the material objects by which they have been impressed, it may not be useless to ascertain their place and mode of formation. Some are of momentary duration, and scarcely heeded, as those of persons we see and hear in the streets; others are more abiding, as of the face which the portrait painter copies on his canvass; others intermingle with present sensations and former opinions of persons and events; others are formed by combinations of these, and constitute productions of manufactures and the fine arts. It is generally supposed that the eye is the place of these conceptions, and Sir David Brewster has observed that the Ghost of Hamlet was not in the mind's eye, but in the body's eye; and the retina has been assigned as the place of our visual conceptions by one of the most experienced and sagacious of our living physiologists.†

* Mitchell, the deaf, dumb, and blind boy, whose case is described by Dugald Stewart and the oculists who had operated upon the boy's eyes, was often seen delighted when he could catch a gleam of light passing through a chink of a door, or listen to the sounds produced by vibrations which a key excited when tapped against his teeth.

† If uncertain whether what we appear to see is a reality or an illusion, the pressure of the side of the eye with the finger will occasion the illusive appearance to disappear; but like pressure will not have this effect on real objects.

The following facts have led me to hesitate as to the adoption of this opinion :—It cannot be true with respect to what we hear, feel, or get a knowledge of from our other organs of sense. It is true that what we hear but do not see excites a retransmission to the eye productive of conceptions of the object heard, as when we hear the neighing of a horse and the lowing of a cow, the laughter or cries of a human being. For instance, Sheridan says of a soldier hearing the cries of his mistress—

> "But, ere the battle, should he list her cries.
> The hero trembles, and the lover dies."

When the sound of a cataract is heard at a distance, the fall of the water seems as if seen ; in these cases, the vivid visual conceptions so eclipse the audible impressions that the conceptions they excite are not attended to by the mind, for it is a law of mind that no two impressions or conceptions can be equally attended to at one and the same moment. It must have been this which misled Dr. Reid when he wrote that the mind cannot recall conception of touch. That the blind, who have no visual conception, can recall their conception impressed by touch is, I think, proved by the correctness with which they can walk to distant objects : of this many satisfactory instances may be found in Wilson's Biography of the Blind.* There is,

* As the blind have merely a perception of the sensation of touch to attend to, and are not diverted from this by any conception of sight, they are more likely to recal the sensation of touch than persons who see, and whose attention is therefore occupied by the more vivid conception of sight, especially when it is considered that the muscular sense is really a part of the sense of touch.

then, from the senses of hearing and touch no direct communication with the retina, as there is at the termination of all our nerves of sense in the medulla oblongata. It is there therefore that I should consider the place where the mind perceives the conceptions retransmitted from all our organs of sense, not even excepting our visual organs. The instances of retransmission from impressions on the ingoing and sentient nerves in the excito-motory system, have been fully enumerated by Dr. Marshall Hall; but I think it will be found that there are retransmissions from our conceptions as numerous and as important as any of those already so familiar to physiologists. Is it not by a conception exciting a retransmission to the functional parts of speech, locomotion, and gesture, that somnambulists are actuated? I once asked a murderer how he slept; his answer was, I have not slept since the murder of my child. I knew another murderer who escaped the penalty of the law, but who died in less than a week after his acquittal, from the terrors excited by his conceptions, those avenging ministers of conscience. How slight any external impression may arouse such conceptions, Lord Byron has described in his well known lines, in the 22nd stanza of the fourth canto of "Childe Harold," beginning with "Ever and anon."

EXPLANATORY NOTES.

Man, like the Æolian harp, is momentarily under the influence of impressing forces, which without his stir are producing changes in his body, the coil of his mind, and by this in the mind itself; could any one of these forces be withdrawn, the death of the body must be the inevitable result. A traveller cannot remain on the top of Mont Blanc, where he is partially withdrawn from the influence of gravitation and heat, without perishing. Withdraw the chemical affinities which the carbon of the blood has for oxygen, withdraw food and the circulation of the blood motion, by doing this thermo-electricity and magnetism are also withdrawn—the result is obvious. As a stream of water passing through a capillary glass tube is accelerated by the electro-aura directed upon it, may we not infer that the circulation of the blood through the capillaries is in like manner accelerated by electricity; such, probably, are the influences continually acting on the extremities of the excito-motory nerves. The effect of light with respect to the colour of vegetables is known to all, and in the Arctic Regions it is equally well known that the furs of animals are bleached. Before the Bill for the Protection of the Insane was enacted I saw four madmen, who had for months been confined in a dark room, as colourless as corpses. From the now ascertained fact that the vibrations of the electro-magnetic needle have some accordance with the

appearance of the dark spots in the sun, may it not be owing to the influence of the sun on the earth that we should seek for an explanation of terrestrial magnetism? The heat below the crust of the earth sequent on chemical affinities and the influence of the sun may be productive of thermo-electricity, and this again of the terrestrial magnetism which has hitherto baffled all efforts to ascertain its cause

The phenomena effected by the mind force are, perhaps, more numerous and more important than all the phenomena effected by the physical forces All science, all arts, all literature, all government of men and of armies are effected by mind force. By insulating and modifying physical forces it can employ them to effect all the purposes to which they are applicable. But then, what is mind, sensation, perception, memory, and volition? There is still an eye, a self, which can so modify these attributes as to make them the subjects of thinking, the materials, the objects of which and by which it thinks, as the chess-player or the general of an army play the games of life by the modifications of the positions in which they place the means they employ. It is this eye, this essence of mind, which makes its own thoughts the subject of its own thinking. Now, divested of all that may have obscured the subject, it is clear that this eye can be the source of new and before unobserved phenomena by a mere change of the position of physical forces with respect to each other; it can so modify its vital and mortal coil as to produce disease and restore health.

Is it possible to find a satisfactory solution of the following problem? Whether our conceptions are formed as sensations are by adjustments, if not the same with those of sensations, as a portrait is formed by the abiding adjustment of sensations. We have proof that it is so in the instance of the silk worms (Banks), already referred to, remorse, love, terror; and in examining objects that are new, we are often long

before we can get an accurate conception of them, analogous to adjustments of the telescope, so as to say, Oh! now I see. Now are these conceptions modes of mind, or by adjustments external to the mind, and merely perceived by the mind, if so, what is the bridge by which the mind, the eye, passes the severance between mind and body? May it not be the following? There are numbers of instances to prove that the mind is influenced by the buoyance, or depression, the excitement, or exhaustion of the body, and that the body may be exhausted and destroyed by remorse of the mind; or restored by hope, as in the case of Anson's crew, the garrison of Breda, and hope excited by charms, as in the cure of agues and evil by the Royal touch. Hence both mind and vitality may be the antecedents or sequents of each other, that is, correlated as the physical forces are. Is not this correlation, therefore, the bridge by which we are assured that the mind and vitality are individual forces, in correlation with each other, as much as light and motion. The bridge between electricity and magnetism is evidently the coil which Œrsted wound round the horse-shoe iron. Perhaps it is the compound nature of the force mind, perceptive, willing, impelling power, which has caused us to consider it as being something essentially different from the physical forces. But light is equally a compound force with heat and chemical affinities and acting upon our vision by perspective laws.

Of all the evidence that phenomena are formed by forces, the most satisfactory are to be found in their momenta. It is not the steelyard and the weight, but the phenomena resulting from the combined effects of gravitation and motion of antagonizing weights so comparatively greater. It is not the light and the lens, but the focal effects of the burning glass which attracts the attention, by its focal intensity of heat and light so palpable to touch. It is not the avalanche that is

seen, but its thunders which are heard, the products of gravitation and motion. It is not the bullet before referred to which passed under the orbits of the eyes of Sir Charles Bell's patient,* but his report of the flash which he saw and the sound that he heard. Whatever electricity there may be in the air as indicated by the electrometer attracts little notice, but it is in the lightning to our eyes and the thunder to our ears that consist the astounding phenomena of the storm.

The molecular affinities in grains of gunpowder attract little attention, but when their explosion is found to destroy ships of war and fortresses of the strongest masonry, to blast rocks and cast acres into the sea, it is then we see the parts which forces enact in all the great phenomena of nature. These observations are equally applicable to the mind and vital forces of whose phenomena by forces we judge by results, and deem that the stronger mind which wields armies and influences senates ; the discoverer of a law of nature than the mechanic who applies it.

Whatever is apparent to our senses or perceptible by our mind we call phenomena. These, when investigated, will be found to have not only the vital and physical forces and their laws of constituents, but also space, and the geometrical relations of space ; time, and the relations of time ; number, and the relations of number ; and the momenta of forces. For example, an avalanche is a phenomenon, and its constituents are not only gravitation and motion, but time, and space,

* Quicquid recipitur, recipitur, modo recipientis. The bullet and its motion were the same which passed through the nerves of hearing and of vision. The difference of result was caused by the different structure of the nerves—a difference not detectable by the microscope. I once tried if I could detect any change in a nerve while the galvanic influence was passing through it ; but none was detectable, either by my own eye, or that of another more experienced observer.

and momentum ;* but an addition must be made even to this full enumeration of the effect produced upon ourselves. For nothing is either good or bad but as thinking makes it so, and

"As the fool thinks, so the bell tinks."

All phenomena in nature include the above constituents, but by modifying the relations in which these constituents are to each other, the mind of man can create new phenomena, such as the steam engine, the railway, the electro-magnetic telegraph, paintings, sculpture, poetry, and laws. But as phenomena are found by discovery to be modified by the laws of nature, so no creation of man can be good unless in accordance with Nature's laws—that is, laws of the forces. A painting of Niagara would not be correct unless it was suggestive of motion accelerated and productive of the momentum by which it is heard by the ear as well as seen by the eye. The greater part of the beauty of the Venus de Medicis, of the Apollo, and of the Diana of the Louvre, would be lost if they were not suggestive of motion and of mental purpose. Of the sedentary and the studious, the literary and the professional, the vital and the mental phenomena are far more numerous and interesting than the physical phenomena. The physical phenomena are modified by the state of our bodies, as before or after any gratification all stronger impressions modify or suppress the weaker, for where the greater malady is placed, the lesser is scarce felt. But the state of the mind has still more influence on the appearance of objects to our senses.

"Yes, 'tis the heart that rules the eye,—PRATT.

Dear is the hut to which his soul conforms," &c.

GOLDSMITH.

* The guide with Sergeant Talfourd in Switzerland drew his attention to an avalanche of snow falling from a mountain about twenty miles distant, but it appeared so small that the sergeant could not believe it to be an avalanche till he heard the repurcussive roar expressive of its momentum when it had reached the ground.

Phenomena resulting from the investment of the laws of any force by its force, for instance, laws of perspective; of light invested by light, are productive of all paintings, whether diorama or theatricals, as in the instance of Brunel's diorama of his tunnel. Vitality, invested by gravity, produces health; when withdrawn, as on the top of a mountain, debility; and when both gravity and heat are withdrawn, death. An egg, in a vital state, invested by heat, produces a bird; a vital seed so invested produces a plant; motion, accelerated by the chemical affinities of gunpowder or chemical explosives, as muriate of silver, invested by gravitation, produce momentums, as in the instance of blasting, throwing shells or shot. Vitality, whether animal or vegetable, is favourable to health when invested by light. Both men and children, where light is excluded in dark manufactories, or the ravines of Switzerland, become diseased; when removed to a higher situation, breathing pure air, their structure is repaired, and health renewed. The molecular affinities of water investing chemical affinities render them active; the force heat investing the molecular affinities of water converts it into steam; the different vitality of grafts of apple-trees investing the sap of a crab changes its nature. Mind invested by the vitality of its coil becomes buoyant and efficient:

> The common air, the earth, the skies,
> To him an earthly paradise.—Gray.

That the phenomena observed by sight and touch, apparently so solid, should be composed of forces only, cannot but appear strange and paradoxical to persons unaccustomed to observe the vast variety of objects whose composition is found by chemical analysis to consist of gaseous and aerial forms or substances. Water, for example, and all opaque oxides are formed by the union of oxygen with some bases which may be equally transparent. Glass, though transparent, is formed by

the two opaque substances of silex and alkalies from the ashes of vegetables. Vegetables themselves, from the smallest plants to the oak, have water and air for principal component parts. I have often grown oaks to more than a foot in height from acorns accessible only to water and atmospheric air.

I think I may assume that we have no knowledge of matter but as of forces. The question then to be resolved is what is perceived by the mind, and whether conceptions or sensations perceived are merely modes of mind, different states or something external to itself producing or influencing those states; and if so, what is the link or bridge by which this influence is effected. May it not be by the affinity or attraction which the force mind has for the physical forces, analogous to what they have for each other; as, for example, the affinity the magnet has for iron, which negative and positive electricity have for each other, which light and sound (motion) have for the vitality of the eyes and ears of the partially deaf and dumb. Affinity, therefore, may, I think, be considered as the bridge over which the perceptive mind passes to the external world.

The testimony of two witnesses is deemed sufficient by courts of justice to decide questions of life and death. In all doubtful cases as to the reality of objects external to the mind we have five senses, and when they concur it is imperative on the mind to believe, for doubt is then impossible; or, if there should be a lingering doubt sequent on the evidence of our eyes, we test it as Macbeth did his dagger by the touch; as the kitten, by running behind the mirror, to try if she can find by touch the kitten which she saw in the mirror with her eyes.

Mr. Hume and his followers have contended that we know nothing of causes but as the antecedents of effects; but the causes of impressions not only impress but penetrate the surfaces of the objects with which

they come in contact. Gravitation, for example, acts not only on the surface of our bodies, but penetrates and acts on every atom of its structure. Is not the chemical affinity which an alkali has for an acid the cause of the compound resulting from their union? Affinities between two forces may then be considered as the cause of the phenomena which result, as momenta, for example, from the multiplication of the gravity of a projectile by its motion.

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