THE

PHILOSOPHY

OF

HUMAN KNOWLEDGE,

OR

A TREATISE ON LANGUAGE.

A

Course of Lectures,

DELIVERED AT THE UTICA LYCEUM,

BY

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INTRODUCTORY DISCOURSE.

It is my misfortune to possess a strong inclination for abstruse studies. Its indulgence has diminished my convivial enjoyments, and employed the ardour which, at my age, is usually expended in political discussions;—vociferous in the defence of rights not invaded, and vindictive in the redress of wrongs not inflicted. It has driven me from the whispers of the counting-house, and the war of judicatories, to an unambitious avocation; which, whilst it affords the conveniences that our plainness renders essential, enables me to gratify my unenviable propensity.

Among the results is a Treatise on the Philosophy of Human Knowledge. From the obscurity in which my life has passed, I have reason to suspect an absence, rather than the possession, of instructive talents: hence the Treatise has long lain unregarded, and, till within a few days, undivulged. An accidental intimation of its existence, has produced from the Lyceum a request with which I shall endeavour to comply, by moulding the Treatise into short and occasional lectures.

Man exists in a world of his own creation. He cannot step, but on ground transformed by culture; nor look,

but on objects produced by art. The animals which constitute his food are unknown to nature, while trees, fruits, and herbs are the trophies of his labour. His virtues, language, actions, sentiments, and desires are nearly all factitious. Stupendous in achievement, he is boundless in attempts. Having subdued the surface of the earth, he would explore its centre; having vanquished diseases, he would subdue death. Unsatisfied with recording imperishably the past, he would anticipate the future. Uncontented with subjugating the ocean, he would traverse the air. Success seems but to sharpen his avidity; while facility augments his impatience.—Thus restless, it is important to know the extent of our powers, that we may not dissipate strength in designs for which our faculties are unsuited; or attempt practicabilities by incompetent methods. This knowledge is the philosophy which I propose to discuss.

But this is not all. Nothing is too sacred for our curiosity;—nothing too remote—nothing too minute. There is in language an illimitable capacity for interrogation, and its excessive exercise constitutes the folly of wisdom, and the wisdom of folly. Philosophy is deemed a species of necromancy, which can solve all questions; countervail the impossibility of access, and remedy the finitude of the senses. Hence it is important to ascertain whether all inquiries are pertinent; how far we may rationally conjecture, and where ignorance is incurable.

But even these are not all. Language is mouldable into countless propositions. Mathematics assure us, that the water which placidly swells the banks of our canal, is no where level;—that the walls, which constitute the sides of this chamber, are not parallel; that a line no longer than

an inch is diminishable interminably without arriving at the end of extension.

Astronomy declares, that we are whirled every *moment* a thousand miles in one direction, and fifteen miles in another; and in this giddy rotation our heads travel faster than our bodies; that a portion of mankind walk with their feet diametrically opposite to ours; that the world is a ball, and assumes at a certain distance the appearance of a star; that comets are hotter than red hot iron, and the sun a body of fire thirteen hundred thousand times larger than the earth.

Optics assert, that while I look around our village, and perceive distant hills, and spacious streets, lofty buildings, and prosperous industry; I truly see nothing, which is either spacious or distant, but a wonderful miniature, not an inch in diameter, that is painted on the retina of my eyes.

Physiology affirms, that a ray of light, which appears colourless, is a gaudy combination; while roses are a mere blank apparatus to display the tints which exist latently in light. Botany has, however, compensated flowers for this disparagement. She insists that plants eat, drink, and sleep, and breathe;—that they are male and female;—that their fragrance is amorous sighs, and their motions nervous irritability.

Chymistry is peculiarly the science of enchantment. Its motto is to degrade all that is high, and exalt all that is low. It professes to remedy the defects of vision:—to elaborate by analysis what would be apparent in nature were our senses more acute. It asserts that glass is not uniform and transparent, but a congeries of opaque sand and salt;—that our flesh is not the firm, polished sub-

stance which it appears, but a combination of disgustful gases;—that the diamond which sparkles on the breast of beauty is charcoal, that defiles the hands of blacksmiths.

To deny these assertions, is to disbelieve the best demonstrated conclusions. There exists a prurience in every science, to thus irritate curiosity by an apparent contradiction of our senses ; and to exalt phenomena by a novel application of names:—hence it is important to discover some test by which we can ascertain the significancy of language when so employed, that we may no longer be perplexed with deductions which logic cannot controvert, and which the senses cannot admit.

You perceive, then, that the Philosophy of Human Knowledge deserves attention. There has always existed an indefinite impression that such a science is attainable. It has been to metaphysics, what alchymy has to chymistry ; or what perpetual motion has been to mechanics;—sufficiently plausible to stimulate our efforts, and sufficiently subtle to elude them.

In such a science, I must, however, confess myself a believer ; though the progress which has been made in it is inconsiderable. The labours of antiquity have descended to us embarrassed with mutilation and obsoleteness. Yet we may discover that ancient metaphysics consisted principally in the formation of general propositions, which, though dictated by the senses, were supposed authoritative beyond their purview. Thus, it was maintained, that " nothing can be erected out of nothing ;" hence that the power of deity, in the construction of the world, extended only to arrange materials, which were co-eternal with himself. Clouds and darkness soon enveloped such

speculations, and reason looked aghast at the monsters of its own invention.

With modern writers also, the science is in its infancy. Etymology has pursued it through all the torturous wanderings of words, up to their pristine signification. Discovering hence, that *spirit* signified originally *breath*, she concludes that the word has still no other import. Instead, therefore, of expounding a word by narrating the phenomena to which it is now affixed, she seeks its meaning by groping for the phenomena to which it was originally applied :—overlooking the most important characteristic of language, that every word possesses as many meanings, as it possesses applications to different phenomena.

Induction is another method by which our science has been attempted. We upbraid the ancients with reasoning from general propositions to particular facts. This process induction reverses. She discovers that my hand cannot draw on a glove without touching the glove; that you cannot light a candle, unless an igniting body be conveyed to the candle: hence induction forms a general proposition, "that nothing can act where it is not." The proposition would be abundantly harmless, were it deemed significant of those facts only from which it is elaborated; but induction estimates facts as the mere ladder by which she is enabled to climb beyond the senses; then, like the ambition described by Shakspeare,

> "She unto the ladder turns her back,
> Looks in the clouds, scorning the base degrees
> By which she did ascend."

Lord Monboddo maintained, that, (as nothing can act where it is not,) when we see distant objects, our soul passes from us to the object. The conclusion was too gross

to be permanent, therefore we now suppose, that sight is produced by rays, which rebound from visible objects, to the optic nerve ;—that sound is conveyed by appulses of air, which strike the tympanum ; and that smells are diffused by small corpuscles, which are wafted to the olfactory nerve.

There is still another way in which philosophy has expended itself, when employed metaphysically. We show to a child an iron red with heat, and we assure him that pain will follow its contaction. The monition vanishes with the iron, never to recur, but on a recurrence of the danger. Painfully industrious we peruse biography, theology, legal intricacies, and medical properties. To nature we unheedingly commit the whole unsorted, unarranged. Yet a hero's name no sooner strikes the portals of hearing, than memory, like an officious chronicler, announces his fortunes, qualities and actions. A legal injury summons all the methods of redress :—anticipation awards a verdict, and imagination exults in the triumph.

These are briefly the services of thought. Its ministrations are incessant, its uses infinite ; and they are divisible, by the copiousness of language, into recollection, retrospection, anticipation, ratiocination, imagination, deliberation, and various other operations. But, instead of recording the phenomena, and leaving them to be marshalled under the names which use shall determine, philosophers have considered the marshalling to be their province : hence, what is denominated the Philosophy of Mind, consists of but little more than a contentious verbal criticism.

Such then is the present state of the philosophy which I propose to investigate. Judgment is wearied in exa-

mining chimeras, that possess no interest but their deformity; and exploring labyrinths, which have no merit but intricacy. The science has long lost the favour of practical men, and is almost abandoned, with alchymy and catholicons, to the dreams of enthusiasm. These are formidable impediments, and they are peculiar to this science. But there are many others, which are incident to the promulgation of every new doctrine; and, that you may behold the extent of my temerity, I will adduce a few of them.

Words may be compared to music. When a Briton listens to a certain tune of Handel, the notes articulate distinctly, "God save great George the King;" but, when an American hears it, the notes articulate, "God save great Washington." Hence the difficulty in understanding a strange doctrine. The words will constantly excite old opinions, though the speaker intends new.

When Columbus informed the Spaniards that he had discovered a new world, inhabited by men, the Spaniards attached to the word man its ordinary signification; nor were they undeceived, till Columbus exhibited the natives. I saw once, in a Roman Catholic cathedral, a wax candle burning before the altar: you will suppose that the word candle intimates sufficiently my meaning, but it will be wholly unrevealed;—what I saw, possessed the circumference of my arm, and the height of this table.

Of the mistakes to which we are thus liable, I can adduce nothing more explanatory than the philosophy of Epicurus. He maintained, that happiness consists in pleasure. Shortly every libertine sought protection under this philosophy; and now its name is synonimous with luxurious sensuality But fortunately for the repu-

tation of the philosopher, we eventually discover that the pleasure to which Epicurus alluded was virtue.

Modern researches escape not obscurations equally gross. We read of volcanoes that are discovered in the moon; of immense mountains nine miles perpendicular—in the moon; of a country six thousand miles in circumference, devoid of atmosphere and water,—in the moon; of awful chasms as broad as oceans and as deep,—also in the moon. We read, likewise, of small planets that were created by the explosion of a great planet; and that the roofs of houses would appear, (if we could divest ourselves of prejudice,) lower than the foundations. These expressions are amply significant, when correctly understood; but whoever shall affix to the words their ordinary import, will err as widely as the remote disciples of Epicurus.

Such examples should instruct us that the puerilities of ancient metaphysics had probably a sensible signification to their authors; and should restrain our perverse assumption, that every writer is to be literally interpreted, though we thereby make him utter the greatest absurdities. Ancient speculations of the above description are frequently made significant by modern discoveries. After we acquire thus a meaning to the heretofore unintelligible sentences, we announce that the ancient author intended the modern signification, though probably nothing was further from his apprehension. This principle induces us to attribute to Pythagoras the astronomical system of Copernicus; and enables us to discover in Homer a profundity of knowledge that he never conceived; and to find in the general suggestions of Bacon every art and science that has succeeded him.

The next obstacle which every new doctrine encounters, is prejudice. When Copernicus asserted the sun's quiescence, the theory was deemed subversive of scripture, which declares that Joshua protracted day by arresting the sun. Better interpreters have succeeded in establishing, that the prolongation of day constituted the only material fact; and if Deity should even now promulge the process, it would surpass our comprehension.

This historical instance is trite, but very illustrative of the identification of erroneous conclusions with indisputable truths. Whatever contradicts the former, we deem incompatible with the latter. Such prejudices oppose a sturdy barrier against any new doctrine connected with the philosophy of human knowledge; for on no subject are artificial conclusions so widely diffused, and implicitly believed. Every man possesses some metaphysical system which he has imbibed, he knows not how; and credits, he knows not why. Its incomprehensibility renders him sensitive to its preservation. It is an unfortunate child, whose very idiocy endears it to his feelings.

Besides, every science is so encumbered with propositions which are hostile to the information of our senses, that repugnance to them has ceased from obstructing credibility; hence the most subtle deductions, and extended analogies, are implicitly adopted by the illiterate as phenomena, which, though above their perception, are pervious to the learned. You cannot find a person who does not as readily believe that the earth moves, as that his cart moves. The word motion, he supposes to possess the same signification in both cases; while truly, when applied to the earth, it means certain phenomena only, which are explicable in no way so well as by assuming a

motion of the earth. The earth's motion means all the proofs which can be adduced in support of the theory. Whoever believes that the motion purports more, is deceived by language.

Amid this dreary host of ambiguities, prepossessions, and prejudices, exist a few enlivening auxiliaries. When Cicero visited the groves of Academus, Socrates had long been sacrificed to envy, and his great disciple had realized, in eternity, some of their sublime conjectures. Yet Cicero's imagination re-peopled the Academy. It saw Plato surrounded by the youth of Athens, and heard his eloquence captivate again the understanding. Why then may not a name produce enthusiasm now, and our Lyceum gleam with a faint glory from a recollection of the immortal Aristotle, the founder of the first Lyceum, and the Philosopher to whom the honour is due of discovering the only principle on which reasoning must for ever depend: a discovery which time cannot simplify nor enlarge; which eulogy has been unable to obscure by comment, or prejudice to subvert by proscription; and which teaches that argumentation may mould knowledge into new forms of speech, but cannot extend it beyond our premises?

In oral instruction to voluntary auditors, the speaker must conciliate his hearers, or he is taught by the solitude which soon environs him that his labours are vain. Hence the Grecian philosophers were the most eloquent men of their age; while probably, from a resort either to typography, or lectures to involuntary hearers, philosophy exhibits now no traces of fascination. Usually it combines slovenly composition with sterility of ornament; and custom has even moulded these deformities into a

canon of criticism. Professor Blair recommends the style of Locke's Essay as a model: a work which, though it carries the philosophy of knowledge as far as it has yet been extended, presents no page that will not bear an expunction of a quarter of its words with benefit to perspicuity.

Philosophy is, however, not necessarily the frowning, sluggish divinity that her ministers have injudiciously represented. Her dress may be splendid, her decorations brilliant; the clearest light should always illuminate her throne, and disputation be banished from her presence. Under this apprehension of her character will my lowly sacrifices be administered at her altar. I pause at this promise! I feel that all the stimulation which your benevolence can yield will be necessary to my perseverance. Nay, if I stagnate in the midst of your kindest efforts, the result will disappoint my hopes rather than my expectations.

When fame has produced for an individual an elevation to which all eyes are continuallly directed;—when his opinions are impatiently expected, and rapidly disseminated; when they are applauded in anticipation, and their adoption secured by prepossessions; the labour of composition assimilates to the progress, through Spain, of the Duke of Angouleme*,—a progress in which every city was approached, but to be entered with a bloodless triumph; and every enemy pursued but to be received by a resistless surrender—a progress whose labour is only the fatigue of pleasure; and whose dangers are merely the inebriation of success.

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* This discourse was pronounced in the winter of 1825.

Startled at the difference between such a writer and me, I have more than once cast aside my pen as an insidious enemy, that lures me from the substantial pursuits of life with an unreal mockery. Even the consolation of yielding an amusement to you cannot well be expected, and whilst I have been distracted in seeking a worthy motive for exertion, I have not been without apprehensions that I may, unconsciously, be influenced by the demon who, more than any other, revels in our infirmities. The demon who makes the taciturn more egregiously dull, and the volatile more absurdly loquacious; who makes ill-timed gravity more strongly contract its brows, and incessant levity more broadly relax its muscles.

The demon, at whose pernicious suggestion even moral deformities are frequently heightened. Surgeons, thus induced, will boast of an insensibility that they cannot feel; and libertines of profligacy that they never practised. The avaricious will falsely magnify his selfishness, and the prodigal his expenses. The liar will laugh at an exaggerated recital of his infamy, and the extortioner at an aggravated list of his oppressions. Nor do the infirmities of nature escape the malice of this universal counsellor. Dwarfs, at his suggestion, endeavour to appear smaller, and giants larger. The stammerer he urges to incessant conversation, and the freckled to an unnecessary nudity.

Whilst I was reflecting on the eccentricities which proceed from his persuasion, imagination presented him unexpectedly before me. His language was harmonious—his actions were profoundly respectful. Delight hung upon his lips, and irresistible conviction accompanied his communication. An unusual complacency expanded my

breast. I arose from an indolent recumbency, extended my arms in the attitude of oratory, and prepared to welcome him with all the figures of eloquence. When suddenly, approaching the fiend, his eyes were averted, and his face was distorted with laughter. He dissolved into air, and, as he vanished, I discovered that his name was *Vanity*.

LECTURE I.

PIETY has induced the declaration, that God makes nothing in vain ; and truly, when we contemplate the world, no recess is unoccupied. We cannot, by penetrating the earth, discover a vacuity ; we cannot exalt our vision beyond created objects; we cannot fathom the fulness of the ocean.

With this infinity of being man converses by means of his senses. Every sense is peculiar. Its loss is irremediable by the others. Even to suggest, that no sense but seeing can inform us of sights; that no sense but hearing can inform us of sounds, seems absurd from its obviousness. Still this indisputableness exists no longer than we refrain from applying names to the information of our senses. If you assert that no sense but seeing can inform us of colours, you will be reminded of blind persons, who have discriminated colours by feeling. The fact may not be controvertible ; but the word colour, when applied by you, is the name of a sight; and when used by the blind, it designates a feel. A blind man who possessed

this intelligence, said that black was a singular roughness, and scarlet a delicate adhesion.

Again: if you assert that hearing alone can inform us of thunder, you may be told of deaf persons who discover thunder by a concussion of the atmosphere. Here thunder is to you the name of a sound, but to them a sensation of feeling.

To avoid then an ambiguity, which is inherent in language, I will apply the term sights, to all the information that we derive from seeing; the term sounds, to all the information of hearing; and the term feels, tastes, and smells, to the information of the other senses. Hence, instead of saying that an orange is one existence, endued with several qualities, I shall estimate it as several existences, associated under one name, orange. Its appearance, I shall denominate the sight orange; its flavour, the taste orange; its odour, the smell orange; and its consistence, the feel orange. I shall adopt this phraseology, not to build thereon a theory, but to discriminate between the information of different senses.

This view of language is novel, and requires amplification. If I say a shadow is one existence, I shall be correct; the word names but one phenomenon—a sight. Persons who are void of vision can never know the signification of shadow. But if I say solidity is one existence, I shall be incorrect; the word names two phenomena—a sight and a feel.

Again: light is one existence. The word signifies a sight only. To say that sunshine is one existence, is, however, incorrect. The word signifies both a sight and a feel. As a feel, the blind are conscious of sunshine, and discourse of it as understandingly as we; but when

we hear the blind, we must not permit the ambiguity of language to delude us; the sight sunshine they can possess no knowledge of—they speak of the feel.

Words which name thus a sight and a feel are numerous: among them are figure, magnitude, distance, and extension. I can see that the surface of this table possesses extension, or I can trace the surface, and feel extension. I can see that the table has magnitude, or I can clasp it, and feel the magnitude. I can see that our fire-place is distant, or I can walk towards it, and thus feel distance. These truths are evident, and you may wonder at their enunciation; yet, so prone are we to disregard what is obvious, that the simple property which permits a word to name phenomena of different senses, has enabled theorists to convert the realities of life into a fairy tale.

A universally admitted speculation of this character is, that distance, magnitude, figure, and extension, are not visible. This was originally suggested by Bishop Berkley. He perceived that there are in roundness two phenomena—a sight and a feel; while there is but one name—roundness. The unity which exists in the name he attributed to nature; hence, he decided that the feel is the true roundness, and that the sight possesses only an imaginary significance, from its uniform conjunction with the feel.

Saint Pierre states, that a philosopher, who lost his sight by gazing at the sun, imagined that the darkness which ensued proceeded from a sudden extinction of the sun. This ingenious sarcasm is frequently applicable to human conclusions. Thus Berkley never imagined that invisibility was predicable of roundness by means of a la-

tent ambiguity in language; but he accused vision with the production of a delusion.

When we look at roundness, we know immediately the feel which it can produce. This knowledge is derived from experience, for seeing can never inform us of a feel; still, why should we mysterize a simple truth, which is applicable not only to the sights and feels that constitute figure, magnitude, distance and extension, but to every other sight and feel? Instead then of asserting enigmatically with Berkley, that the feel alone is the true roundness, and the sight a deception; let us say, that roundness names two existences—a sight and a feel; which, though dissimilar phenomena, are so frequently associated, that where the sight is exhibited, the feel is expected.

The doctrine of Berkley is, however, frequently countenanced by the admission of the blind. Rees' Cyclopedia* records a sudden acquisition of sight by a person who had been always destitute. "When he had learned to distinguish bodies by their appearance, he was, (says the narrator,) surprised that the apparent prominences of a picture were level to the touch."

Why? Because his instructors had shown him the sight to which the name prominence belongs; and, misled by language, he supposed the sight prominence and the feel were identical; consequently, when he saw in a picture the sight prominence, he expected to realize the feel also; and, being disappointed, he asked which sense deceived him? It was neither sense—it was language.

In the Gentlemen's Magazine of July, 1796, published in London, another blind person testifies that figure is not

* Title Philosophy.

visible. "When he first acquired sight, he knew not one shape from another." Related thus, the fact excites astonishment; yet it signifies only that he knew not the names of the sights which he was then first beholding. In one of the dramas of Shakspeare, a fanatic is arrested for asserting that he has just been miraculously cured of blindness. The king, after showing him a scarlet cloak, and desiring him to name the colour, orders him to announce the name of an officer who is near him. The restored blind man cannot. Then, says the king, you are an impostor, or the name of scarlet would be also unknown to you.

Still, that a man who has just acquired vision, cannot recognise familiar shapes, is somewhat unexpected. Colour names a sight only, and therefore is obviously unknown to the blind; but shape names a sight and a feel: hence we suppose that the two phenomena are identical, and that the heretofore blind man to whom the feel is familiar, can select it by seeing.

Professor Reid, in his Inquiry on the Mind*, states, "that a young man, who was couched by Chesseldon, thought at first that every thing he saw touched his eyes."

This is supposed to manifest the invisibility of distance. But what did the young man mean? Seeing can inform me when my hand touches the table, and feeling also can inform me. The word names then a sight and a feel. The young man was opening his eyes for the first time, hence he could no more know by name the sight touch, than he could the sight scarlet. He meant by the word touch, what during his blindness he had meant—a feel.

* Chap. 6, Sect 3

He knew no way to discover exterior existences, but by feeling, smelling, tasting, or hearing; consequently, he supposed that his eyes operated by one of these methods. His expression was merely an hypothesis to account for the intelligence of his new organs. If a person should suddenly acquire feeling, he would probably say that every thing which he touched was seen by his fingers. Something similar did occur: a man who had been deaf from his birth, acquired hearing by a surgical operation. His first expressions intimated that his ears saw the sound which they announced.

Paintings, also, are thought to prove that figure, distance, and magnitude are invisible. "When I look at a book," says Professor Reid, "it seems to possess thickness, as well as length and breadth; but we are certain that the visible appearance has no thickness, for it can be represented exactly on a flat piece of canvass."

I am as certain as Mr. Reid that paintings possess not the feel thickness; still, this is no contradiction of what I see. The picture proves only that the sight thickness and the feel are not always associated. The young man who was couched by Chesseldon, would not have expected, from the appearance of thickness, that it was ever associated with the feel, any more than he would have expected, from the appearance of red hot iron, that his hand could not endure collision with the iron.

Again: when I look at a picture, one part appears remote and another near, yet they are equi-distant, and differ in colouring only. This proves not, however, that distance is invisible; but that the sight distance and the feel are two existences which are sometimes disconnected. From the frequency with which the sight and the feel are

associated, we have given them one name, and suppose them identical ; but pictures would have always taught us the contrary, if we had not preferred the construction of a paradox.

I have now said more perhaps than sufficient to elucidate the position, that figure, magnitude, distance, and extension are not visible. They are invisible, because we restrict the names to the feels. It is the feel figure, the feel distance, and the feel magnitude that are not visible. The position is a quibble instead of a philosophical discovery. But to explain this quibble was not the motive for its investigation. I examined it to exemplify that a word names sometimes a plurality of existences, and that an ignorance of this latent ambiguity produces many speculative errors. For a like reason, permit me to adduce another speculation, which originated from the same ambiguity. It possesses three branches, of which the first is, that seeing, tasting, smelling, and hearing can yield no intimation that there exists an external universe.

The word external, names usually a sight and a feel. If I look at this table, I discover the sight external ; if I touch the table, I realize the feel. When we speak of external, we should, therefore, explain to which we allude, to the sight or the feel. This ambiguity was discovered by Locke. He supposed, however, there was no alternative but to select one as the real external, and to brand the other as a deception. He yielded the pre-eminence to the feel : a decision which succeeding philosophers have invariably respected.

Seeing, therefore, cannot inform us that there exists an external universe ; because we restrict the signification of the word external to the phenomena of feeling : the pro-

position, when announced correctly, means only that seeing will not inform us of a feel.

The puzzle is susceptible of another elucidation. What is the external universe? A mass of existences. The table before me is one. But do I allude to the sight table or the feel? Table, though a unity in language, is two existences. The feel table is familiar to the blind, but the sight table is so dissimilar, that were a blind man to suddenly obtain vision, he would be unable to select thereby a table from the carpet on which it stands.

Like remarks are applicable to nearly every part of the external universe. There is a sight candle and a feel candle; a sight chair and a feel chair. If now we restrict the word candle to the feel, we may contend that seeing cannot inform us of the existence of candles. This restriction philosophers accordingly impose on all words which name external existences: hence the paradox that seeing cannot discover them.

"The table which we see," says Hume*, "seems to diminish as we recede from it; but the real table suffers no diminution." Here the real table is evidently intended to designate the feel; while the table which diminishes, and is deemed deceptious, is the sight.

In the paradox under discussion, I have spoken of that part only which asserts that seeing cannot teach us the existence of an external universe. This part is the most paradoxical, because external is usually the name of a sight as well as of a feel; still we experience some perplexity when we are told that hearing, tasting, and smelling cannot inform us of an external universe. An instance

* Essay on Skeptical Philosophy, Sect. 12.

of this will appear in the following quotations*. "If any man will stand blindfolded in the middle of a room, and allow his most intimate friend to walk repeatedly round him without speaking, and afterwards to stand still and address him, he will not know, in several trials, the position of the speaker."

When we resolve the above information into sensible phenomena, it amounts to an intimation that hearing cannot inform us of a sight and a feel. The word position is a name of these, and the author intended so to employ it. Still position is not obviously a sight and a feel only; and hence is not known to be undiscoverable by hearing. If, however, we wish to teach a child the signification of position, we shall be unable except by the agency of either seeing or feeling. We may know from experience the position of a sound, but all that hearing discloses is the sound. If a man should deafen his ears with cotton, and be surrounded by persons who move their lips, he will not know, by looking at them, whether they articulate or feign. This would not constitute an interesting experiment; still it differs not from the former, except that articulation is known to name a sound, and therefore to be undiscoverable by seeing; while position is not obviously a sight and a feel only, and hence is not evidently undiscoverable by hearing.

The writer continues: "We might have had sensations of taste, without the application of sapid substances to the palate; for nothing is more common than to experience a taste, without an ability to ascribe it to an external cause."

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* New Edinburgh Encyclopedia, Tit. Metaphysics.

He intends to prove that tasting cannot inform us of an external universe. If the word external means any thing which is not a taste, the position is evident. It exemplifies, however, the sophistry to which we are liable, when we designate sensible information by other names than sights, sounds, tastes, feels, and smells. To announce that tasting cannot teach us a sight and a feel, would be insufferably simple; yet it is precisely what appears momentous, when we say that tasting cannot inform us of an external universe.

That external does not designate a taste, may be evinced by the inability of tastes to teach a child the signification of external. He will, however, easily comprehend its meaning, if you operate on the senses to whose phenomena the word refers. Delineate a circle, and write therein the figure 2, and place without the figure 3, he can immediately learn that the position of 2 is internal, and the position of 3 external: or place his hand in a tankard, and thereby teach him the feel internal, and the feel external. External is, therefore, a sight and a feel; hence tasting cannot discover it.

I think Professor Reid says, "if we enter a room and observe a collection of roses, we readily attribute the fragrance that we inhale to the roses; but," continues he, "if instead of roses we should perceive a range of closed jars, we should be unable to determine from which jar the odour issues."

He wishes to prove that smelling cannot inform us of an external universe; and that experience only enables us to know that odours proceed from external objects. His doctrine is correct, but it assumes an unnecessary mystery. Smelling cannot take cognizance of a sight or

a feel; and when external is thus resolved, all mystery vanishes.

By restricting the word external to the phenomena of feeling, philosophers prove not only that seeing, tasting, smelling, and hearing, cannot inform us of an external world; but that nothing which is intactible constitutes any part of external objects. Sweetness, say they, is no part of sugar; whiteness no part of snow; and fragrance no part of a lily. They persevere in a similar exclusion from all objects; and this constitutes the second branch of the paradox.

We must not suppose that Locke or Des Cartes, with whom these assertions originated, intended to propagate a deception. They perceived that the word sugar implies but one existence while it exhibits three existencies, a sight, a taste, and a feel. Instead, however, of attributing the disagreement between the unity of the word sugar, and the plurality of the phenomena, to a latent sophistry in language, they accused the senses of a delusion.

We will examine the positions separately. What is sugar? Usually the name of a sight, a feel, and a taste. If we restrict the word to the feel, we may safely pronounce that sweetness is no part of sugar. Touch it, I may say, and be convinced. Whatever is truly in the sugar, you can feel. There is hardness, figure, texture, and mobility; but nothing like sweetness.

When we know that philosophers restrict thus the signification of sugar to the phenomena of feeling, their conclusion becomes grossly evident. No man imagines he can feel sweetness; yet this is all that their position purports.

Let us consider, says Locke, the red and white in porphyry; "hinder light from approaching, and the colours of porphyry vanish. But," continues he, "can any person think that any alteration is thus made in porphyry; and that redness and whiteness are really in it, in the light, and not in the dark? It has indeed such particles as are apt, by the rays of light rebounding from some part of that hard stone, to produce in us the idea of whiteness; and from other parts the idea of redness: but neither redness nor whiteness is in it at any time."

What is porphyry? In the language of Locke, it is a hard stone. Here is an elucidation of the mystery: Locke restricts the name to the hard stone, to the feel: hence the presence and absence of light produce no alteration in the porphyry, and whiteness and redness are not in it: that is, they are no part of the feel. Even so insignificantly can speak a wise man, when he does not discriminate between the information of different senses.

To strike on a drum, and assert that the sound constitutes no part of the drum, will be admitted by most persons; for the word drum, names usually only a sight and a feel: but if I inquire whether sound constitutes any part of thunder, the question embarrasses. With most men, thunder is the name of a sound, to subtract which makes the word insignificant. Some, however, vanquish this difficulty even. The word thunder they resolve into other words, then they can deny that the sound constitutes any part of thunder—that is, the sound forms no part of their definition.

After philosophers determine that the phenomena of feeling alone constitute every external object, and that colour is no part thereof, they inquire where colour ex-

ists? Before we reply, it is well to know whether the answer must be verbal. If you ask me the appearance of my hand, you will concede that a display of the hand is the best information. If you demand whether my hand is hard, the submission of it to your touch is the most conclusive solution. But when you ask where colour is, you deem it a poor reply to be shewn the colour, and told that it is where you see. You touch the place, and say colour is not here. Nothing is here, but figure, extension, and texture.

This dissatisfaction is highly significant; and as it elucidates the paradox that colour constitutes no part of an external object, we will slightly discuss it. The appearance of my hand is a sight: hence you deem the question that relates to its appearance well answered by seeing the hand. The hardness of my hand is a feel: hence to touch it is the best elucidation of its consistence; but when you ask where colour is, the word where is a sight and a feel; therefore to see the colour is an unsatisfactory answer. You allude to the feel where. But the feel is not applicable to colour; and when I direct your hand to it, you justly exclaim that the colour is not there. I can feel, say you, solidity, extension, and texture, but nothing that resembles colour.

To dispel the ambiguity of the question which inquires after the location of colours, we must, therefore, understand that the word place, with all its concomitants, here, there, where, &c. is the name of two phenomena—a sight and a feel. If we converse metaphysically of location without attending to this distinction, we shall involve ourselves in a comedy of errors; nor are the Dromio of Ephesus and the Dromio of Syracuse more diverse existences than the feel place and the sight place.

As philosophers restrict external objects to the phenomena of feeling, and thus prove that flavour, odour, sound, nor colour, constitute any part of external objects; so they limit the signification of sugar, and every other external object, to a few only of the phenomena of feeling, and exclude hardness, temperature, roughness, and other feels. This constitutes the last branch of the paradox.

Every external object produces not one feel only, but several. When I touch a piece of wax I can experience smoothness, weight, tenacity, external, mobility, temperature, substance, figure, extension, and many other feels, to which also we have given distinct appellations. If we restrict the word wax to a part only of these feels—to figure, extension, and substance—we can confidently assert that the other feels constitute no part of wax. They are, I can say, sensations which the wax excites, but they are not in the wax: that is, they are not included in the phenomena to which I restrict the signification of wax.

While philosophers are discussing the number of phenomena which the name wax shall embrace, they imagine that the discussion penetrates deeply into the arcana of nature; though truly it relates to language alone. Phenomena exist precisely as we discover them, and all the control which we possess is to comprehend them under such names as we deem expedient. When estimated thus, it may be useful to debate whether hardness constitutes any part of iron, or tenacity any part of wax; but to suppose the inquiry is an investigation of nature, is as erroneous as to suppose that we are deciding the character and fortunes of our children when we are deliberating

whether to call them Cleopatra or Lucretia, Arnold or Washington.

"When I am opposite to fire," says Locke, "I feel heat; when I approach I feel greater heat; when I advance nearer I feel pain. "Why then," continues Locke, "do we not think that pain is in fire as well as heat?"

He wishes to prove that neither is in the fire, and nothing can be more easily accomplished. Fire, when restricted to the phenomena of feeling, is usually a name of the feel heat, the feel burn, the feels solidity, external, and some others: hence heat is in the fire—that is, we include it among the phenomena to which the name fire is applied. But if we restrict the word to the feels solidity, substance, external, and figure, we can maintain that heat is not in the fire.

Professor Reid states a similar proposition: "If you recline against a stone, you will feel hardness; if you press against it, you will feel pain: why then," he asks, "do you not affirm that pain is in the stone as well as hardness?"

He adduces the argument to prove that hardness is not in the stone: and doubtless with him it is not. He says that nothing is truly in the stone but figure, substance, and texture. This elucidates sufficiently why hardness is not therein. Substance also might be excluded, if he would banish it from his definition.

An inattention to the principle of language that I have endeavoured to designate, has produced more errors than many volumes can comprehend; yet I will intrude upon you an enumeration of only one additional class. This relates to the generally received impression that the senses

are fallacious. If we thrust a stick into water, and leave a part of its length unimmersed, the stick will appear crooked, which we are told is a fallacy of the senses; for the stick is straight. Crooked is supposed to name but one existence, though it names two—a sight and a feel. The sight crooked and the feel, possess no identity except the name, by which we confound them. True, they are generally associated, but if we hence infer that they are identical, or even that they never exist disjunctively, we must blame our inexperience. The senses would always have taught us the separability of the sight crooked from the feel, if we had thrust a stick into water. They are no more chargeable for our erroneous conclusions in this particular, than they would be if we had never seen any black body but what would discolour our hands, and should thence believe (as I have known some children,) that the discolouration is a necessary consequence of blackness.

If you half fill with cotton wool a wine glass, and immerse it (in a reversed position) in a bowl of water, the cotton will, on slowly emerging the glass, appear wet, while to the feel it will be dry. We may exhibit this experiment as another fallacy of our senses; but such a use of the experiment will be rather another instance of the latent sophistry of language. Wet is a sight and a feel, two phenomena, though they possess but one name. The sight wet and the feel are frequently associated, but that they are not inseparable, the experiment in question will demonstrate.

Again: by a slight pressure on one of my eyes, I can see two candles, where feeling certifies there is but one. This also is deemed a deception, for we assume that the

sight candle and the feel are identical, though experience would always have taught us that the two phenomena are separable by a slight pressure on one of our eyes. If I write at a table on which there are two candles, my pen produces two shadows. If a third candle be lighted, the pen will produce three shadows. Why do we not esteem the multiplication of the shadows a deception, as well as the multiplication of the candles? Because the word shadow names a sight only, while candle designates a sight and a feel, which hence we assume to be identical; and when the sight is multiplied without the feel, we suppose that seeing deceives us.

Seeing is most obnoxious to the charge of deception, but feeling is not wholly exempt. If you place across each other the third and fourth fingers of any one's right hand, and rest the tips of those fingers on a bullet, the person will suppose that he is touching two bullets. Here also the senses are innocent. Two, when applied to bullets, designates a sight and a feel. The feel is so seldom discoverable without the sight, that we suppose them identical. But feeling can never inform us of the sight two. The sight and the feel are different existences, which the experiment shows may be disconnected.

Finally, we may come to this conclusion, that what any sense informs me of, no one or more of my other senses can reveal to me. This position seems to violate the experience of every moment; still all violations may be reconciled by an investigation of language. When I look across this table, seeing informs me that there exists no impediment to the extension of my arm. This information feeling also can give me: hence both seeing and feeling seem to yield the same information; but when we re-

solve the information into the phenomena which give it significancy, we shall find that seeing informs us of a sight, and feeling of a feel:—two existences which cannot be identical. Experience alone enables us to determine, by vision, that my arm will meet with no obstruction.

Again, a physician may say that seeing informs him of the approaching dissolution of his patient, and that the sick man's pulse yields to feeling the same information. But feeling announces nothing, except certain phenomena which experience evinces precede death; and seeing announces another class of phenomena which also precede death. The information of the two senses agree in nothing but in being joint precursors of the same catastrophe.

If the physician say that death is discoverable by seeing and feeling, the identity is even in this case verbal. Perhaps every sense can reveal some phenomenon to which the word death may be appropriately affixed, so that no man, how defective soever his formation, may be wholly ignorant of life's extinction; still the information of the different senses is identical in nothing but in the name death that is common to the whole.

I hope that I have now said even more than sufficient to elucidate the errors to which we are constantly liable, by attributing to phenomena of different senses an identity which exists truly no where but in the name by which the phenomena are designated. We call roundness one existence, whereas it is two—a sight and a feel. The like may be said in a multitude of other cases. Practically but little embarrassment arises from thus transferring a unity from language in which it exists, to nature where

it exists not; but with theorists the embarrassment has been fundamental.

If what I have advanced should shield you from this latent sophistry of language, your effort in listening to me has not been misemployed, for you have already made no inconsiderable progress in the philosophy of human knowledge.

LECTURE II.

In the natural world those objects are most abundant which are of the greatest necessity to the preservation of life. So plentiful indeed are water and air, the two great requisites of vitality, that they are valueless. In the moral world, also, qualities are prevalent in proportion as they are essential to the continuation of society.

The forbearance from homicide, a forbearance which constitutes the basis of society, has, from its universality, not even a name.

The analogy in this particular between these two great departments of creation, continues in the objects which are merely serviceable, and abandons not those which are exclusively ornamental. Thus the honesty which enables me to leave my rooms unbarred to my domestics, is as common as the bread which supplies my table.

And when we proceed to the diamond, which sparkles on the breast of wealth only, and to the massive plate which loads the sideboards of the conspicuous few: we

find them compare in rareness with the exalted integrity that spurns every indirection, and the scrupulous truth which bends to no necessity.

It is even thus in the intellectual world. The knowledge which is sufficient to direct our hands to the procurement of the necessaries of life, is discoverable in the most uneducated individual; while a knowledge either of the latent subtlety of language, or of the muscular motions necessary to produce the portraits of Stewart, are as rare as they are unessential to the common avocations of society.

Although then we may, without any of the information that I presume to deliver, remain abundantly qualified for the stations in which Providence has placed us; yet all who would correctly appreciate the various departments of speculative knowledge, can in no way so effectually secure the object as by acquiring a deep knowledge of the properties of language.

In the last discourse which I had the honour to deliver, I showed that the same word names frequently phenomena of different senses; and that much speculative error is produced by estimating as identical, phenomena that have no identity but the name by which we designate them: for instance, we think roundness the name of but one existence, while in truth it names two—a sight and a feel.

In the present discourse I shall attempt to show another essential property of language, namely: Every word is a sound, which had no signification before it was employed to name some phenomenon, and which even now has no signification apart from the phenomena to which it is applied. William and Thomas, when spoken with

reference to two men, are significant appellations; but if I apply these names to nullity, the words partake immediately of the nothingness to which I apply them.

This principle, when thus expressed, seems obvious; still, in practice, it has escaped the vigilance of the most acute, and supplied metaphysics with its most perplexing doctrines.

To detect sophistry of this description we must again resort to the constituents of our knowledge; to sights, sounds, tastes, feels, and smells. Thus, take the word weight—it names a feel. The feel is abundantly familiar. It is discoverable in a feather, in a piece of lead, and in nearly every object. The word possessed no significancy before its introduction into language, and it now possesses none apart from the feel that it designates.

Admit then that weight is the name of a feel, and observe how speciously I can employ the word after I divest it of all signification: thus, "many objects are too small to be seen with the unassisted eye; and some the most powerful microscope can render but just visible; we may therefore well believe that numerous atoms are so small that no microscope can reveal them: still each must possess colour, shape, and weight."

Now observe, if weight names a feel, how has the word any signification when we predicate it of an atom, in which confessedly the feel cannot be experienced? What feel is that which cannot be felt? We have subtracted from the word all its significancy, and left nothing but a vacated sound. It becomes weight minus weight.

Again: take the word atom—what is it? The name of a sight and a feel. I can teach you its meaning only by

showing you, or permitting you to feel, some very small object, of which thereafter atom will be a name. I can show that a microscope enables us to see objects where vision unassisted can discover nothing. These sights also I can inform you are atoms. But when I say there are atoms which cannot be seen, I divest the word of signification. We may apply the word atom to a taste, sound, or smell, and speak of an atom of taste or an atom of sound or smell; but when we use the word where no phenomenon is discoverable, it designates nothing, and is nothing but the sound of which it is constituted.

Again: colour is another attribute of the atoms that we have been considering. What is colour? The name of a sight. But in the above proposition it is used for what is admitted to be invisible: hence the word is divested of signification, and nothing remains but a vacant sound. A man that can neither be seen nor felt is not a greater nullity than an invisible colour. The defect is similar in both cases:—the words are divested of their signification.

We may learn from even this slight investigation, that words can be deprived of intelligence, and still formed into propositions which will not be obviously futile. We are vigilant to detect any open contradiction in a proposition, but we never notice the latent contradiction which arises from predicating sensible phenomena where they are confessedly undiscoverable: thus, if it should be affirmed that an object is heavy and not heavy, or visible and invisible, all persons would ridicule the affirmation: but there is no essential difference between even such propositions and those which speak of a weight that cannot be felt, and of a colour that cannot be seen.

Zeno's paradox respecting motion is an egregious example of the inanity to which we may arrive by the above misuse of language, even when we pursue the most logical deductions. Thus, say that a tortoise is a mile before Achilles, and that Achilles runs a hundred times faster than the tortoise, yet he will never overtake it. Because, says Zeno, when Achilles has run the mile the tortoise will have moved forward the hundreth part of a mile, so that it is not yet overtaken. In the same manner, whilst Achilles passes over the ten thousandth part of a mile, the tortoise has moved on the millionth part of a mile and is not yet overtaken; and so on, ad infinitum.

If we do not esteem words as names of sights, feels, &c. the conclusion of Zeno is correct. The problem might have been enumerated among the incontestible discoveries of antiquity, if it had not interfered too grossly with the experience of every moment. But though the proposition is palpably preposterous, the defect of its reasoning has never been explained; nor is it explicable on any other principle, than that words become insignificant the moment they are used where no phenomena is discoverable.

Let us test the proposition by this rule. I can show you that from this point to another is a mile; and the word is then the name of a sight: or I may tell you to walk with me to the terminating point, and then the word mile will name a feel. A mile is therefore the name of a sight and a feel.

"When Achilles has run one mile, the tortoise is still the one hundredth part of a mile ahead of him." The hundredth part of a mile names an existence, which is as palpable as a mile; hence, so far the deduction is correct, and the tortoise is not yet overtaken.

"Whilst Achilles passes over this hundredth part of a mile, the tortoise moves on the ten thousandth part of a mile." The ten thousandth part of a mile is between six and seven inches. It names a sight and a feel; hence the process is still faultless, and the tortoise is not yet overtaken.

"Whilst Achilles passes over this ten thousandth part of a mile, the tortoise moves on the millionth part of a mile." The millionth part of a mile leaves them asunder about the fifteenth part of an inch, which names a real existence, a sight and a feel; hence there is still no sophistry—the tortoise is not yet overtaken. But the next step is a quibble. It affirms, that whilst Achilles passes over this millionth part of a mile, the tortoise moves on the hundred millionth part of a mile, which is a name without any corresponding existence in nature, and hence the sophistry and quibble. The last step is absurd, not from any defect of logic; but because the words name no longer any sight, sound, taste, feel, or smell. They have become divested of signification.

The new Edinburgh Encyclopedia, from which the problem is extracted, says, "it would not be easy to solve this quibble were we to measure motion by space merely, without taking in the idea of time." But this explication is only the substitution of another quibble. The proposition will be equally sophistical if you use time in the place of space, or if you join time with space. The tortoise will not be overtaken so long as it is a moment the start of Achilles; but when the time which separates them is the hundred millionth part of an hour, the words will have no archetype among sensible phenomena, and will be divested of signification.

The most extravagant assertions are often esteemed profound knowledge, because they are logically deduced from admitted premises: but there are no deductions more logical than those which we have examined of Zeno, and which are insignificant. Verbally there is no limit to the divisibility of matter, for every thing possesses two halves, and when you have divided it, each half becomes immediately a whole endued with halves. To suppose you can arrive at any thing so small that it will not posses a half is absurd; hence matter is divisible in infinitum. The conclusion is a correct deduction from the premises, but like the paradox of Zeno, it arises from the use of words after they have ceased from possessing any signification. What is the word half? I can show you the meaning if you see me divide an apple; or you can feel the meaning if you break a stick. In one case it names a sight, in the other a feel. Hence to use the word half, where it refers to neither a sight nor a feel, is as insignificant as the hundred millionth part of a mile which separated Achilles from the tortoise. The words in both cases are divested of meaning.

But it may be said, can we not see or feel an object which is so small that we cannot see or feel the half of it; and can we not say of such an object, that the half is less than the whole? If there is no sensible phenomenon to which the half refers, the word will be without any signification. We may mean that if the sight or feel which we should name a half could be produced, it would be less than the whole; but, to speak of the half as an actual existence, when the sight or feel cannot be produced, is sophistry and error. As soon as you divest words of their conven-

tional signification, they return to their pristine character of unmeaning sounds.

I have heard a company of intelligent persons deliberate gravely on the infinite divisibility of a drop of water ; half of a drop of water says one is water, for the division alters not chemically the nature of water, but diminishes the quantity merely. But the half being water may be again divided, and the residue will be still water ; and so in infinitum. The conclusion is regularly deduced from the premises, but during the process the word water loses its signification. Water is a name given to a sight, a feel, and a taste. A water in which these are not discoverable, is water minus water—a vacated sound.

As you enlarge a circle its circumference approximates towards a straight line. But there is no limit to the magnitude of circles; they may be imagined not as large as our earth only, but larger than the orbit described by the earth in its annual revolutions. Still no part of the circumference can be equal to a straight line; for there is no proposition in mathematics more satisfactory, than that a straight line can never constitute a circle; hence we arrive at the conclusion, that a curve may expand in infinitum without becoming straight.

It was in view of this mathematical process that Hume says, " the demonstration of these principles seems as unexceptionable as that which proves the three angles of a triangle to be equal to two right angles ; though the latter opinion is natural and easy, and the former big with contradiction and absurdity. Reason here seems to be thrown into a kind of amazement, which, without the suggestion of any skeptic, gives her a diffidence of herself, and of the ground on which she treads. She sees a full light, but

it borders upon the most profound darkness. Between them she is so dazzled and confounded, that she can scarcely pronounce with certainty concerning any object."

But the difficulty vanishes if we consider the words circle, curve, and straight line, as names of sights and feels, and that the words in every case where they are separated from the sights and feels are mere sounds. Mathematicians are correct so long as the words refer to phenomena; but when they speak of a curve which can neither be seen nor felt, it is a curve minus curve, and the proposition is like the problem of Zeno.

What can be more paradoxical than the universal belief that a man sustains an atmospheric pressure of fourteen tons? Because a cubic inch of air weighs the third part of a grain, we calculate the number of cubic inches of air which is in a column of 40 or 50 miles in altitude; and by calling every inch the third part of a grain, we arrive at the conclusion that every man supports a pressure of fourteen tons. Is not this divesting the phrase fourteen tons of its signification? Weight is the name of a feel, and to use the word where there is no feel, is like talking of a tooth-ache which cannot be felt, or of an inaudible melody.

But is it not demonstrable, that the weight of a column of atmosphere is equal to the weight of a column 28 inches high of mercury? No, the experiment shows simply the facts which are exhibited. The weight of the atmosphere is merely the theory by which we account for the support of the mercury. So far as we use the weight theoretically to give a system to our discoveries, the use is desirable; but to deduce therefrom that a man sustains literally a pressure of fourteen tons, is to possess a very erro-

neous opinion of language. The fourteen tons refer to no existence but the few phenomena from which the conclusion is deduced ; and so far only as the phrase is a name of these, it is significant.

I met lately with the following speculation, which though perfectly logical, shows how idly we may philosophize when we are ignorant of the property of language that I have endeavoured to display. "A small piece of sugar will sweeten a pint of water, consequently every drop of the water will contain some particle of sugar."

So far the speculation is sensible, the particle of sugar which every drop of water is said to contain, refers to the sweetness that is discoverable in the water. But the theory proceeds :—"if we add a farther pint of water, we shall still be able to discover sweetness : hence every drop of both pints possesses some particle of sugar. The divisibility of the sugar is, however, not yet complete, because if we add another pint of water, we shall discover that the taste has ceased ; therefore the last pint must have caused a farther division of the sugar, or some part of the water would continue sweet."

There is still no sophistry. The next step is, however, delusive. The writer continues : "have the particles of sugar been now divided to the extent of their divisibility ? If they have, it must proceed from a want of power in water to effect a farther division, and not from a want of matter to be divided ; because the last water could not have so divided the particles that each will not be larger than the half of it."

"But is it not gross vanity to suppose, that the power of water to divide, ceases at the moment when our sense can no longer discover the effects of a division ? We may as

well suppose, that time ceases when we fall into a sound sleep. Is it not more philosophical, and does it not give us more sublime notions of creation, and is it not also more agreeable to analogy, to suppose that the smaller the particles of sugar become by division, the more easily they will be affected by the dissolvent quality of the water; and that the water continues to divide the particles so long as there are particles remaining? But we have shown that there will always be particles remaining, hence no quantity of water can be added without causing a further division of the sugar. How infinitely divided must the sugar at length become, when a small piece is cast into a creek or river! And if every soluble thing which is thrown into the ocean divides so that every drop of the ocean contains some part of the dissolved substance, what a curious and vast variety of particles must a drop of the ocean contain!"

In the above there is no weakness of argument. The defect lies in the misuse of language. We continue to employ the words particle, sugar and division, long after we have subtracted from them every sensible existence. The words, however, are nothing but names of sensible existences; and to use the words where the existences are not discoverable, is to speak of invisible sights, inaudible sounds, or any other contradiction. Such a use of language is like the trick of a juggler, who having adroitly conveyed a shilling from under a candlestick, talks of the money as still under the candlestick.

I have now, I hope, established the assertion that words have no signification but as they refer to phenomena, and that an ignorance of this principle induces us to use words after their signification has been subtracted, and the words have thereby become insignificant. It is not my inten-

tion to apply this rule to any theory or science. My object in these Lectures is merely to establish principles—their application I shall leave to others. But as a farther illustration of the principle, I will adduce some examples of its abuse in the use of the word cause. I select this word because its abuse enters more deeply into metaphysical errors, and has in nearly all the sciences been more fruitful of delusion than the same error in the use of any other word.

To teach a person the meaning of the word cause, I must operate on some of his senses. I can tell him to behold how I cause darkness. He looks and sees me extinguish the candles. The word will then have one signification; namely, the phenomena which he discovers. Again: I can tell him to halloo, and it will cause an echo. If he ask what I mean by causing an echo, I shall tell him to halloo, and he will discover my meaning. I can teach him by any other of his senses the meaning of cause.

If two billiard balls strike, they will rebound. The cause is variously assigned. Till lately every philosopher inculcated, that when the balls strike, there is a dent produced in each ball; and that the dent resuming instantly its rotundity forces the balls asunder.

What is a dent? A sight and a feel. But the dent which is here assumed can be neither seen nor felt; hence the cause in this case is a word divested of its signification. A dent which our senses cannot perceive differs but in sound from a house which our senses cannot perceive: both are names of sensible phenomena, and both are unmeaning terms, when they are used without a reference to some discoverable existence.

In relation to the motion of billiard balls Professor Stewart says, "Some of the ablest philosophers in Europe are now satisfied, not only that there is no evidence of motion's being produced by the contact of two bodies, but that proofs may be given of the impossibility of such a process: hence they conclude, that the effects which are commonly referred to impulse, arise from a power of repulsion, extending to a small and imperceptible distance round every element of matter."

The billiard balls rebound, then, by virtue of a repulsion, which operates at an insensible distance between the two balls. A repulsion is, however, a sight or a feel, or both; but in the present case it names neither, and is a sound divested of signification. We can neither see the repulsion, nor feel it; nor is it discoverable by any of our senses. It is a repulsion minus repulsion. It operates also at an imperceptible distance. This is precisely the distance that for ever prevented Achilles from overtaking the tortoise. But distance is a sight and a feel; and when we subtract these, as is done by Professor Stewart, the word returns to the pristine insignificance which it possessed before it was applied to the purposes of language.

Let us consider, says Locke, how bodies produce ideas in us. "It is manifestly by impulse, the only way in which bodies can operate: hence, if external objects be not united to our mind, when they produce ideas therein, some motion from the external object must be continued by our nerves or animal spirits to the brain, there to produce in our minds the particular ideas which we have of the objects."

What is a motion? A sight or a feel. We may speak of an invisible and intactible piece of iron with as much propriety as of a motion that is undiscoverable by our senses. The defect is similar in both cases.

Again, says Locke, "colour and smell are produced by similar motions, which are caused by insensible particles operating on our senses." Here not the word motion only is used, as in the former example, but also the word particles. The particles which are moved are as insensible as the motion. The word particles names, however, existences which can generally be both seen and felt. It may be applied intelligibly to a sound, taste or smell; but to employ the word as a name of something which none of our senses can discover, is a use that language cannot sustain and retain any significance.

If motion and particles were known in the way only in which they are employed by Locke, you could never disclose their meaning to any person. You may as well attempt to instruct the blind in the import of scarlet, as teach another person the signification of a term that does not name a sight, feel, taste, smell or sound. The disability of the blind proceeds from a destitution of the sense which is conversant with scarlet; and a disability arising from a similar cause is experienced by us in the words motion and particles when they signify something that our senses cannot discover.

"Let us now suppose," continues Locke, "that a violet, by the impulse of such insensible particles, of peculiar figures and bulks, and by different degrees and modifications of their motions, cause the blue colour and sweet scent of that flower to be produced in our mind." The smell and colour of a violet are therefore caused by an

impulse which can neither be seen nor felt; and the objects impelled are undiscoverable particles that possess invisible and intactible figures and bulks, and move with various degrees of an insensible motion. It is no wonder that the study of metaphysics is difficult, and that the common sense of mankind has long ridiculed it. You can no more subtract from a particle or from motion its sensible qualities, and leave an entity, than you can subtract them from an orange or pine apple and leave a fruit. It must be a fundamental axiom of philosophy that the word cause, nor any other, can be used significantly, except as the name of some sight, feel, taste, smell, or sound; and we shall eradicate a mass of error with which every branch of knowledge is oppressed and disfigured. The phenomena which nature exhibits spontaneously, or which we can by any means cause her to exhibit, afford real knowledge, and the only subjects except revelation to which we can significantly apply language.

If I release my hold of a stone, it will fall to the earth. Natural Philosophy asks, why the stone descends in preference to ascending? She then proceeds to answer the question by asserting that the descent is caused by an attraction which exists in the earth.

We now think that we have gained much information. We know that needles rush to a magnet by virtue of its attraction, and we have only to suppose a similar power in the earth, and the descent of the stone is accounted for. There is, however, an essential difference in the two cases, and we cannot (though I make this remark incidentally) be too thoroughly acquainted with it. It will yield us a test by which we may discriminate between the realities of nature and the sciences that are reared artifi-

cially by the ingenuity of men. With the descent of a stone you will be unable to teach a person the meaning of the word cause. Caused by the earth ? he will say, what do you mean? I see the stone fall, but I see nothing more. There is only one phenomenon. Not so, however, with the magnet. I can tell him to observe how the magnet causes the needle to move. He will see the motion, and that the approach of the magnet is a necessary prelude ; farther, that the quiescence of the needle is uniformly disturbed by the advance of the magnet ; that their conjunction is prevented with difficulty, and their separation produced by a sensible effort only. Here are phenomena to which the word cause refers ; but when it is applied to the earth the word is divested of its signification.

Again: the word attraction, when predicated of the magnet, refers to a sight and a feel. It can be seen in the needle's uniform attendance on the movements of a magnet; or it can be felt in the effort that is necessary to detach a needle from a magnet. But attraction, when predicated of the earth, refers to no phenomenon. It is cognizable by none of our senses: hence the word is divested of its signification. It becomes attraction minus attraction. The proposition, therefore, which we have been considering, errs in two particulars: it uses the word attraction, without intending that it shall name any sensible phenomenon ; and it makes this insensible existence the cause of the descent of stones, hence using insensibly the word cause also.

If I place in your hand a piece of lead, and inquire if you feel any weight, you will answer affirmatively. The weight I shall tell you is caused by the lead. The word

cause is here significant. It refers to the invariable realization of the feel, in conjunction with the lead; and to its cessation on the removal of the lead. But Natural Philosophy inquires farther, and demands the cause of this feel. She answers, it is caused by the earth's drawing the lead downwards by the force of attraction.

Here again the word cause refers to no phenomenon, and is therefore divested of signification. When a slender bar of steel struggles to touch a powerful magnet, the feel is caused by the magnet; for it ceases on the removal of the magnet, and thus gives to the word cause a sensible signification: but when we feel on our hand the pressure of a piece of lead, and say that the feel is caused by the earth, the assigned cause refers to nothing: there is only one phenomenon, and that is the pressure of the lead.

Doctor Darwin in his Zoonomia attributes all the phenomena of chymistry to a specific attraction and a specific repulsion, which belong to the sides and angles of the insensible particles of bodies. When the repulsions predominate, they cause the diffusion of light and odours, the explosion of some bodies, and the slow decomposition of others: but when the attractions predominate, they cause crystallization and solidity.

Attraction, repulsion, sides, and angles, are names of sensible phenomena; independently of which the words are as insignificant as any that can be made by throwing promiscuously together the letters of the alphabet. We find, however, that the words alone are made the cause of odours, sounds, fluidity, and explosion. The proposition is an instance as glaring as any that can be adduced of the absurdities into which even the wisest men

are sure to fall when they use language for other purposes than to discourse of sensible existences.

If I look at this piece of silk, I discover the sight which we call red. The sight is caused by the silk. If you desire to know what I mean by asserting that the silk causes the sight, I can remove the silk, and the sight will cease. The word cause has, therefore, in this case, a sensible signification.

But opticians carry the inquiry farther, and ask what causes the silk to produce the sight which we name red? The answer is, that light, which appears to us colourless, is composed of red, and other gorgeously coloured rays. That the silk absorbs from light all its rays but the red, and that the red rays are reflected from the silk to our eyes.

The phrase red rays, when used significantly, refers to a sight. It is discoverable in a prismatic spectrum ; but here the phrase refers to nothing. The rays can be neither seen nor felt ; nor are they discoverable by any of our senses. They are rays minus rays—a word divested of its signification. Red rays which cannot be seen, are as gross an incongruity as a pain which cannot be felt. The error in both cases is the same. Still, this phrase, divested thus of its signification, is made the cause of redness : hence the cause is nothing but a vacated sound.

The inquiry is carried even farther, and we are asked how the reflection of red rays to our eyes enables us to see redness? The answer is, that the red rays converge on the retina of our eyes, and form there a very small picture of the piece of silk. It is this picture which the mind perceives, though we ignorantly imagine that it is the distant piece of silk.

The word picture names usually a sight and a feel; but here it designates neither. You would in vain endeavour to teach any person the signification of the word, by referring him to what is exhibited on the retina of his eye. The word picture, when thus used, becomes nullified. It refers to nothing, and is nothing but the sound of which it is composed. True, in a dissected eye, a miniature of external objects may be discovered: hence the term is significant when thus applied; but to persist in the application of the word to a living eye, where no such phenomenon can be discovered, is to act less significantly than children; for when they say that a chair or a stick shall be a ship, a house, or a lady, they give a wrong name only to their playthings; but when we apply the word picture where there is no discoverable existence, we far more emphatically than the children, "give to airy nothing a local habitation and a name."

Let me not, however, be understood as decrying the theories to which I advert. Many of them can probably never be improved—and I fully appreciate the sciences that are erected on them; still, let us not confound the works of men with the realities of nature; and, like antiquity, be not content with awarding to Prometheus the credit of sculpturing a well proportioned statue, without straining our admiration to the belief that he endued it with animation.

Recollect further, that what I have said of the word cause, is only illustrative of the general principle that words have no signification but as they refer to some phenomenon. The principle is applicable to every word. It is as broad as language, and has no exception, but when words refer to revelation. This principle will guide

you safely through the most subtle labyrinths of metaphysics, and enable you to separate the tinsel of indolent conjecture from the gold of laborious observation.

LECTURE III.

WHEN we survey society, and discover the labourer bending beneath his toil; the merchant, sedentary at a scanty desk; and the scholar, wasting in the contemplation of a few propositions—we can scarcely believe that they are beings, to whom nothing is naturally more delightful than to roam without a limit, and to expatiate without a rule. Such, however, are some of the transformations of civilization. Still, in condescension to human infirmity, every new enterprise may be preceded by a relaxation, and every new investigation by an excursion of fancy. But these indulgences must be brief. The sinews of the artisan must again be strung to toil, and the thoughts of the student contracted to a point.

Leaving, then, the pleasant fields of excursive speculation, we also must return to the slow exploration of a single avenue of knowledge. My former lectures contained truths which are simple, yet highly important. They have singularly escaped the scrutiny of metaphysicians,

while, practically, they have been admitted by all persons. We are strangely prone to disregard what is obvious, and to believe, with an ancient philosopher, that truth lies at the bottom of a well. The contrary is, however, uniformly a safer conclusion. I now beg your attention to another fundamental, yet simple principle of language: namely, every word has as many meanings as there are different phenomena to which it refers.

If we reflect, even cursorily, on language, we must be struck with the number of its applications. Creation is, literally, immense; still, the names of created objects form but one use to which language is appropriated. Every feeling, every desire, every action can be recorded by language. No event is so eccentric, no imagination so wild, no situation so peculiar, but language can publish it. To effect these innumerable appliances, we have but thirty-eight thousand words: hence the necessity that every word should possess a multitude of meanings.

Nothing is more definite than colours; still, if we take any one of them, we shall find how variously, even in this definite application, a word may be used. White is applied to snow, to this paper, to the glass which composes our windows, to our skin, to the floor of this room, to the walls, to water, and to silver. A perfect language should have a separate word for each of these appearances, and a separate word for every other phenomenon; but a language thus precise would be too copious for our memory: hence in every tongue the same word is applied to many phenomena.

This versatility of language produces little embarrassment in the ordinary concerns of life, but in speculation it occasions controversy and confusion. When a metaphy-

sician discovers that a word is appropriated to discordant existences, he supposes that the disagreement is an anomaly in nature, instead of a property of language.

I may offer to demonstrate that the wall of our room is as white as the paper which I hold in my hand. The demonstration will be accomplished, if I place the paper against the wall, and enable you to see that the colours correspond. The word demonstrate you will not object to, because you will understand the process to which it alludes.

In speculation, however, the case is different. "We cannot demonstrate," says Locke, "the equality of two degrees of whiteness, because we have no standard to measure them by. The only help we have are our senses, which, in this point, fail us."

The difficulty arises from the restriction which Locke imposes on the word demonstrate. He imagines that its signification does not vary with its application, and that it is used correctly only when it refers to counting—as when we demonstrate the equivalence of two piles of dollars; or to weighing—as when we demonstrate the equiponderance of two pieces of lead; or to measuring—as when we determine the length of two lines.

With such a restriction on the word demonstrate, Locke may as well have asserted the most puerile proposition as the above. His was precisely such a mistake as was committed by an African king, who executed a sailor for imposition, because the sailor declared that he had crossed the ocean in the Elephant: a name which the African thought applicable to an animal only.

"A few moments' reflection," says Professor Stewart, "must satisfy any one that the sensation of colour can re-

side in the mind only; yet our constant bias is to connect colour with external objects."

But wherein am I mistaken, when I assert that the colour of this baize is connected with the baize? The error lies in the restriction which Mr. Stewart places on the word connexion. The word is generally appropriated to a sight and a feel: to the feel which is produced when I endeavour to separate two links of a chain, and to the sight which is experienced when I look at the links. To suppose, however, that the word has the same signification when I assert that colour is connected with the baize, is to suppose that I am asserting a nullity: for how can colour, which is a sight, be thus connected with baize, which is a feel? It cannot be by the feel connexion, because that involves the absurdity that colour can be felt; nor can it be by the sight connexion, because that involves the equal absurdity that baize *(i. e.* the feel) can be seen. The only way then in which the word connexion can be significant when applied to the sight colour and the feel baize, is as a name of the peculiar phenomenon to which the word then refers. To insist that connexion shall not be thus construed, but that it shall always mean the phenomena which are exhibited by two links of a chain, is as absurd as to insist that no two men shall have the same name, under the penalty of being deemed either one person, or of one of them being considered a non-entity.

"But," continues Mr. Stewart, "our natural bias is to conceive white, blue, and yellow, which exist in the mind only, as something spread over the surface of bodies."

A painter might startle if he should be informed that white, blue, and yellow are not spread over the surface of

bodies. Has he suffered a delusion which you are about to dispel? No; you are using the phrase, "spread over the surface," as no man ever used it, when applied to colours. You insist that the phrase has but one signification, and because that signification is undiscoverable in colours, you conclude that mankind are suffering an egregious error. The error is, however, in language, which has not a peculiar term to express every phenomenon, but employs the same term to name several phenomena. You transfer a defect which exists in language, to our senses, where it exists not.

What is the spreading over the surface to which Mr. Stewart refers? He will admit that baize can be spread over the surface of a table—this affords an elucidation of his error. The spreading referred to by Mr. Stewart is the feel spreading. It is where we can feel the body that is covered, and the body that covers. All, then, which Mr. Stewart means is, that colour cannot be felt;—a sight cannot be felt. The word spread, when thus restricted, is so far from what we naturally believe of colour, that no man ever entertained so unnatural an opinion. We may as well insist that a man who calls his dog Pompey mistakes him for the dictator of Rome.

Mr. Stewart will admit that the oil and lead which compose colour can be spread over the surface of bodies. It is the sight colour which produces the difficulty. The sight never can be spread over the surface of a body so long as we confine the signification of the phrase to the phenomena of feeling.

Again: Mr. Stewart deems it erroneous to say, that "light strikes the eye." Why? Because strike is the name of a feel; therefore it cannot be predicated of light,

which is a sight. Mr. Stewart supposes that strike possesses but one meaning. It possesses, however, as many meanings as it has applications to different phenomena. Sometimes it is the name of a sound, as when we say a sound strikes our ear. It has no inherent applicability to one phenomenon more than another; and when it refers to no phenomenon it becomes insignificant.

The correct meaning of a word is the sight, feel, taste, or other phenomenon to which the word is appropriated by approved custom. So long, however, as a word designates any phenomenon, it has a signification. To say a sound looks like another sound, is to use licentiously the word looks, which is the name of a sight; still, if the speaker refers to the similarity of two sounds, the word has every requisite to render it significant. A philosopher who should contend that sounds cannot look alike, (meaning thereby a sight) would be more in error than a man who should maintain that they resemble: for the assertion of the philosopher would involve a quibble, whilst that of his opponent would only be an impropriety of phraseology.

Though we suppose generally that external objects cause in other persons similar sights, tastes, feels, sounds, and smells, to those which they produce in us; yet, say metaphysicians, no man can possibly know this with certainty.

Apparently there is a mysterious contradiction in the above metaphysical assertion; for while we wonder at the alleged impossibility, we are confident of its practical inefficiency. But the difficulty proceeds from not knowing that the word similar has several meanings, and that it is used diversely in the above positions. When I say, that

the heat which I am feeling is similar to what I felt yesterday, the word similar refers to the antecedent feel and the present. So long as I restrict thus its meaning I cannot know that fire produces in you a similar feeling to what it produces in me. I cannot feel with your organs.

But we intend a different meaning, when we affirm that the feel which you experience is similar to mine. The word similar means now that you display, under the operation of heat, appearances like those which I exhibit; or that you describe your feelings in the same language, &c. In short, I cannot know that the feel which fire produces in you is similar to what it produces in me, and I can know. The assertions refer to different phenomena.

Locke admires that the coldness and hardness of ice, though inseparable, produce in us separate ideas. If, however, we inquire into the alleged inseparability, we shall find that it is predicated of the coldness and hardness of ice, because they do not exhibit the phenomena to which the word separable is applied in some other cases.

I can tear a piece of paper, and tell you to see that the fragments are separate. The word is now the name of a sight. I can direct you to feel that the fragments are separate. The word is then the name of a feel. Did Locke mean that coldness and hardness are so united in ice that the sight separation cannot be produced in them? Coldness and hardness are not visible. But can we not produce the feel separation in the coldness and hardness of ice? What feel? That which is experienced from the fragments of the paper when held asunder? This feel can no better apply to the coldness and hardness of ice, than the sight can: hence, when Locke asserts that the coldness and hardness of ice are not separable, he limits the

signification of separable, and means only that coldness and hardness will not produce the sight and feel which are produced by the fragments of paper—a meaning which no man intends to contravene, when he asserts that the coldness and hardness of ice are separable.

As Locke shows that the coldness and hardness of ice are not separable; so another philosopher has shown that they are not united. To understand this, we must recollect that the word united is ordinarily applied to the sight and feel exhibited by the links of a chain. As neither this sight nor feel are discoverable in the coldness and hardness of ice, we consider the application to them of the word united as a curious irregularity of nature, instead of a simple contrivance by which men prevent an inconvenient multiplicity of words.

If a congress of metaphysicians should assemble to designate the phenomena to which the word united truly belongs, there would probably be much disagreement; and whilst every member might assert the claim of some adverse phenomenon, all would admit that the name can belong properly to only one. They would affirm that its signification is independent of men, and exists in some subtle definition to whose test every advocate would subject his favourite phenomenon;—not to decide whether it shall be named united, but whether it be the existence, that the word inherently typifies.

Admit they shall adjudge that the sight and feel exhibited by the links of a chain constitute the phenomena to which alone the name united belongs: the assembly would immediately declare that coldness and hardness are not united in ice; that sweetness is not united with sugar, nor whiteness with snow, nor fragrance with a rose, nor

an effect with its cause—enunciations which mean simply that sweetness and sugar, whiteness and snow, &c. do not exhibit the sight and feel that are produced by the links of a chain: a meaning which, if expressed plainly, is as puerile as any declaration that can be framed. The whole is founded on an ignorance of the fundamental truth, that words have no inherent signification, but as many meanings as they possess applications to different phenomena. The phenomenon to which a word refers, constitutes, in every case, the signification of the word.

We may now understand the metaphysical puzzle of Hume, that there is no visible union between any cause and its effect. The union to which he referred is the sight and feel exhibited by the links of a chain. But such a union can never be intended by any person who asserts that a cause and its effect are united. Cause and effect exist successively; and how instantaneous soever may be the succession, the cause must precede its effect. One only can be present—the other must be either future or past. To talk, therefore, of seeing a cause and its effect united, as we see the union of two links, is to talk of seeing at the same time a present phenomenon and a past, or a present phenomenon and a future. It is to speak absurdly*.

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* That a chain will move on drawing towards us one of its links, is a result which we learn from experience, and which we could not discover, *a priori*, any more than that the uttering of a sound will be succeeded by an echo.

Again: that a chain resists separation, constitutes none of the information which we obtain by looking at the union of its links.

" I now proceed," says Professor Brown*, " to a most important inquiry—the identity of the mind; whether the mind is truly one and permanent, amid all the variety of its fugitive affections ?"

But wherein is this inquiry important? To collect facts may be important ; but whether they shall be named mental identity is unimportant. The name cannot raise or depress them, but sinks in its signification to the phenomena to which you affix it. I shall be what I am, call me by what name you please ; and so will the phenomena of the mind. Hence it is wisely observed by Lord Shaftsbury, in view of the conflicting opinions which relate to the identity of the mind, that there is (to use his own language) " no impediment or suspension of action on account of these refined speculations. Agreement and debate go on still. Conduct is settled. Rules and measures are given out and received. Nor do we scruple to act as resolutely, on the mere supposition that we are ; as if we had proved it to the full satisfaction of our metaphysical antagonist†."

An ignorance of the principle which we are now considering, occasions also much admiration ; thus Professor

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The resistance is an effect of the union, and disclosed to us by experience only.

Hence, if we could, as Hume desired, see every cause and its effect entwined like the links of a chain, our knowledge would be exactly what it is now. The link would prove nothing. None of its effects can be seen or felt, *a priori*, any more than we can see or feel, *a priori*, the effects of arsenic.

* Lecture XII, on the Philosophy of the Human Mind

† Ibid.

Stewart, in his Philosophy, says, "an expert accountant can enumerate, almost at a glance, a long column, though he may be unable to recollect any of the figures which compose the sum."

Thus far the statement of Mr. Stewart creates no perplexity; but when he adds, "nobody doubts but each of these figures has passed through the accountant's mind," the case seems altered. The accountant begins to wonder that he does not recollect the several figures. Passing through the mind, he supposes to mean something different from what he experiences in addition. He does not know that words mean, in every case, the phenomena to which they refer. He supposes rather that the passage of the figures through the mind signifies the same as the passage of an army through the gate of a city.

The New Edinburgh Encyclopedia says, "one of the most remarkable circumstances respecting contagions, is the property which some of them possess of attacking an individual once only in the course of his life."

The above refers to facts with which we are familiar, and which are sufficiently worthy of admiration: but the writer is not satisfied with the facts; he continues, "there is thus wrought in the system a change which is not cognizable to the senses."

The admiration of most persons will now be greatly augmented. They will suppose that the word change means the same as when we say the appearance of a house has changed, or the temperature of the weather has changed. The exciting cause of curiosity is, that this change exists without being cognizable by the senses: in other words, the surprise proceeds from not knowing that the word change has no invariable signification, and that in

the present case it means no more than the fact that certain diseases attack us but once.

If you exhibit the phenomena produced by a prism, the spectators will be delighted. But they are not permitted to view the spectrum as the whole merit of the exhibition, their admiration is increased by an artificial announcement. They are told that the ray of light which enters on one side of the prism is composed of the gorgeous colours which are emitted from the other side. They do not know that the assertion means no more than the experiment which they are beholding: they suppose that the word composed, possesses the same signification as when you say lemonade is composed of water, sugar, and lime-juice.

But the experimenter will not yet be satisfied with your emotions. He will say, as you have seen a ray of light untwisted, or split into several coloured rays; he will collect the fragments, and put them together, when they will again form a ray of white light. With these remarks, he will make the coloured rays fall upon a lens, that will converge them into a focus, and this will be white.

The experiment is interesting and curious, and far be from me the desire to depreciate it; but nothing permanently advantageous is derived from error. It is better to know that language can in no case mean more than the phenomena to which it refers, than to surround our knowledge with a halo of ignorance, how amusing soever to fancy, or gratifying to the love of wonders.

In a small, but very meritorious work, on Natural Philosophy*, after explaining the prismatic phenomena, the

* Conversations on Natural Philosophy.

writer details the consequences which have been deduced from them: that grass is green, because it absorbs all the rays of light but the green; roses are red, because they absorb all but the red rays; snow is white, because it reflects the whole ray, &c. "You can never see objects," says the book, "without light. Light is composed of colours; therefore every object, though it is black in the dark, becomes coloured as soon as it is visible. It is visible by the coloured rays which it reflects: hence we can see it only when it is coloured."

This doctrine is delivered in a dialogue between an instructress and a young female pupil. The pupil replies with emotion, "all you say seems true, and I know not what to object; yet it appears incredible: what! when in the dark, are we all as black as negroes? The thought makes me shudder."

The astonishment so naturally expressed by the pupil, is not at the phenomenon; for who has not experienced that in the dark there is no discrimination of colour between a negro and a white? No: the astonishment is produced by the language; from a supposition that the blackness which is attributed to us in the dark, is the same blackness that is attributable in the light to negroes.

After a moment's exposure, a drop of the otto of roses will fill with odour a large room; still, the size of the drop will betray no diminution: nay, the drop will remain undiminished, though fifty rooms should be surcharged with its odour. This is a common phenomenon, and its announcement excites no admiration; but if you adopt a different phraseology, much surprise will be produced. Tell a person that the particles of matter are so small that several rooms may be filled with a single drop of otto of

roses, and the drop be apparently undiminished. As a proof of your position, expose a drop of otto of roses, and while he recognizes its fragrance in every part of the room, he will admire the wonderful smallness of its particles. Still it is not the phenomenon which surprises him. The phraseology seems to purport that the room is filled with particles, which would be tangible and visible were they less minute, or our senses more delicate. He does not know that the word particles, when applied to the odour, signifies the smell only. In short, he knows not that the meaning of a word is in every case governed by the phenomena to which it refers.

But if he is astonished at the preceding, what will he say of the particles of light? They fall, says Natural Philosophy, millions of miles, and with a velocity so wonderful as to accomplish the descent in an instant; still they do not hurt even the eye, though they alight immediately on that susceptible organ. Many a man, grown old under the rays of the sun, is astonished at this recital. The astonishment does not proceed from the phenomena, but the language. Minuteness, he supposes, is the only difference between a particle of light and a particle of stone. That he cannot feel the particles of light he attributes to the grossness of his senses, and not to the non-existence of a tangible object: hence, if he is informed farther that philosophers have in vain endeavoured, with the nicest balances, to discover weight in sun-beams, even when the number of particles thrown into a scale has been multiplied by a powerful lens, the experiment increases his wonder at the smallness of the particles; though it ought to teach him that the mystery is nothing but a latent sophistry of language. The word particle,

when applied to light, means only the phenomenon to which it is applied. It names a sight. To wonder that the eye cannot feel the particles of light, is to wonder that they cannot feel a sight. We may as well wonder that we cannot taste sounds and hear smells.

"Nothing," says Professor Brown, "appears more uniform than a piece of glass." Granted. Why should it not so appear? But he proceeds:—"Yet glass is a product of human art, and we know from its composition that it is a congeries of bodies which have no similarity."

We now discover matter for considerable surprise. A man who has all his life been employed in manufacturing glass, will be astonished, though he will laugh if you tell him, in plain language, that glass is composed of sand and alkali. This, however, is all that the assertion signifies.

"But," continues Mr. Brown, "the congeries of bodies exist as separately in glass as they existed before they were formed into glass."

This is more mysterious! We in vain strain our eyes to discover the bodies. The glass still appears uniform. After our astonishment shall have progressed sufficiently, it may be allayed by learning that the declaration of Mr. Brown means only that chymists can reduce glass to its pristine materials. That men can compose from materials so unseemly as sand and alkali the beautiful fabric of glass, and that they can again transform glass to its pristine rudeness, are facts sufficiently admirable without the heightening of any verbal delusion. Similar to the above is what the same writer says of sculpture. "The sculptor alters the form of a block of marble, not by communicating to it any new qualities, but by detaching

a number of the corpuscles, which were included by us in our conception of the whole: and when he has given the last delicate touches that finish the Jupiters, the Venus, or Apollo, the divine form which we admire, (as if it had assumed a new existence beneath the artist's hands) is still the same quiescent mass that slumbered for ages in the quarry."

This appears very wonderful! The statue was always in the block of marble!! All that the artist effected was a removal of the parts which concealed it. A statuary would be astonished to hear this character of his art, and his astonishment would continue, till he should learn that the recital is only another mode of expressing that the statue is not formed by adding any thing to the block of marble, but by excision from it: in other words, that the recital does not mean the same, as similar expressions would if they referred to the removal of a mask from the face of a man; or the removal of a mass of earth that obscured some beautiful pedestal; but that the recital, when applied to statuary, means nothing but the common operations which are known to every person.

"That light, itself a body, should," says the same writer, "pass freely through solid crystal, is regarded by us as a physical wonder." Why? We have been familiar with it all our lives. No man was ever surprised at finding light enter his room when he threw open his window shutters. The wonder is produced by our interpretation of the words in which this common phenomenon is expressed. When we suppose that the passage of light through crystal is the same as the passage of my hand through crystal, we are necessarily astonished; but when we find that the phrase means only what crystal is con-

tinually exhibiting, our surprise vanishes with the delusion that created it.

It is instructive to observe how insidiously language enables us to infer that light ought to encounter opposition in its passage through crystal. If Mr. Brown had merely stated that light passes through crystal, there would have appeared no reason why it should not pass through. But the addition of one word seems to show that there is, in the passage of light, a wonder which, if not so miraculous as the passage of Moses through the Red sea, is more inconceivable: I allude to the word body—the wonder is that light, "itself a body," should pass through crystal. Body is generally the name of a feel: hence, when we say that light is a body, we do not consider that the signification of the word body is governed by the phenomenon to which it is applied. We suppose rather that the name regulates the character of the phenomenon, and that to apply the term body to light, determines that light is a feel:—and hence the wonder that light should pass through crystal. The wonder is not that the sight which we witness should occur, but that something else should happen: a something which is purely a delusion of language.

Again: "If," says the same author, "there had been no such science as chymistry, who could have supposed that the innumerable animate bodies, and inanimate, on the surface of our globe, and all which we have explored in the depths of the earth, are reducible, and in the imperfect state of the science, have been already reduced to a few simple elements?"

This seems the climax of wonder, that every thing, even ourselves, "yea, the great globe itself, and all

which it inhabit," are reducible to a few elements, which are possessed in common by "the giant and the poor beetle he treads upon;" by the sick man and the coals which warm his chamber; by the mason and the stones which he unfeelingly hews. Mr. Brown says correctly, if there had been no chymistry, these facts would not have been supposed. But why? Because the whole refers to the processes of chymistry; independently thereof, the language has no archetype in nature. The declaration evinces, however, the ignorance which exists of the nature of language, and the proneness of scientific men to exalt their pursuits by the excitation of wonder.

Chymists do not say simply that they can produce hydrogen gas, and oxygen, from water, and vice versa; but that water is nothing but a combination of these gases. The assertion is true, so long as it means the phenomena to which it refers; but it produces wonder, because we suppose it has a meaning beyond the phenomena.

A large portion of bodies will, on the application of fire, resolve into smoke and cinders. We may, if we wish to excite wonder, say that these bodies, how diversified soever in shape and consistence, how beautiful soever to the eye and delicate to the touch, are nothing but modifications and combinations of smoke and cinders. We may elucidate the assertion by a conflagration of several bodies, and our position will appear to be thereby proved; because it will constitute all that the assertion means. Chymical theories are much like the above. They are not exactly similar, for chymists proceed farther; and with the smoke and cinders produce additional transformations.

An ignorance of the simple fact, that every word has as many meanings as it has applications to different phenomena, enables philosophers not only to encircle their speculations with a false splendour in the manner I have exemplified, but to allure admiration by an artificial degradation of phenomena: thus Professor Brown*, in speaking of causation, says, " power is a word of much seeming mystery ; yet all which is mysterious in it vanishes, when it is regarded in its true light, as only a general term expressive of invariable antecedence; or, in other words, of what cannot exist without being followed immediately by a definite event, which we denominate an effect. To express shortly," he continues, " the only intelligible meaning of the three most important words in physics, power, cause and effect, we may say that power is immediate invariable antecedence ; a cause is the immediate invariable antecedent in any sequence ; and an effect is the immediate invariable consequent."

We may now think that power, cause, and effect are wholly different from what we had supposed : a cause is nothing but an immediate invariable antecedent. But what is an immediate invariable antecedent ? Custom applies the phrase to fifty phenomena, and to know forty-nine of them leaves me still ignorant of the fiftieth.— Hence, when the phrase is used to define a cause, we shall be deceived if we think it means any thing but the phenomena to which it then refers. The phrase may seem to simplify causation, because I may attach to the phrase some meaning that differs from the phenomena discoverable in causation ; but, if I estimate correctly the phrase,

* Philosophy of the Human Mind, Lecture VII.

that is, if I estimate it as nothing but a name of the phenomena to which the word cause refers, my knowledge will be equal, whether I apply to the phenomena the word cause or the phrase of Mr. Brown.

Again: "when a spark," says the same philosopher, "falls on gunpowder, and kindles it into explosion, every person ascribes to the spark, the power of kindling the inflammable mass. But," continues he, "let any one ask himself what he means by the power which he imputes to the spark, and without contenting himself with a few phrases, that signify nothing, let him"—do what?—Content himself with no phrase; but consider the word power as signifying precisely the phenomena which he discovers?—No: he must content himself with some phrases which Mr. Brown prescribes. Such will always be the advice of philosophers, while they shall suppose that words mean more than the phenomena to which they are applied. Every philosopher will give us a new phrase, and desire us to be content with no other. In the present case, the advice of Mr. Brown is, that the person shall answer, that by the power imputed to the spark, he means only "that, in all similar circumstances, an explosion of gunpowder will be the immediate and uniform consequence of the application of a spark."

Admit the person shall answer thus, what will the word signify?—The same phenomena that were referred to by the word power. The person may suppose that the occurrence is vastly simplified by the new phraseology, but, if he does, he is deluded, and knows not that the meaning of every word or phrase is the phenomenon to which it refers.

Again: "what we denominate form is," says the same

author, "nothing separate from the elementary atoms of a mass; but merely the relation of a number of atoms co-existing in apparent contact."

This degradation of form is in revenge of the estimation which, under the name of substantial forms, it received from the Peripatetics: for it is with words as with men, among whom, when one has been unduly honoured, there is excited a malicious desire to withhold even the consideration which he can justly claim. We may now consider shape or form much more simple than we have heretofore supposed. Form is only the relation to each other of a number of atoms. If, however, we estimate correctly the phraseology, we shall find that we gain by it nothing. The phenomenon will not change its nature to conform to our new phraseology; but the phraseology will change its signification to conform to its new application, and mean neither more nor less than the phenomenon.

Again: ice, says the same writer, differs from water only in this, the particles "which formerly were easily separable, now resist separation with a considerable force."

An Emperor of Siam disbelieved a Dutch embassador who related that in Holland water becomes so hard that men walk on it. Possibly, if the embassador had employed the language of Mr. Brown, the phenomenon would have seemed more probable. Hudibras says of glass, that it is only the ice of fire:—a simplification which, though used in ridicule, is like that of Mr. Brown. Both seem to give an easy reason for the phenomena to which they refer; but the ease arises from not knowing that every word has as many meanings as it has applica-

tions to different phenomena. The word ice, in the description of Hudibras, and the resistance of the particles of water in the description of Mr. Brown, mean not what they signify when employed ordinarily, but what are discoverable in ice and glass; and what we speak of with language more seemingly inexplicable.

But the most curious simplification on record is given of chymistry. We know that chymistry analyses bodies, and out of water produces oxygen gas, and hydrogen; out of glass, sand, alkali, &c. Now, says Mr. Brown,* "these processes of chymistry enable us only to discover what are always before our eyes, but our sight is not keen enough to see them." This greatly dissipates our admiration of chymistry. There is but little merit in producing oxygen from water, and sand from glass; if the operation enables us to see only what the weakness of our eyes prevented us from seeing. Unfortunately, however, the means which ordinarily assist vision, aid not chymists. With the most powerful microscope they are unable to discover, in water, the gases; or in glass, the alkali.

If we inquire soberly into the meaning of Mr. Brown, we shall find that his language has no signification but what is comprehended by our ordinary phraseology. The simplicity which his description affords, arises from an ignorance of the fact, that the meaning of words is governed by the phenomena to which they refer. When Mr. Brown says, that the gases are present in water, and would be visible were our eyes sufficiently acute; the word "present," does not mean the same as when I say this table is present; but it refers to the phenomena exhibited

* Lecture IX, on the Philosophy of the Mind.

by chymistry: the development of the gases when you analyze water.

I have now I hope, elucidated sufficiently the important position with which I commenced, that every word has as many meanings as it has applications to different phenomena. I might dwell on this topic; but my object is simply to exhibit principles. To apply them, must be the business of my auditors; and they will find sufficient opportunities in every science they may examine, and in every controversy they may investigate.

LECTURE IV.

NATURALISTS assert, that the oak with its towering trunk, its gigantic limbs, and its diffusive roots, is originally compressed within an acorn. They make this discovery by vision, and trace in microscopic lineaments the sylvan monarch. So an author can indite a few general propositions, which shall comprehend a system of philosophy; but knowledge, thus compressed, is as undiscoverable to every understanding except the author's as the oak is undiscernible to every eye but the naturalist's.

In detail then we must proceed. The oak must be suffered to issue from its imagined nucleus, to enlarge gradually its stem, to protrude successively its branches, and to indurate by alternate suns and tempests, before it can serve any useful purpose; so an author must be permitted to unfold gradually his premises, frame his propositions, accumulate examples, anticipate objections, and evolve slowly his conclusions, before his labours can im-

part any beneficial instruction. Patience then must be your characteristic, and my motto.

In our last lecture, I endeavoured to show that every word possesses as many significations as it has different phenomena to which it refers; or, to express differently the same truth, the meaning of a word is the phenomenon to which the word refers. In the present lecture, I shall prove that the same rule applies to general propositions. Every general proposition has as many significations as it possesses different particulars to which it refers; or, (again in other words) the signification of a general proposition, is the particular instance to which the speaker refers.

We are, however, constantly prone to error in the interpretation of general propositions. We know not that each signifies some particular in the mind of the speaker, but we suppose it refers to an invariable standard, or at least, to some particular in our own mind; and hence the frequent altercation which follows the enunciation of a general proposition. I lately heard a gentleman exclaim that his situation was unhappy. Another rebuked the speaker, and insisted that he ought not to be so unthankful, his situation was peculiarly happy. Here were two conflicting general propositions. Each speaker alluded to different particulars, and if he had stated them, there would have been no disagreement; the first speaker would have admitted that he was desirably situated in the cases enumerated by the second, and the second would have admitted that there was unhappiness in the particulars enumerated by the first. If I have been hurt by riding a vicious horse, I make numerous general propositions, for which I may have no signification but the above accident:

thus, things which are very valuable when good, are frequently very bad when not good.

Some animals are so destitute of gratitude, that the more you pamper them, the more inclined they will be to injure you. What in animals we call a vicious practice, is probably performed without any vicious intention.

To a person who is ignorant of the accident to which I refer, the propositions will be insignificant, unless he apply them to other particulars. Such an application will sometimes induce a denial of my position; he may insist that animals are conscious when they perform a vicious action. He alludes to his dog, who after killing a sheep, exhibited unequivocal symptoms of fear. Now my proposition was not intended to controvert this. I meant only that starting at his shadow, a practice by which my horse threw me from his back, was performed without any intention of dismounting his rider.

But suppose I assert, that "infancy is a state of dependence." I do not obviously refer to any particular infant, nor any determinate acts of dependence. This may arise from my familiarity with the proposition. When I used it first, I referred to some particular case; but now, I employ it without thinking of any; and were you to demand of me some example, I should probably state one which I did not think of when I uttered the declaration.

The scripture says, judge not lest you be judged. Our mode of framing general propositions furnishes this text with a popular construction, which implies, that the judgments we pronounce are frequently nothing but an enunciation of our own practices; thus, I may say, "no man is proof against all temptations." I mean no more than a particular case in which I was vanquished. If the hearer

can recollect no occasion in which he was similarly overpowered, he will not assent to my position; and if he can recollect an instance in which he resisted a strong temptation, he may form a new proposition, "some persons are proof against every temptation."

A man who picked up a dollar which he saw fall from a traveller, did not call to the loser, but placed it in his pocket. He afterwards went to a tavern, and in conversation with the landlord, made this general proposition: "men are more honest in great matters than in small." He meant that he acted dishonestly in not restoring the dollar, whilst in his more extensive intercourse with mankind he was honest. The innkeeper, (who had a week previously found in one of his chambers a pocket-book with bank notes, which he intended to keep, though he frequently corrected errors when his guests gave inadvertantly some trifle too much,) replied, that he thought "men were more honest in small matters than in great."

Most of the phenomena which are adduced in proof of a universal attraction, were discovered after the establishment by Newton of the proposition. Of these subsequent discoveries, we may enumerate the experiment of Doctor Maskelyn in Perthshire, which, by ascertaining that a mountain would so attract a plummet as to prevent it from falling perpendicularly, confirmed, says the Encyclopedia, "beyond all doubt, the doctrine of universal gravitation."

But, says the writer, "in establishing a law of nature, we should multiply experiments:" accordingly, he relates one made with two leaden balls in 1788, by Mr. Cavendish. The facts thus adduced, combined with the former, prove, says the Encyclopedia,—what? The phenomena

exhibited? No—they prove, says the writer, "that every particle of matter gravitates to every other particle." And this is correct, for the proposition, how general soever, signifies no more than the experiments to which it refers. Tradition says, that the law was originally suggested to Newton by the fall of an apple from a tree; and if he alluded to no other phenomenon, the proposition meant originally no more than that simple occurrence. I do not, however, mean to enumerate the phenomena to which the proposition refers, nor to restrict its application; I wish to show only the qualities which render general propositions significant, and which limit their significancy.

To say that the earth is a sphere, that it revolves round the sun, and round its own axis; that the moon influences the tides, and that there are antipodes, are truths so long as we consider the expressions significant of certain phenomena to which the propositions refer. If you inquire of an astronomer whether the earth is a sphere, he will immediately refer you to various phenomena. He will desire you to notice what he terms the earth's shadow in an eclipse of the moon, the gradual disappearance of the hull of a ship as it recedes from the shore, &c. After hearing all that he can adduce in proof of the earth's sphericity, consider his proposition significant of these phenomena. If you deem it significant beyond them, you are deceived by the forms of language.

Nature, says an astronomer, has drawn an impenetrable curtain between the inhabitants of the sun, and the worlds which circulate around them. She has doomed them to the most solitary dwelling in creation, and has marked them as either unfit to enjoy the noble privileges of intelligent beings, or as unworthy. The planets and

the stars are invisible from the surface of the sun, unless a transcient glance is obtained through an accidental opening in the solar atmosphere. From the year 1676 to 1684 there was no such opening, consequently the inhabitants of the sun never, during eight successive years, obtained a view of the starry firmament.

That we might not waste our commiseration at this tale of wo, the writer has happily furnished us with his meaning. It is very simple, though in the language of Shakspeare, it thunders in the index. It is this, "from the year 1676 to 1684, there was not a single spot discoverable in the sun's atmosphere."

When a man hears that the sun is a body of fire, he is apt to think that his informant possesses much secrete information; but the knowledge possessed of the sun by the learned, differs not essentially from that enjoyed by the illiterate. The learned are acquainted with more telescopical appearances than the illiterate, and have recorded more of the sun's phenomena; but the principal phenomena are known to both, and appear alike to all. The sun has been successively called a demon, a heated stone, a body of glass, a mass of fire, and an inhabited globe. At any period, if a philosopher had enumerated the phenomena which constituted the meaning of his language, no skepticism would have been exhibited; but the employment of such language, without this explanation, has ever encountered opposition. This alone ought to have made philosophers suspect either that there was some defect in their speculations, or in the interpretation which was applied to them.

The science of medicine has suffered more than any other, by an ignorance of the nature of general proposi-

tions. Physicians can seldom see the seat of a disease, or apply direct remedies to it. They are but little more favoured than a clock-maker, who should be bound to discover the defects of a clock, and to repair them by operating through the key-hole. Embarrassed thus by nature, they have augmented every difficulty by enveloping their knowledge and experience in general propositions. Doctor Parry in his Elements of Pathology, says, "the sanguiferous system is the source of almost all diseases, partly in consequence of the natural constitution of the body, and partly from the habits of civilized society." Diseases proceed generally, he supposes, from an excess either in the quantity or momentum of the blood.

The above speculation refers undoubtedly to some phenomena; but, as I know them not, the language is to me insignificant. Still, if Doctor Parry had adduced the particulars to which he alludes, the difficulty would be that he and his disciples, would estimate particulars as the mere explanation of his general propositions, and suppose that the propositions had a meaning independent of the particulars.

In practice, this mode of interpretation is pernicious. For instance, Cullen asserts that when any external cause produces in us a morbid action, nature exerts an opposite process to counteract the evil: thus, an excessive load of food forced into the stomach has a tendency to destroy life, but the stomach resists the evil, and disgorges its contents. Now some medical writers assert a conflicting proposition. They say, that every morbid change which occurs in our system, is essentially injurious, and must be opposed by medicine; if the stomach is discharging its con-

tents, the physician must endeavour to prevent the discharge.

Two physicians who should severally enforce the above propositions, would employ opposite remedies. But to act thus proceeds from an erroneous belief that the propositions are significant of more than certain particulars. A person who knows the particulars to which each proposition alludes, and considers it significant of them alone, will probably find that both propositions are correct.

A father said once, my son, there is in water a principle which is destructive of life, and there is in brandy a principle preservative of life. The father meant, that total immersion in water would produce death, and that a small quantity of brandy was occasionally salutary. The proposition was correct while confined to the particulars to which the father alluded; but the son, supposing its application universal, refrained from the use of water, and substituted brandy. We all err in a similar manner, though not always in a like degree, when we consider any general proposition significant of more than certain particulars; and if those who promulge general propositions, will not announce the particulars to which they refer, we have still every thing to learn.

How much controversy our physicians have employed on the origin of yellow fever, some asserting that it is indigenous, and others exotic. Each proposition can be significant of nothing but certain particulars, but the disputants attach to it a meaning beyond the particulars; an extension which language is incapable of possessing. Were each partisan to detail the particulars to which he refers, there would probably be no disagreement; but while he deems his proposition significant of more than

the particulars, there is endless controversy. Each thinks justly that the other errs, but he knows not that he also is equally erroneous; that the same ignorance of the nature of language misleads both.

When we obtain all the facts which relate to any subject, we obtain every thing that is essential. Convenience requires that the facts should have a name; but we may employ exotic or indigenous, or any other word, and the only profitable controversy is, whether we have selected an appropriate name. The controversy may be important in lexicography, but to suppose it essential to either medicine or philosophy, is to reverse the order of nature, and to consider the name more material than the phenomena named; or rather, it is to mistake the nature of language, by supposing that a general proposition signifies more than the particulars to which it refers.

Similar to the above is another controversy of physicians, whether certain diseases are infectious or contagious. Suppose, says Doctor Francis, A to be ill of dysentery; he is in a small confined apartment, his person is neglected, the atmosphere around him is rendered impure and offensive; under these circumstances, B visits him, and in a few days becomes sick with the same disease. Doctor Bailey, and others who adopt the doctrine of infection as opposed to contagion, insist that the disorder of B proceeds from the impure air of A's chamber, and not from any thing emanating from the body of A; but, says Doctor Francis, as we may without hazard visit an equally filthy chamber where C lies ill of a broken limb, I ascribe the disease of B to a peculiar virus generated in the system of A by the disease under which he labours, and communicated by his excretions, to the surrounding atmosphere.

Now what is the controversy between Doctors Francis and Bailey? It is whether the disorder of B proceeds from a peculiar virus generated in the system of A, or simply from the impurity of A's chamber. I know this seems to be the controversy. They brandish at one another general propositions, without knowing that no proposition is significant of more than certain particular phenomena. The moment they appreciate this fact, they will discover that their controversy is not terminable by words, but by observation and testimony. For instance, let Doctor Francis enumerate all the phenomena to which his general proposition alludes; let him say, that B will not become diseased if he visits the impure chamber of C, who lies ill of a broken limb. If Doctor Bailey denies this assertion, the controversy becomes a question of fact, which is terminable by an experiment, and not by debate.

After all the facts to which Dr. Francis alludes are thus substantiated, it becomes immaterial by what name they are denoted; whether he alludes to them by saying that B is disordered by a peculiar virus generated in the system of A, or by the impurities simply of A's chamber. One phrase may be more philolegically correct than another, and on this subject the parties may debate and quote authorities; but while they are settling the propriety of phrascology, let them not suppose that their controversy is important to medicine; let them not confound verbal criticism with an investigation of phenomena. To make all men use the same collocation of words is impracticable. The attempt has filled the world with controversy without bringing us to the desired uniformity. We, however, greatly aggravate the difficulty, by not knowing that every proposition has as many meanings as it possesses a refer-

ence to different particulars; and hence, that two men may employ different propositions while they refer to the same phenomenon, and that they may employ the same proposition while they refer to different phenomena.

I had two servants from different parts of Wales. They were repeatedly disagreeing about the customs of their native country, though the assertions of both were correct, for each alluded to his own district. I am so confident that nearly every declaration is true in the manner intended by the speaker, that I rarely contradict. If a man tells me in the meridian of a delightful day that the air feels as if we were shortly to have rain, I conclude that his assertion announces something unknown to me—perhaps the recognition of a feel which he has observed to precede rain: hence I do not deny his prediction, for it is true in the manner that he intends; and he would probably construe my denial into an assertion that he does not experience the feel which constitutes the meaning of his prediction.

I heard a man contend that no degree of heat could melt diamonds; whilst another was positive that they would melt. I discovered that he who asserted their fusibility, referred to nothing but an article which he had read in a Cyclopedia; and he who maintained their infusibility, referred to an assertion of his father. Both persons were positive, because they intended no more than the above facts. If, however, each had discovered the other's meaning, the controversy would probably not have terminated. It would unconsciously have changed to another question, whether the Cyclopedia was entitled to more credence than the father; the discussion of which would have produced an altercation as virulent as the former, and

with as little understanding by each disputant of the facts referred to by the other.

From an ignorance of the nature of general propositions, we often find them in books and conversation unaccompanied with any particulars. Such propositions are unintelligible, unless we can apply some particular to them. For instance, the above is a general proposition. What can you understand from it? I have elucidated it by no example, and if you can think of none, the proposition will be insignificant. If, however, you can think of an example, it will probably be different from any thing that has fallen under my observation; hence we may verbally possess the same information, while it is wholly dissimilar.

But what did I allude to? The following from Professor Stewart: "we are," says he, "enabled, by our instinctive anticipations of physical events, to accommodate our conduct to what we perceive is to happen." This is followed I believe with no example, hence it will be insignificant to every person who cannot attach to it some incident. The event which it caused me to think of, was the falling of a tree. Instinctive anticipation would enable me to perceive, that I should be crushed, if I did not accommodate my conduct to what was to happen; that is, if I did not change my position. Probably Mr. Stewart thought of something different, and the event to which I allude may never have occurred to his observation.

Plato explained the gradual decay of the human system by saying, matter was first converted by Deity into bodies of triangular shapes. Of these the elements were constituted, and they assumed regular geometrical figures. Fire became a pyramid, the earth a cube, the air an oc-

tahedron, and water an icosahedron. The human frame was composed of these elements, and as their angles become by time blunted, and unable to retain their hold, the fabric gradually dissolves.

This is not the ravings of insanity, but the laboured production of a wise man. He doubtless had some particulars to which his propositions referred; but as we know them not, his language is as insignificant as the most disconnected prattle of infancy.

Other writers avoid the above error. If they involve any simple fact in a general proposition, they prudently subjoin the fact by way of example; though it truly constitutes all the meaning of their proposition: thus, the more, says St. Pierre, temples are multiplied in a state, the more is religion enfeebled.

What did St. Pierre mean? you will find in his succeeding paragraph. Look, says he, at Italy, covered with churches, yet Constantinople is crowded with Italian renegadoes; while the Jews, who had but one temple, are so strongly attached to their religion, that the loss of their temple excites, to this day, their regret.

This general proposition means but the above particulars, therefore you need not controvert the position, and show that in your country the increase of temples increases the number and zeal of worshippers. If you argue with St. Pierre, place the contest on its proper basis, blame him for using words in a way which you do not approve, but not for denying facts to which he never alluded.

Malebranch, in accounting for the phenomena of memory, says, in childhood the fibres of the brain are soft and flexible; but time dries and hardens them, so that in old age they are gross and inflexible.

Malebranch is not enumerating any phenomena discoverable by inspection of the brain. What then does he mean? It follows in his own words: "we see that flesh hardens by time, and that a young partridge is more tender than an old one." You may wonder what this has to do with memory. I know not. It has, however, to do with his theory, and it probably constitutes all he means by the hardness and inflexibility which he makes age inflict upon the brain.

Mr. Hawkesbee asserts, that the Aurora Borealis is the effect of electricity on a vacuum. What does he mean? He states subsequently as follows, "the excitation of electricity in an exhausted Florence flask, produced a light which resembled the aurora." Another person who shall find that all the phenomena of the Aurora Borealis cannot be thus imitated, will insist that Mr. Hawkesbee is wrong; but in truth both are right, for they mean severally no more than the facts to which each refers. The difference between them is in their language, apart from which they will agree entirely.

From an ignorance of the principle which I have now endeavoured to illustrate, that when a person uses a general proposition, he means by it no more than a few particulars, we are prone to award unmerited commendation to the authors of general propositions: thus, the assertion attributed to Pythagoras, that the earth revolves round the sun, is supposed to imply a knowledge by him of the Newtonian theory; while probably no feature of it was ever imagined by Pythagoras. He may have intended some particulars that have long been exploded from science.

Lord Bacon asserts in his Aphorisms, that reason is supposed to govern the words of men, but that words have often power to react upon reason. This aphorism, says Professor Stewart, may be considered as the text of the most valuable part of Locke's Essays, the part which relates to the imperfections and abuse of words : but it was not till within the last twenty years that its depth and importance were perceived in their full extent.

Mr. Steward alludes to what has been written since the time of Bacon, by Mr. Prevost and M. Degerando ; but Bacon is no more entitled to credit for the observations which have subsequently been marshalled under his aphorism, than the man who first formed the word Napoleon, is entitled to the renown that has lately been connected with that appellation. The aphorism, when invented by Lord Bacon, was sensible and significant, as we find by a reference to it in his Novum Organum. What he intended, he there expressed in the context, and farther than this the proposition had probably no signification in his understanding.

Finally then, if we would appreciate the nature of general propositions, we must remember that each possesses as many significations as it possesses a reference to different particulars, and that no general proposition possesses any significance, if it refers to no particular.

LECTURE V.

THE earth possesses gradations of temperature, from the frigidity of a polar winter, to the intensity of an equatorial summer. With the fur involved Esquimaux we may dwell in houses of undissolving ice, repose on ledges of everlasting snow, and pierce the huge Walrus amid an accumulated frost of ages: or with the swart and cladless Ethiopean we may bask in the ardour of a tropic sun; repose in scorching groves, and press the gushing lusciousness of spontaneous fruits. We may even avoid both extremes. We may enjoy uninterrupted serenity; a sky that never clouds; a herbage that never fades; a cold and heat so attempered that the thought of either is unnatural.

This is poetry, but not fiction. It is the romance of nature: yet, with this diversity before him, and sensitive to its effects, man scarcely ever changes his location with a view to climate. As the tree falls, it lies; and where Providence decrees our birth, we also are stationary. This

curious trait in the human character may be heightened if we reflect on the power of our appetites, and the turbulence of our passions. To satiate his appetites, a man will dissipate suddenly the labours of his ancestors ; and to gratify his passions, he will renounce reputation and hazard existence. Still there is no luxury of flood, field, or air ; but in some regions is the banquet of peasants : and there is no passion so irregular but in some countries its object is lawful enjoyment. But again these temptations fail to allure. The most rigid moral discipline, and the coarsest of nature's caterings, remove not even the sensual from the land of their nativity.

A similar idiosyncracy is apparent when we select our occupations. As there is no labour but will yield a maintenance, we should determine theoretically that a man who has no higher object than a subsistence, would select the least offensive employment that will compass his object ; still, experience teaches that, although the love of ease and life is a predominant passion, the most laborious pursuits, and the most noxious, are supplied with followers as readily as the most easy and healthful.

Literature presents the same peculiarity. We might reasonably imagine that a man who devotes his life to literature, (a devotion in itself perverse) would select subjects in which the playfulness of fancy, or the vivacity of wit, would relieve the irksomeness of composition ; at least, that he would avoid the tedious labyrinths of metaphysics, and the straightened avenues of logic : toils which seldom can supply even the forlorn consolation, that a French authoress has extracted from an assimilation with a lamp ; that she consumes to enlighten others. Yet here also the rugged walks of life are voluntarily thronged

equally with the most agreeable. This thought is gloomy, but it happily suggests the subject of our lecture.

I have heretofore stated three important and fundamental principles of language. I shall now present a fourth; a principle as fundamental as any of the former, and more essential than all of them to a just apprehension of human knowledge. It is this—language can effect no more than to refer us to phenomena. In painting we are forced not only to delineate objects with the colours, how incongruous soever that we possess; but there are numerous existences to the delineation of which all colours are inapplicable. Even to intimate that colours are unable to represent sounds, tastes, and smells, seems absurd from the obviousness of the fact.

The boundary which separates the phenomena that may be represented by colours, from those to which colours are inadequate, is, therefore, sufficiently defined; but no writer has imagined that there is a limit beyond which words also cannot discourse. Nor is the latter position easily conceived, for we can no more exemplify with words that there is a limit to their applicability, than a painter can demonstrate with colours, that there are phenomena which colours cannot delineate.

That language can effect no more than a reference to phenomena, springs from no conventional limitation, but is founded in the nature of human knowledge. We shall conceive this, when we reflect that our knowledge is composed of sights, tastes, feels, smells, and sounds. Now, the most forcible language, and the most fluent utterance, are inadequate to infuse into the blind a knowledge of colours. Why? Because colours are sights, and nothing can reveal to us sights but seeing. We may apply the

same conclusion to every other item of our knowledge. Words cannot supply the place of any sense—they can simply refer us to what our senses have disclosed.

This is perhaps sufficiently evident, but it is an important fact in the philosophy of human knowledge, and egregiously disregarded. Permit me then to discuss more minutely this seemingly self-evident truth, and to premise five propositions. Any sight is unknown to me which seeing has not informed me of; any sound is unknown to me which hearing has not informed me of; any taste is unknown to me which tasting has not informed me of; any feel is unknown to me which feeling has not informed me of; and any smell is unknown to me which smelling has not informed me of. Truth has generally two aspects. One is so gross that every person sees it; the other so subtle that the most acute pass it unnoticed. For instance, that words cannot reveal colours to the blind, is too obvious to record, while the kindred fact, that no sight which a person has not seen can be known to him, has been denied by even the sagacious Hume.

He says, "suppose a man has enjoyed sight for thirty years, and become acquainted with every colour except a particular shade of blue. Let now all the shades of blue, except the above, be placed before him in an order descending gradually from the deepest blue to the highest. He will perceive a greater difference between the contiguous colours, where the intermediate shade is absent, than between any other two contiguous colours; and," continues Hume, "I ask, whether he will not be able, by his imagination, to acquire a knowledge of the absent shade?"

Hume asserts that he can. He is wrong. The absent shade is a sight, and nothing can reveal it but his eyes. He may discover a greater difference between the contiguous shades A and B, than between any other two contiguous shades; but the law which prevents blind men from knowing any colour, disenables him from knowing the appearance of the absent shade. The moment it meet his eyes, he will be conscious of a new sight.

But, if we cannot thus learn a new appearance, can we not by some mental elaboration compound our ideas; commix known sights, and discover the effects which result from juxta-position or separation? Whatever produces a change of appearance, is essentially a new sight; and irremediably unknown till disclosed by our eyes. It happens often that a drowned man, who is found after some mutilation, is not recognized by his intimate friends. Many features may be unchanged, but they are seen in a new connexion. If the body is eventually recognized, it is by looking singly at some part which is unchanged.

To speak of a less revolting calamity, suppose some of us should grow old, and being anxious to linger in the precincts of youth, should change his grizzled and scanty locks for glossy and exuberant ringlets. Need we an actual glance to teach us how this new combination of familiar sights will affect the appearance of our father or brother? Let language be exhausted in describing the new appearance. Let feeling, and every other sense exert their powers to inform you, and then direct your eyes to the metamorphosed individual, and you will receive an instantaneous communication which no other means can yield.

If I have seen the change produced by such a process in A, I do not assert that language cannot inform me that C is similarly transformed; and thus teach me the appearance of C, without an inspection. Language can refer me to any phenomenon that I have experienced;—but in the slightest particular that discriminates the appearance of C from A, words can avail nothing. They can apprise me that there is a difference, and may inform me what the difference is like, (so far as they can refer me to any thing I have seen;) but beyond this, their most eloquent efforts fall upon my ear as upon the ears of the blind:—nature renders them powerless to us both.

When a milliner wishes to know how a ribbon which lies before her will appear on a hat, she does not trust to her ability to compound ideas; but, from a practical acquaintance with the limitation of her faculties, applies the ribbon to the hat. I have known a good housewife view with much curiosity a little bauble in the hands of her child; till by going to her sideboard she discovered that it was broken from an urn from which she has daily drunk for years.

I shall not press this point. That language can reveal to me no sight that seeing has not informed me of, is a physical truth which experience will substantiate. I have produced a few examples for illustration merely. But if the position is true of sights, it is equally true of the information furnished by our other senses. Let an epicure prescribe some unusual mixture of known ingredients, and after his imagination has feasted on the compound, let him present it to his taste, and he will immediately discover the inefficacy of his foreknowledge.

From the known inadequacy of words to reveal new sights, we employ pictures. But a person who never saw the original, will receive from its representative no sight, except that of the painting. Many such pictures are but little superior to hieroglyphics. Of these are representations of the sun, moon and stars, and of fire, water, snow, sunshine, glass, clouds, lightning and metals. Whether all pictures possess not a portion of this character, is problematical; but certainly no picture can display more than itself. If the appearance of the picture and its original are not identical, and they seldom are, we shall be still unacquainted with its original.

Let a youth study geography, and be competent to designate on a map or globe every kingdom, and to tell its latitude, climate, soil, productions and appearance; his knowledge is precisely what he displays: various appearances on maps, globes and pictures, together with words and phrases which he has learnt to associate with them. If he thinks he knows any sight, taste, feel, smell or sound which he never experienced, a visit to the countries he has been taught to speak of, will undeceive him. He may recognize names of places, names of customs, and names of natural productions, but the sights, tastes, feels, &c. will be new. All the ingenuity of man, assisted with painting, sculpture and eloquence, cannot teach the brightest understanding the exact appearance of even a pin; except by presenting to his eyes what will produce a sight that in every respect is a pin. The same may be said of every object.

If I have never heard a cataract, you may inform me what the sound is like; and if I have heard the similar sound, I shall be instructed; but language, nor any other

agent, can effect more than such an approximation. Should you wish to acquaint a child with the sound of a cataract, his conception of it will probably be very erroneous; not because his faculties are less acute than yours, or language less operative on him than on you; but because his experience is less than yours, and language can be significant to him of his experience only. If he has heard no sound more consonant, you must refer to even the lowing of an ox. You may qualify the comparison, by saying the cataract is awfully louder; but if he has heard nothing louder, the qualification will not add to his instruction, except that it may teach him he is still ignorant of the correct sound of a cataract.

But cannot the letters of the alphabet be combined so that by looking at the combination, seeing can teach me a sound, that hearing never informed me of? I may combine letters so as to denote a new sound, but the sound, so far as it is new, will be unknown to me, till my organs of speech have read the combination, and thus made my hearing acquainted with it. Seeing the letters can of itself teach us a new sound, no more than it can teach a deaf mute. The same inability is common to all, nor let any person suppose that he can compound known sounds, and thus acquire a sound which he never heard. Brilliancy of imagination, and acuteness of intellect, cannot pass the barriers erected by nature. The most practised musician can, no more than the most unskilful, know the sound which will be produced by a new combination of familiar notes. So far as the combination will produce a sound that he never heard, so far the effect of the combination must be unknown to him.

A person who has never felt pain, (if we can conceive such a being,) will possess no correct meaning of the word; and he who has felt no greater pain than a slight tooth-ache, may be told of the superior agonies of the gout, but he will be unable to divine the feeling. Language can effect no more than to refer him to his experience. It cannot perform the office of any of his senses. It can record phenomena, but not reveal them.

Our knowledge of each other's feels is probably more imperfect than of each other's tastes, sights, sounds or smells. The gout, consumption, dropsy and other diseases, are feels which are known to only a small portion of makind, and collectively to no man.

From the inadequacy of language to effect more than a reference to phenomena which we have experienced, arises the inefficacy of verbal instruction. A writing master may elaborately direct a child how to make a perpendicular mark; but in every particular in which the instructions refer to some motion which the pupil has never produced, or to some muscular effort that he has never made, the instructions are as impotent as a discourse on colours is to the blind.

Ignorance of the above principle, induces us to wonder at the slow progress of learners. We repeat before them the motions by which we produce the mark, or even guide their hand; all are ineffectual. Before they can imitate the mark, they must learn to produce a certain muscular effort. This effort is a feel. Verbal instruction therefore cannot disclose it; for hearing can inform us of nothing but sounds. Seeing the instructor write, cannot reveal the effort; for seeing can inform us of nothing but sights.

Forcibly to move the scholar's hand cannot infuse the instruction, for the effort which he thus makes compulsorily, will not teach him the voluntary effort. They are different feels. Only one means can accomplish the instruction; the scholar must make random efforts till he chance to produce the required mark; and learn thus, experimentally, the necessary effort.

Hence arises the necessity of practice. I may see surgical operations, and read dissertations; they cannot inspire me with a knowledge of the muscular effort that I must exert to take up an artery or amputate successfully an arm. The principle applies universally. To speak, sing, dance and walk, are performed by efforts that no language can teach us, and with which language has no affinity. The deaf may learn to speak, and the blind to write, and even limn; and the only reason why they cannot learn as readily as we, and perform the operations as well, is that they lack the organs which tell us what modulation of voice is desirable, and what tints and marks are produced by our efforts. These topics belong to an interesting branch of the philosophy of human knowledge, that I do not intend to discuss now. I adduce them to illustrate that language can effect no more than a reference to the phenomena which we have experienced.

That the significancy of language is thus circumscribed would be readily admitted, were we not embarrassed with one difficulty. Bonfire names a sight, and melody a sound. If these words possessed no other signification, we should immediately understand that the import of bonfire must ever be unknown to the blind, and the import of melody unknown to the deaf. But these words, and nearly all others, have a further signification: they name

words also. This is a most important distinction, and till you fully understand it, you will be liable to delusion.

Recollect, then, that nearly every word has a signification which refers to our senses, and another which refers to words. The verbal signification is usually termed a definition. It is regulated by principles wholly different from those which govern the sensible signification. The sensible signification is the phenomena to which the word refers, and therefore nothing but our senses can reveal to us this signification; but the verbal signification of a word may be known to any person who possesses hearing, and even to those who are void of hearing, if they have acquired the art of reading. The blind may discourse eloquently about fires and illuminations; and the deaf mutes in our asylums may write pertinently about melody; but it is only the verbal signification of these words of which either have any knowledge.

It is curious that so simple a distinction in the meaning of words should be unknown in the disquisitions of our most acute metaphysicians. They constantly disregard the simplicity of our knowledge, and look for truth either above the surface of things or below it. They have therefore again attributed to nature a property which exists in language only; that is, they have observed that some words are reducible into other words, while some cannot be so reduced: for instance, murder can be translated into a sentence; "a felonious killing with premeditated malice." The word white cannot be thus translated; it names a sight only. This difference, which is purely an artifice of language to condense a sentence into a single word, has been supposed a mysterious mental process;

and the words which effect such condensations, have been termed complex ideas, abstractions, &c.

Perhaps no language is so uncultivated as not to possess words of both the above classes; but rude languages are chiefly composed of words that name sensible phenomena only, that is, words which are undefinable. If we examine the English language we shall find that our Saxon words are principally of the above character. Indeed, a large portion of our undefinable words are Saxon: as fire, water, black, sun, earth, ground, &c. And when we find an undefinable word that is not Saxon, we may generally discover that we have a Saxon word that is synonimous; for instance, infant is Latin; but we have the synonimous word child, which is Saxon.

When men acquire a knowledge of foreign languages, they enrich their own. A foreign word supersedes gradually the words which constitute its interpretation; instead of saying, "an arm of the sea," we now use the word estuary, and thereby condense a sentence into a word. Native words are frequently compounded, so as to condense into one word the signification of several words:—shipwreck refers to what was expressed originally by a sentence.

I do not mean to enumerate the ways by which definable words are introduced into language and periphrases avoided; but merely to illustrate, by a few examples, my view of language. Definable words, though generally the name of other words, become occasionally the name of phenomena: thus, if I have never seen a shipwreck, the word will signify to me the words that constitute its definition, conjoined perhaps with some narratives and

graphic representations. With another man, shipwreck may signify a sublime spectacle which he has seen.

The meaning of definable words is not only thus different with different individuals, but it varies in the same individual at different periods. Shipwreck signifies to me at present no more than some words and paintings; but hereafter it may unfortunately name a sight.

I have now shown that we possess words which signify phenomena only, as white, sour, pain, loud, &c. and that we have other words which sometimes signify phenomena and sometimes words; as estuary, shipwreck, murder, &c. We have still another class: words that never signify phenomena, but words only. These are not numerous in any language, though they probably exist in all languages. Infinity is an example of this class. It is never a sight, feel, taste, or smell; nor is it a sound, except as it names other words. Angel, paradise, eternity, hell, and many other words of the highest importance, are also of this class. They name no sensible phenomenon, but refer for signification to some gracious declarations of scripture.

From this glance at the construction of language, we may easily see why some words are definable, and others not. Words are definable when they signify other words. Definable words have therefore two significations; a phenomenon and a phrase. To this distinction I wish to direct your particular attention. It has never been noticed, and produces dire confusion in every disquisition that relates to human knowledge. We find Locke, and his most acute metaphysical successors, asserting constantly that the meaning of definable words can be discovered by some process distinct from sensation. Green, violet, red,

&c. are undefinable words, and their meaning cannot be known except by vision; but rainbow, he says, is a definable word; and its meaning can be distinctly revealed to any person who has seen the colours of which it is composed.

Here is the ambiguity and error that I wish you to notice :—When Locke says, that the meaning of rainbow can be revealed to a person who never saw the phenomenon, provided he has seen red, violet and green, &c. Locke is alluding to the verbal meaning of rainbow. This meaning can be known to the blind, and I once saw a company much surprised when a blind youth was exhibiting what was esteemed a triumph of education over natural defects, by giving a copious explanation of the nature and appearance of rainbows. The company did not know that rainbow has two distinct significations ;—one a sight which nothing can reveal but seeing, and the other certain words that can be learnt by hearing. It was the latter meaning only that was known to this blind youth, and he was as capable of acquiring it as we are.

But it may be thought, we are differently circumstanced from the blind; and that an enumeration of the colours of a rainbow, and of their figure, size, position and arrangement, to us who know the phenomena which the words signify severally, would reveal to us a rainbow, not verbally merely, but visibly.

The premises are, however, impossible. No person can have experienced the colours which compose a rainbow, and their figure, position and arrangement, without having seen a rainbow. Take any one of the colours, say red: it names not one sight only, but numerous sights. Fire is red, blood is red, my hand is red, bricks are red,

and an Indian is red;—which of these is he to imagine, when you speak of the red of a rainbow? The same remark will apply to the other colours and to their figure, position, and arrangement.

But admit the possibility of the premises, and that a person who has never seen a rainbow, shall still have seen all its colours. Admit further, that when you enumerate the colours, he shall guess the precise red, orange, yellow, &c. to which you refer;—and admit the like of their figure, size, and position; yet it will be impossible for the person to know how the colours will look when they are combined; much less, how they will appear, when drawn into the shape, size and position of a rainbow. If he has seen such a combination, he has seen a rainbow; but if he has not seen the combination, language is inadequate to reveal it. After the most copious definition, and after the most familiar acquaintance with the phenomena separately, that are referred to by the defining words, a person will be conscious of a new sight the moment he sees a rainbow.

Another common illustration of the power of definitions, is furnished by the word centaur. We are told that a person who has seen a man and a horse, may, on hearing the definition of centaur, fantastically combine the head of the man with the body of the horse, and thus acquire the complex idea signified by the word defined. The error lies in supposing that the definition effects more than to teach us the verbal signification of centaur. If hearing the definition could teach me the sight centaur, hearing can perform the office of vision; a position which experience will momentarily refute. So rigid is nature on

this subject, that the most intimate acquaintance with two sights will not enable me to know the appearance which they will present when blended. The same law regulates all our senses : after drinking two liquors, endeavour to combine their flavour, and when you think the mental combination is complete, mingle the liquors, and the moment you taste them you will be conscious of a new taste.

If then the object of definition is to reveal any sight, sound, taste, feel or smell, that our senses have never experienced, the attempt is vain ; and it is not more vain in simple ideas than in complex ; in the word white, than in the word rainbow. But if the object of a definition is to teach us the verbal signification of any word, the instruction is useful and adequate.

I hope you are now proof against the delusion, that definitions can reveal to you existences which your senses never disclosed. Verbal significations only, can be revealed by definitions. The position remains unshaken and immutable, that language can effect no more than to refer us to such phenomena as our senses have revealed to us.

The opinion that definitions can teach us more than the verbal signification of words, has descended from antiquity. The ancients, however, thought that definitions were applicable to all words ; while the moderns saw that this involves an admission, that we can acquire a knowledge of sights without the agency of seeing, &c.—Hence, the moderns excluded from the power of definition all such words as white, loud, &c., that signify phenomena only. They did not perceive that other words were definable only because they had a verbal signification ; and that so far as the object of a definition is to reveal a new

sight, taste, feel, smell, &c. all words must be equally undefinable.

I beg you to remember I am not writing a treatise on definitions, but was compelled to show that language can effect no more than to refer us to known phenomena. Definitions can teach me the verbal signification of a new word; but it can teach me no new phenomenon. Before I dismiss definitions, I will remark, that the meaning of angel, immortality, eternity, and such other words as signify words only, must be incurably unknown to any person who possesses no language: hence the difficulty which is experienced in conveying to deaf mutes any instruction on subjects connected with eternity. To mutes who learn to read, the difficulty is obviated; for they acquire the meaning of definable words in the same way as we. There is, however, this curious difference—with us, definable words signify oral words, that is, sounds; but with the deaf mute, they signify written words—that is, sights.

If the instructors of the deaf will study attentively the difference that has now been stated between the verbal signification of a word, and the sensible signification, they will find it important in the process of instruction: for instance, suppose they wish to teach a deaf mute the signification of joy, they have to teach him two significations; the verbal signification, and the sensible. The verbal is easily taught, after they determine the form of words into which joy shall be resolvable. The sensible signification no words can teach—it is a feel, and can be disclosed only by making the mute know (by any method you can) the feel to which the word alludes. Every mute should be taught this difference in the character of words, and his knowledge will be more rational and definite, and his progress in learning more rapid and agreeable.

I shall conclude this Lecture with one observation: in every case in which language seems to effect more than a reference to known phenomena, it refers to words only. I will illustrate this doctrine with the most solemn application I can adduce—its application to our knowledge of death. Confessedly we know but little of death; but that little is much beyond what is actually known. Death, say we, is at least a state of rest. If the dead feel no pleasure, they are free from pain. Be they buried or unburied, cast on a funeral pyre, or laid on a bed of roses, is alike to them. These expressions are significant and true; but not to the extent that is generally imagined. They are significant and true, so long as they refer to the phenomena exhibited by death; but the moment we extend, in the least, the signification,

> " ——————— be it so much
> As makes it light or heavy in the substance,
> Or the division of the twentieth part
> Of one poor scruple; nay, if the scale turn
> But in the estimation of a hair,"—

our words refer to no archetype in nature, and are insignificant—except as they may refer to declarations of holy writ. We cannot increase our knowledge of death by employing language upon it; but by resorting either to revelation or our senses. One sight may be referred to by a thousand words, but the sight will be neither enlarged nor multiplied. Copiousness may increase the bulk of our dictionaries, but not our knowledge of nature.

LECTURE VI.

When Agib, the son of Zorader, desired knowledge, he was commanded by a venerable Lama of Thibet to seek knowledge amid the stones which lie scattered over the peninsula of Guzurat. Agib was discouraged. Behold! said he, the stones are countless; the way is also through the jungle of the tiger, and beset with the ravenous boa. Ascend, then, said the Lama, the heights of Caucasus, and seek knowledge among the birds which periodically pass from the Black sea to the Caspian. Alas! exclaimed Agib, the mountain is infested with hostile tribes, and eternal snows disform its summit. Go, then, said the Lama, to the beautiful valley which lies before us; penetrate the earth in a spot that you will discover, and knowledge shall be disclosed.

Agib departed. The sun burst from a cloud that had just irrigated the earth. The birds filled the air with harmony. Odours refreshed every breeze, and all nature was animation and beauty. Agib approached joyfully the

spot which the Lama had designated. Now, exclaimed he, knowledge shall be in my possession. Age shall admire my attainments, and youth contend to show me honour. He cast aside a mantle by which his efforts might be impeded, and excavated the earth with activity. Soon, however, the soil became compact, and the strength of Agib less efficient; when the appearance of a mass of stone seemed to preclude all further progress. Agib returned to the Lama, who decided that the stones must be removed. By great labour he removed them, and the cavity was immediately filled with water. In despair Agib again besought the Lama, who commanded that the water should be exhausted. Agib exhausted the water, still nothing was discoverable but a bed of slate. Bruised and dejected, he once more informed the Lama. Sluggard! exclaimed the weary priest, what did you expect to find? You have discovered a ledge of stone that may build temples: you have disclosed a spring which may cherish herds; and more, you have ascertained that though the possession of knowledge may be pleasant and profitable, the pursuit of it is laborious and painful.

We probably need not the experience of Agib to teach us that every thing estimable must be costly. Providence seems to impress this law on all the blessings with which we are surrounded. Even health cannot be retained without labour, nor reputation without a constant warfare against evil inticements. Summon then all your resolution to proceed with our investigations, though they should increase your information but a very little; for remember, if knowledge were attainable without effort, it might possess, like air and water, a theoretical homage; but it would command no practical reverence.

In my previous lectures I have stated all the essential qualities of language; and I propose to speak now of the power by which language commands our assent to certain propositions; for instance, why are we forced to admit that a half is less than the whole?

This property of language, like every other, has been much involved in mystery, though intrinsically it is very simple. We assent to a proposition when we find that the premises affirm the conclusion. This is the whole process of argumentation. The most elaborate reasoning, and the most recondite, can effect no more than to show us that the conclusion is admitted by the premises. Why, then, is a half less than the whole? Because the term half admits that it is less. There is no other reason.

"The table which we see, seems," says Hume, "to diminish as we remove from it; but the real table, (which exists independently of us) suffers no alteration. What we see is, therefore, nothing," continues Hume, "but the image of the real table."

I would ask, Why? Because the premises include an admission that the table which we see is not the real table. Those who discover that the premises affirm this conclusion, will assent to the deduction; while those who do not, will be unconvinced. In a syllogism, the position may be stated thus: The table which we see diminishes as we remove from it; but the real table suffers no diminution. Therefore the table which we see is not the real table.

"If we are unable to discover truth, the defect," says Plato, "must arise from one of two causes; either there is no truth, or man's faculties are inadequate to its discovery."

But why are we driven to this alternative? Because, to say that we are unable to discover truth, admits tacitly the above conclusions. Those only will assent to the dilemma, who see that it is included in the premises; other persons will say that they require further proof.

Carneades, who founded the new academy, held, that the senses, the understanding, and the imagination, frequently deceive us; and therefore cannot be infallible. Why? Because, to admit that they frequently deceive us, implies that they are not infallible.

When a writer finds that his conclusions are not obviously admitted by his premises, he will so explain the premises as to show that they do embrace his conclusions. No question is more important than the existence of God, and no truth has been more voluminously enforced; still those who essay to prove verbally this position, (by any other authority than revelation,) must proceed in the manner which I have stated. The arguments generally employed, are the marks of design every where apparent; and the impossibility of a creation without a creator. But why can we not suppose a creation without a creator? Because the word creation includes the admission of a creator. In the same way, the word contrivance admits a contriver; the word design admits a designer; and the word paintings admits a painter.

"All the universe," says Hume, "exhibits harmony. Every thing is adjusted to every thing. One design pervades the whole, and this uniformity leads the mind to acknowledge one author."

Why? Because it would be a contradiction to say, that every thing is adjusted to every thing; and one design pervades the whole; unless you admit that there is an ad-

justor and a designer. An atheist would never use such expressions.

Again, he says, "the whole face of nature bespeaks an intelligent author, and no rational inquirer can suspend his belief a moment with regard to the primary principles of genuine theism."

But how does the face of nature bespeak an intelligent author? Because it bespeaks intelligence. But how does the face of nature bespeak an author? Because I see in it a design, contrivance, and creation. Before the conclusions of Hume are inevitable, we must admit these premises, which tacitly embrace the conclusions of Hume.

Under the title Atheism, the Endinburgh Encyclopedia defends the following proposition: "there must be a self-existent being." Why? Because, if every thing which exists was created by another, we can never arrive at a beginning. If A was created by B, who created B? D, who created D? E, who created E? and thus we may proceed illimitably. But every series includes tacitly the admission of a beginning: hence we must eventually arrest our progression, and admit the conclusion of the Encyclopedia, that there must be a self-existent being.

Paley's Natural Theology says, "neither the universe nor any part of it which we cansee, can be the Deity." Why? for the only reason that can be given in any argument:—the premises affirm the conclusion. But every person may not see that the premises affirm the conclusion, hence the writer adduces proofs: that is, he teaches us how we may discover that the premises admit his conclusion. He says, "the universe is merely a collective name, its parts are all which are real. Now inert matter cannot be the Deity, nor can organized substances,

for they include marks of contrivance; and whatever includes marks of contrivance, carries us to something beyond itself, to a contriver who is prior to the thing contrived, and different from it."

But why cannot the inert parts of the universe be the Deity? Because the term inert negatives such a conclusion. But the organized parts also cannot. No. Because the word organized admits that it is the production of an organizer; but Deity is implicitly self-existent.

"No animal," continues the same writer, "can have contrived its own limbs and senses." Why? Because there attaches to the premises an implication, that an animal cannot exist till its limbs and senses have been contrived.

"Nothing," he adds, "can be God which is ordered by a wisdom and a will superior to its own; and nothing can be God which is indebted for any of its properties to a contrivance beyond itself."

Why? For one reason only; the word God excludes from its signification these consequences. Lest we might not know this, and hence not assent to his conclusions, Mr. Paley furnishes the word with a definition: thus, he says, "having in its nature what requires the exertion of no prior being, appertains to the Deity as an essential distinction, and removes his nature from that of all other beings."

He says further: "since something must have existed from eternity, it is frequently asked, why the universe may not be that something." He answers, "the contrivance perceived in it proves that to be impossible, for the contriver must have existed before the contrivance." Why? Because the word contrivance implies such a conclusion:—there is no other reason. But why must something have existed from eternity? Because, to say that any

thing is produced, admits a producer; to say that any thing is made, admits a maker; to say that any thing exists, admits a cause: hence, how ancient soever the universe may be, something must have preceded it; something must have existed from eternity.

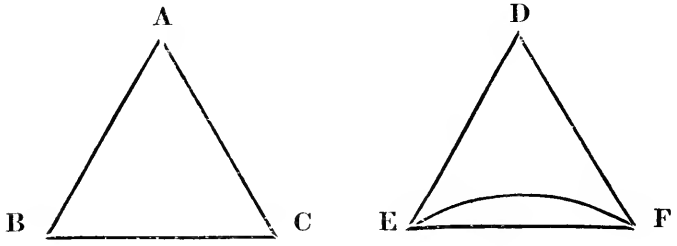
That the earth must be globular, is a conclusion which also language forces us to adopt. In a plane, we tacitly admit there must be some place where the plane terminates, where we may step or fall off. But we discover no such on the earth, hence the earth is not a plane. What shape then must the earth possess? Globular. Why? Because, to say that there is no precipitous termination, implies globosity. From a like necessity there are antipodes, and all the other wonders inculcated by astronomy.

In Gills' Body of Divinity, the author says, "though angels have no bodies, yet, as they are creatures, they must exist somewhere." Why? Because the consequence is included in the meaning which he attaches to the premises, that angels are creatures. He proceeds to ask where they could exist before the heavens and the earth were made, and concludes that they could exist no where. Why? Because the somewhere which he deems necessary, is included either in heaven or earth. The object of the author is to prove that angels were made subsequently to the heavens: a conclusion which is but an iteration of his previous admissions.

I will proceed to show that similar admissions govern our assent to mathematical propositions. For this object, I shall examine one of the theorems in the first book of Euclid's Elements. I had prepared an examination of all the theorems in the first and second books of Euclid, but it formed too large a body of what, to most persons, would be uninteresting matter.

PROPOSITION IV.—*Theorem 1st.*

Let ABC, DEF be two triangles which have the two sides AB, AC, equal to the two sides DE, DF, each to each ; viz. AB to DE, and AC to DF ; and the angle BAC, equal to the angle EDF : the base BC shall be equal to the base EF.



That the base BC is equal to the base EF, is evidently admitted by the premises, which affirm that the angle BAC is equal to the angle EDF. But let us now examine if the proof adduced by Euclid changes the character of the process. He says, if the triangle ABC be applied to DEF, so that the point A may be on D, and the straight line AB upon DE; the point B, shall coincide with the point E. I would ask why? Because, says Euclid, AB is admitted to be equal to DE. The proof then, thus far, is avowedly an admission of the premises.

The process is continued : thus, AB, coinciding with DE, AC shall coincide with DF. Why? Because, says the demonstration, the angle BAC is admitted to be equal to the angle EDF ; but why does this prove that AC must coincide with DF ? It will not prove it to those who do not discover that the coincidence

is included in the admitted equality of the two angles. Our assent is governed by this discovery alone.

A process, similar to what we have already investigated, is repeated to show that the point C must coincide with the point F; wherefore, says the demonstration, as the point B also coincides with the point E, the base BC shall coincide with the base EF. Why? Because, says Euclid, if the base BC does not coincide with the base EF, two straight lines would inclose a space. And how do you prove that two straight lines cannot inclose a space? By an admission in the tenth axiom that they cannot. Two straight lines, says the axiom, cannot enclose a space.

In this theorem, then, the proofs are effected by showing, that the points in debate are admitted either by the premises of the proposition, or by axioms, &c. I know that I have operated on a theorem which is more easily analyzed than any other in Euclid, because the subsequent theorems are domonstrated by preceding ones: still the same principle will be found in all.

I have now shown, that we assent to a proposition when we discover that the premises affirm the conclusion; and that proofs and arguments have no effect, but to show us that such an affirmation exists. I have investigated this subject far too cursorily, but I will leave it, and proceed to show why certain premises affirm certain conclusions: for instance, why the word half implies that it is less than the whole. Perhaps you will say, that the meaning of the word half admits that it is less than the whole; but I ask how it acquires this meaning? If you say, that common consent concurs in attaching this signification to the word, I ask how common consent came to

this resolution? Finally, is it an arbitrary conclusion, forced on us by the framers of language, that a half is less than a whole; or does it depend on some principle which is superior to any such dictation? The answer to this question will constitute the subject of my next lecture.

LECTURE VII.

THERE is a region called the valley of imagination that I occasionally visit, for the eccentric adventures with which it abounds. In a recent excursion thither, I noted a young woman, who was fleeing, as for her life. Her speed was impeded by an infant, which she held with some tenderness, while her face was suffused with tears. The object from which she fled was a monster, whose body was luminous and deformed. He seemed confident of his victim, and pursued her with increasing ardour. She arrived at a river, and turning to ascertain the proximity of her pursuer, plunged the infant in the stream, in the apparent hope, when unincumbered, of avoiding her enemy.

Whether she succeeded in her retreat I did not discover, for my attention was arrested by two young men, who were preparing to encounter each other in mortal combat. I could perceive that both would gladly have

suspended their intent; but no sooner did a relenting thought occur to either, than the monster whom I lately saw, appeared again, and with threatening gestures frightened the youth from his pacific contemplations.

I became anxious to know who this potent being is who can urge a mother to immolate her recent infant, and terrify two gallant youths to the sacrifice of life. I therefore besought one, who was loitering like myself, to yield me the information. The monster whom you saw first, he replied, is SHAME; the second is an impostor, who bears the name only of the former. True shame is the offspring of crime; but false shame is the descendant of folly. The first is justly feared, for whoever falls within his power he impresses with a mark which burns more intensely than cautery, and more durably than life. The second also affixes his mark on those whom he overtakes, but though it pains for a period, it eventually assuages, and the subject of his malice learns to contemn the monster, and his impotent assaults.

This allegory has not much bearing on our subject; but I suspect these lectures would long since have yielded to the distractions of business, and the absence of extrinsic impulse, did not the fear of one of these monsters deter me from abandoning a labour publicly undertaken. The motive for perseverance is therefore not very alluring, but, as it is, proceed we with our discussions.

Why cannot the same thing both be and not be? Because the proposition contains two assertions which negative each other. How came the propositions by meanings so opposite? By the consent of mankind. But what united on this proposition the consent of mankind? We

may proceed thus in an endless train of trifling assertions, without arriving at any satisfactory result. You will, however, remember that I promised to show in this Lecture the reasons which compel us to yield our assent to propositions like the above. I now proceed to the undertaking.

The necessity for our assent to such propositions is founded on the phenomena to which the propositions refer: thus, I can show you a knife, and tell you that the knife is visible. I can remove the knife, and tell you that it is invisible. But why cannot the knife be both visible and invisible at the same time? Try if you can effect such a coincidence, and you will discover why. The impossibility is precisely what you will experience, nor has it any other meaning.

Why cannot the same spot be, at the same time, both white and black? Because the word white implies that the spot is not black. But how came white by this implication? Was it arbitrarily imposed by the framers of our language? No. They called one sight white and another black, merely to name what they saw. The proposition is a result of experience. If I assert that the same spot cannot be both white and hard, the proposition will be untrue. Why? Because my senses can discover such a coincidence. There is no other reason.

All the axioms of geometry depend for their authority on similar principles. Why are things which are equal to the same, equal to one another? Because, says Mr. Campbell, the two expressions are equivalent to each other. But what makes them equivalent? The latter part of the phrase being a definition only of the former.

This does not satisfy me, and I ask further, What makes the latter part a definition of the former? We may continue such questions interminably. The axiom means nothing but a reference to phenomena; and when we recur to phenomena we shall find a satisfactory reason for the assent which the axiom commands. Look, I can say, at these sticks. Those which are marked A and B are severally equal in height to the stick C. Why now must A and B be equal in height to each other? Endeavour to produce a different result, and you will discover that the equality is unavoidable. The necessity is not verbal, nor logical, nor dependent on common consent. It is precisely what you will discover by the experiment, nor has the necessity any other archetype in nature.

We experience so frequently the phenomena to which the axiom refers, that we think a knowledge that A and B are severally equal in height to C, would, independently of any experience, enable us to deduce that A and B are equal in height to each other. It is experience alone, however, which enables us to discover that such a consequence can be deduced from the equality of A and B with C. Independently of experience, we should no more know that A and B must produce the sight and feel that we call equal height, than that they must smell or taste alike.

The word contrivance forces us to acknowledge a contriver. Why? Because contrivance contains an admission that it is the effort of some person whom we thence call a contriver. Yet how came the word contrivance to include such an admission? Is it an arbitrary fiat of those who framed the word? No: the admission proceeds

from our intercourse with phenomena—thus, I can tell you that I am completing a contrivance which will catch birds. What is the contrivance? A trap—Behold it! Do you ask why this contrivance implies a contriver? Try to produce such a contrivance, without exerting some agency, and you will discover why a contrivance is necessary. The necessity is precisely what you will experience.

Again: to assert that any thing exists, admits that there was a period when the object commenced existing. Why? Because it is absurd to suppose an existence which never had a commencement. Yet why is such a supposition absurd? We may proceed interminably with such questions, unless we appeal from words to the phenomena which the words signify: when we shall easily discover the necessity that impels us to admit a commencement. What is an existence? This house is an existence. What is a beginning, when applied to the house? That which I can show you where men are building. Why then does this existence imply a beginning? Because the operations which I have exhibited to you must precede the house. Why must they? Attempt to build a house without them, and you will discover. There is no other reason.

I can say that time which is not present, must be either future or past. Why must it? Because time is divided into present, past, and future. A negation of the present implies, therefore, that the remainder is either future or past. But whence arises this implication? We may, without end and without instruction, proceed in such inquiries; but if we resort to the phenomena to which the words allude, we shall soon discover why time that is not present must be either past or future. Thus: if the table

at which I am standing is not now touched by me, I have either touched it already, or shall touch it hereafter; or I shall never be able to assert with truth that I have touched the table. Why? Make the experiment, and you will discover. When you have found that your efforts cannot controvert my position, you may be told that the phenomena thus experienced are one meaning of the assertion, that time which is not present, is either past or future.

It is impossible that ice should be hot. Why? Because the name implies that it is not hot. But how came it by this implication? From experience only. The impossibility alludes to what you can discover if you attempt to heat ice: apart therefrom there is no incompatibility in the case.

Things which are double of the same are equal to one another. Why? Because, to admit that A and B are severally double of C, is to admit that A is equal to B. But why? Because the words imply the equality. Yet whence the implication? There is no end of such debate. The necessity admits a final explication through our senses only. Endeavour to make both A and B double the length of C, without making A as long as B. You will then discover why A must be as long as B. The necessity is precisely what you will experience.

Again: the whole is greater than a part. Why? The word whole implies that it is greater. How came it by such an implication? After we have bandied questions and answers till we are disgusted with trifling, we may appeal to phenomena, and discover readily why the whole is greater. Why then must the whole of an orange be

greater than a part? Endeavour to prevent it, and you will discover.

But can I not apply the axiom where there is no discoverable existence?—can I not say, that the whole of an invisible atom is greater than a part? You can; and this forms one of the most subtle and common delusions to which language subjects us. The consideration of it will constitute our next lecture. The present discourse shows, that the only reason which compels us to admit certain conclusions is, that experience teaches us that the conclusions are unavoidable. For instance, we admit that a part of an orange is less than the whole; because we find from experience that the result is inevitable. In my next lecture I shall show that the proposition is wrested from the orange, and other sensible objects, and applied to invisible atoms, &c. where the necessity exists in the forms of language only. This application is the basis of nearly every metaphysical speculation. It is the magician's wand which transports us from a world of grave realities, into regions where even our solid and firm-fixed earth revolves in a giddy velocity of many hundred miles during every instant of time; where the wretched inhabitants bear severally fourteen tons of atmospheric pressure; where there are antipodes, whose heads are diametrically opposite to those of other men; and where the smallest grain of sand may be divided interminably; becoming less for ever, without extinction. The difference you perceive is important, between propositions which experience forces us to assent to, and propositions which the forms of language compel us to admit. The first surprise us with no chimeras or gorgons dire.—

Every result is precisely what coincides with our daily occupations. It furnishes us with a stable earth, with an erect and congenial position for our heads, and with an agreeable levity of atmosphere. In the midst of these comforts we will end the present lecture.

LECTURE VIII.

In my last lecture, I showed that when we say the whole of an orange is greater than a part, the position is admitted; because experience has taught us that the conclusion is inevitable. The same principle governs our assent when we say that every design implies a designer, and every creation implies a creator.

I said further, that we do not restrict to oranges, &c. the assertion that the whole is greater than a part; but we apply it where confessedly the words refer to no sensible existence. I characterized this as one of the most subtle delusions to which language exposes us. The detection of this delusion is to constitute the present lecture.

What is the meaning of created? It is a name applied to certain phenomena. Any of my senses will teach me

a signification of the word. I can see a brick-maker create bricks. I can hear sounds created. You can tell me to place a piece of sugar in my mouth, and it will create a taste ; or to press my hand against a needle, and it will create pain. Each of these processes furnishes a meaning of the word created.

But what do I mean by applying the word created to the sun ? When I apply it to bricks, I refer to the process by which I have seen bricks produced ; but, when I apply it to the sun, I refer to nothing but the sun itself. The bricks are one phenomenon, and the word created refers to another, which is different from the bricks, though equally sensible : but when created is applied to the sun, there is only one phenomenon*.

But do I not see that the sun exists, and must not every existence have been created ? Here again the necessity is verbal, and language is a contrivance of men, and relates to their operations only. Why must every brick have been created ? Try to cause the existence of a brick, and you will discover. The necessity of a creation is precisely what we shall experience, when we attempt to produce a brick without some creative process ; but when we apply the same language to the sun, the necessity is merely verbal. It refers to nothing, and signifies nothing.

Still, do we not discover that a brick must be created ere it can exist ; that a boat, house, or basket, cannot exist without a previous creation ; and shall we suppose

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* Unless I refer to the declarations of revelation. Created has then a signification which is independent of the appearance of the sun. This remark must be remembered in every similar case.

that the sun can exist without a previous creation? I answer, that the word created is merely a name invented by men to refer to some of their operations and actions: when thus used, created is significant, but when we apply it to the sun, where there is no phenomenon to which the word refers, it returns to the original signification it possessed before men applied it to the purposes of language: that is, it becomes an unmeaning sound.

To persons who have never esteemed language as a collection of mere sounds employed to designate men's operations and experience, I am aware that this doctrine must be abstruse. That nothing can exist without a previous creation, is, besides, a proposition which applies significantly to so many objects, that there is but little wonder it should be deemed universally applicable. The housewife who applies the proposition to her bread, means that the loaf would not have existed if she had not wet the flour, and kneeded the dough. The miller who applies it to the flour, means that the flour would not have existed if he had not subjected the wheat to the operations of his mill; and the husbandman who applies it to the wheat, refers to his tilling and seeding the earth, and to the various phenomena from seed time to harvest. Suppose, however, we say, that the earth could not have existed without a previous creation; we allude to no phenomenon but the earth itself. When we think that we allude further, we mean merely that bread cannot exist without a previous creation; that flour, wheat, bricks, &c. cannot exist without a previous creation.

But are we not sure, that there was a period when the existence of the sun commenced? This question is pre-

cisely like the former. If I say that there must have been a period when every brick commenced its existence, you may ask what I mean. I shall again show you the operations of a brick-maker, and designate what I mean. But why must the existence of every brick have a commencement? Try to produce a brick without, and you will discover. The necessity is precisely what you will experience. That a house, ship, tree, or an animal must have a commencement, refers to some phenomenon; but when the word is applied to the sun, it confessedly refers to no phenomenon, and is therefore a sound divested of signification.

If all tactile objects possessed a sweet taste, we should consider sweetness essential to the sun, in the same manner as we consider a commencement essential. We even now attribute to the sun temperature, gravity, density, and every other property that is constantly associated with the bodies which we can handle.

But, it may be asked, whether I mean to assert that the sun's existence never had a commencement? No. I mean only, that commenced has no signification but as a name of some phenomenon; and when applied to the sun, there is no phenomenon to which the word refers: hence it is used insignificantly. We should err equally, if we were to assert that the sun never had a commencement; for we must remembert hat the meaning of a word is governed by the phenomenon to which the word refers. To apply the word bitter to the sun will not affect the sun, but it will affect the word.—It will render the word insignificant. The same principle applies to commencement, and every other word.

Natural Theology assumes credit for the discovery that there must be a self-existent being. Why must there? Because, says natural theology, if every existence is created by another, we can never arrive at a commencement. But there is as much difficulty in conceiving a being who is self-existent, as in conceiving a succession of existences without a commencement. This difficulty natural theology cannot avoid. Language allows no alternative but to choose between the two equally inconceivable propositions;—a being without a creator, or a succession of creators without a beginning. The dilemma ought to teach us that we are using language insignificantly; that words are invented to designate sensible phenomena, and when they refer not to these, they again become sounds which signify nothing.

Even the necessity which impels us to require a creator in the production of objects, shows that the word is simply a name of the operations that fall under our observation. If you ask me why it is necessary that bricks should have a creator, I answer, try to produce a brick and you will discover. The necessity of a creator will be not verbal merely, but what you will experience. But when you ask me why the sun must have a creator, I cannot, as in the case of the brick, tell you to produce a sun, and thus discover the necessity; nor can I refer you to any phenomenon; I can only appeal to the forms of language—forms which refer to sensible phenomena, and which have no signification where corresponding phenomena are not discoverable. The ability to predicate a creator in infinitum, is as complete as to predicate it of the sun; and we have eventually to abandon the process, and admit that we have arrived where the process is no longer applicable.

This alone ought to teach us that the whole process is insignificant, where it refers to no sensible archetype. It is like the ability to predicate a division of matter in infinitum. Both processes proceed on the same principle, and both are equally fallacious.

I am aware that this doctrine is so novel, that I may be accused of saying that the sun had no creator. I hold, however, that such an assertion is no more significant than its converse. Language is impertinent to the whole subject. The phenomena to which words refer give them significancy; and when we employ a phrase without referring to any phenomenon, the words are divested of signification. That the sun was created is highly significant. when we refer to the declarations of scripture; but when we refer to nothing, our assertion signifies nothing.

The deity of Natural Theology is further established by the same process differently applied: thus, matter cannot begin to move of itself. There must then be a mover. The conclusion is unavoidable, and this alone may teach us that the words relate to our actions and experience. Why is a mover necessary to give motion to my pen; Try and you will discover. You will find a perfect quiescence till your hand, the wind, or some other agent moves it. The necessity is not in the nature of the words, but in the phenomena to which the words refer. Besides, we have another proof that the position is insignificant when it does not refer to sensible phenomena; we must either proceed illimitably to predicate a mover, or eventually abandon the necessity, and admit that something does move without a mover: thus, what makes my pen move? My hand. What makes my hand move? A. What makes A move? B. What makes

B move?—and so in infinitum. There is the same necessity that the last shall have a mover as the first. This, however, leads to an absurdity. But we do not adopt the obvious conclusion, that we are using language apart from sensible phenomena, and therefore insignificantly; but we adopt the incongruity, that at length something moves without a mover.

Further, the proposition says, "that matter cannot begin to move of itself." Hence natural theology proves, that there is an immaterial existence: thus, I include under the word matter every part which you can feel, see, taste, smell and hear of a horse. None of them can begin to move of itself. There is then something in the horse beside matter. Why? I will show you. The horse is now slain. There remains all the matter of which he was composed when alive, yet not a particle possesses motion; hence, when the horse could move, there existed in him something besides matter. You may now cut him into large pieces or small, they will be equally incapable of motion.

The difficulty, however, exists in the recital. We discover that a dead horse is incapable of motion. We discover the same in the flesh, bones, blood, and other parts that may be detached from a live horse. What then? It proves the existence of something in the horse beside flesh, bones, blood, &c. No, this is our hypothesis only. The phenomenon proves itself, and nothing more nor less. Of what our senses discover, we can refer to by any expressions we think proper; but the signification of our expressions must be sought in the phenomena. We may say, that matter cannot begin motion, provided we mean that a dead horse cannot move; or the flesh, blood,

bones, or other parts that may be separated from a living horse; or provided we mean any other phenomenon which we discover. In the same way, we may contend that there must, in a live horse, be something beside matter, provided our expression refers to the phenomena exhibited by life; but the moment the phrase is used to express more than the phenomena, more than we can see, feel, taste, smell and hear, our words become insignificant even to ourselves. They become mere sounds and archetypes of nothing.

Another discovery which natural theology claims, is that there must be a being infinitely perfect. The proof is this, " the maker of any thing must be more perfect than the thing which he makes; hence the maker of all things, must be infinitely perfect."

But why must the maker be more perfect than the being which he makes? Because the words refer to our operations and experience. The watch maker must be more knowing than the watch, and the musical instrument maker more knowing than his instrument. When thus applied, the proposition refers to sensible phenomena; but when we use it without such a reference, the words are unmeaning, and may be, (as in all similar cases,) predicated in infinitum: thus, B, the maker of a watch must be more perfect than the watch; but C, the maker of B, must be more perfect than B; and so to the end of the alphabet, without arriving at the infinitely perfect being, unless we arrest the process, and say we have reached a being so perfect that the maker of it is not more perfect. This incongruity can be avoided only by another, which is at least equal: that the being exists without a maker. Consequences so incompatible, ought

to teach us that language is unfit for such processes, and that we must trust to revelation alone for every thing beyond the sensible phenomena with which Providence has mercifully surrounded us. To these only, words refer; nor can the wit of man devise a word which shall possess a wider reference.

Since something must have existed from eternity, it is frequently asked, says Paley, in his Natural Theology, Why the universe may not be that something? He answers, the contrivance which we perceive in the universe, proves that it must have been preceded by a contriver; and hence it could not have been eternal. But why does a contrivance imply a contriver? Because both words refer to our operations, in which only the implication has any sensible signification. I would ask, (but reverently,) whether the appearance of Deity would not exhibit a contrivance as evidently as the appearance of the universe? If it would, we can prove that even Deity could not have been eternal: for a contrivance implies a previous contriver. Language is wholly inadequate to such speculations; they are even impious. The heathen make graven images—we make verbal ones; and the heathen do not worship more ardently the work of their hands, than we the work of our pens.

But why must something have existed eternally? Because language will not permit the assertion that any thing is produced without a producer. Hence, how remote soever we place any production, the producer must be more remote. But whence this property of language? From the reference which words bear to men and their operations: and nothing can more explicitly show the nullity of separating language from these operations, than

the necessity which occurs eventually of abandoning the process, and admitting that there is a point beyond which it is inapplicable; either that there is something which has no producer, or that there was a period which had no anterior.

That something must have existed eternally, may also be deduced from the ancient maxim, that nothing can be produced out of nothing. But why is the axiom true? Because it refers to our operations. Try if you can make a pen out of nothing, a brick out of nothing, or a loaf out of nothing, and then you will know the necessity to which the axiom alludes. The necessity does not arise from any decree of the authors of language, but is a phenomenon which will be revealed to you by the above experiments.

With the above axiom the ancients maintained that the power of Deity extends no further than the arrangement of pre-existent materials. The moderns do not extend the axiom so far. We arrive where we say the axiom is no longer applicable. This, however, creates embarrassment: thus, what was the sun made out of? say A. And what was A made of? say B. And what was B made out of? We may proceed thus without end. But there must be an end. There must be a first material, and out of what was that made? When we trace a beginning to a certain extent, we can stop, and say God has no beginning. When we trace causes to a certain extent, we can stop, and say God is uncreated; but we cannot say that the first material was made out of God; hence we deny the maxims of the ancients, that nothing can be made out of nothing; and we affirm that every thing is made out of nothing.

Spinoza, disbelieving the result thus obtained, and unable to dispense with a first material, concluded boldly that Deity himself was the first material out of which all things were fabricated. This he thought was a great effort of reason, by which the maxim, *nihil fit ex nihilo*, was reconciled with the creative attribute of Deity.

When men find that language forces them to admit either that all things are made out of nothing, or out of God, who was himself neither composed of any material, nor by any agent, nor at any period; we may pause, and at least question whether language is applicable to such speculations. The wisdom of the world may well be accounted "foolishness with God." By accumulating and arranging words, we can no more discover what "eye hath not seen nor ear heard," than we can, by taking thought, add a cubit to our stature. We must for ever exclaim, in the beautiful and appropriate language of inspiration, such knowledge is too wonderful for me! Canst thou by searching find out God? Canst thou find out the Almighty unto perfection? It is as high as heaven, what canst thou do? Deeper than hell, what canst thou know?

To reconcile the free agency of man with the omniscience of God, has also been a desideratum of natural theology. I just drank some water, and antecedently I deliberated whether I should drink water or cider. But if actions are known to God before their inception, it was known that I should drink water; hence, though I was deliberating, I could not drink cider, or the foreknowledge of God would have been frustrated. If, however, I could not drink the cider, I was not a free agent. But the dilemma is merely verbal. What is the meaning of the term free agent? It can be explained by some sensible

phenomenon only. You may tell me that I can either drink or not the water which is before me. To teach me still more unequivocally, you may show me what it is to be not a free agent. You can withhold my hands, and tell me I am no longer free to drink. Why? Let me try to drink and I shall discover. Hence the term free agent signifies a sensible phenomenon; and if you apply the term to what is not sensible, the phrase is divested of signification.

The controverted expressions have a signification, when they are used in sacred writ; and my comments on them will show the folly of attempting to comprehend their divine archetype. The Holy Spirit has mercifully condescended to reveal that there are realities to which our knowledge has no affinity. This is effected by employing language in a way that is irreconcileable with the phenomena to which we are surrounded; nor can I conceive that any other use of language would accomplish the object.

But you may contend that my system is subversive not only of natural theology, but of every other. If I thought this, or that it would disturb the faith in revelation of a single being, I would never publish these suggestions. Fully and gratefully impressed with the paramount authority of the holy scriptures, I admit that no repugnant doctrine can be true. I intend to say nothing but what will display the importance of revelation, and show infidels that their deity is a creation of their own; the result of propositions which are precisely like Zeno's problem of Achilles and the tortoise.

I never knew but one atheist, and the bulwark of his unbelief was the doctrines of natural theology. When you attempted his conversion, by alleging the necessity of a

creator for the sun, moon, &c. he would inquire, Who made them? God. But who made God? If you said that God is uncreated, he would contend that you abandon the argument by which you seek his conversion; for, if it is necessary that the sun should have had a maker, he considers one equally necessary to the maker of the sun: and so in infinitum.

Had this atheist known that language is impertinent to the whole discussion, he would have seen that verbal incompatibilities afford no cause to disbelieve the being and attributes of Deity. Yet what would induce him to believe in them? Revelation. The same which induces us to believe in the Saviour.

No heresy is so pernicious as the persuasion that God can be discovered by reason. Science has at various times advanced truths which were thought hostile to revelation; but they all eventually have been confirmatory thereof. A disclosure of the nature of language will result similarly. Men must learn that they can look to revelation alone, not for a Saviour only, but for every part of the Godhead, and every attribute of Deity. Infidels must discover no alternative but revelation or entire ignorance. The god whom they acknowledge is a creature of language, and apart therefrom has no existence. He is precisely like Hindoo, and other heathen deities, who probably all originated from verbal deductions like those of natural theologists.

But what proof have we of the truth of revelation? We have all the proof which we ever had, and its sufficiency is continually evinced by the number of believers. When men imagine that God is discoverable independently of revelation, they become proud of what they

deem a great effort of reason. They esteem more highly the evidence which substantiates their god, than the evidence which discloses the God of the bible; hence they cavil with the declarations of holy writ, and either believe or condemn them conformably to the dictates of reason.

The deity of Natural Theology is generally moulded to suit the practices of his votaries. The murderer finds that his God is too exalted to regard the conduct of men; the libertine considers the possession of inclinations as a proof that the gratification of them must be an acceptable homage to their maker; and the scoffer of sacred institutions believes that he is evincing a laudable contempt of rites which proceed from degrading views of the being of his adoration. All find not merely an excuse for their sins, but an incitement to sin. If, however, it shall be known that God is discoverable in revelation only, every believer must be a Christian. Nor will he select one attribute of Deity and reject another; or believe in a part of the Godhead, and disbelieve a part: he who believes, will believe in all things revealed.

But is there not danger that the belief of many will be shaken if they shall find that, apart from the Bible, there is no knowledge of any thing but of the phenomena with which we are surrounded? Whose belief will be shaken? Theirs who reject the Bible. It ought to be shaken. They must seek another refuge, and none will be found but revelation.

Yet again: What proofs have we of revelation? We have a testimony within ourselves, the Holy Spirit acting on our feelings. There is in the sacred volume a tenour which speaks as never man spake. The happy tendency of its morality; the deep insight that it gives of the hu-

man character; its adaptation to every period and nation, and to every vicissitude of life; the age in which it was composed, and the circumstances of its composers; all tend to bow the understanding and the will, not only to acquiesce in its doctrines, but to cling to them as the solace of affliction; as the only ray beyond the mysterious scenes which surround us; as the counsellor in the cares and pleasures of life, and the comforter in affliction, pain, and death.

But it may still be said, if language can discourse of nothing but sights, sounds, tastes, feels, and smells, what can revelation teach? A revelation must necessarily be adapted to our capacity. What we could not understand would be no revelation. We are told that we shall be subject to rewards and punishments, words which probably possess a reference beyond our comprehension. This, however, matters not. The words were spoken for the regulation of our conduct, and not for the gratification of our curiosity. We are told the conduct which is pleasing to God, and the conduct that is displeasing. We are instructed how to obtain His favour, and how to become obnoxious to His displeasure. All that belongs to life is revealed in significant language, and what does not belong to life could not be intelligible in any language.

You must recollect that my remarks on Theology were elicited incidentally. I once intended to omit them, as too grave a subject for my discussion; but I preferred to show the adaptation of my doctrines to revelation, than to leave the adaption to other persons, who might easily misconstrue my intentions, or mistake the tendency of my tenets. Besides, Natural Theology afforded a good illustration of the errors to which we are liable, when we consider the

conclusions of language applicable, not only to the phenomena from which the conclusions derive all their authority, but to cases where no phenomena are discoverable. That is, because every thing made implies a maker, we are prone to suppose that the proposition has reference not only to this house, this table, and the various other objects in which the necessity of a maker refers to our operations and experience, but to the earth and the sun, where the necessity refers confessedly to no sensible archetype.

Finally, I have spoken of Natural Theology not to detect its errors, but to elucidate the nature of language. With the same view I intend to show further some errors in various other departments of knowledge. This, however, would lead me further than your patience to-night will permit; I must, therefore, defer the subject to my next Lecture.

LECTURE IX.

In my last Lecture, I gave some examples in Natural Theology, of the manner in which we continue the forms of language, after the phenomena are withdrawn that give significancy to the forms: for instance, to say that every thing made implies a maker, is significant when we refer to a watch or any other human fabrication; but it is insignificant when we refer to the earth or sun, for the assertion then refers to no sensible phenomenon.

In the present Lecture, I am to exemplify the same error in other branches of learning; and when we shall exhibit the monstrous conclusions to which this use of language constantly leads us, you will probably be astonished that the fallacy of the process has so long escaped detection.

The first instance to which I shall advert, is the dogma that the earth is suspended in space. If we say the earth rests on any thing, the question occurs immediately, what does that rest on? For the principle which furnishes the

earth with a support, forces us to find something on which the support may rest. Hence, if we adopt the Indian tradition, that the world rests on an elephant, and the elephant on a tortoise, we must still find something for the tortoise to rest on; and so in infinitum. But this leads to no end, and there must be an end, or there is no use in predicating any supporter; therefore, we discard both Atlas and the elephant, and say, that the earth is suspended without a support.

Nor can the earth hang on any thing. A support from above requires a beginning as much as a support from below. We may suspend the earth with a chain from the sky, but what sustains the sky? Another chain from another sky. But what sustains the latter? There must be a commencement, and that can have nothing to sustain it; hence there is no use in predicating any sustainer, and the earth is left without support either from above or below.

A little attention will convince you, that the language refers wholly to our operations, and to the phenomena with which we are conversant, and when applied to the earth, the words have no sensible archetype, and are therefore insignificant. The moment I cease from supporting a stone it falls. It must have a support, and the necessity is precisely what you will discover, if you attempt to suspend a stone without a support. Here the necessity is significant; but when we apply the same language to the earth, we refer to nothing which the earth exhibits, and the necessity is merely verbal.

Again: why must we predicate support after support in infinitum? Because we are referring, not to any phenomenon which the earth exhibits, but to our operations

with the objects that surround us. The stone is now supported by the table; but what supports the table? The floor. Why does the table need a support? Try if you can make it stand without, and then you will know. We may predicate support after support, till we reach the earth; and if we thence continue the predication, our language loses all significancy. The predication becomes like the infinite divisibility of matter, or the race of Achilles and the tortoise, or the fabrication of every thing out of nothing, or any other mere verbal process—a clashing of words without any ulterior signification.

That we have to admit finally, either a first support, which is itself unsupported, or that the earth is without any support, shows that we are employing language insignificantly; that we are wandering in fairy land. Support and supported, are names of sights and feels: when we apply the words where the sights and feels are undiscoverable, the words lose their significancy: divested of their conventional character, they become again unmeaning sounds.

That the earth is round, is also a necessity created by language. Why must the earth possess any shape? Because all tangible bodies must have a shape. But why? We may thrust back the question as often as we can find new expressions, but we must ultimately resort to our senses, to whose phenomena alone the necessity has reference. Shape is the name of a feel and a sight. You discover them in this table. If you wish to know why the table must have a shape, try and manufacture one without a shape, and you will discover the necessity. It will be just what you will experience.

But why must the earth have a shape? Here the necessity is verbal. I cannot refer you to your senses, as in the case of the table, but I must refer you to the table, or some other tangible object. The very reason why a shape is indispensible to the objects which we handle, is conclusive that it is inapplicable to the earth. Shape is indispensible to these, because the word names a sight and a feel, which they constantly exhibit; but it is inapplicable to the earth, because it names a sight and a feel that the earth never exhibits.

Language can be significant of nothing but the sights, feels, sounds, tastes, and smells, which we experience: hence the nullity of the word shape, when applied to the earth as a whole. You must remember that I do not maintain that the earth has no shape, but that the word shape becomes insignificant when it does not refer to some discoverable phenomenon.

To say that the entire earth must have a certain smell or taste, would be deemed puerile; but the assertion is not more puerile than to say the whole earth must have a shape. Why we predicate of the earth a shape I have endeavoured to show; and I may employ a similar process to explain why we do not consider a smell equally essential. Both results are the effects of our experience in the tangible bodies that surround us, and apart from these bodies neither result has any significance. To assert that the earth has a shape, is highly significant when we refer to the appearance of the moon under an eclipse, or to the gradual disappearance of a ship in its recession from the shore, or when we refer to any other phenomenon; but the moment we refer to any thing that our

senses cannot discover, the shape of the earth becomes an unmeaning expression.

But if the earth has a shape, what shape must it have? That of a plane, a globe, a cone, an oblong, a rhombus, or a square, &c. to the end of our vocabulary of shapes. But why must the shape be one of these? Because there can be no other shape. Why? Try if you can make a shape that is not one of these, and you will discover. Here again the necessity has reference to our experience only.

But of what shape is the earth?—A plane. No; the earth cannot be a plane, for then there would be some place, (of land or water,) where we might fall off. Why? Because every plane must have a termination. It may be a million of miles long, or a trillion; but it must have an end. But, why? For this reason only,—we experience that planes always possess a termination. Do you wish to know farther why every plane must have a termination? You will discover conclusively, if you attempt to construct a plane that shall be interminable.

If the surface of the earth has no termination, what shape must the earth possess?—Round or oval. Why? Because to admit that there is no termination, implies that the shape is round or oval. But whence this implication? Try to make such a surface, and you will discover. The necessity of a rotundity, is just what you will experience. Hence, when I say that a surface which has no commencement or termination must be round, the necessity is significant so long as it refers to an apple, or any thing in which the necessity is discoverable; but when the proposition is applied to the earth, the necessity of a roundness is merely verbal. The roundness may refer to

the various phenomena which we relate in proof of the earth's sphericity, but if it refers to nothing more, it means no more than those phenomena.

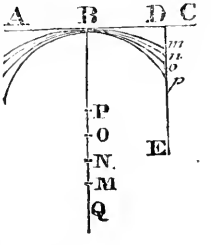
Again: if you take an artificial globe and pierce it with pins, so that their points shall all be directed to the centre, there must constantly be some whose heads will hang down, diametrically opposite to the heads of some of the other pins. Why? Make the experiment and you will know. But to what do we advert by saying, there must also be some part of the earth, where the feet of the inhabitants are diametrically opposite to our feet? We refer to no phenomenon. The first proposition would be significant if we had never heard of the second, but the second would be unintelligible if we had not heard of the first. The necessity that the pins should have antipodes, is a result of our experience; but the necessity that men should have antipodes, exists in the forms of language only: forms that cease to be significant, where the phenomena to which they refer cease from being discoverable.

Show me a man who exhibits the same appearance in relation to the earth, as the pins exhibit in relation to the artificial globe. You cannot:—hence the nullity of the position. The moment we employ language to discourse of what is not sight, sound, taste, feel, or smell, we are transported into an enchanted world, where the wonders are more incredible than those which amuse infancy.

But are not the phenomena exhibited by the earth conclusive that it is globular, since you cannot produce similar appearances with any other shape? Granted. The necessity of admitting its sphericalness refers to our operations. It is a sphere by the same necessity that impels

a child to admit an automaton is animated. He never saw any thing inanimate which could open and close its eyes, move its feet, hands, and head; hence the automaton must be animate. The child is, however, correct, if he employs the word animate to name what he discovers merely; and we are correct in calling the earth a globe, if we use the word to name what we discover: but the child is wrong when he, by virtue of the name which he has attached to the automaton, imputes to it a power to eat, drink, and sleep; and we are equally wrong when, by virtue of the name that we have given to the earth, we maintain that its inhabitants, of different places, must carry their heads diametrically opposite; that no two lines perpendicular to the earth can be parallel, and all the other phenomena discoverable in artificial globes.

Mathematicians demonstrate that a line may be indefinitely divided: thus*, draw a line AC, and another (BM) perpendicular to it. The latter line must be interminable in the direction toward Q. Draw also another line (DE) parallel to BM. You may now take any point (P) in the line BQ, and from P, as a centre, describe, at the distance PB, the arch Bp. In the same manner you may take the points O, N, and M, and from each, at the distance of B, describe the arches Bo, Bn, and Bm. Evidently the further the centre is taken from B, the more nearly the arches will approach to D; and the line ED will be divided into parts that will diminish in size at every operation. But the line Bm may be interminably



* Keith on the Globes, p. 8. 43.

extended beyond Q; therefore the line ED may be continually diminished. But it can never be reduced to nothing, because an arch of a circle cannot coincide with the straight line BC: hence ED may be diminished in infinitum.

Why can the arch of a circle never coincide with a straight line? Because the terms imply that it cannot. But how came the terms to possess this implication? By referring to our operations and the phenomena with which we are conversant. Try to make an arch coincide with a straight line, and you will discover the incompatibility. It alludes to sensible phenomena only. After adopting the phrase, we, however, make its authority superior to that of our senses; for if we endeavour, we can form a circle so large that its arch will coincide with a short straight line. You will say I am mistaken. The apparent coincidence is a defect of my sight. Yet how do you know that I am mistaken? You have no authority except the evidence of your sight in small circles, and, for asserting the present coincidence, I have the evidence of my sight in the very case under investigation. The want of coincidence is a sensible phenomenon, when predicated of some circles; but it is only a verbal incompatibility, when predicated of others. Hence the line ED cannot be diminished in infinitum. You will soon produce so large an arch that it will coincide with BD; and then the further diminution of the line ED will cease from naming any thing sensible, and become diminution minus diminution—a sound divested of its signification.

The verbal process which diminishes ED in infinitum, will prove that water is not level; for if the earth is round, the surface of a fish-pond is the arch of a circle, and therefore cannot coincide with a straight line.

Mr. Reed*, in speaking of the divisibility of bodies, says, there seems nothing more evident than that all bodies must consist of parts. Why must they? Because the word body implies an aggregation. But whence this implication? We may, as heretofore, proceed in a round of questions without arriving at any result. If, however, you undertake to discover a body which cannot be divided, you will learn why all bodies must consist of parts. The necessity of parts has no meaning but our experience, and hence the absurdity of predicating the necessity, after our senses testify that no phenomena are discoverable. We may employ the proposition of Mr. Reed to prove that an atom is divisible in infinitum, since every division still leaves a body which is composed of parts; but our language loses its significancy in the process, and the parts which we are dividing become sounds signifying nothing.

Locke, in his Essays, says, "our idea of space is boundless. Any bounds, even adamantine walls, cannot arrest the mind in its progress through space and extension, for so far as that body reaches, no person can deny extension; and when we arrive at the extremity of body, what can there satisfy the mind that it is at the end of space?"

Yet, when we reach the walls, why can we not say we are at the end of extension? Endeavour to constitute a wall that shall not possess extension, and you will discover why we cannot say that a wall is the end of extension. But when we arrive at the termination of the wall, why can we not then say, that we are at the end of extension? Attempt to construct a wall that will enable you to

* Essay II. on the Intellectual Powers.

make such a declaration, and you will learn why we cannot. The difficulty will be just what you experience. To this experience language refers, and further, words have no signification. We may amuse ourselves with framing propositions such as Locke's, but we mean nothing but what our senses discover.

But why, says Locke, does no body ever think of infinite sweetness or infinite whiteness, though he can repeat the idea of sweet and white as frequently as those of a yard or a day? Because, answers Locke, only those ideas which have parts are capable, by repetition, of producing the idea of infinity. But why? Because, says Locke, with this endless repetition of ideas there is a constant enlargement. But why? Locke does not answer. I will answer for him. The words refer to our operations, and the phenomena with which we are conversant. This stick must be longer if you add to it another stick. Why? Make the experiment and you will discover. The necessity has no other reference: and hence the absurdity of using it where no phenomena are discoverable.

Why does no body think of infinite sweetness, or infinite whiteness, though he can repeat the idea of sweetness and whiteness as frequently as the idea of a stick? Because, says Locke, to the idea of the whitest whiteness, if I add another of a less or equal whiteness, it makes no increase or enlargement of my idea. Why? Because, he remarks, if you take the idea of white, which was yielded yesterday by a parcel of snow, and join it in your mind with the idea of whiteness that is yielded to-day by another parcel of snow, the two ideas embody into one, and the idea of whiteness is not increased. But why? He answers not. The answer is, however, extremely simple,

and shows that language has no meaning when it does not refer to sensible phenomena. Why, then, cannot one piece of snow be made whiter by the addition of another piece? Conjoin them and you will discover. This is a simple reason, but no other is so good. The term "cannot" refers to this experiment, and not to verbal reasons. They have neither authority nor significance, when they are used without a reference to phenomena.

It appears, then, there is no length which may not be increased, though there is a limit to the increase of whiteness. The process is thus announced by Locke: "Every person who has an idea of a foot, finds that he can repeat the idea; and joining it to the former, make the idea of two feet, and so on without ever arriving at an end of his increase, whether the idea so enlarged be a foot or a mile, or the diameter of the earth, or the orbis magnus."

I would ask, however, what he enlarges? So long as he speaks of joining one foot to another, he speaks significantly; but when he talks of enlarging his idea by doubling the diameter of the earth, the process becomes verbal, and the necessity which compels us to admit the enlargement, has no existence but in the forms of language:—forms that owe their significance to their reference to phenomena, and become insignificant the moment they are applied where no corresponding phenomena are discoverable. To enlarge in infinitum, and to diminish in infinitum, are processes of the same character; they are words which have no archetype among sensible phenomena, and are therefore sounds significant of nothing.

In Gill's Body of Divinity is the following proposition: "Though angels have no bodies, and so are not in place

circumspectively; yet, as they are creatures, they must have a somewhere in which they are definitively."

Why must creatures have a place in which they exist? Because the words refer to sensible phenomena. This book is a creature. If you attempt to dispose of the book so that it shall exist, and still have no location, you will discover the impracticability. It will be what you experience. But when the same impracticability is predicated of angels, it exists only in the forms of language; forms which have no more substantiality, when the phenomena to which they allude are subtracted, than the muster-rolls of an army, when the soldiers have all deserted.

The writer proceeds with his metaphysical discoveries: "where was a place for angels to exist in before heaven and earth were made? No where." Why? Because we are again referring to the phenomena with which we are conversant, and language can have no other reference. The writer, however, thinks his reasoning is conclusive, that the heavens or the earth must have been created before angels. Yet even this obvious consequence of the premises is authoritative only because it refers to our operations: thus, you cannot mark with chalk till you have something on which to inscribe the mark. Why? Try and you will find. The difficulty in this case is not logical, but a phenomenon of nature. The phenomenon affixes to the inability a signification, but without the phenomenon the inability is verbal only: it is unmeaning.

Locke says, "number applies to men, angels, actions, thoughts, and every thing imaginable." If any proposition is inherently significant and independent of phenomena, this of Locke must be the one. Yet even this is in-

debted for its significance to our operations and experience. Why must apples be either one or more? Try to prevent the necessity and you will discover. The necessity depends not on the structure of language, but on the phenomenon. But why must angels be either one or more? The necessity here refers to no phenomenon, and is merely verbal. Number may be inapplicable to angels. It is a name given by us to certain sights and feels, &c.; where these exist not, number is a word divested of its signification. Suppose we were to apply numbers to darkness, insipidity, or vacuity, we should speak unintelligibly; because these objects exhibit not the sights and feels to which numbers are ordinarily applied. This illustration may assist you to apprehend that where all the phenomena with which we are conversant should be absent, the word numbers would have no signification; hence it may not be applicable to angels. We affix it to them in compliance with the forms of language.

I have now shown, that when language forces us to admit any thing, (as in the above instance, that apples must be either one or more,) the necessity of admitting the conclusion is founded on our experience. I have also shown that when propositions have thus obtained an authoritative character, we apply them where there are no corresponding phenomena: as that angels must be either one or more; and that, in such applications, the necessity of admitting the conclusion is merely verbal, and therefore fallacious.

The present lecture has been particularly devoted to the latter elucidation. Examples of the error might be accumulated without difficulty, but I have probably stated a sufficient number and variety to show that the error enters

deeply into all our learning. We shall now be able to discover a reason for the great solicitude evinced by abstruse writers about names and definitions. For instance, if a mathematician wishes to demonstrate that the surface of a fish-pond is not level, it is important that the earth should be denominated a sphere; because, after this preliminary, and a suitable definition of the term, it follows that as the fish-pond constitutes a part of the circumference of a sphere, the surface of the water cannot be a straight line.

This, then, is the reason why we find amongst abstract writers so much labour in the definition of the names on which their theories are to be erected. The investigation of this subject is important to the view which I wish to present of language, and it constitutes the theme of our next Lecture.

LECTURE X.

In the present discourse I am to show that theorists are solicitous about names and definitions, because their speculations are often verbal deductions from such names: for instance, if they wish to prove that the surface of a pond is not level, they must premise that the earth is a sphere, and the pond a part of its circumference.

The error of this process is, that words have as many significations as they have applications to different phenomena; consequently, though the assertion is true when applied to an artificial sphere, that no part of its circumference is level; yet the assertion is sophistical when the word sphere is applied to the earth, because sphere has then a different signification.

So curiously have some theories become confounded verbally with sensible phenomena, that when I lately

asked a friend what he meant by saying the earth was round, he thought I was trifling with him. When I pressed him for an answer, he said it was round like any other round body. I desired an example. He pointed to an artificial globe. But, said I, in what is the earth like the globe? Does it present the same sight, or the same feel? Neither:—but when a fly walks over the globe, he produces an appearance similar to what a receding ship exhibits to spectators on the shore. Again, when a ship sails in a continued course westwardly, it returns to the country whence it originally departed; as a fly returns when he walks on an artificial globe. Besides, the shadow of an artificial globe resembles the appearance which is exhibited on the moon when eclipsed; an appearance which we are assured by astronomers is the shadow of the earth.

True, said I, the earth exhibits these phenomena, and hence you deduce its sphericity. All that I wish is to convince you that the word sphere, when applied to the earth, is not the name of a sight and feel, (as it is when applied to an artificial globe) but the name of certain other phenomena. It would be idle to prove by argument that an artificial globe is spherical. We can see and feel it, and thus decide immediately. But we cannot act thus with the earth; hence it has been repeatedly subjected to experiments, for the procurement of data from which its shape might be inferred. If, then, we would avoid the latent sophistry of language, we must carefully remember that the word sphere, when applied to the earth, is a name of these data only.

If I admit that there is fire in my hand, you may deduce therefrom that my hand will be burnt. The conclusion

seems inevitable. But you ought to know first whether I apply the word fire to what you have always found productive of such a result. Perhaps I hold in my hand paper on which the word fire is written. This, however, you would denounce as a quibble. It is a quibble, and a vast many philosophical conclusions are produced by a process similar in character to the quibble, though not so obvious to detection.

If we employ language simply to refer to phenomena, no serious evil can arise from the terms we adopt; but if we select words to draw from them logical deductions, the slightest change of phraseology may produce in philosophy revolutions which no man can foresee till he has found all the consequences that may be logically deduced from the new names which he introduces. The metaphysician who concludes his book by asserting that nothing exists exterior of his mind, might have concluded it by asserting that every thing is exterior, if he had only named the objects of his knowledge impressions instead of ideas.

Dougald Stewart, in his Essays, says, " the assertion of Berkeley, that extension and figure have merely an ideal existence, tends to unhinge the whole frame of the human understanding, by shaking our confidence in those principles of belief which form an essential part of its constitution."

What serious consequences from the use of a new phrase! But, if we consider the language of Berkeley as merely a designation of phenomena, his phraseology will be unimportant. We may call extension and figure either ideal existences, or material existences, and our language will mean——What? Just what you see and feel. Our knowledge of phenomena must be identical,

though our language in relation to them may be diverse. If, however, we use language for the purpose of deducing consequences from names, the phraseology is important; but the importance is founded in ignorance of the nature of language.

Again: Mr. Stewart says, "In consequence of the writings of Reid and a few others, the word idea itself is universally regarded as a suspicious and dangerous term; and it has already lost its technical or cartesian meaning, by being identified as a synonime with the more popular word notion."

Here philosophy is improved by simply substituting the word notion for the word idea. But why? Because the verbal consequences which we deduce from the word idea cannot be deduced from the word notion. The change of phraseology is an improvement, because we make an improper use of language. We know not that the meaning of a word fluctuates with the phenomenon to which it refers.

In the system of one philosopher, "ideology is stated to be a branch of zoology, and to have for its object an examination of the intellectual faculties of man and of other animals." Mr. Stewart is startled at this phraseology, and says—"the classification is extraordinary, and it is obviously intended to prepare the way for an assumption which levels men with the brutes."

A very serious effect from a cause so trivial! If philosophers can, with a dash of their pen, level men with brutes, we may account as authentic history the enchantments of Circe. But the most which any writer can accomplish is to transform names. Philosophers may apply to brutes, as well as men, the phrase intellectual faculties;

but the phenomena exhibited by both will not become identical from possessing the same name. Philosophers can extend to quadrupeds the term man, but even this will not level men with brutes; it will level the name only. The phenomena which give significance to the name, will continue distinct and inconvertible.

Whether the earth be named a sphere or a plane is of little consequence, so long as we use the name to designate the phenomena only which are exhibited by the earth; but the name becomes essential, if we employ it to deduce therefrom what our senses cannot discover. Whether two perpendicular poles that may stand before me are parallel, depends entirely on the name by which I designate the earth. If I use the word sphere, the two poles are not parallel, maugre all that seeing and feeling can testify to the contrary; because you can mathematically demonstrate that no two lines perpendicular to the surface of a sphere can be parallel.

The phenomena exhibited by the heavenly bodies are equally apparent to all men; and whether we call them the motion of the heavenly bodies around the earth, or the motion of the earth around its own axis, and around the sun, is unimportant, so long as we employ the words to name the phenomena only which our senses discover: but when we proceed beyond our senses, the phraseology is very important. By adopting the latter phraseology we make all mankind travel, at a giddy velocity, of more than a thousand miles a minute in one direction, and about a thousand miles an hour in another direction. If the phenomena be named the motion of the heavenly bodies, we escape from disturbing the quiescence of the earth; but we unmercifully cause the sun and stars to

travel with a rotation of about twenty-five thousand miles every minute.

Again: if, with Newton, we call the sun a body of fire, the language is harmless, so long as we use it to designate the phenomena merely which the sun exhibits; but if we intend to deduce consequences, the phraseology is essential: thus, as the planet Saturn is ten times further from the sun than our earth, and as fire dispenses heat and illumination in a degree which distance diminishes in a ratio equal to the square of the distance, we enjoy a hundred times more light and heat than Saturn. This piteous conclusion is accordingly predicated of Saturn. The poor inhabitants of that planet are, however, not permitted to exist with these privations only, but more adventurous theorists urge the deductive process further, and prove that water exists among them in solidity only, and consequently they know not the luxury of fish. Humanity must rejoice, that these distressful consequences are avoidable, by the simple contrivance of a late philanthropist, who has extinguished the solar fire, and converted the sun into a radiating fluid, which becomes hot only when it falls on solid bodies. The heat is produced by a combination of the fluid with the bodies on which it falls, precisely as water evolves heat, when thrown on unslaked lime. We need, therefore, no longer wonder why comets are not vitrified. Mercury is made salubrious, and even Herschel a pleasant retreat.

Again: the phenomena exhibited by the barometer and air pump, were formerly reconciled to our operations, by asserting that nature abhors a vacuum. Latterly we say that they are produced by atmospherical pressure. It is immaterial which expression we adopt, so long as we in-

tend to designate the phenomena only ; but the expression becomes important when we design to deduce consequences beyond the phenomena: thus, if a column of water ascends in a vacuum by reason of atmospherical pressure, we can calculate, by the ascended water, the force of the pressure ; and prove that a man of ordinary dimensions sustains a pressure of fourteen tons. This immense burden was first imposed on us about two centuries ago, and it may now be removed if we return to the old phraseology of nature's horror of a vacuum. However, it is better to continue the burden, (as we carry it with great convenience) and it accords with more phenomena than the discarded theory.

I might accumulate deductions which, like the foregoing, depend for their significance on the name by which speculative men designate their premises ; but I have probably produced enough to disclose the principle on which such speculations are founded. Every person may find as many further examples as he desires, for he can resort to no science in which they are not prodigally scattered.

It may be proper to remark that, while I descant so freely on received theories, I do not wish to depreciate their usefulness. My whole object is to illustrate the nature of language. If theories are beneficial to science, it is also beneficial that we should discriminate between theoretical agents and the realities of nature : for example, when we say that water ascends in a vacuum, by means of the pressure of the atmosphere, the word pressure is the theoretical agent by which we account for the ascent of the water. Now, if we would escape from the delusions of language, we must steadily distinguish that

this theoretical agent is wholly different from the feel to which the word pressure is ordinarily applied. The feel is a reality of nature, but the pressure, which is attributed to the atmosphere, is merely verbal. It cannot be felt or seen, nor is it palpable to any of our senses. We see the water ascend in the vacuum, but the pressure, which we say causes the ascent, is merely the verbal machinery by which we account for the ascent.

The word pressure, like every other word, has no invariable signification, nor has it any inherent signification. It is a mere sound, whose signification is governed by the phenomenon to which we attach it. When it is applied to the effort of my hand against this table, it names a feel; and when applied to the ascent of water in a vacuum, it names the ascent. If we suppose it names also some insensible operation of the air on the water, this is merely our theory, which signifies nothing; or rather it signifies all the phenomena to which we refer in proof of the pressure: beyond these the word pressure returns again to its pristine insignificance, as a mere sound.

If we keep in view this distinction between theoretical agents and the realities of nature, we shall at once discover the absurdity of continuing the employment of these agents beyond the uses which they subserve to science. If the attribution of a pressure to air enables us to systematically embody numerous phenomena which are exhibited by the air pump and barometer, &c., the attribution is valuable; but there is no use in continuing the verbal machinery beyond this utility, and in deducing therefrom that every man sustains a pressure of fourteen tons;—a conclusion which I believe is not subservient to

any use, and is therefore only an evidence that the persons who make the deduction are ignorant of the nature of theories, and do not discriminate between the verbal agents of a theory, and the phenomena of nature.

That we may better understand these verbal agents, I will examine the principle which governs us in the selection of them. They are creatures of our own fabrication, as their mutability evinces. At one time we prop up the heavens by the shoulders of Atlas, or support the earth on the back of a tortoise; at another we remove both the props and support, and sustain the earth by attraction and propulsion. The character of all these instruments is alike, though they vary in usefulness. The shoulder of Atlas would be preferable to the attraction and propulsion of Newton, if it would apply consistently to a greater number of phenomena.

I wish then to direct your attention to the principle that governs us in the selection of the verbal agents which we employ in our theories. This shall constitute our next Lecture, lest, by a union of different subjects in the same discourse, the understanding should become perplexed.

LECTURE XI.

In my last Lecture, I showed that theorists deduce consequences from names, without regarding the fact, that names vary in signification with the objects to which they are applied. The word Cæsar, which, in one application, is an emperor; becomes, by another application, a quadruped. Even thus varies the signification of round, when applied to the earth, from what the same word signifies when it designates an artificial sphere.

This error is most effective in the verbal agents with which we construct our theories. The earth's motion around its axis, at the rate of 700 to 1000 miles an hour; and its motion around the sun, at the rate of 58000 miles in the same period, are the theoretical agents by which we account for the phenomena exhibited by the heavenly bodies. Few persons estimate this motion as a word which is significant of nothing but the phenomena that it is applied to elucidate, but they estimate it as possessing

the same signification as when it is applied to the rotation of a coach wheel; and, in despite of their senses, believe that they are travelling at the above velocity, in the same sense as they travel in a stage coach.

This example is sufficiently striking to show that there is no limit to the infatuation by which the deductions from names are confounded with sensible phenomena. The deduction of another theory teaches us that the whole globe, if it could be so crushed as to lose all porosity, would occupy a space no larger than a nutmeg; and, on the contrary, a cubic inch of our atmosphere, if transported five hundred miles from the earth, would be so released from circumambient pressure that it would dilate sufficiently to fill a sphere of more millions of miles in circumference than I can easily enumerate.

In the present Lecture I am to examine the nature of the theoretical agents by which we arrive at such monstrous results—results which the ignorant estimate as the necromancy of learning, and which the learned believe from a misapprehension of the significancy of language.

If we examine our theories, we shall find that the agents employed to effect any object are such as our experience has discovered similarly employed. Every thing falls to the earth by reason of the earth's attraction. But why is attraction the agent? Because we find in magnets that attraction produces similar phenomena. If what is literally named attraction had never been experienced, we should not have attributed it to the earth—we should have employed some other agent.

In a new colony their various necessary utensils are framed of such articles as the region yields. From the absence of more suitable materials, I have seen wooden

latches, wooden wash-bowls and drinking-cups, wooden candlesticks, and even wooden wicks. Theorists are similarly limited in the agents which they employ. Where language is a scanty vocabulary of spontaneous phenomena, the rude philosopher must theorize with the gross agents which surround him. The earth is then supported on the back of an elephant, and the elephant on a tortoise. But why not on a butterfly? Because he refers to his experience of the strength of an elephant, and the endurance of a tortoise. If he finds the channel of a vanished river, he ascribes the disappearance to a mammoth, which, descending from the hills, drained the river at a draught. His deities war against evil spirits with bows and arrows; and the pleasures of a future world consist of hunting, where game is exhaustless; and of fishing, where tempests are excluded.

We smile at theories in which the agents are so crude; and from the numerous phenomena that industry has accumulated for us, we select instruments more subtle. We support the earth by a projection or push, which the earth received at its creation, and by an attraction or pull that is exerted by the sun. But why must the motion have been produced by a push? Because we refer to our operations. Try if you can protrude a billiard ball without some impulse. But why must there be an attraction or pull? Because a push could have moved the earth in a straight line only, and not have driven it round the sun. Why not? Strike a billiard ball and you will discover. You can find a reason in no way but in that or similar experiments.

Formerly earthquakes were caused by the struggles of rebellious giants, whom Jupiter had confined beneath huge

mountains. At a more enlightened period earthquakes were made by subterraneous fires, which, confined within vast caverns, burst into lightning and rent the caverns. After the invention of gunpowder, theorists new-modelled their machinery. Keith* says "Earthquakes are generally supposed to be caused by nitrous and sulphureous vapours enclosed in the earth, and accidentally ignited where there is no vent."

Here, however, arises a difficulty: how is this internal and self-elaborated gunpowder ignited? Ignited we all know it must be, and according to our methods also. Mr. Keith relates the process: "the vapours may take fire by fermentation, or by the accidental fall and collisions of rocks and stones in hollow places of the earth." But why must fermentation or the collision of rocks be the agents, by which the vapour is ignited? Because the theorists know of none more suitable: a simple but a very efficient reason.

Since the discovery of the potency of steam, philosophers have acquired an agent which will probably supercede every other in the production of earthquakes. The new process is thus related in Gregory's Dictionary of Arts and Sciences. "The sudden explosion that occurs from volcanoes, depends probably on the accumulation of a quantity of water which enters through some fissure connected with the sea. If the water is sufficient, it will extinguish the volcano; if not, it will be converted into steam, the expansive force of which exceeds the force of gunpowder."

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* On the Globes P.

How easily we convey water into the depths of the earth! The sea is an inexhaustible reservoir, and a fissure can be made by pronouncing the word. But why must there be a fissure? Because it is the only invention by which you can convey water into the depths of the earth. The process alludes wholly to our operations.

Odours become perceptible by infinitely small corpuscles, that are wafted through the air, and strike our olfactory nerves. Why must the corpuscles be wafted? Because that is a convenient means of bringing them. Can you convey to me yonder feather unless you strike, carry, or blow it? If the odorous corpuscle is either struck or carried, there must be an agent to strike or carry it; but wafting requires the air only, and this is constantly around us.

It is well known, says Mr. Keith, "that the heat of the sun draws vast quantities of vapours from the sea." Why is drawing the agent which the sun employs to raise the vapour? Because there is no better agent. The dictionary of any language contains all the agents which can be predicated by the persons who speak the language. That the vapour cannot be pulled up we know from our experience. The sun may suck or draw it up, for we can also.

Doctor Halley imagines, that the saltness of the sea proceeds from salts which rivers convey to it from the earth. Other persons maintain that the taste is produced by a great number of salt rocks at the bottom of the sea. Now why must salt be the agent? Because you cannot give water a similar taste without the agency of salt. Hereafter chymists may discover some other process by which a salt flavour may be communicated, and then we shall

be able to afford the sea a different agent: why the salt has not been elaborated already in some recesses of the ocean, out of muriatic acid and soda, is a marvel.

To say that heavy bodies fall to the earth because the sun shines, would not be tolerated. What possible connexion, we should exclaim, can exist between the two phenomena. For the same reason, we should laugh at a philosopher who might tell us that bodies fall because the earth attracts them, had we not discovered in magnets that attraction produces what resembles the fall of bodies.

If a philosopher were to account for the fall of bodies, by saying, that matter has an inherent love of matter; we might estimate this a very rational exposition. We experience that love produces a desire of contaction, to which the fall of bodies is sufficiently congruous. I wrote thus far without recollecting, that love has been an agent in theories. Chymists employed it in the composition of bodies. Nitric acid and copper combined, because they had a strong affinity for each other. The acid would leave the copper and unite with iron, because its love for iron is stronger than for copper. A similar principle caused the ancient theory of nature's abhorrence of vacuity.

That the heat of the sun proceeds from combustion, will be the only theory among men who are unacquainted with any other cause of heat; but when we find that chymical combinations, &c. evolve heat, we are possessed of a new agent; and we can say, that the warmth experienced from the sun proceeds from a combination of its beams with the body on which they fall: the warmth is the caloric which escapes from the sun beams, as they pass from a fluid state to a fixed.

Combustion itself was formerly produced by phlogiston, a very subtile and insensible agent which combustible bodies emitted when heated to a certain temperature. This phlogiston was so light, that some bodies became heavier by losing it. When a theory is driven to conclusions so repugnant to our operations, its dissolution is near ;—accordingly, phlogiston had soon to relinquish its agency in combustion, to a more accommodating instrument.

Combustion is now performed by means of oxygen. When combustible bodies arrive at a certain temperature, the oxygen loves to unite with them ; and as it thus passes from the form of air, to a fixed state, it liberates the caloric which distended it, and for which it has no longer any occasion. The deserted caloric scatters indignantly in all directions, and is the heat which we experience.

This theory is congruous to a great number of phenomena, and may never be superseded ; still, like every other theory, it is significant of nothing but the phenomena which are adduced in proof of the theory. That combustibles will not burn without oxygen, that the residuum &c. of burnt phosphorus will acquire, by combustion, as much weight as is lost by the air in which the phosphorus is burnt, and that the remaining air will be devoid of oxygen, are truths which I do not dispute. Still, that the oxygen unites with the phosphorus, and that the heat which ensues is the discarded caloric of the oxygen, are the mere verbal machinery by which we reconcile to our own operations the phenomena which we discover.

Why must the heat which ensues have existed in the oxygen ? Because no other source accords so well with our experience. This is a good reason while it lasts, but

a similar reason may induce us to-morrow to attribute the heat to another cause. The language is truly significant of the phenomena only to which it refers; and with this limitation we can never err, adopt what phraseology we please.

Again: why must the oxygen unite with the phosphorus? Because we can account in no other way so well for the disappearance of the oxygen, &c. Here again the reason is good, and the disappearance of the oxygen will doubtless continue to be thus accounted for, till our experience may furnish us with a more congruous process.

Mr. Beattie, in his Essay on Language, says—"Some of the brute creation alter their voices when the weather is about to change. Is it not likely that their bodies are affected by atmospherical alterations which we cannot perceive; and that they are expressing pleasant or painful sensations, even as an infant when it smiles or cries?"

But why do we make the alterations of the weather a theoretical agent to affect the sensations of brutes? Because we experience such results in ourselves:—the weather affects our corns, old wounds, fractures, &c.

Before the scriptural account of the creation, some of the ancients introduced men into the world by the following process.* "Where the country was suitable, there grew wombs out of the earth, fixed to it by roots." But why fixed to the ground? Why affixed by roots? and why wombs? The whole process shows, and the instruments show grossly, that we have to construct theories with the materials which our operations dictate.

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* Wollaston's Religion of Nature, 158.—Note H.

In Brown's Philosophy,* I find the following:—"The addition of a new sense might probably communicate, in a few hours, more knowledge of matter, than is ever to repay the physical labours of man; disclosing, at perhaps a single glance, the slow revelations of nature, that are singly, and at great intervals, to immortalize future sages."

But why must the instruction be conveyed by a new sense? Because we know of no other agent that can effect the object; hence we have no choice. The information too is to be acquired at a glance. Why at a glance, which is significant of vision only? Because, as we know of no agent which can instruct us but a sense, so we know of no means by which any sense can yield instruction, but by a glance, a touch, a smell, a taste, or a sound: therefore we must select from these the manner in which the new sense is to operate.

Elasticity was anciently explained by saying that elastic bodies are composed of particles which are coiled up like watch springs. Magnetism furnished philosophers with a new agent. The watch springs were dismissed, and every particle of elastic bodies was surrounded by a repulsive power. It would be instructive to trace how theories have been successively new-modelled as discoveries have furnished new agents. Magnetism and electricity have, however, been more fruitful than other discoveries in the supply of theoretical agents. The alternation of the seasons, of day and night, and of the tides, and we might add a vast list of events, from the fall of a sparrow to the projection of a bomb, are effected by magnetic and

* Lecture V.

electrical agents. Magnetism and electricity furnish us with agents, which answer the exigency of our notions better than any other agents; and we accordingly employ magnetic and electrical phenomena with unsparing liberality. Even acids, which long produced their pungency, by puncturing our tongues with the extremely sharp angles that mechanical philosophers gave to the insensible particles of every acid, now borrow their potency from the phenomena of magnetism.

Theories are, however, highly useful. We are at present acquainted with no mode of creating a science, but by embodying facts in some judicious theory. Besides, when certain conclusions are deducible from a theory, we resort to experiments for their realization, and thus many new phenomena are occasionally developed. The experiments made on the mountains Chimborazo and Shehallien, were to discover the attractive power which was deduced from the theory of Newton.

Again: as the attraction of cohesion was affirmed of every body, many efforts to consolidate air have been made with all the faith which could be inspired by an ignorance of the nature of language, and with all the zeal of enlisted opinion. But such experiments are valuable, even when, like the above, they are unsuccessful. To know that air cannot be compressed into solidity, is ascertainable by experiment alone; and the knowledge of what is impracticable is, in utility, only one grade below the knowledge of what is practicable.

Besides, theories enable us to associate phenomena with pleasing illusions. If astronomers had not applied the terms mountains, chasms, lakes, seas, and volcanoes, to the appearances of the moon, they would not have

gazed so intently at that luminary. Newton would probably not have so ardently devoted his great faculties to astronomy, if he had supposed that he was establishing nothing but an ingenuous theory, significant only of the phenomena that he could discern. He doubtless estimated these as the most unimportant part of his knowledge ;—the mere loop-holes by which he was enabled to pry behind the curtain of nature ;—a curtain erected to resist the gaze of vulgar eyes, but pervious to his acute conjectures.

But if theories are merely human contrivances, by which we artificially associate phenomena, and artificially account for their production, what can we know in any particular more than the sights, tastes, feels, sounds, and smells that our senses reveal ? This question is extremely important. It seems also to be misunderstood by every description of persons. We hear constantly the wise and the simple, the learned and the ignorant, propounding questions, without knowing what will constitute a solution ; and investigating phenomena, without knowing when to be satisfied. I shall now undertake to elucidate these points. I have entered on no topic more practically important, and it will constitute a suitable conclusion to the present Lectures. With it, therefore, I shall terminate what, for the present, I have to say on the Philosophy of Human Knowledge. The subject requires a distinct consideration : it will therefore be deferred to a separate Lecture.

LECTURE XII.

MUCH of my life was passed with persons who employed nearly ceaseless interrogatories. Questions, at length, became to me a species of persecution; and I can now scarcely hear one propounded without an impulse towards irritation.

This state of feeling probably led me to reflect on the nature of questions, and I find no subject so little understood. It is a field which is not only ungleaned, but unreaped. Every thing, as yet, stands unmarked by the feet of curiosity, and untrained by the hand of cultivation. Like the eye, which sees every thing but itself, so questions have interrogated the whole universe, with the exception of themselves. To supply this deficiency is, you will recollect, the object of the present Discourse.

In a late gazette a person is introduced who had per-

forated the earth to discover a salt spring. At a given depth he found water, and observed the continued ascent of inflammable air. He solicits philosophers to tell him whether the gas exists naturally at the bottom of his perforation, or is caused by the decomposition of water.

The above inquiry coincides with the opinion which is generally entertained of philosophy. A philosopher is deemed a species of necromancer. He is thought capable of making discoveries without the agency of his senses. He is required to know sights which he never saw, feels which he never felt, &c.; or possibly he is required to announce what is not discoverable by any person; not only what eye hath not seen, but what no eye can see. Notions, in relation to philosophy even so vague, are found, not with the illiterate only, but with the learned; and hence the absurdities which are frequently dignified with the title of philosophy. The whole proceeds from an ignorance of the nature of questions; from not knowing what to inquire after, and what answer to be satisfied with.

I hope you recollect that in the progress of our Lectures I taught that language can effect no more than to refer us to phenomena. This position will enable us to see that every question is insignificant when it does not inquire after some sensible existence. If I should ask what is the shape of a taste, or the colour of a sound? Every person would exclaim against the inanity of the questions; but the only cause of their insignificance is that they inquire after no sensible phenomenon. Every interrogation which possesses a similar defect is equally trifling.

Children employ such questions more frequently than men, and more grossly. In children the practice is deem-

ed an exercise of laudable curiosity by persons who know as little on the subject as children. Such questions are ably ridiculed by Sterne. "By the right use and application of the auxiliary verbs, in which," says he, "a child's memory should be exercised, there is no idea can enter his brain, how barren soever, but a magazine of conceptions and conclusions may be drawn from it, thus: Did you ever see a white bear? Have I ever seen one? Might I ever have seen one? Am I ever to see one? Ought I ever to have seen one? Can I ever see one? If I should see a white bear, what should I say? If I should never see one, what then? Is there no sin in a white bear? Is it better than a black one?"

Sterne proceeds much further than I have copied; and we may find questions equally insignificant in grave speculations. In a work professedly philosophical*, I find the following: "Actors, when they either laugh or weep, affect spectators with the sensations which the drama expresses. But by what mechanism do the vibrations of the fibres of the actor's brain transmit themselves to that of other persons?"

You may think the author is speaking figuratively, and that his literal intention is to direct us to the interesting phenomena which we experience at scenic representations; but nothing is further from the fact. He is soberly asking a question, to which he has duly subjoined an answer that affords proof (if further proof were necessary) that the question was not intended to refer to any sensible phenomenon; hence it differs not from the above ques-

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* Theory of Agreeable Sensations, Chap. IX.

tions propounded by Sterne, or from another of Sterne's questions which I omitted: namely, what if the sun should wander from the zodiac?

A writer, whose name I do not recollect, says, "it is not the ignorant who should ask questions, but the wise." The ignorant can, however, ask questions, but they hazard words which may be insignificant: thus, I may ask what the effect will be if a spark of fire should fall amid gunpowder? The question is significant, not from the collocation of the words, but because they refer to a sensible phenomenon. The same question will become insignificant the moment I refer to no phenomenon. Suppose I ask what the effect will be, if a spark of fire should fall amid the satellites of Jupiter?

When insignificant questions are propounded, it is well to ask the querist what he is inquiring after. In this way I have disconcerted many profound interrogatories. The moment a person knows not what he is inquiring after, his question is assuredly insignificant to himself.

Seeing a shadow on a wall, a person asked me if there was any thing on the wall when he was not looking at it? Certainly: I can see the shadow as distinctly when your eyes are shut as when they are open. But what will become of the shadow when no man has his eyes on it? Precisely what you have named. Will the shadow be on the wall? If you enable me to know what phenomenon you are inquiring after, I can answer your question; but if your question relates to no discoverable existence, it means nothing.

"The little bodies which compose water, are," says Locke, "so loose one from another, that the least force separates them. Nay, if we consider their perpetual

motion, we must allow them to possess no cohesion. But let a sharp cold come, and they will unite and not be separated without great force. He that could make known the cement that makes them adhere so closely, would discover a great and yet unknown secret."

The question is, what cement makes the particles of frozen water adhere together so closely? Admit that some philosopher has discovered this cement, and for convenience we will name it A. "But," continues Locke, "this discovery aids us very little, without he can discover also the bonds which hold together the particles of the cement." Well, grant again that he discovers these bonds also, and for convenience we will name them B. Yet even this will not avail him, unless he discovers the cement which holds together the particles of these bonds; and so he must proceed in infinitum: for every cement must be composed of parts which, equally with the first, will require to be cemented.

Locke adduced the above consequences to shew, that we cannot ascertain the cause which converts water into solidity; but they evince more conclusively, that he was employing language improperly. When you inquire what bonds or cement hold together the particles of water, you can be answered so long as there are sensible phenomena to which the question refers; but the moment the question refers to no phenomenon, it becomes insignificant it is like the idlest prattle of infancy, or the wildest ravings of insanity.

The nature of questions will be better understood by investigating the nature of answers. You will recollect that words can effect no more than to refer us to phenomena; hence no answer can effect more than to refer us

to phenomena. When the Lord answered, from the flaming bush the inquiry of Moses, by saying, " I am that I am," the answer was wonderfully expressive of the nature of language, which, in no instance, can effect more than it did in that. We may say to life, what art thou ? and to death, what art thou ? and we may address a like inquiry to every phenomenon, but language can furnish them with no better answer than, I am what I am. If we would learn more, we must seek it from our senses. They only can afford us information. Every sight, taste, feel, smell, or sound, which an object exhibits spontaneously, or which it can by any art be made to exhibit, is an item of information, whether we dignify it with a name or not ; but all the names that can be invented will not increase our knowledge of phenomena. We may as well attempt to enlarge our family by multiplying the names of our children, as to increase our knowledge of phenomena, by multiplying the words that refer to them.

What is gold ? This question is asked by Locke. I answer, gold is this which you see. But seeing informs me of nothing but the appearance. I want to know what gold is, and not how it looks. It is then this which you touch. But now you teach me how it feels only. I do not seek this information, but rather what it is which I touch. It is gold. But that is merely the name. I want not to know its name, but what that is to which we apply the name. Then I know not what you want, nor do you know. No words will accomplish more than to designate a sight, taste, feel, smell, or sound, and these are not what you desire. Your question is therefore insignificant. It is a process of language, and may be pursued interminably. Let me answer as insignificantly as you inquire,

and tell you that gold is something, say A. You may immediately repeat the question, What is A? It is B. What is B? It is C. What is C? You may proceed thus, not to the end of the alphabet only, but to the end of time; and your last question will be as pertinent as the first, for both are insignificant, if they inquire not after a sensible phenomenon.

That the principle within us which thinks, should in vain ask itself what constitutes thought, is a contradiction, says D'Alembert, which, even in the pride of our reasoning, cannot fail to surprise and confound us.

But what kind of answer is required? Verbal. And here lies the difficulty. Independently of words, nothing can be more easy than to know what thoughts are: they are precisely what we experience. Language can in no way effect more than to refer us to the phenomena. We are ignorant of this simple truth, and therefore perplex ourselves with verbal elucidations.

When we attempt to explain phenomena by the aid of words, we act as unwisely as if we were to teach a child the signification of whiteness, not by directing his eyes to the sight, but by telling him that whiteness is the reflection on his retina of all the coloured rays of light. Language is indebted for its signification to the phenomena to which it refers, but we reverse the principle. We act as if the nature of a phenomenon was governed by the language that we apply to it.

This gross perversion is almost universal. If I should discover a strange substance, the first question with every beholder would be, What is it? It is what you see. This answer would be thought very absurd. No person would be satisfied till some bystander affixed a name to

the new discovery, when the crowd would immediately disperse, and imagine themselves possessed of every requisite information. They would not appear to know that the name is merely a human invention, and that all which gives it significancy is the appearance, feel, and other sensible phenomena which the substance before them exhibits, and which they disregard.

What is a rainbow? What is thunder? What are the winds? What is an earthquake? It never occurs to us that the phenomena themselves are the best explication of these questions, but we immediately resort to a profusion of words. One person will say that a rainbow is a complex idea; another, that it is a reflection of the rays of light from descending rain. You may ask fifty persons what a rainbow is, and each will give a different answer. They will be astonished at each other's ignorance in not knowing what a rainbow is, and they will suspect any thing rather than that their knowledge is alike, and that they differ in language only.

"Our body," says Locke, "possesses the power of communicating motion by impulse, and our soul the power of exciting motion by thought; but if we would inquire how the soul and body produce these effects, we are entirely in the dark."

The difficulty arises from a misconception of the nature of inquiries. If to inquire is to observe phenomena, we act as absurdly in saying we cannot inquire, as a man would who should insist that he cannot walk. When we say to him, you are now walking, he may reply, this is not what I call walking. But what does he call walking? He cannot tell. He knows only that he is unable to walk. He determines that nothing which he can do shall be call-

ed walking; hence nothing will make him admit that he can walk. To inquire, means only to seek all the phenomena which a subject exhibits. We create obstacles by claiming for the process an unknown and occult signification: a signification which we cannot elucidate by any phenomenon. We divest the word inquire of every sensible signification, and then puzzle ourselves with the assertion, that we cannot inquire.

Hume says, "our senses inform us of the colour, weight and consistence of bread; but neither sense nor reason can inform us the qualities which fit it for the nourishment and support of the human body."

So long, however, as the proposition of Hume has any signification, it is untrue. Our senses can discover every phenomenon which is exhibited by bread, therefore they can discover the qualities that fit it for nourishment. To use the word quality insensibly makes the discovery difficult indeed; for we prosecute it under this disadvantage, that nothing which we discover can be the object sought. The very circumstance that our senses discover it being conclusive against it; for the conditions of our search are "that neither sense nor reason can inform us."

A man may insist that he does not know what causes the sweetness of sugar. Do you want to see what causes the sweetness, then the information which you desire is some sight. Perhaps you want to hear what causes sweetness; the information which you wish is some sound. If you desire these, or to smell, feel or taste what causes the phenomenon in question, I can conduct you where you can employ all your senses in analytically or synthetically examining sugar, and the operations which are connected with its production and refinement. If you desire none

of these your question must be insignificant. Language can effect no more than to refer us to phenomena. If you choose to frame a proposition which has no such reference, the words may seem to be significant, but they are divested of signification, and are vacated sounds.

No answer can effect more than to refer us to phenomena, hence when the phenomena themselves can be exhibited, they constitute the most unequivocal reply. How does magnet attract iron? Exhibit the magnet and the iron, and let the querist see the operation; he can receive no reply which will be so authoritative. But he sees the fact only, and not the cause of the attraction. Let him examine further, then, and see every thing that is visible; touch every thing that is tangible, and employ similarly all his senses; if he wants to find what his senses cannot discover, his search is not only fruitless, but it is unmeaning. When he would speak of the object of such a search, language itself fails him; for we may as well attempt to use colours to portray flavours, sounds and odours, as employ words to express what is not a sensible phenomenon. The inability of both cases has the same foundation in nature.

It is laudable to seek the causes of phenomena, but we ought to know when we have succeeded in our search. Practically causes are known by every person, but speculatively by no one. To speak, to move, to sit, to stand, we can all perform unhesitatingly; but if we speculatively inquire into the cause of any of these operations, we confound ourselves with subtleties.

If, however, we seek correctly, there is no more difficulty in discovering speculatively the cause of any phenomenon, than there is in exerting the cause practically.

The speculative cause and the practical one must be identical. To assign a cause that refers to no phenomenon, divests the word of signification. It becomes a vacated sound, a cause minus cause.

What, then, causes the motion of my hand, when I raise it to my head? The effort which I am conscious of making when I raise my hand. Whether this effort has a name or not does not affect the inquiry. We all know how to produce the action, and that which we perform when we produce it, is the cause.

But some person may wish to investigate further. He may ask, what is the cause of this effort which I speak of? But here the investigation becomes verbal only, and may be pursued in infinitum. If we assign any thing, say A, as the cause of the effort, he may immediately repeat his question, what is the cause of A? It is B. And what is the cause of B? and so without end. But there must be an end, if we wish our language to retain any significance: The series must end, when there is no phenomenon to which the word cause can apply.

We may now see more plainly the futility of the question which asked, by what mechanism the vibrations of an actor's brain, are transmitted to the brains of the audience? The cause sought was not intended to be any phenomenon, and the answer agreed with the intention. The writer says, when the motions of the body, the colour of the face, and the directions of the eye, depict the state of our soul, there is in unison a chain which extends to the spectator, and communicates the vibrations of one brain to that of another.

The writer shows extensively how the above can be performed; but I will not quote further from so idle a

speculation. It differs, however, in no essential particular from any effort which essays to employ language for other purposes, than to refer to sensible existences.

Burke inquires similarly, "why visible objects of great dimensions are sublime?" That he was not seeking any sensible phenomenon, we may learn from the answer.—He says, "though all the light reflected from a large body should strike the eye in one instant, yet the large body is formed of a vast number of distinct points, and a ray from each makes an impression on the retina. So, though the image of one point should cause but a small tension of this membrane, yet another stroke, and another, and another, must, in their progress, cause a very great one; till the tension arrives at the highest degree, and the whole capacity of the eye, vibrating in all its parts, must approach to the nature of pain, and produce an idea of sublimity."

Evidently the actors in the above explanation are all verbal personages. The tension of the retina, the reiterated strokes which it experiences, the images which strike, and the vibrations of its parts, are words divested of their sensible signification, and therefore nullified.

Finally, we must steadily remember, that all which Providence has placed in our power, is to record the phenomena that our senses discover. While we keep within this circle, every word is significant. We may investigate causes, and trace effects; propose questions, and receive answers; compound elements, and analyze compounds; but the moment we step beyond this circle, the charm dissolves: the magician and the magic sink together; the universe vanishes, and even language loses all its significance.

I have now completed the first division of what I proposed to say on the Philosophy of Human Knowledge. I have shown, that many phenomena of different senses are so frequently associated, that they are designated in all languages by a single word; and hence we consider phenomena as identical, while the identity exists in language only. These phenomena constitute a large class of existences, and a misunderstanding of this simple ambiguity of language has filled the world with metaphysical disquisitions. As an example of these existences, I would adduce distance, which, though a unity in language, is two distinct phenomena: a sight and a feel. The like may be said of extension, roundness, prominence, &c.

Secondly, I have shown that words are merely sounds, which are indebted for signification to the phenomena only that we, by custom or instruction, apply them to. This seems a very obvious characteristic of words, still we frequently employ them when confessedly there are no phenomena to which they can refer. As a gross instance of this latent sophistry of language, I will say that the air which we are inhaling, and which we deem pure and transparent, is full of scorpions. This sentence is grammatical, and possesses an apparent significance, but the word scorpions, referring to no phenomenon, is nullified. All our learning is corrupted with this error, though, when exhibited in so gross an example as the above, we discover immediately the fallacy.

Thirdly, I have shown that as words have no inherent signification, every word possesses as many significations as it possesses a reference to different phenomena. We all know that when the name George refers to Washington it is dignified and venerated; when it refers to a vagabond

reeling through our streets, it has an entirely different signification. The position when thus applied seems too obvious to need a comment; still, when differently used, it constitutes a sophistry which occupies a large space in speculation.

Fourthly, I have shown that language can effect no more than to refer us to phenomena. To judge from the contents of any library, no truth is so little known. We should rather infer that language can effect every thing but to refer us to phenomena. Why cannot the most elaborate disquisition, the whole vocabulary of the most copious language, teach some sagacious blind person the meaning of the word scarlet? We know the attempt was once made; and when the philosopher thought he had succeeded, the blind person said that scarlet must be like the blast of a trumpet. By why is language inefficient in this particular? Is there any peculiarity in colours? No: the difficulty is in language, which can, in no case, effect more than to refer us to some known phenomenon. Every person knows this truth when it relates to teaching the blind sights, and the deaf sounds; but no person seems to understand it, when he hears a discourse to reveal what exists in the centre of the earth, or what is transacting in the republics of the moon.

Fifthly, I have shown that the only use of argumentation is to convince us that what is sought to be established is included in the premises. Or, in other words, we assent to the verbal proposition that a half is less than a whole, when we understand that the word whole implies that it is more than a half. This plain principle also is grossly overlooked; and the oversight is continually inducing men to waste their strength in vain efforts. They

disregard the acquisition of mere premises, (an acquisition which alone increases knowledge,) and strive to deduce new conclusions, though that is only varying the language in which their knowledge is clothed. By this perversion of effort we increase our knowledge no faster than a merchant would his wealth, who should close his shop, and employ himself in inventing new phrases to express the money which is lying in his till.

I have shown, next, that it is the phenomena to which words refer, that give one word the power of implying another, and that give premises power to command our assent to certain conclusions. For instance, twice two apples make four; a half of an apple is less than the whole apple—are propositions which we assent to, because our knowledge of the phenomena to which the positions refer compel our assent. An ignorance of the source of this compulsion, has filled the world with the most fantastic conclusions. Men suppose that their assent to such propositions has no relation to phenomena: hence they say, if a half of an apple is less than a whole, the half of an insensible atom must be less than a whole. They pursue this process, and keep halving the halves as long as fancy suggests; and they suppose that each conclusion is significant and irresistible.

This constitutes one of the most subtle errors which language has betrayed us into, and I have investigated it at an unusual length. I have shown that it governs us in the construction of theories, and that it is the principal reason of the great solicitude expressed by theorists to define the names by which they denote the objects of their speculations. If they call one of the fixed stars a sun, it decides immediately that it is the centre of some group of

worlds, whose invisibility adds only to the sublimity of the speculation.

Lastly, I have shown that all which Providence has placed within our grasp, is the sights, tastes, feels, sounds, and smells that our senses reveal to us; that we cannot even ask a significant question unless it refers to these, and every answer is insignificant that has not a similar reference.

What I have to say further concerning the Philosophy of Human Knowledge, may with propriety constitute a separate division: but before I adventure on it, I would fain know whether I can excite interest or convey information. I am too well aware of the insidiousness of self-love, to be satisfied with my own suggestions, and too painfully conscious of the depression of timidity, to retract without an effort. What I have advanced is not the fugitive offspring of a sudden intention, but the slow and painful product of contemplative years. If I have wholly mistaken my abilities, it is time I was undeceived. To the public, then, I confide the question; and though I have no reason to expect a favourable decision, a failure will at least save me from perseverance in a fruitless undertaking.

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